

Prince Mohammad Bin Fahd University

COLLEGE OF ARCHITECTURE AND DESIGN

UNDERGRADUATE PROGRAMS

PREFACE

The *Undergraduate Architecture and Design* outlines the degree programs for students wishing to pursue undergraduate degree programs in Architecture, Interior Design, and Graphic Design within the College of Architecture and Design at Prince Mohammad Bin Fahd University (PMU).

The integrated institutional structure is based on the North American model of education with English as the language of instruction. The degree programs also contain a number of individual courses and subject areas that must be mastered by every student. Distinguishing characteristics of PMU, which will set the university apart from existing institutions in the Kingdom of Saudi Arabia (KSA), include a pervasive use of technology in its learning environment and a commitment to a set of six competencies and learning outcomes that will be integrated throughout the curriculum in a developmental manner.

The College of Architecture and Design accepts successful male and female students from the PMU Preparation Program. The classroom experience for students in the College of Architecture and Design is highly student-centered, interactive, and communicative. Courses combine theoretical content with practical and laboratory experience. The curricula are designed to be accredited by National Architectural Accrediting Board (NAAB), Council for Interior Design Accreditation (CIDA) and Schools of Art and Design (NASAD) all of which require a balanced program of general education, technical classes, and design courses.

While students completing degrees at the PMU could certainly continue on to graduate studies, the main emphasis in the architecture and design programs is on the preparation of graduates for employment. Graduates from the College of Architecture and Design will be self-directed, motivated, technically competent professionals with strong communication skills, capable of effective teamwork and leadership.

This volume presents the academic program structures within the College of Architecture and Design and establishes the relationship between the degree program offerings within the college and the distinguishing PMU competencies.

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COLLEGE OF ARCHITECTURE AND DESIGN

UNDERGRADUATE PROGRAMS

I. EXECUTIVE SUMMARY

This report *College of Architecture and Design Programs* outlines the degree programs for students wishing to pursue undergraduate degree programs in Architecture, Interior Design, and Graphic Design within the College of Architecture and Design at Prince Mohammad Bin Fahd University (PMU).

The integrated institutional structure is based on the North American model of education with English as the language of instruction. The degree programs also contain a number of individual courses and subject areas that must be mastered by every student. Distinguishing characteristics of PMU, which will set the university apart from existing institutions in the Kingdom of Saudi Arabia (KSA), include a pervasive use of technology in its learning environment and a commitment to a set of six competencies and learning outcomes that will be integrated throughout the curriculum in a developmental manner.

The College of Architecture and Design will accept successful male and female students from the PMU Preparation Year Program or other qualified students into degree programs in architecture and design. The classroom experience for students in the College of Architecture and Design will be highly student-centered, interactive, and communicative. Courses will combine theoretical content with practical and laboratory experience. Syllabi will include techniques for students to develop communication, teamwork, and leadership skills as part of an overall strategy for achieving the PMU core competencies. The curricula are designed to be accredited by National Architectural Accrediting Board (NAAB), Council for Interior Design Accreditation (CIDA) and Schools of Art and Design (NASAD) all of which require a balanced program of general education, technical classes, and design courses.

While students completing degrees at the PMU could certainly continue on to graduate studies, the main emphasis in the architecture and design programs is on the preparation of graduates for employment. Graduates from the College of Architecture and Design will be self-directed, motivated, technically competent professionals with strong communication skills, capable of effective teamwork and leadership.

This report presents the academic program structures within the College of Architecture and Design and establishes the relationship between the degree program offerings within the college and the distinguishing PMU competencies. The degree programs of the College of Architecture and Design include:

- **Bachelor of Science in Architecture**
- **Bachelor of Science in Interior Design**
- **Bachelor of Science in Graphic Design**

II. PROGRAM DEFINITION

A. Overview

The PMU College of Architecture and Design will be dedicated to recruiting the highest caliber students, retaining them through guidance and direction, and graduating degreed designers who will compete and be recognized both locally and in a global society. To further fulfill this mission, an ongoing and active recruitment program will be carried out to attract faculty and staff who will not only be recognized nationally for their expertise, but also for their ability to impart to students the most needed skills to function in a competitive work environment.

The PMU College of Architecture and Design will be comprised of the following academic units:

- Department of Architecture
- Department of Interior Design
- Department of Graphic Design

These basic level programs will be designed to give the student an understanding of the fundamental principles underlying architecture and design as well as architecture and design practice. Each curriculum will contain core curriculum courses designed to develop a solid foundation in mathematics, science, and physics, with a general background in social and behavioral sciences. Building on this background, the architecture and design courses will provide application of basic theories and principles using predesign processes that lead to studio solutions of complex design problems.

Laboratory facilities in the College of Architecture and Design will be equipped to facilitate learning. In these labs, students will become familiar with the instruments, procedures, and processes employed by industry. Computer laboratories will be available for students' use throughout their course of study. In addition, every student will be required to have their own laptop computer.

B. Vision and Mission

1. Vision

The College of Architecture and Design at PMU will offer a unique and distinguished education that prepares future leaders, innovators, and creative global citizens in the professions of Architecture, Interior Design and Graphic Design. To address the fundamental and grand challenges of achieving economic, ecological, social, and aesthetic design solutions, its graduates will apply research-informed design and innovative technology.

2. Mission

The PMU College of Architecture and Design and its faculty will provide education for future leaders and innovators in the professions of Architecture, Interior Design and Graphic Design, create new knowledge about the built environment and design, provide resources for lifelong learning, and serve the Kingdom of Saudi Arabia by increasing the quality of the environment of its communities and positively impact its economic prosperity.

C. Goals

The PMU College of Architecture and Design will have the following objectives:

- To increase the pool of qualified Saudi Arabian architects, interior and graphic designers.
- To provide students in the University's service region a high quality architecture, interior design or graphic design education that equips them for professional employment and/or licensure in the local, national, and international job markets.
- To enable graduates to navigate and accommodate cultural differences and provide leadership across international boundaries to address important challenges and opportunities.
- To equip graduates with principles and knowledge to enable them to adapt to rapidly changing technologies and to become leaders and entrepreneurs in the fields of Architecture, Interior Design and Graphic Design.

III. ADMINISTRATION AND FACULTY

A. College Administration

The College of Architecture and Design will fall under the authority of the Vice Rector of Academic

Affairs and will be administered by the Dean of the College of Architecture and Design.

The College of Architecture and Design will be responsible for the organization and administration of three degree programs:

- Bachelor of Science in Architecture
- Bachelor of Science in Interior Design
- Bachelor of Science in Graphic Design

B. Departmental Administration

1. Departmental Organization

Responsibility and authority for the daily operation of the three degree programs will lie in the following departments:

- The Department of Architecture will be responsible for the operation, administration, and management of the architecture degree program, with its degree-specific and elective requirements.
- The Department of Interior Design will be responsible for the operation, administration, and management of the interior design degree program, with its degree-specific and elective requirements.
- The Department of Graphic Design will be responsible for the operation, administration, and management of the graphic design degree program, with its degree-specific and elective requirements.

In each department, a Chair will oversee administration of the program and instruction of male students with a commensurate Associate Chair for female students. Interior Design may be the exception to this with a Chair for female students until the program is offered for male students.

2. Departmental Responsibilities

The departments within the College of Architecture and Design will set the tone for the entire college, including the relationships among faculty, students, and potential employing organizations. Smoothly run operations, therefore, will be essential to the success of the program. The department will be responsible for:

- Appropriate academic advising for students. The department will strive to provide academic advising to students on an individual basis in order to determine the most appropriate course of study.
- Tutoring and remediation. In cooperation with the PMU Learning Resources Center, the faculty of the college will create tutoring and supplementary instructional programs to assist students who need extra assistance with academic programs or study skills. (A detailed discussion of such offerings and the organization that will provide them is included in the report *Learning Resources Center*.)
- Maintenance and development of the curriculum. The department will manage continuous curriculum review and improvement. This function will be primarily the responsibility of the professorial faculty.
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- Provision of course materials to students. Each student should be provided with all course materials by the program administration. These materials will include: textbooks, cases, articles, and in general any readings that the students are expected to prepare. Providing these materials will ensure that all students will receive the same material, will protect the copyrights of the material, and will be an added benefit to the students.
- Maintaining the class calendar. The calendar for each class of entering students will be published and followed from the first day of each academic semester. This calendar will show class meeting dates. It also will let students know in advance the dates for which they must prepare materials.
- Evaluation of faculty. The department will be responsible for the development of policies and procedures for the evaluation of faculty that both inform and expand the university's policies on faculty evaluation. Each department will be responsible for providing appropriate data and information to the College of Architecture and Design and to the university as required.

C. Faculty Selection

1. Subject Area Faculty

a. Responsibilities

Faculty assigned to teach in the departments will have the primary teaching responsibilities for the college's academic courses. These will include selecting texts, preparing course syllabi, planning in-class team activities, constructing student assessments, preparing examinations, keeping grade records, supervising laboratory sessions, and holding regular office hours.

For all text materials, whether print or electronic, the instructor will ensure that the class uses the most recent edition. This is particularly important with electronic materials, which in many cases are updated and changed frequently.

b. Degrees and Experience

The faculty should hold a doctoral degree in the discipline in which they teach. They also should possess a minimum two years of teaching experience at the college level. Masters' degree holders with at least 18 graduate semester hours in the discipline in which they teach may be allowed, at the discretion of the Dean of the College of Architecture and Design and the chair of the academic department involved.

For all faculty, preference will be given to persons who possess prior experience in teaching in cooperative and collaborative learning environments.

c. English Language

All faculty must have achieved proficiency in the English language. Preference will be given to faculty who are either native English speakers or have achieved native-level proficiency as demonstrated by a band score of 8.0 or higher on the IELTS, with minimum component test scores of at least 7.5 (or equivalent score on a comparable exam).

d. Student-Centered Approach

PMU faculty who teach in the college will work closely with the staff of the Teaching Development Center to develop and improve their assessment skills. They also will work with faculty from the colleges of information technology and business administration as well as interdepartmentally to assist in building and assessing the distinctive competencies that the PMU wishes its students to acquire.

In all faculty activities, willingness to undertake professional development activities necessary to learn

how to implement student-centered cooperative and collaborative methodologies, therefore, will be a necessity, along with sensitivity to Arab culture.

e. Student/Faculty Ratio

In order to enhance opportunities for class participation and individual attention, the student/faculty ratio in the College of Architecture and Design classes and labs will be kept as low as possible.

The College will maintain a maximum student/faculty ratio of approximately 15:1, especially in studio classes. It will establish a general class size maximum of 30 students for any single non-studio class. Consistent with NAAB accreditation requirements, lower-level architecture design studios should be restricted to no more than 16 students and upper-level studios should be restricted to no more than 14 students in order to ensure appropriate level of instructor-student interaction in each studio. The department will further work to ensure that the largest classes are distributed across the faculty to minimize inequalities in workload.

IV. STUDENT ENROLLMENT

The character and quality of students entering the College of Architecture and Design will define the quality of the degree programs within the college. Therefore, it is important that students be properly qualified to enter their chosen discipline and that they fulfill all of the admission requirements.

Admissions to the College of Architecture and Design will be open to students who have completed the PMU Preparation Year Program or who have met the university criteria for bypassing the program.

A. Admissions Process and Requirements

1. Required Courses in the Preparation Year Program

The PMU Preparation Year Program (as described in the report *Preparation Program Design*) concentrates on English language, mathematics, and study skills and learning strategies. English language, study skills, and the first semester math course, PRPM 0011: Introductory Algebra, are required of all students. However, during the second semester of mathematics, students have a choice of two tracks, depending on their desired major in the college.

- Students seeking entrance to the Department of Architecture and Design will be required to pass PRPM 0022: Pre-Calculus, during the second semester of the Preparation Year Program.
- Students seeking entrance to the Department of Interior Design or Graphic Design will be required to pass PRPM 0012: Intermediate Algebra or higher, during the second semester of the Preparation Year Program.

2. Application for Admission

Upon completion (or waiver) of the Preparation Year Program, students will make application to the college in which they wish to study. This application will include:

- Preparation Year Program Certificate of Completion
- PMU placement test results
- Interview with the college
- Essay on a topic assigned by the college

A detailed discussion of admissions requirements and procedures is contained in the report *PMU Admissions Plan*.

B. Performance Expectations

The College of Architecture and Design will require minimum standards of academic performance from its students. Using a 4.0 scale for course grades, the College of Architecture and Design will require that students maintain minimum grade point averages (GPA) for various categories of courses consisting of:

- 2.0 GPA in courses from the PMU Core Curriculum
- 2.0 GPA in all degree-specific courses (courses from the Core Curriculum that students must take beyond the minimum requirement)
- 2.5 GPA in all courses within the major academic discipline

A student who receives a D (1.0) or F in any course will be required to repeat the course and to achieve the required grade point average for that category of course. In the case of an elective, another elective may be selected. These students will be required to participate in tutoring and remediation programs offered by the college faculty and the PMU Learning Resources Center. (See Section III. B. 2, Departmental Responsibilities, above).

Students may repeat a course one time, with additional repeats allowed at the discretion of the faculty. However, no more than 10 repeated courses will be allowed over the student's career at the PMU. After the first repeat, prior grades will count toward the student's GPA. For example: A student who receives a D followed by an A will have the D erased and replaced with the A on the transcript. A student who receives an F followed by a D followed by an A will have the F erased, and both the D and the A will be averaged into the GPA.

In order to graduate, all students at the PMU will be required to maintain an overall GPA of 2.0.

C. Graduation Requirements

1. Overview of requirements

The basic requirements for the Bachelor of Science degree are different for each major in the college. See individual department requirements for specifics.

2. Future Changes to Requirements

Architecture and Design are rapidly changing professions. Departmental curricula, therefore, will be updated continuously to keep pace with these changes. Students entering the College of Architecture and Design will be required to comply with such curriculum changes in order to earn their degree.

However, the total number of semester hours required for the degree will not be increased, and all work completed in accordance with the academic program prior to the curriculum change will be applied toward the student's degree requirements. Courses that are modified or added to a curriculum and incorporated into the curriculum at a level beyond that at which a student is enrolled may become graduation requirements for that student. Courses that are incorporated into the curriculum at a level lower than the one at which the student is enrolled will not be required for that student.

V. ASSESSMENT AND CONTINUOUS IMPROVEMENT

To meet the needs of today's technological world, the PMU College of Architecture and Design will place a great deal of emphasis on learning outcomes. Courses and methods of instruction will concentrate on what students learn, rather than what teachers teach.

A. PMU Core Competencies

Each of the degree programs within the College of Architecture and Design will maintain values consistent with the undergraduate goals of the university. The development of six distinctive competencies (discussed in detail in the report *Undergraduate Core Curriculum*) is considered to be of value to all effective professionals. The six PMU defining competencies are:

- Communication
- Technological Competence
- Critical Thinking and Problem Solving
- Professional Competence
- Teamwork
- Leadership

These six learning outcomes are intended to ensure that PMU students also will possess professional skills as well as the knowledge required for mastery of the theoretical structures and methodologies of academic disciplines. The PMU competencies will further enhance the student's ability to function effectively as a practitioner and scholar in a selected field.

D. Individual Program Outcomes

Since each program has its own accreditation body and process, their program outcomes differ based on those requirements. See departmental program learning outcomes under the specific department.

C. The Assessment Process

Each program in the College of Architecture and Design will conduct an assessment process that produces documented results. This process will demonstrate that the outcomes important to the mission of the college and the objectives of the program are being accomplished. The evidence of the assessment will consist of the following:

- **Student Portfolios:** In order to demonstrate progress, students will keep a portfolio of their tests, papers, design reports, and other course assignments. The portfolio will be evaluated at various stages in the course.
- **Alumni Surveys:** The college will survey a sample of alumni every two years to document professional accomplishments and career development activities.
- **Employer Surveys:** The college will survey employers of PMU graduates to determine how the graduates are performing and to obtain suggestions for improvement.
- **Student Surveys and Exit Interviews:** The college will survey graduating students concerning their likes and dislikes in their education. The department chairman also will interview students in order to gather information about their experience and suggestions for improvement.
- **Placement Data of Graduates:** The college will maintain placement data of all students in order to determine each professional field's need for graduates.
- **Metric Norms for Learner Outcomes:** The college will assess outcomes for each course by establishing metric norms that students should meet on their examinations and in their reports.

VI. THE EDUCATIONAL EXPERIENCE

A. Technology Infused Environment

Information technology will be central and critical to all degree programs in architecture, interior de-

sign and graphic design. This will be especially true at the PMU, where technology competencies are a hallmark of the successful student and a technology-infused environment is a distinguishing characteristic of the university.

In the College of Architecture and Design, the quality of access to technology will be a primary determinant in the quality of the educational experience of the student and the eventual professional competence of its graduates. The universal availability of technology resources at all points on the university campus and from outside the campus through Internet-based resources will have a major impact on learning and the learning experience.

1. Technology and the Classroom

Access to technology within the classroom will be a necessary component of the degree programs within the College of Architecture and Design. Faculty and students involved in classroom presentations will have access to modern presentation technology connected to university computing and library resources as well as to the Internet. Facilities recommended for “smart” classrooms are discussed in the report *PMU Infrastructure Specifications*.

2. Student Computing Requirements

Like all other students at the PMU, students within the College of Architecture and Design will be required to have personal laptop computers. They will have access to the university-wide technology-infused environment including wireless Internet access.

However, students in the college will have specific computing requirements that extend beyond the standard Microsoft Office applications of a typical laptop. Many of these specific computing requirements will be available through the university’s technology infrastructure to students’ laptop computers. Others will be provided through general access and specialized computer laboratories.

Technologies such as interactive television, video conferencing and BLACKBOARD or WebCT will be central to maintaining effective communication between faculty and students and among students. The College of Architecture and Design will make extensive use of these resources. The college also will provide for student-oriented discussion through instant messaging and online discussion groups. Technology will enable students to directly submit materials, assignments and examinations, and to receive efficient communication of grades and faculty instructions.

The majority of major textbook publishers today provide electronic supplements to their books. Many of the textbooks recommended for the degree programs in the College of Architecture and Design include such supplements, which the instructor may choose to use as appropriate.

B. The Classroom Experience

The College of Architecture and Design will make full use of specific classroom characteristics that reflect the defining characteristics of the university. These characteristics will include:

- A technology-infused classroom experience.
- A practical and hands-on orientation to the curriculum, including many studio-based classes.
- A curriculum that values teamwork through the use of group assignments and studio-based projects.
- A curriculum that values student communication through classroom-based presentations by students and the ensuing class discussions.
- A curriculum that values formative self-assessment.

These characteristics will be implemented through specific formative and summative assessment requirements as described in individual syllabi.

E. Required Studio, Laboratory and Resource Facilities

1. Studio and Work Spaces

- a. Studio space for each student will include drawing desk and chair or stool, power outlet for computing, Wi-Fi or cabled network, lighting that is appropriate for a computer-based workspace and task lighting that is appropriate for hand-based drawing.
- b. Labs/studios will include tools and resources for the display of physical artifacts in each class session and to a department-wide audience. Each classroom will be equipped with display walls with proper display lighting and adequate viewing space, as well as digital projection or display capabilities. Stands will be provided for the display of models. A gallery will be provided for display to the entire department of mid-term or end-of-term exhibits.
- c. The classroom will be equipped to project images and videos at a large size, provide for recording of lectures and discussions, and provide audio performance to facilitate discussions.
- d. Since the Architecture studio spaces will be similar to the spaces required for Interior and Graphic Design, the space configurations from TIEC for IDES reflect what sizes are necessary for the new program. The requirements are:
 - i. The best learning environment for architecture and design studio courses requires that each student have their own workspace. Each workspace should be in an “L” configuration.
 - ii. Workspaces should have one work surface for drawing, measuring 0.8 meters deep x 1.5 meters wide. It should have another work surface for a laptop computer measuring 0.5 meters deep x 0.6 meters wide. The total workstation for each student therefore should measure 1.5 meters x 1.4 meters, or 2.1 square meters. With space added for circulation, this area will be comparable to that allocated for science labs in the Core Curriculum, labs in the College of Engineering, and computer labs throughout the university.
- e. Ergonomic task chairs will be required. All workstations must have adequate electrical supply (one duplex outlet). Computer connectivity can be accommodated through the PMU wireless network.
- f. Much learning in architecture, interior and graphic design studios occurs by students teaching other students. Therefore all design studios should be adjacent to and open to one another and studios should be adjacent to a spacious shared space with a large table for collaborative work. Students should have their own desks, flat files, and metal storage cabinets.
- g. Spread among the individual studio spaces should be informal areas for conferences and critiques. These spaces should be equipped with movable tables and chairs to seat 18 students (equivalent to one studio class), a projection screen, and at least 4.9 linear meters of vertical surface for pinning up materials for display. One conference / critique space for every four studios will be sufficient.
- h. At least two non-studio classrooms (for about 40 students) should include moveable tables and chairs to accommodate group work in a lecture setting. Multi-media audio/visual (A/V) capabilities should be included with high definition (HD) projection. Whiteboards and at least 4.9 linear meters of vertical surface for pinning up materials for display for in class critique are required as well. Adequate power supply for laptop use is also essential.
- i. Based on an enrollment of 380 students per department, the preceding facilities description will require three times the approximate total space described in the table below for each campus. It should be noted that this description does not include space allocations for faculty offices, administrative offices, storage, or a computer / printing / scanning lab.

Space Description	Square Meters	Quantity	Total Square Meters
Student Workstations	2.1	180	378
Conference/ Critique Space	35	5	175
Resource Center	65	1	65
Subtotal			618
Plus 35% circulation			216.3
Total Square Meters			834.3

2. Various Laboratories

Various laboratories will be available for architecture students' use throughout their course of study to support activities such as computing, fabrication, and building performance testing. These laboratories will be maintained and periodically updated to conform to professional standards for performance and capability. Special capabilities include large format printers, computer numerically controlled (CNC) manufacturing devices such as laser cutters and multi-axis mechanical cutters, 3D printers, multi-axis robotic devices, virtual reality (VR) resources, augmented reality (AR) resources, and digital sensor and control resources.

a. Computer Laboratories

1. Computer and printing labs should provide high-end graphics-oriented engineering design computers, virtual reality headsets and projection rooms, and large format color printers.
2. Lab exercises will be conducted in a computer lab equipped with networking and large screens for presentations. It is expected that students will provide their own workstations, although, alternatively, high-end desktop workstations that exceed the power of laptop computers could be provided for student use.
3. Courses will also utilize several software packages including:
 - i. ESRI's ArcGIS suite, also known as geographic information systems (GIS); the suite includes the following components:
 - ArcMap for desktop
 - Arc Catalog
 - Arc Scene
 - ii. Autodesk programs: AutoCAD, 3DS Max, Revit, Autodesk Entertainment Creation Suite and 3D Printing, and any other relevant program
 - iii. Apple Pro Applications - with annual update
 - iv. MS Office
 - v. Sefira: an early design stage analysis tool, available at: <http://sefira.com/>
 - vi. Autodesk Insight: a tool for simulating building energy and environmental performance. Insight works as a plugin for Autodesk Revit. Available at: <https://insight360.autodesk.com/oneenergy>
 - vii. Climate Consultant 6: Freeware for the analysis of climate conditions and human thermal comfort. Can be downloaded from: <http://www.energy-design-tools.aud.ucla.edu/>
 - viii. eQUEST 3.65 (the Quick Energy Simulation Tool): Freeware for the simulation of whole building energy use. Software download from: <http://doe2.com/equest/index.html>
 - ix. Several graphic design and design visualization tools, including Adobe Photoshop, Adobe InDesign, and Adobe Illustrator. Students will use digital cameras and scanners to develop original material for their projects. A color printer will also be required.
4. The computer lab for the Graphics Design program must be equipped with the latest Macintosh and Windows PC workstations with high-speed Internet connections and peripherals that support the installation of the following design-related capabilities:
 - Flatbed and film scanning
 - Digital tablet and stylus use
 - Green screen and lighting equipment
 - Wide-format color printers
 - A/V high-definition projectors
 - Digital still and digital video cameras
 - Digitizing tablet devices
 - Multimedia authoring
 - Non-linear video editing

In addition, the computer lab must provide students with hands-on experience and advanced skills for creating digital and print-based work for UI/UX design, drawing, photography, video, 3D modelling, sound editing, digital 3D printing, web and open source projects

3. Materials and Resource Libraries

- a. Graphic Design students to have access to computer-aided tools, software, and digital equipment. The graphic design facilities therefore will have state-of-the-art digital media spaces and resource rooms for preparing student portfolios and framing, a student lounge, a digital photography studio, an A/V projects studio, and a display or gallery space. This area, which can be maintained and administered by the Department faculty and staff, will offer graphic design students a professional-grade working environment.
- b. Architecture and interior design students must have access to current samples and information concerning building materials and processes (such as finishes, fabrics, and catalogs of furniture, lighting, or construction materials). This space is required by CIDA for IDES accreditation. The design instructional area therefore will have its own materials / resource room. This area, which can be maintained and administered by the department faculty and staff, should include a comprehensive range of product information and samples. This resource should be centrally located in the building and easily accessible to all design studios. The organization system of the Construction Specifications Institute (CSI) is the most common procedure for cataloging and laying out such a resource room.

4. Fabrication Shop

The fabrication shop will include a full complement of woodworking, metalworking and concrete casting machine and hand tools. It will also include CNC equipment, such as laser cutters, 3-axis cutting machines for sheet stock and panel stock such as routers and waterjet cutters and high-axis milling machines for wood and metals.

- Introduction to woodworking in the fabrication shop
- Introduction to metalworking in the fabrication shop
- Introduction to casting in the fabrication shop
- Introduction to CNC cutting machines in the fabrication shop
- Introduction to 3D printing in the fabrication shop
- Prototyping the design project to test assembly in the fabrication shop
- Manufacture of components of the structure in the fabrication shop

5. Field Laboratory

- a. The field lab is for erection of structures as part of courses. It may be located on a reserved site on the PMU campus, or it may be on a site away from campus.
- b. Erection of the structures designed as a term project will take place in the field laboratory

D. Internships and Co-Operative Education Program

1. Close Working Relationship with Industry

The PMU College of Architecture and Design will have a strong relationship with industry in the Eastern Province of the KSA. To facilitate this relationship, the Dean of the College of Architecture and Design will maintain an Industrial Advisory Board (IAB) composed of practicing architects, interior and graphic designers. The IAB will have 7 to 10 members, a number which has been found to be effective at similar institutions. Each department within the college also will have an IAB composed of 5 to 7 practitioners. The IAB boards will advise the college on the programs' educational objectives, curriculum, and fund raising activities. The boards will help provide co-operative jobs or summer internships for students during sophomore and junior years.

2. Internships for PMU Architecture and Design Students

Students will be encouraged to pursue internships during the summer months at private companies where they can gain experience in their major field. A summer internship will provide practical experience without prolonging the time required for graduation. Students will work 320 hours for 3 credit hours toward their degree.

VII. DEGREE PROGRAMS

Each degree program in the PMU College of Architecture and Design will differ in length of program and credits required. See the individual programs for specifics.

A. Program Components

Each of the degree programs offered within the College of Architecture and Design will consist of five components.

- General Education Requirements. These requirements for the University Core Curriculum and College Core Curriculum include 51-53 credit hours of courses in PMU core competencies, communications, Arabic Language and Islamic Studies, physical education, mathematics, laboratory science, and social and behavioral sciences.
- College of Architecture and Design Requirements for Architecture and Interior Design. These are eleven courses totaling 31 credit hours that are common to both the architecture and interior design degree programs in the College of Architecture and Design. They represent a base of knowledge that is presumed for all built environment professionals or are combined advanced electives. The courses within the College of Architecture and Design that meet these requirements are designated with the prefix COAD. The COAD courses include the following:
 - COAD 1311: Design Studio I- Fundamentals
 - COAD 1312: Hand Drawing and Rendering Techniques
 - COAD 1313: Design Studio II- Fundamentals
 - COAD 1314: Construction Documents and Detail Drawings
 - COAD 2251: Digital Design I - Computer Aided 2D Drawing
 - COAD 2252: Digital Design II - Computer Aided 3D Modeling and Rendering
 - COAD 2332: Environmental Psychology for Design
 - COAD 3322: Building Codes and Universal Design
 - COAD 3341: Built World Design History and Theory I
 - COAD 3342: Built World Design History and Theory II
 - COAD 3353: Digital Design III – BIM
 - COAD 4333: History of Islamic Design (Elective)
 - COAD 4351: Built World Photography (Elective)

These common COAD courses will be administered by the Dean of the College of Architecture and Design. A specific department in the college will be named by the Dean to maintain and administer each COAD course, and faculty from the three departments will be assigned by the Dean to teach these classes depending on their expertise.

- Degree Program Requirements. Each degree program will have unique course requirements that apply to the degree major and that also differentiate the program from other majors within the College.
- Electives. Each degree program will identify the available electives and any constraints that will apply to the selection and scheduling of electives.

B. Capstone Series

The PMU Core Curriculum includes a series of three required assessment courses. The series begins in the sophomore year with ASSE 2111: Learning Outcome Assessment I and continues in the junior year with ASSE 3211: Learning Outcome Assessment II. The series culminates in the senior year with a final capstone design course individualized to each department.

The programs in the College of Architecture and Design schedule the final capstone course as a group of two courses that will integrate pre-design material and practical studio experience that will culminate in a comprehensive capstone design project that requires a full year of design work.

VIII. PROGRAM MAJORS

A. ARCHITECTURE CURRICULUM

1. Overview

The Department of Architecture will accept successful male and female students from the PMU Preparation Year Program or other qualified male and female students into degree programs in Architecture. The classroom experience for Architecture students will be highly student-centered, interactive, project-centered, and communicative. Courses will combine theoretical content with practical and design studio experience. Course syllabi include techniques for students to develop skills in communication, teamwork, and leadership as part of an overall strategy for achieving the PMU core competencies.

The curricula are designed to be accredited by the National Architectural Accrediting Board (NAAB), which requires competencies in leadership and collaboration, design, professional opportunity, stewardship of the environment, and community and social responsibility. Student performance criteria within PMU address critical thinking and representation; building practices, technical skills and knowledge; integrated architectural solutions; and professional practice.

While students completing architecture degrees at the PMU could certainly continue to graduate studies, the main emphasis in the architecture program is on the preparation of graduates for employment and licensing as professional architects. Graduates of the Department of Architecture will be self-directed, motivated, technically competent professionals with strong design skills, communication skills, capability for effective teamwork, and leadership.

2. Program Components

2.1 Overview

The PMU Department of Architecture will be dedicated to recruiting the highest caliber students, retaining them through guidance and direction, and graduating individuals eligible for becoming licensed architects who will compete and be recognized both locally and globally. To further fulfill this mission, the Department will carry out an ongoing and active recruitment program to attract faculty and staff who will be recognized not only for their expertise, but also for their ability to impart to students the most needed skills to function in a competitive global work environment.

The Architecture curriculum described in this report includes the PMU Core Curriculum courses designed to develop a solid foundation in mathematics, natural and physical sciences, and social and behavioral sciences. The design studio component of the Architecture curriculum will provide the student with methods and techniques for the solution of environmental, social, and technological problems. A distinctive focus of the Architecture program at PMU will be the integration of technolo-

gy into a research-informed design process.

Studio courses in the Department of Architecture are intended to promote a strong design culture within a context of project-based learning. In these studios, students will become familiar with the procedures, processes, analyses, tools, representation, and communication methods employed by professional architects. Various laboratories will be available for students' use throughout their course of study to support activities including computing, fabrication, and building performance testing. In addition, every student will be required to have a laptop computer.

2.2 Mission and Vision

2.2.1. Mission

The PMU Department of Architecture and its faculty will provide education for future leaders and innovators in the architecture profession, create new knowledge about the built environment, provide resources for lifelong learning, and serve the KSA by increasing the quality of the environment of communities.

2.2.2. Vision

The Department of Architecture at PMU will offer a unique and distinguished education that prepares future leaders, innovators, and global citizens in the profession of architecture. To address the fundamental and grand challenges of achieving economic, ecological, social, and aesthetic communities, its graduates will apply research-informed design and innovative technology.

2.3. Program Need and Target Audience

Expanding populations, rapid urbanization, and increasing wealth in the KSA have led to a booming architectural and construction industry. In the past, much of the design and construction has been performed by overseas firms. The current trend and ambition is to expand participation and leadership in architecture, design, and construction among KSA nationals. The PMU architecture program will provide opportunities primarily for KSA citizens to gain knowledge, skills, abilities, and credentials that enable them to participate fully in the building industry both in the KSA and globally.

The architecture program at PMU will offer a Bachelor of Architecture degree using a five-year curriculum to comply with requirements of the National Architectural Accrediting Board (NAAB) in the U.S. Typically under NAAB requirements, students who earn a four-year degree in architecture are expected also to earn a Master of Architecture degree that is typically two years in length. There is only one such Master of Architecture degree offered in the KSA, at Dar El Hekma University, an all-female institution in Jeddah. This program is planned to open in the fall of 2018. All current undergraduate programs in the KSA are five-year programs.

2.4 Program Characteristics

The PMU architecture program will be distinguished from other programs by several hallmarks.

The PMU program will focus upon two contemporary trends in architectural education and practice: 1) intensive focus on technology, especially digital technology, and 2) research-informed design and practice that is grounded in scientifically rigorous evidence.

Typical of architecture programs, the PMU architecture program will rely heavily upon studio courses that employ a project-based learning method. However, a distinguishing factor in the PMU program's design studios is the reliance upon "integrated studios" that employ team teaching and student teams to collaboratively solve problems. Teams of instructors will be composed of individuals with distinctive specialties, enabling them to require students to make design decisions that optimize performance with respect to multiple disciplines.

These program characteristics are expected to enable graduates of the PMU architecture program to gain employment in leading architectural firms and contribute to architectural design projects that are globally exemplary.

2.5 Program Objectives and Learning Outcomes

The PMU Department of Architecture will have the following objectives:

1. To increase the pool of qualified Saudi Arabian architects.
2. To provide students in the University's service region a high quality architecture education that equips them for professional employment and licensure in the local, national, and international job markets.
3. To enable graduates to navigate and accommodate cultural differences and provide leadership across international boundaries to address important challenges and opportunities.
4. To equip graduates with principles and knowledge to enable them to adapt to rapidly changing technologies and to become leaders and entrepreneurs in the field of architecture.

Learning outcomes of the PMU Architecture program fully include the distinctive PMU core competencies required of every student and focus them on the field of architecture. Learning objectives will be aligned with those documented in the NAAB accreditation standards. These include knowledge and abilities in the following four areas:

- Critical thinking and representation
- Building practices, technical skills, and knowledge of architecture and building
- Integrated architectural solutions
- Professional practice

In addition, particular areas of focus in the PMU architecture program will include:

- Technology for architectural design and construction
- Research-informed design process.

Recognizing that accreditation standards change periodically, the PMU Department of Architecture will conduct ongoing reevaluations of the curriculum to continue alignment with the accreditation standards.

Specific program learning outcomes are based on NAAB requirements as well as the special characteristics of the Architecture program at PMU.

2.5.1 Architecture Program Learning Outcomes

Students will be able to:

- LO 1 Employ critical thinking and representation to ideate, design and present innovative and feasible built environments.
- LO 2 Demonstrate technical documentation skills as well as operate technology used for architectural design and construction.
- LO 3 Recognize the relationship of cultural differences, social and political influences, limited resources, and human behavior with the built environment.
- LO 4 Produce built environments that demonstrate competency in barrier-free or universal design, knowledge of International Green Construction Codes and application of International Building Codes.
- LO 5 Describe, analyze and produce projects that employ the principles of building practices and

demonstrate knowledge of architectural systems, materials and construction.

LO 6 Synthesize multifaceted variables into integrated architectural solutions.

LO 7 Identify and apply business principles needed for the professional practice of architecture.

LO 8 Use research-informed design processes.

3. Administration and Faculty

3.1 Departmental Administration

3.1.1. Departmental Organization

Responsibility and authority for the daily operation of the architecture degree program will lie in the Department of Architecture, with the full involvement of the faculty in all matters regarding curriculum. The Department will be responsible for the operation, administration, and management of the degree program, with its degree-specific and elective requirements. A Department Chair will oversee administration of the program and instruction of students.

3.1.2. Departmental Responsibilities

The Department of Architecture will play a key role in helping define the culture and standards for the proposed College of Architecture and Design, including the relationships among faculty, students, and potential employing organizations. Smoothly run operations, therefore, will be essential to the success of the program. Specifically, the Department will be responsible for:

- *Academic advising for students.* The Department will strive to provide academic advising to students on an individual basis to determine the most appropriate course of study.
- *Tutoring and remediation.* In cooperation with the PMU Learning Resources Center, the faculty of the Department of Architecture will create tutoring and supplementary instructional programs to assist students who need extra assistance with academic programs or study skills.
- *Maintenance and development of the curriculum.* The Department will manage continuous curriculum review and improvement. This function will be primarily the responsibility of the professorial faculty.
- *Provision of course materials to students.* Each student should be provided with all course materials by the program administration. These materials will include: textbooks, cases, articles, and in general any readings that the students are expected to prepare.
- *PMU-provided technology:* The Department will provide students with assigned desks equipped for drafting, laptop computer, and appropriate software for architectural design. In addition, the Department will provide access to technology such as large format full color printing, 3D printing, laser cutting, 2D scanning, 3D scanning.
- *Student-provided technology:* Each student will provide his or her own laptop computer. For a discussion of individual technology requirements, see this report's section 6.1.2. Student Technology Requirements.
- *Supplying materials will ensure that all students receive the same material,* will protect the copyrights of the material, and will be an added benefit to the students.
- *Maintaining the class calendar.* The calendar for each class of entering students will be published and followed from the first day of each academic semester. This calendar will show class meeting dates and locations. It also will let students know in advance the dates for which they must prepare materials.
- *Evaluation of faculty.* The Department will be responsible for the development of policies and procedures for the evaluation of faculty that both inform and expand the University's policies on faculty evaluation. The Department will be responsible for providing appropriate data and information to the College of Architecture and Design (or, later, to the College of Architecture and Design) and to the University as required.
- *Conducting faculty search for hiring.* The Department, primarily the professorial faculty, will

be responsible for defining advertisements, conducting searches, interviewing applicants, and identifying applicants for hire.

- *Promotion, tenure, and retention review.* The Department, primarily the professorial faculty, will be responsible for defining criteria for promotion, granting tenure, and retaining faculty, and reviewing faculty with respect to the criteria.

3.2. Faculty Selection

3.2.1. Subject Area Faculty

A. Responsibilities

Faculty who teach in the Department of Architecture will have the primary teaching responsibilities for the Department's academic courses. These will include selecting texts, preparing course syllabi, planning in-class team activities, constructing and conducting student assessments, preparing and conducting examinations, keeping grade records, supervising laboratory sessions, and holding regular office hours.

For all text materials, whether print or electronic, the instructor will ensure that the class uses the most recent edition. This is particularly important with electronic materials, which in many cases are updated and changed frequently.

B. Degrees and Experience

The faculty at the professorial level should hold a doctoral degree in the discipline in which they teach. They also should possess a minimum two years of teaching experience at the college level. Masters' degree holders with at least 18 graduate semester hours in the discipline in which they teach may be allowed, at the discretion of the Dean of the College of Architecture and Design and the Chair of the Department of Architecture, to assist in laboratory instruction.

Instructors may be hired in temporary positions (for less than one year contracts) who have particular expertise in architectural practice who hold at a minimum a bachelor of architecture degree and a master's degree in architecture or other discipline in the built environment.

For all faculty, preference will be given to persons who possess prior experience in teaching in cooperative and collaborative learning environments.

C. English Language

All faculty must have achieved proficiency in the English language. Preference will be given to faculty who are either native English speakers or have achieved native-level proficiency as demonstrated by a band score of 8.0 or higher on the IELTS, with minimum component test scores of at least 7.5 (or equivalent score on a comparable exam).

D. Student-Centered Approach

PMU faculty who teach in the architecture program will work closely with the staff of the Teaching Development Center to develop and improve their assessment skills. They also will work with faculty from other departments to assist in building and assessing the distinctive competencies that the PMU wishes its students to acquire.

In all faculty activities, willingness to undertake professional development necessary to learn how to implement student-centered cooperative and collaborative methodologies, therefore, will be a necessity, along with sensitivity to Arab culture.

E. Student: Faculty Ratio

In order to enhance opportunities for class participation and individual attention, the student: faculty ratio in the Department of Architecture design studios and courses will be kept as low as possible.

The Department will maintain a maximum student/faculty ratio of approximately 16:1. It will establish a general class size maximum of 30 students for any single non-studio class. Consistent with NAAB accreditation requirements, lower-level design studios should be restricted to no more than 16 students and upper-level studios should be restricted to no more than 14 students in order to ensure appropriate level of instructor-student interaction in each studio. The department will further work to ensure that the largest classes are distributed across the faculty to minimize inequalities in workload.

Certain introductory courses may be taught via large lectures or a combination of large lectures and smaller sections. Calculus courses will be taught via a combination of large lectures and smaller recitation sections.

3.2.2. Assessment Capstone Design Faculty

Certain faculty within the Department of Architecture will be assigned to teach the Capstone Series. These faculty should have advanced degrees and adequate practice experience.

As with subject-area faculty, these faculty members will be responsible for selecting texts, preparing course syllabi, planning in-class team activities, constructing and conducting student assessments, keeping grade records, supervising laboratory sessions, and holding regular office hours.

For an overview of the Capstone series, see this report's section 7.3. *Capstone Course Components*.

4. Student Enrollment

The character and quality of students entering the Department of Architecture will define the quality of the degree program. Therefore, it is important that students be properly qualified to enter the discipline and that they fulfill all admission requirements.

Admissions to the Department of Architecture will be open to both male and female students who have completed the PMU Preparation Year Program or who have met the University criteria for bypassing the program.

Because of the primacy of studio courses in the PMU Architecture curriculum, admissions numbers and enrollment should be managed in units of approximately 16 students.

4.1. Admission Process and Requirements

4.1.1. Required Courses in the Preparation Year Program

The PMU Preparation Year Program concentrates on English language, mathematics, study skills, and learning strategies. English language, study skills, and the first semester math course, PRPM 0011: Introductory Algebra, are required of all students. However, during the second semester of mathematics, students have a choice of two tracks, depending on their desired major at the university.

Students seeking entrance to the Department of Architecture will be required to take PRPM 0022: Pre-Calculus, during the second semester of the Preparation Year Program.

4.1.2. Application for Admission

Upon completion (or waiver) of the Preparation Year Program, students may apply for admission to the Department of Architecture. The application may include:

- Preparation Year Program Certificate of Completion
- PMU placement test results
- Interview with the Department
- Portfolio of design or other creative work. The portfolio shall be a booklet that contains primarily graphic material supplemented by written text to illustrate the level of mastery of graphic and written communications and potential for creative and innovative work in architecture.

4.2 Performance Expectations

The Department of Architecture will require minimum standards of academic performance from its students. Using a 4.0 scale for course grades, the Department will require that students maintain minimum grade point averages (GPA) for various categories of courses consisting of:

- 2.0 GPA in courses from the PMU Core Curriculum
- 2.5 GPA in all courses within the major academic discipline

A student who receives a D (1.0) or F in any course will be required to repeat the course and to achieve the required grade point average for that category of course. In the case of an elective, another elective may be selected. These students will be required to participate in tutoring and remediation programs offered by the college faculty and the PMU Learning Resources Center.

Students may repeat a course one time, with additional repeats allowed at the discretion of the faculty. However, no more than 10 repeated courses will be allowed over the student's career at the PMU. After the first repeat, prior grades will count toward the student's GPA. For example: A student who receives a D followed by an A will have the D erased and replaced with the A on the transcript. A student who receives an F followed by a D followed by an A will have the F erased, and both the D and the A will be averaged into the GPA.

In order to graduate, all students at the PMU will be required to maintain an overall GPA of 2.0.

4.3 Graduation Requirements

4.3.1 Overview of requirements

The basic requirements for the Bachelor of Architecture degree will be 163 semester hours of academic work. Students will begin accumulating these credit hours following completion of the non-credit Preparation Year Program. The student will typically require ten semesters to complete the credit-bearing course work.

A candidate for a degree from the Department of Architecture must meet the departmental requirements in fulfilling the Bachelor of Architecture degree plan and must satisfy the university's 53 credit-hour Core Curriculum requirements.

It is the candidate's responsibility to ensure that all degree requirements are met.

4.3.2. Future Changes to Requirements

Architecture is a rapidly changing profession. Similarly, NAAB accreditation requirements for architectural programs are periodically reviewed and are likely to change. Departmental curricula, therefore, will be updated continuously to keep pace with these changes. Students entering the Department of Architecture will be required to comply with such curriculum changes in order to earn their degree.

However, the total number of semester hours required for the degree will not be increased, and all work completed in accordance with the academic program prior to a curriculum change will be applied toward the student's degree requirements. Courses that are modified or added to a curriculum and incorporated into the curriculum at a level beyond that at which a student is enrolled may become graduation requirements for that student. Courses that are incorporated into the curriculum at a level lower than the one at which the student is enrolled will not be required for that student.

5. Assessment and Continuous Improvement

To meet the needs of today's technological world, the PMU Department of Architecture will place a great deal of emphasis on learning outcomes. Courses and methods of instruction will concentrate on what students learn, rather than what teachers teach.

5.1. PMU Core Competencies

The Bachelor of Architecture degree program will maintain values consistent with the undergraduate goals of the University, including the development of a distinctive set of competencies considered to be of value to all effective professionals.

The six original core competencies established when PMU was founded address what the University's graduates will need to know, and what they must be able to do, in order to be successful in their chosen fields and to contribute to the development of their community and the Kingdom. These six PMU Competencies are:

- **Communication:** The ability to communicate effectively in both English and Arabic in professional and social situations.
- **Technological Competence:** The ability to use modern technologies to acquire information, communicate, solve problems, and produce intended results.
- **Critical Thinking and Problem Solving:** The ability to reason logically and creatively to make informed and responsible decisions and achieve intended goals.
- **Professional Competence:** The ability to perform professional responsibilities effectively in both local and international contexts.
- **Teamwork:** The ability to work effectively with others to accomplish tasks and achieve group goals.
- **Leadership:** The ability to be informed, effective, and responsible leaders in family, community, and the Kingdom.

Since the original design of PMU was completed, two additional competencies have been included in the University's list. These are:

- **Globally Connected:** The ability to respect all cultures and understand religious and ethnic customs that shape the opinions and actions of others from different backgrounds.
- **Conflict Resolution:** The ability to control emotions, behavior and nonverbal communication, and to maintain a healthy response to conflict such as recognizing and responding to important matters, a readiness to forgive, and a belief that resolution can support the interest and needs of both parties.

While the original six competencies are addressed in specially designed courses, the two new competencies are to be addressed as components of either new or existing courses offered by each of the University’s academic disciplines. The Department of Architecture addresses these competencies in its degree program as described in the following table:

Competency	Courses Covering
<p>Communication</p>	<ul style="list-style-type: none"> • COMM 1311: Written Communication • COMM 1312: Writing and Research • COMM 2311: Oral Communication • COMM 2312: Technical and Professional Communication <p>10 of the 29 courses offered by the Department of Architecture are designed to build competencies in communication</p>
<p>Technological Competence</p>	<p>18 of the 29 courses offered by the Department of Architecture are designed to build technological competence. Principal among these are:</p> <ul style="list-style-type: none"> • COAD 2251: Digital Design I - Computer Aided 2D Drawing • COAD 2252: Digital Design II – Computer Aided 3D Modeling and Rendering • COAD 3353: Digital Design III: BIM • Upper level ARCH studios all contain rigorous technological requirements • ARCH 4354 Simulation and Optimization • ARCH 5375 Computational Modeling and Simulation • ARCH 5372 Building Energy Use Modeling and Simulation
<p>Critical Thinking and Problem Solving</p>	<ul style="list-style-type: none"> • UNIV 1212 Critical Thinking and Problem Solving <p>24 of the 29 courses offered by the Department of Architecture are designed to build competence in critical thinking and problem solving.</p>
<p>Professional Competence</p>	<p>20 of the 29 courses offered by the Department of Architecture are designed to build professional competence. Principal among these is:</p> <ul style="list-style-type: none"> • ARCH 5363 Professional Practice and Ethics • UNIV 1211 Professional Development and Competencies
<p>Teamwork</p>	<ul style="list-style-type: none"> • UNIV 1213 Leadership and Teamwork <p>12 of the 29 courses offered by the Department of Architecture are designed to build competence in teamwork.</p>
<p>Leadership</p>	<ul style="list-style-type: none"> • UNIV 1213 Leadership and Teamwork <p>13 of the 36 courses offered by the Department of Architecture are designed to build competence in leadership</p>
<p>Globally Connected</p>	<ul style="list-style-type: none"> • COAD 3341: Built World Design History and Theory I • COAD 3342: Built World Design History and Theory II • COAD 4334: History of Islamic Design • ARCH 4371: Contemporary Materials in Architecture and Design • ARCH 5363: Professional Practice and Ethics • ARCH 5373: Sustainable Housing and GeoDesign • GEGR 1311: World Regional Geography__ • HIST 1311: World Civilizations 1500-Present

Conflict Resolution	<ul style="list-style-type: none"> • PSYC 1311: Introduction to Psychology_ • HIST 1311: World Civilizations 1500-Present • ARCH 4362: Construction Process and Building Economics <p>Also included in various courses. *See statement following.</p>
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**The nature of all studio courses and some of others address “Conflict Resolution,” as students will learn how to both give and receive criticism in a positive manner in critiques of design projects. Students will also learn to listen to, understand and empathize with clients, all of which are necessary skills for successful practicing architects.*

The faculty of the department will provide an environment in which these core competencies are both recognized in their importance to the degree program and actively pursued within each course. The manner in which each course will contribute to these competencies is described in the syllabus for the course. Syllabi for the program curriculum appear in Section 8. Course Syllabi, of this report.

The Architecture curriculum especially will stress the skills of critical thinking, problem solving, teamwork, and leadership. These are important skills that all students must have as they enter the architectural profession.

5.2. NAAB Accreditation Requirements

In addition to the eight distinctive PMU core competencies, the Department of Architecture will satisfy the accreditation requirements of the National Architectural Accrediting Board (NAAB), an accreditation organization centered in the United States comprising state architectural accrediting boards as well as participating accrediting boards of other nations. Most registration boards in the individual states require a degree from an accredited professional degree program as a prerequisite for professional licensure. The NAAB recognizes three types of degrees for accreditation: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture.

A NAAB accredited degree program must demonstrate that each graduate possesses the knowledge and skills defined by the Student Performance Criteria (SPC). The knowledge and skills defined by SPC represent those required to prepare graduates for the path to internship, examination, licensure, and practice in architecture and related fields. An accredited degree program must provide student work as evidence that its graduates have satisfied each criterion.

This report presenting the PMU Architecture program summarizes NAAB requirements as of its writing, but requirements may change. The faculty of the Department must monitor the publications of the NAAB and alter courses to maintain compliance as requirements change.

The criteria encompass two levels of accomplishment:

- *Understanding*: The capacity to classify, compare, summarize, explain, and/or interpret information.
- *Ability*: Proficiency in using specific information to accomplish a task, correctly selecting the appropriate information, and accurately applying it to the solution of a specific problem, while also distinguishing the effects of its implementation.

The NAAB establishes SPC to help accredited degree programs prepare students for the profession while encouraging education practices suited to the individual degree program. The SPC are organized into “realms” to facilitate understanding of the relationships among criteria.

Realm A: Critical Thinking and Representation

Student learning aspirations for this realm include

- Being broadly educated.
- Valuing lifelong inquisitiveness.

- Communicating graphically in a range of media.
- Assessing evidence.
- Comprehending people, place, and context.
- Recognizing the disparate needs of client, community, and society.

Realm B: Building Practices, Technical Skills, and Knowledge

Student learning aspirations for this realm include

- Creating building designs with well-integrated systems.
- Comprehending constructability.
- Integrating the principles of environmental stewardship.
- Conveying technical information accurately

Realm C: Integrated Architectural Solutions

Student learning aspirations for this realm include

- Comprehending the importance of research pursuits to inform the design process.
- Evaluating options and reconciling the implications of design decisions across systems and scales.
- Synthesizing variables from diverse and complex systems into an integrated architectural solution.
- Responding to environmental stewardship goals across multiple systems for an integrated solution.

Realm D: Professional Practice

Student learning aspirations for this realm include

- Comprehending the business of architecture and construction.
- Discerning the valuable roles and key players in related disciplines.
- Understanding a professional code of ethics, as well as legal and professional responsibilities.

5.3. The Architecture Assessment Process

The Department of Architecture will conduct an assessment process that produces documented results. This process will demonstrate that the outcomes important to the mission and objectives of the program are being accomplished. The evidence of the assessment will consist of the following:

- *Student portfolios:* In order to demonstrate progress, students will keep a portfolio of their design projects, research papers, and other course material and assignments. The portfolio will be evaluated at various stages during the program, including but not limited to the required PMU assessment courses: ASSE 2111: Learning Outcome Assessment I, ASSE 3211: Learning Outcome Assessment II, and ASSE 4311: Learning Outcome Assessment III (ARCH 5327 & ARCH 5628 Capstone Series).
- *Achieving and maintaining NAAB accreditation:* The Department of Architecture will pursue, achieve, and maintain NAAB accreditation for the Bachelor of Architecture program. Achieving and maintaining this accreditation will demonstrate that the program is adhering to the educational objectives discussed in this report's section 5.2. *NAAB Accreditation Requirements.*
- *Alumni surveys:* The Department will survey a sample of alumni every two years to document professional accomplishments and career development activities.
- *Employer surveys:* The Department will survey employers of PMU architecture graduates to determine how the graduates are performing and to obtain suggestions for improvement.
- *Student surveys and exit interviews:* The Department will survey graduating students concerning their likes and dislikes in their education and their perception of their own competence. The Department Chair also will interview students in order to gather information about their experience and suggestions for improvement.
- *Placement data of graduates:* The Department will maintain placement data of all students in order to determine each professional field's need for graduates.
- *Metric norms for learner outcomes:* The Department will assess outcomes for each course by

establishing metric norms that students should meet on their examinations and in their reports.

6. The Educational Experience

6.1. *Technology-Infused Environment*

Technology is central and critical to a Bachelor of Architecture program. This will be especially true at PMU, where technology competencies are a hallmark of the successful student and a technology-infused environment is a distinguishing characteristic of the University.

In the Department of Architecture, the quality of access to technology will be a primary factor in determining in the quality of the educational experience of the student and the eventual professional competence of its graduates. The universal availability of technology resources at all points on the PMU campus and from outside the campus through Internet-based resources is expected to have a major impact on learning and the learning experience.

6.1.1. *Technology and the Classroom*

Access to technology within the classroom and design studios is a necessary component of the PMU Architecture program. Faculty and students involved in classroom presentations will have access to modern presentation technology connected to University computing and library resources as well as to the Internet. Facilities recommended for “smart” classrooms are discussed in the 2004 report *PMU Infrastructure Specifications*.

6.1.2. *Student Technology Requirements*

TIEC recommendations appear below and on the following pages. It should be noted, however, that hardware and software capabilities change rapidly and should be revised annually.

Personal laptops

Like all other students at PMU, students within the Department of Architecture will be required to have personal laptop computers. They will have access to the University-wide technology-infused environment including wireless Internet access. The Department will develop and revise specifications for student computers to assure that the computers are appropriate to the graphics and analysis performance needs of a design professional.

However, students in the Department will have specific computing and other technology requirements that extend beyond the standard Microsoft Office applications of a typical laptop. Many of these specific computing requirements will be available to students’ laptop computers through the University’s technology infrastructure. Others will be provided through general access and specialized computer laboratories.

Hardware

Laptop configurations for PMU Architecture students

Hardware Component	Minimum	Recommended
Processor	Intel i5 dual core or AMD equivalent	Intel i7 quad core or AMD equivalent
Memory	8.0 GB	16.0 GB with expansion space or 32 GB
Hard drive	250+ GB 7200RPM	256+ GB SSD
Video card (1)	1 GB NVIDIA Quadro or AMD FirePro	2GB or more NVIDIA Quadro or AMD FirePro
Screen size (2)	13 inch	14-17 inch
Networking (Wireless)	802.11 a/g/n	802.11 a/g/n
Networking (Wired)	10/100 Ethernet	10/100/1000 Ethernet
Peripheral connectivity	USB 2.0	USB 3.0
Warranty	3 year	5 year + accidental damage (# of years should match program length - minimum)

Because several applications used in the curriculum are available only for the Windows operating system, Apple users will but require Parallels emulator for Windows to run Windows on their Apple hardware. As a result, the Department of Architecture should strongly urge students to purchase Windows-based PC laptops rather than machines running the Mac OS.

PMU also should encourage students to adopt high performance computers.

Software

Given variations in software packages and the frequent introduction of new software versions, the Department of Architecture should recommend that students wait to purchase applications until after they have had the opportunity to consult with their instructors about exactly what they will need and when they will need it.

Computing laboratories

Various laboratories will be available for architecture students' use throughout their course of study to support activities such as computing, fabrication, and building performance testing. These laboratories will be maintained and periodically updated to conform to professional standards for performance and capability. Special capabilities include large format printers, computer numerically controlled (CNC) manufacturing devices such as laser cutters and multi-axis mechanical cutters, 3D printers, multi-axis robotic devices, virtual reality (VR) resources, augmented reality (AR) resources, and digital sensor and control resources.

Communication technology

Technologies such as interactive television, video conferencing and BLACKBOARD course management software will be central to maintaining effective communication between faculty and students and among students. The Department of Architecture will make extensive use of these resources. The University also will provide for student-oriented discussion through instant messaging and online discussion groups. Technology will enable students to directly submit materials, assignments and examinations, and to receive efficient communication of grades and faculty instructions.

Electronic books

The majority of major textbook publishers today provide electronic supplements to their books. Some of the textbooks recommended for the PMU Architecture program include such supplements, which the instructor may choose to use as appropriate.

6.2. The Design Studio Experience and Studio Culture

Students and faculty in the Department of Architecture thrive within a studio and learning culture specific to their shared creative work. This studio culture is based on the following principles:

- Lifelong learning
- Responsibility to contribute to the studio environment
- Collaboration and dialogue
- Pursuit of excellence
- Being present
- Discipline
- Respect for the environment and for others in the community

The Department of Architecture will make full use of specific design studio and classroom characteristics that reflect the defining characteristics of the University. These characteristics will include:

- A technology-infused and research-informed classroom experience
- A practical and hands-on orientation to the curriculum, including many laboratory-based classes
- A curriculum that values teamwork through the use of group assignments and laboratory-based projects
- A curriculum that values student communication through classroom-based presentations by students and the ensuing class discussions
- A curriculum that values formative self-assessment

These characteristics will be implemented through specific formative and summative assessment requirements as described in individual syllabi.

6.3. Teaching Methods and Strategies

The global culture of architectural education relies heavily upon project-based learning as embodied in the design studio courses. Assignments in design studios require a student to react to an initial problem statement through independent actions to gather relevant information and act creatively to produce well-documented and well-argued solutions.

Projects can be relatively short, such as a charrette that requires merely hours to complete, or they can be relatively long, perhaps several weeks, an entire semester, or even multiple semesters.

Assigned projects may be couched as individual projects, ensuring that students can demonstrate their individual knowledge and ability, or as team projects that cultivate the ability to work collaboratively and to be accountable to team mates.

Studio projects typically culminate in production of extensive sets of drawings (often displayed as posters with high standards of graphic presentation), physical models, written text, and digital media to express not only the product of the investigation but also the process to illustrate the basis for key decisions. The studios fulfill a role of directly engaging students in integrating knowledge from many fields and synthesis of knowledge into original products.

A hallmark of architecture education at PMU will be the enhancement of design studios to employ collaborative integrated studios. These courses will involve teams of students and faculty in extended projects that coordinate activities in non-studio courses to help students bridge from knowledge and skills learned in the non-studio courses with the creative synthesis objectives of studio courses.

In addition to studio courses, other courses will focus upon acquisition of foundational knowledge through courses with larger enrollment and more reliance upon lectures, and development of understanding through discussion-oriented seminars.

7. The Degree Program

The Bachelor of Architecture degree program at PMU will consist of a minimum of 163 semester credit hours taken over a five-year (ten semester) period in conformity to standards typical of American universities.

7.1. Overview of Program Components

The Bachelor of Architecture program consists of three components totaling 163 credit hours:

General Education Requirements. These requirements for the University Core Curriculum and College Core Curriculum include 53 credit hours of courses in PMU core competencies, communications, Arabic Language and Islamic Studies, physical education, mathematics, laboratory science, and social and behavioral sciences.

Degree Program Requirements. The Bachelor of Architecture program will have unique course requirements that apply to the degree major. Once the College of Architecture and Design is established, these courses also will differentiate the program from other majors within the College. A total of 110 credit hours in Architecture is required for the program including 49 credit hours of design studios and 61 credit hours of other COAD or Architecture courses.

Electives. The Bachelor of Architecture program will identify the available electives and any constraints that will apply to the selection and scheduling of electives. A total of 12 credit hours of electives, including 9 hours of professional electives and 3 hours of free electives, are required for the program.

7.2. Architecture Program Components

These requirements for the Bachelor of Architecture degree consist of 110 credit hours of coursework in architecture. These courses are divided into the following categories:

- Foundation Classes (12 credit hours & shared with other COAD majors):
 - COAD 1311: Design Studio I- Fundamentals
 - COAD 1312: Hand Drawing and Rendering Techniques
 - COAD 1313: Design Studio II- Fundamentals
 - COAD 1314: Construction Documents and Detail Drawings
- Design Studios (37 credit hours):
 - ARCH 2421: Design Studio III- Architectural Design
 - ARCH 2422: Design Studio IV- Integrated Architectural Design
 - ARCH 3523: Design Studio V- Architectural Design
 - ARCH 3524: Design Studio VI- Integrated Architectural Design
 - ARCH 4525: Design Studio VII- Architectural Design
 - ARCH 4526: Design Studio VIII- Integrated Architectural Design
 - ARCH 5327: Design Studio IX- Capstone Project Programming
 - ARCH 5628: Design Studio X- Architectural Capstone

- History and Theory of Architecture (6 credit hours & shared with IDES majors):
 - COAD 3341: Built World Design History and Theory I
 - COAD 3342: Built World Design History and Theory II
- Materials, Structure, and Environmental Systems (18 credit hours):
 - ARCH 2341: Principles of Design with Climate
 - ARCH 2342: Materials and Methods
 - ARCH 3343: Principles of Structural Systems
 - ARCH 4344: Introduction to Environmental Systems
 - ARCH 4345: Architectural Structures
 - ARCH 4346: Integrated Hybrid Environmental Systems
- Professional Courses (18 credit hours with 6 shared with IDES):
 - COAD 2332: Environmental Psychology for Design
 - COAD 3322: Building Codes and Universal Design
 - ARCH 4361: Preparing the Project Brief
 - ARCH 4362: Construction Process and Building Economics
 - ARCH 5363: Professional Practice and Ethics
 - ARCH 4365: Internship
- Digital Technology Courses (10 credit hours with 7 shared with IDES majors):
 - COAD 2251: Digital Design I: 2D
 - COAD 2252: Digital Design II: 3D
 - COAD 3353: Digital Design III: BIM
 - ARCH 4354: Simulation and Optimization

Degree Electives: The Bachelor of Architecture degree program will require 9 semester credit hours of professional electives to be taken from elective courses.

- COAD 4333: History of Islamic Design (shared with IDES)
- COAD 4351: Built World Photography (shared with IDES)
- ARCH 4371: Contemporary Materials in Architecture and Design
- ARCH 5372: Building Energy Use Modeling and Simulation
- ARCH 5373: Sustainable Housing and GeoDesign
- ARCH 5374: Advanced Design Visualization
- ARCH 5375: Computational Modeling and Simulation

7.3. Capstone Course Components

The PMU Core Curriculum includes a series of three required assessment courses. The series begins in the sophomore year with ASSE 2111: Learning Outcome Assessment I and continues in the junior year with ASSE 3211: Learning Outcome Assessment II. In the four-year PMU degree programs, the series culminates with a final course, typically in the second semester of the senior (fourth) year: ASSE 4311: Learning Outcome Assessment III. In the five-year architecture program, ASSE 4311 is replaced by a Capstone sequence in the fifth year. The Architecture Capstone program sequence consists of two classes: the first-semester ARCH 5327: Design Studio IX- Capstone Project Programming and the second-semester ARCH 5628: Design Studio X- Architectural Capstone.

Students in these courses are expected to develop an independent design project that demonstrates their ability to creatively integrate conceptual material and practical experience.

7.4. Program Curriculum Plan

The designated ten-semester course sequence appears on the following pages.

FIRST YEAR PROGRAM – ARCHITECTURE CURRICULUM					
FIRST SEMESTER			SECOND SEMESTER		
Course Number	Course Title	Credit Hours	Course Number	Course Title	Credit Hours
COMM 1311	Written Communication	3	COMM 1312	Writing and Research	3
			ALIS 1211	Arabic / Islamic Studies	2
UNIV 1211	Prof. Development and Competencies	2	UNIV 1212	Critical Thinking and Problem Solving	2
MATH 1422	Calculus I <i>Math requirement</i>	4	PSYC 1311	Introduction to Psychology <i>Social and Behavioral Sciences</i>	3
COAD 1312	Hand Drawing and Rendering Techniques	3	COAD 1314	Construction Documents and Detailing	3
COAD 1311	Design Studio I-Fundamentals	3	COAD 1313	Design Studio II-Fundamentals	3
Total		15	Total		16

Mathematics: PMU requires all students take 6 hours (two 3-hour courses) in Mathematics. Calculus I and Calculus II (first semester of second year) fill that requirement.

Social and Behavioral Sciences: PMU requires all students take 6 hours (two 3-hour courses) in Social and Behavioral Sciences. PSYC 1311 Introduction to Psychology satisfies one course of that requirement. The other course requirement is filled by the proposed new courses, “Social Science Research Methods,” to be required of all Architecture students in the first semester of the third year.

SECOND YEAR PROGRAM – ARCHITECTURE CURRICULUM					
FIRST SEMESTER			SECOND SEMESTER		
Course Number	Course Title	Credit Hours	Course Number	Course Title	Credit Hours
MATH 1422	Calculus II <i>Math requirement</i>	4	PHYS 1421	Physics for Engineers <i>Natural and Physical Sciences</i>	4
ASSE 2111	Learning Outcome Assessment I	1	COMM 2311	Oral Communication	3
ARCH 2341	Principles of Design with Climate	3	UNIV 1213	Leadership and Teamwork	2
COAD 2251	Digital Design I: 2D	2	COAD 2252	Digital Design II: 3D	2
COAD 2332	Environmental Psychology	3	ARCH 2342	Materials and Methods	3
ARCH 2421	Design Studio III- Architectural Design	4	ARCH 2422	Design Studio IV- Integrated Architectural Design	4
Total		17	Total		18

THIRD YEAR PROGRAM – ARCHITECTURE CURRICULUM					
FIRST SEMESTER			SECOND SEMESTER		
Course Number	Course Title	Credit Hours	Course Number	Course Title	Credit Hours
ASSE 3211	Learning Outcome Assessment II	2	ALIS 1212	Arabic / Islamic Studies	2
COMM 2312	Technical and Professional Communications	3	COAD 3322	Building Codes and Universal Design	3
COAD 3341	Built World Design History and Theory I	3	COAD 3342	Built World Design History and Theory II	3
COAD 3353	Digital Design III: BIM	3	ARCH 3343	Principles of Structural Systems	3
ARCH 3523	Design Studio V- Architectural Design	5	ARCH 3524	Design Studio VI- Integrated Architectural Design	5
Total		16	Total		16

PROPOSED NEW COURSE* *The Architecture program proposes a new social science course, “Social Science Research Methods,” to be developed jointly by the Architecture faculty and the Core Curriculum’s Social Science faculty. The course should include Quantitative, Qualitative, and Mixed Methods studies, survey development, interview methods, and descriptive statistics*

PMU requires all students take 6 hours (two 3-hour courses) of Social and Behavioral Science courses. This course will satisfy one course of that requirement. The other course requirement is satisfied by an elective in the first semester of the first year.

ELECTIVE * Natural and Physical Sciences: *Select from the following: BIOL 1411: Introductory Biology or CHEM 1411 Introductory Chemistry*

PMU requires all students take 8 semester hours (two 4-hour courses) in Natural and Physical Sciences. This elective course would satisfy one course of that requirement. The other course requirement would be filled by the courses, PHYS 1411: Introductory Physics, which is required of all Architecture students in the first semester of the second year.

FOURTH YEAR PROGRAM – ARCHITECTURE CURRICULUM					
FIRST SEMESTER			SECOND SEMESTER		
Course Number	Course Title	Credit Hours	Course Number	Course Title	Credit Hours
ARCH or COAD 43XX	Professional Elective*	3	ARCH 4361	Preparing the Project Brief	3
PROP-OS-ED NEW COURSE	Social Science Research Methods OR other <i>Social Science</i> elective	3	ARCH 4362	Construction Process and Building Economics	3
ARCH 4354	Simulation and Optimization	3	ARCH 4345	Architectural Structures	3
ARCH 4344	Introduction to Environmental Systems	3	ARCH 4346	Integrated Environmental Systems	3
ARCH 4525	Design Studio VII- Architectural Design	5	ARCH 4526	Design Studio VIII-Integrated Architectural Design	5
Total		17	Total		17

PROPOSED NEW COURSE* *The Architecture program proposes a new social science course, “Social Science Research Methods,” to be developed jointly by the Architecture faculty and the Core Curriculum’s Social Science faculty. The course should include Quantitative, Qualitative, and Mixed Methods studies, survey development, interview methods, and descriptive statistics*

PMU requires all students take 6 hours (two 3-hour courses) of Social and Behavioral Science courses. This course will satisfy one course of that requirement. The other course requirement is satisfied by PSYC 1311: Introduction to Psychology in the second semester of the first year.

Summer following Fourth Year – ARCHITECTURE CURRICULUM		
Course Number	Course Title	Credit Hours
ARCH 4365	Internship	3 (8 weeks with a total of 320 hours, for an average of 40 hours per week)

FIFTH YEAR PROGRAM – ARCHITECTURE CURRICULUM

FIRST SEMESTER			SECOND SEMESTER		
Course Number	Course Title	Credit Hours	Course Number	Course Title	Credit Hours
PHED 1111	Active Living Lifestyle	1	PHED 1112	Healthy Behaviors and Management	1
ALIS 2211	Linguistic Communication Skills	2	ALIS 2212	The Biography of Prophet Mohammad	2
CHEM 1411 or BIOL 1411	Introduction to Chemistry or Introductory Biology <i>Natural Sciences</i>	4	ARCH 5363	Professional Practice and Ethics	3
ARCH 53XX	Professional Elective*	3	ARCH 53XX	Professional Elective*	3
ARCH 5327	Design Studio IX-Capstone Project Programming	3	ARCH 5628	Design Studio X- Architectural Capstone Project	6
Total		13	Total		15

*A list of architecture professional electives appears below. Syllabi appear in this report's section 8.2. Architecture Syllabi.

Natural and Physical Sciences: Select from the following: BIOL 1411: Introductory Biology or CHEM 1411 Introductory Chemistry

PMU requires all students take 8 semester hours (two 4-hour courses) in Natural and Physical Sciences. This elective course would satisfy one course of that requirement. The other course requirement would be filled by the courses, PHYS 1421: Physics for Engineers, which is required of all Architecture students in the first semester of the second year.

ARCHITECTURE PROGRAM TOTAL DEGREE CREDIT HOURS	163
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ARCHITECTURE PROGRAM PROFESSIONAL ELECTIVES			
COAD 4333	History of Islamic Design	3	<i>At a future date, the Department of Architecture also may wish to develop a "Special Topics in Architecture" course that would give students the opportunity to explore a specialized topic in detail. Courses would be offered based on the expertise of faculty, student interest, and current trends in the profession or building industry. Syllabi will be created in the semester before the course is offered.</i>
COAD 4351	Built World Photography	3	
ARCH 4371	Contemporary Materials in Architecture and Design	3	
ARCH 5372	Building Energy Use Modeling and Simulation	3	
ARCH 5373	Sustainable Housing and GeoDesign	3	
ARCH 5374	Advanced Design Visualization	3	
ARCH 5375	Computational Modeling and Simulation	3	

7.5. *Studio, Shop and Laboratory Requirements*

The Architecture program will require a field laboratory, studio spaces, computer and printing labs, and a fabrication shop.

- *The field lab* is for erection of structures as part of courses. It may be located on a reserved site on the PMU campus, or it may be on a site away from campus.
- *The studio spaces* should include drawing desk and chair or stool, power outlet for computing, Wi-fi or cabled network, lighting that is appropriate for a computer-based workspace, and task lighting that is appropriate for hand-based drawing.
- *Computer and printing labs* should provide high-end graphics-oriented engineering design computers, virtual reality headsets and projection rooms, and large format color printers.
- *The fabrication shop* should include a full complement of woodworking, metalworking, and concrete casting machine and hand tools. It should also include CNC equipment, such as laser cutters, 3-axis cutting machines for sheet stock and panel stock such as routers and waterjet cutters, and high-axis milling machines or robots for wood and metals.

8. Course Syllabi

8.1. *Course Numbering System*

A common system for naming courses is applied throughout all programs at PMU. Each course title begins with four letters that indicate the academic subject. For syllabi in *Architecture program*, the lettering is ARCH.

These letters are followed by four numbers:

- The first digit indicates the earliest year a course can be taken. A number 1 course may be taken at any time.
- Second digit indicates credit hours. Most courses carry 3 hours of credit. Science courses with labs carry 4 hours of credit. A small number of courses carry 1 or 2 hours of credit.
- Third digit indicates a course that is part of a group or family of courses. For example, calculus courses are assigned the number 2. More advanced math courses are assigned the number 3.
- Fourth digit serves only to differentiate courses from one another within a family. For example, the four calculus courses are numbered 1, 2, 3, and 4.

8.2. Architecture Syllabi

Syllabi for courses offered by the Department of Architecture appear on the following pages.

Course Title: COAD 1311: Design Studio I- Fundamentals.....	48	
Course Title: COAD 1312: Hand Drawing and Rendering Techniques	52	
Course Title: COAD 1313: Design Studio II- Fundamentals	56	
Course Title: COAD 1314: Construction Documents and Detail Drawings	60	
Course Title: COAD 2251: Digital Design I – Computer Aided 2D Drawing	64	
Course Title: COAD 2252: Digital Design II – Computer Aided 3D Modeling and Rendering	67	
Course Title: COAD 2332: Environmental Psychology for Design.....	71	
Course Title: ARCH 2341: Principles of Design with Climate	75	
Course Title: ARCH 2342: Materials and Methods.....	79	
Course Title: ARCH 2421: Design Studio III- Architectural Design	83	
Course Title: ARCH 2422: Design Studio IV- Integrated Architectural Design	88	
Course Title: COAD 3322: Building Codes and Universal Design.....	93	
Course Title: ARCH 3343: Principles of Structural Systems	104	
Course Title: COAD 3353: Digital Design III - Building Information Modeling.....	108	
Course Title: ARCH 3523: Design Studio V- Architectural Design.....	112	
Course Title: ARCH 3524: Design Studio VI- Integrated Architectural Design.....	118	
Course Title: COAD 4333: History of Islamic Design.....	123	
Course Title: ARCH 4344: Introduction to Environmental Systems.....	127	
Course Title: ARCH 4345: Architectural Structures.....	131	
Course Title: ARCH 4346: Integrated Environmental Systems	135	
Course Title: COAD 4351: Built World Photography	140	
Course Title: ARCH 4354: Simulation and Optimization	144	
Course Title: ARCH 4361: Preparing the Project Brief.....	149	
Course Title: ARCH 4362: Construction Process and Building Economics	154	
Course Title: ARCH 4365: Architecture Internship Course	158	
Course Title: ARCH 4371: Contemporary Materials in Architecture and Design.....	161	
Course Title: ARCH 4525: Design Studio VII- Architectural Design.....	165	
Course Title: ARCH 4526: Design Studio VIII- Integrated Architectural Design	171	
Course Title: ARCH 5327: Design Studio IX- Capstone Project Programming	176	
Course Title: ARCH 5363: Professional Practice and Ethics	181	
Course Title: ARCH 5372: Building Energy Use Modeling and Simulation	184	
Course Title: ARCH 5373: Sustainable Housing and GeoDesign.....	189	
Course Title: ARCH 5374: Advanced Design Visualization	192	
Course Title: ARCH 5375: Computational Modeling and Simulation	195	
Course Title: ARCH 5628: Design Studio X- Architectural Capstone.....	199	
Course Title: MATH 1321 Pre-Calculus for Architects.....	205	

Course Title: COAD 1311: Design Studio I- Fundamentals

Semester Credit Hours: 3 (1, 2)

Total (Lecture, Lab)

I. Course Overview

This foundation course exposes students to architecture as a profession utilizing new skills and knowledge. It focuses on learning about architecture through graphic conventions and hand drafting.

II. PMU Competencies

PMU Competencies are reinforced throughout the course. Communication is a critical component of

any studio-based class. Students are required to speak, write and present their work regularly. Critical thinking and problem solving are inherent to the design studio and are required for success. Some projects may require teamwork for a part or all of the assignment.

III. Detailed Course Description

The course is foundational learning for all following Architecture program classes. It covers the basic techniques and processes necessary to complete a design project. Topics learned in this class will be expanded on in upper level courses. It also provides an introduction to architecture and cultivates the attitudes, values, work habits and skills appropriate to the educational environment and professional practice. Students develop a basic understanding of the design process, design decision making and the factors that influence design solutions.

IV. Requirements Filled

This course is required for all Architecture students in the first semester of the freshman year and is a foundation for all subsequent courses.

V. Required Prerequisites

Prerequisite: PRPM 0022: Introductory Calculus or equivalent

Co-requisite: COAD 1312: Hand Drawing and Rendering Techniques.

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Demonstrate use of various scales in drawings.
- Accurately draw walls, doors, windows, and other architectural elements.
- Draw accurate and legible dimensions
- Illustrate mastery of architectural title blocks, symbols, and hand lettering.
- Draw multi-view images such as plans, sections, elevations, and 3D representations.

The course focuses on the second realm of knowledge required by the U.S. National Architectural Accrediting Board (NAAB): building practices, technical skills, and knowledge of architecture and building.

VII. Assessment Strategy

Major design submissions will receive a letter grade. The criteria to be used in grading will be explained in the project statement and grading rubric. It is very important that students understand the nature of the project, what is expected, and how to address the issues of each assignment before spending time on the project. Students should feel free to ask questions and discuss ideas that arise during introductions of projects.

All subjective learning outcomes will be measured using rubrics for each project assigned.

All projects must be turned in complete and on time. Late projects will be penalized by as much as one letter grade per day. The exact penalty for incomplete work will depend on the discretion of the studio instructor. Students should ask about this statement if not made clear.

Grades are generated by project submission, in-class participation, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas.

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects

- Presentations
- Final pass/fail in-class drawing exam

VIII. Course Format

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique.

Classroom Hours (5 hours per week) **Class:** 1
Studio: 4

IX. Topics to be Covered

Introductory interior design graphics conventions such as:

- Drafting tools, line types and weights, pencil control
- Scale
- Architectural lettering
- Floorplan drawing, including a furniture plan
- Drawing restrooms/bathrooms
- Reflected ceiling plans
- Elevations/ sections
- One point and two-point perspective drawings
- Typical sheet layout

X. Laboratory Exercises

None

XI. Learning Technology Component

This course is not technology-driven. However, students will be expected to use BLACKBOARD and find information on the Internet to supplement topics covered in lectures.

XII. Special Projects/Activities

The following activities will serve as a skeletal reference and should be supplemented by the individual instructor.

- Project 1: Line types and weights, pencil control
- Project 2: Title blocks, page layout, symbols
- Project 3: Scale
- Project 4: Floorplan drawing
- Project 5: Drawing walls, doors and windows
- Project 6: Furniture plan and furniture placement
- Project 7: Reflected ceiling plans
- Project 8: Drawing restrooms/ bathrooms
- Project 9: Drawing elevations and sections
- Project 10: One-point perspective drawings
- Project 11: Two-point perspective drawings
- Throughout the semester: Architectural lettering practice

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

1. Wilson, Travis Kelly, *Drafting and Design: Basics for Interior Design*. : Fairchild Books, 2011. ISBN: 9781563678370
2. Binggeli, Corky, *Interior Graphic Standards: Student Edition (2nd Edition)*. : John Wiley & Sons, 2011. ISBN: 9780470889015
3. Neufert, Ernst and Neufert, Peter, *Neufert Architects' Data, 4th Edition*. Wiley-Blackwell, 2012. ISBN: 9781405192538
4. Tilley, A.R. *The Measure of Man and Woman: Human Factors in Design*, John Wiley & Sons, 2001. ISBN: 9780471099550

B. Alternative Textbooks

Karlen, M. and Fleming, Rob, *Space Planning Basics*, 4th Edition, John Wiley & Sons, 2016
ISBN: 9781118882009

C. Supplemental Print Materials

Journals and magazines:
Architectural Digest

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

www.dezeen.com
<http://design-milk.com>
<http://www.designsponge.com>
www.houzz.com

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 1312: Hand Drawing and Rendering Techniques**Semester Credit Hours: 3 (1, 2)**

Total (Lecture, Lab)

I. Course Overview

Hand drawing and rendering are essential tools in interpreting ideas and visual thinking. The course focuses on simple, basic techniques for drawing and rendering. Even in the computer age, hand drawing is the designer's most useful tool for notation, design exploration, and graphic communication. This course will build skill and confidence through the techniques of hand drawing and rendering using various media.

II. PMU Competencies

PMU Competencies are reinforced throughout the course. Communication is a critical component of any studio-based class. Students are required to speak, write and present their work regularly. Critical thinking and problem solving are inherent to the design studio and are required for success. Some projects may require teamwork for a part or all of the assignment.

III. Detailed Course Description

The course is foundational learning for all subsequent architecture and design program classes. It introduces and develops student hand drawing and rendering techniques focusing on various media: pencil, ink, colored pencil, markers, and watercolor paint. The course also trains students to recognize and reproduce shading and shadows while exploring the concept of object, space, angle, and proportions. It teaches students to design and convert cubes from simple wireframe objects into recognizable items while employing artistic representation of finishes and materials. Representing spaces using multiple views including rendered floorplans, elevations, and one and two point perspective is also emphasized.

IV. Requirements Fulfilled

This course is required for all Architecture students in the first semester of the first year.

V. Required Prerequisites and/or Co-requisites

Co-requisite: COAD 1311: Design Studio I- Fundamentals

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Demonstrate various skills in sketching, producing, and interpreting drawings such as artistry, consistency in style, and visual presentation.
- Develop the sense of depth of line, shape, mass, and texture, as well as the concepts of object, space, angle, and proportions.
- Show competency in a variety of media using hand rendering techniques such as color pencils, markers, watercolors, technical pens, graphite pencils, or other media.
- Develop and produce images that show drawing skills while using appropriate tools, equipment, materials, processes, medium selection, techniques of drawings and graphics, etc.
- Identify and/ or construct one-, two- and three-point perspective drawings.
- Exhibit the ability to add and control color values, shade and shadow effects, and materials and textures for use in hand sketches and perspective drawings.

The course focuses on the second realm of knowledge required by the U.S. National Architectural Accrediting Board (NAAB): building practices, technical skills, and knowledge of architecture and building.

VII. Assessment Strategy

Major submissions will receive a letter grade. The criteria to be used in grading will be explained in the project statement and grading rubric. It is very important that students understand the nature of the project, what is expected, and how to address the issues of each assignment before spending time

on the project. Students should feel free to ask questions and discuss ideas that arise during introductions of projects.

All subjective learning outcomes will be measured using rubrics for each project assigned.

All projects must be turned in complete and on time. Late projects will be penalized by as much as one letter grade per day. The exact penalty for incomplete work will depend on the discretion of the studio instructor. Students should ask about this statement if it is not made clear.

Grades are generated by project submission, in-class participation, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas.

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- In class demonstrations
- Projects
- Presentations

VIII. Course Format

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique.

Classroom Hours (5 hours per week)

Class: 1

Studio: 4

IX. Topics to be covered

The course is divided into following sections

A. Rendering and toning

Students in this class should develop skills in graphic design and visual communication. Students will learn to create basic 2D and 3D shapes using different media. Media could include but is not limited to - graphite pencils, color pencils, markers, paint, and plain papers. Hand sketches will be rendered to show monochrome/ color visual quality tonal changes on flat and curved surfaces (orthographic/ pictorial) including highlights, texture and shadow.

B. Shades and shadows

This section focuses on the basic principle of shades and shadows. Students will learn to apply a set of basic rules to achieve accurate, believable shade and shadow effects for use in freehand sketches and perspective drawings. Basic theory of light, how it falls on surfaces, and general rules for the visualization and construction of shade and shadow in orthographic projection and perspective will be covered, with an emphasis on a quick, practical technique useful in a studio environment.

C. Visual quality and proportion

Hand drawing will train the students to understand the sense of proportion of elements in 2D and 3D spaces. Here no instruments or straight edges to be used.

D. Perspective and sketching

This section requires assimilation of previous stages of the course to prepare a complete composition to express proportion/scale/visual quality/rendering and toning/shade and shadow

X. Laboratory Exercises

None

XI. Learning Technology Component

Information technology skills are not required for this course. Students are assigned reading and research projects that require use of the computer and library resources.

XII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

1. Scalise, Christine M., *Interior Design Illustrated: Marker and Watercolor Techniques*. Fairchild Books, 2008. ISBN: 9781563675317
2. Montague, John, *Basic Perspective Drawing: A Visual Approach*, 6th Edition, John Wiley & Sons, Inc., 2013. ISBN: 9781118134146
3. Ching, Francis D.K., *Drawing: A Creative Process*, John Wiley & Sons, Inc., 1989. ISBN: 9780471289685
4. Lin, Mike W., *Drawing and Designing with Confidence: A Step-By-Step Guide*. John Wiley & Sons, Inc., 1993. ISBN: 9780471283904

B. Alternative Textbooks

As specified by instructor of record.

C. Supplemental Print Materials

Journals and magazines:

- *Architectural Digest*

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

www.dezeen.com

<http://design-milk.com>

<http://www.designsponge.com>

www.houzz.com

XIII. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 1313: Design Studio II- Fundamentals**Semester Credit Hours: 3 (1, 2)**

Total (Lecture, Lab)

I. Course Overview

This course is a continuation of the foundations class sequence begun in COAD 1311: Design Studio I- Fundamentals. It continues the introduction to professional skills and to written, graphic, and oral communication through creative projects.

II. PMU Competencies

PMU Competencies are reinforced throughout the course. Communication is a critical component of any studio-based class. Students are required to speak, write and present their work regularly. Critical thinking and problem solving are inherent to the design studio and are required for success. Some projects require teamwork for a part, or all of the assignment.

III. Detailed Course Description

The course continues the introduction to architecture and design education and cultivates the attitudes, values, work habits and skills appropriate to the educational environment and professional practice. Students establish a basic understanding of the design process, design decision making and the factors that influence design solutions.

IV. Requirements Fulfilled

This course is required of all students majoring in architecture. It is taken in the second semester of first year.

V. Required Prerequisites

Prerequisite: COAD 1311: Design Studio I- Fundamentals

Prerequisite: COAD 1312: Hand Drawing and Rendering Techniques

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Explain color theories, perception, and the psychological and emotional responses to color and light.
- Recognize the elements and principles of design and their applications.
- Identify the physical as well as social and psychological aspects of design.
- State and describe introductory human factors, ergonomics, building code requirements, and universal design applicable to interior environments.
- Describe and apply the design process and program.
- Produce design diagrams including: adjacency, bubble, relationship, zoning, and stacking
- Demonstrate ability to represent design work in presentations

The course focuses on the first and second realms of knowledge required by the U.S. National Architectural Accrediting Board (NAAB):

1. Critical thinking and representation emphasizing creativity, graphic thinking, and abstract analysis.
2. Building practices, technical skills, and knowledge.

VII. Assessment Strategy

Major design submissions will receive a letter grade. The criteria to be used in grading will be ex-

plained in the project statement. It is very important that students understand the nature of the project, what is expected, and how to address the issues of each assignment before spending time on the project. Students should feel free to ask questions and discuss ideas that arise during introductions of projects.

All subjective learning outcomes will be measured using rubrics for each project assigned.

All projects must be turned in complete and on time. Late projects will be penalized by as much as one letter grade per day. The exact penalty for incomplete work will depend on the discretion of the studio instructor. Students should ask about this statement if not made clear.

VIII. Course Evaluation

Grades are generated by project submission, in-class participation, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas.

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Presentations
- Final pass/fail in class drawing exam

IX. Course Format

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique.

Classroom Hours (5 hours per week) **Class:** 1
Studio: 4

X. Topics to be Covered

- A. Elements and principles of design
- B. Color theories and applications
- C. Physical and social aspects of built environments
- D. Ergonomics
- E. Design process
- F. Basic design program
- G. Existing space measurements
- H. Design diagramming
- I. Continuation of drafting conventions
- J. Lettering
- K. Layout and construction of plan, section, and elevation
- L. Perspective drawing
- M. Hand sketching

XI. Laboratory Exercises

None

XII. Technology Component

This course will lay the traditional groundwork in design, hand drafting, and other skills that are the basis for later skills in CAD and design tools using computers. Students will find information on the

Internet to supplement topics covered in lectures.

XIII. Special Projects/Activities

The following activities will serve as a skeletal reference and should be supplemented by the individual instructor.

- Digital notebook with images showing representations of the principles and elements of design, color theory applications, and physical and social aspects of the built environment.
- Analysis drawings of elements in an image: line, shape, form, shadow, texture, etc.
- Drawings of ergonomic requirements
- Design of kindergarten classroom spaces based on the measurements and constraints of the assigned studio classroom to demonstrate student comprehension of basic design precepts including programming, ergonomics, diagramming, and other material learned in the class. The design also should demonstrate understanding of application, continuation, and reinforcement of topics covered in Design I.

XIV. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbooks

1. Karlen, Mark and Fleming, Rob, *Space Planning Basics*, 4th Edition), John Wiley & Sons, 2016. ISBN: 9781118882009
2. Ching, Francis D. K., *Architecture, Form, Space and Order*, 4th Edition, Fairchild Books, 2014. ISBN: 9781118745083
3. Feisner, E. A. and Reed, Ron, *Color Studies*, 3rd Edition, Fairchild Books, 2013 ISBN: 9781609015312
4. Pile, John F. (2008). *Interior Design*, 4th Edition, Pearson Education, 2008. ISBN: 9780132408905
5. Kilmer, Rosemary and W. Otie Kilmer, *Designing Interiors*, 2nd edition,. Wadsworth Boston Press, 2014. ISBN-10: 1118024648

B. Alternative Textbooks

1. Ching, Francis, D.K.. *Design Drawing*, John Wiley & Sons, 1997. ISBN: 04712865402
2. Ching, Francis, D.K., *Interior Design Illustrated*. John Wiley & Sons, 1978. ISBN: 0471288683
3. Panero, Julius, *Human Dimension & Interior Space: A Source Book of Design Reference Standards*. Watson-Guptill, 1979. ISBN: 9780823072712

C. Supplemental Print Materials

Journals and magazines:

- *Architectural Digest*
- *Interior Design*
- *Interiors*
- *Metropolis*
- *Dwell*
- *Wallpaper*
- *Elle D'cor*
- *Metropolitan Home*

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

2010 ADA Standards for Accessible Design- www.ada.gov/regs2010/2010ADAStandards/2010ADA-

[Standards.pdf](#)

International Building Code 2018 (OR most recent edition)
<http://shop.iccsafe.org/2018-international-building-coder.html>

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 1314: Construction Documents and Detail Drawings

Semester Credit Hours: 3 (1, 2)

Total (Lecture, Lab)

I. Course Overview

This studio course covers architectural/interior environment construction documents and detail drawings that graphically represent and communicate how to construct and/or install a design project.

II. PMU Competencies

PMU Competencies are reinforced throughout the course. Communication is a critical component of any studio-based class. Students are required to speak, write and present their work regularly. Critical thinking and problem solving are inherent to the design studio and are required for success. Some projects may require teamwork for a part or all of the assignment.

III. Detailed Course Description

The course continues students' architecture and interior design education and cultivates the attitudes, values, work habits and skills appropriate to the educational environment and professional practice. Students learn technical drawing protocol and create construction documents and detail drawings which graphically communicate how to construct and/or install a project.

IV. Requirements Filled

This course is required of all students majoring in architecture and design. It is taken in the second semester of freshman year.

V. Required Prerequisites

Prerequisite: COAD 1311: Design Studio I- Fundamentals

Co-requisite: COAD 1313: Design Studio II- Fundamentals

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Read and analyze technical drawings.
- Draw floor plans, section and elevations with professional dimensioning.
- Produce detailed finish and FF&E plans with legends and schedules.
- Create detailed specialty drawings such as millwork and cabinetry.
- Produce reflected ceiling, basic lighting and electric/power drawings.
- Design and draw mechanical and plumbing plans.
- Draw safety and egress plans
- Write and draw detailed legends and schedules.

The course focuses on the second realm of knowledge required by the U.S. National Architectural Accrediting Board (NAAB): building practices, technical skills, and knowledge of architecture and building.

VII. Assessment Strategy

Assignments and projects constitute 100% of the grade. Assignments and projects increase professional competence, technological competence, and knowledge of research methods and strategies. Students' work will be assessed through regular supervision and reviews made at periodic intervals in the following areas: Grades are generated according to evaluation of:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, and note taking
- Projects
- Quizzes and exams, if applicable
- Presentations
- Final pass/fail in class drawing exam

VIII. Course Format

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique. Students may also verbally present their work for critique by peers and a jury.

Classroom Hours (5 hours per week) **Class:** 1
Studio: 4

IX. Topics to be Covered

- A. Drafting equipment and drafting fundamentals review
- B. As built drawings and demolition plans
- C. Floor plans- review
- D. Elevations- review
- E. Sections
- F. Specialty drawings & detail drawings
- G. Finish plans
- H. Furnishings and equipment plans, installation plans & schedules
- I. Reflected ceiling, lighting and electrical/power plans, legends & schedules
- J. Mechanical and plumbing plans legends & schedules
- K. Safety and egress plans legends & schedules
- L. Field trips – to be determined by professor-of-record.

X. Laboratory Exercises

None

XI. Learning Technology Component

This course will lay the traditional groundwork in technical drafting and other skills that are the basis for later skills in CAD and design tools using computers. Students will find information on the Internet to supplement topics covered in lectures.

XII. Special Projects/Activities

The following activities will serve as a skeletal reference and should be supplemented by the individ-

ual instructor.

- Project 1: Floor plans with professional-quality dimensions
- Project 2: Elevations with professional-quality dimensions
- Project 3: Sections with professional-quality dimensions
- Project 4: Specialty drawings with legends, schedules and professional-quality dimensions
- Midterm Exam
- Project 5: Finish plans with detailed legends and finish schedules
- Project 6: Furniture, finishes, and equipment (FF&E) plans, installation plans with legends and schedules
- Project 7: Reflected ceiling, lighting and electric/power plans with legends and schedules
- Project 8: Mechanical, plumbing plans with legends and schedules
- Project 9: Safety and egress plans with legends and schedules
- Final Project: Compilation of all topics covered in class
- Final exam: Pass/fail

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

1. Kilmer, W. Otie and Kilmer, Rosemary. (2016) *Construction Drawings and Details for Interiors*, 3rd Edition), John Wiley & Sons, Inc., 2016. ISBN: 9781118944356
2. Ballast, David Kent, *Interior Construction and Detailing for Designers and Architects*. Professional Publications, Incorporated, 2002. ISBN: 9781888577785
3. Ramsey, C.G., and Sleeper, H.R., *Architectural Graphic Standards for Architects, Engineers, Decorators, Builders and Draftsmen, 1932 Edition (A Reissue of a Design Classic) 1st Edition* John Wiley & Sons, Inc., 1998. ISBN: 780471247623

B. Alternative Textbooks

None

C. Supplemental Print Materials

Journals and magazines:

- *Architectural Digest*

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

2010 ADA Standards for Accessible Design- www.ada.gov/regs2010/2010ADAStandards/2010ADAStandards.pdf

International Building Code 2018 (OR most recent edition)

<http://shop.iccsafe.org/2018-international-building-coder.html>

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 2251: Digital Design I – Computer Aided 2D Drawing**Semester Credit Hours:** 2 (1, 1)

Total (Lecture, Lab)

I. Course Overview

This course is an introduction to computer drafting for architects and designers that teaches students the drafting skills required to produce two-dimensional architectural drawings. Small scale design projects (such a house, an art gallery, boutique, café, etc.) provides the site for students to gain an understanding of the commands and features of AutoCAD, or other standard of the industry, for designing and drawing architectural spaces. Students will expand other computer and design skills through the design and development of interior design presentations developed through the use of Photoshop or other presentation media.

II. PMU Competencies

Communication through the visual means of computer-aided 2D drawing is the dominant student competency developed by this course. Critical thinking and problem solving are developed through space planning and design. Students demonstrate an active, analytical approach to creation of projects. Although the primary output is by individual students, teamwork is required in small groups through development of concept statements, peer critique and learning exercises. Information technology skills are developed as students use CAD drafting, image editing, page layout, e-mail, and the Internet to complete assignments.

III. Detailed Course Description

This course is the first of three computer-aided drawing courses. Topics covered in this course include two-dimensional drafting of construction documents.

IV. Requirements Filled

This course is required of all students majoring in architecture and interior design. It is taken in the first semester of second year.

V. Required Prerequisites

Prerequisite: COAD 1314: Construction Documents and Detail Drawings

Co-requisite: ARCH 2421: Design Studio III

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Apply two-dimensional digital drafting skills using familiarity with the user interface.
- Effectively utilize layer properties including line weights, line style, colors, and hatch.
- Blocks- import, edit, and create.
- Produce two-dimensional digital drawing with speed and skill in a clear and legible manner.
- Demonstrate proper dimension styles with correct scale and complete legibility.
- Illustrate and edit design drawings, perspectives, logos, posters, and design layouts using Illustrator, basic Photoshop or other presentation program.

The course focuses on the first and second realms of knowledge required by the U.S. National Architectural Accrediting Board (NAAB):

1. Critical thinking and representation emphasizing creativity, graphic thinking, and abstract analysis.
2. Building practices, technical skills, and knowledge.

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments. Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations
- Portfolio

VIII. Course Format

The course is primarily a studio that incorporates a series of lectures and demonstrations of software. The course is conducted in the context of the professional design office. Students and the instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of drawings, and critique.

Classroom Hours (3 hours per week)

Class: 1

Studio: 2

IX. Topics to be Covered

- A. AutoCAD commands for two-dimensional drafting
- B. Development of construction documents including floor plans, lighting plans, furniture plans, finish schedules, legible dimensions, etc.
- C. Understanding typical building types
- D. Human scale and dimension for drawing floor plans.
- E. Reflected ceiling plans
- F. Advanced work with Photoshop or other presentation media

X. Laboratory Exercises

The previous list of topics is integrated in several semester-long studio projects to design small architectural projects.

XI. Learning Technology Component

Students enhance skills in AutoCAD, Photoshop, and Internet.

XII. Special Projects/Activities

This course requires that students integrate digital technology skills while designing an architectural project. The fundamentals of design techniques and philosophies are integrated seamlessly with the learning of digital representation.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

1. James M. Kirkpatrick, James M., and Beverly L. Kirkpatrick, *AutoCAD 2015 for Interior Designers and Space Planning*. Prentice Hall, 2015.

ISBN-13: 978-0133144857

ISBN-10: 0133144852

OR most recent based on newest program release

2. Smith, Jennifer, AGI Creative Team, *Adobe Photoshop CS4 Digital Classroom: A Complete Training Package*, John Wiley & Sons, 2008.
ISBN: 9780470410905.

B. Alternative Textbooks

Since computer technology evolves quickly, updated books may be available at the time of course introduction.

C. Supplemental Print Materials

Instructors provide reference handouts for programming techniques applicable to the selected project.

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Websites that are appropriate for the topics they teach and sources for 2-dimensional furniture and objects.

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Architecture or Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 2252: Digital Design II – Computer Aided 3D Modeling and Rendering

Semester Credit Hours: 2 (1, 1)

Total (Lecture, Lab)

I. Course Overview

This course is the second of three computer-aided drawing courses. Topics covered in this course include three-dimensional drafting or modeling and color rendering of architectural spaces. Students explore the use of V-Ray rendering engine for improved design visualization. Other programs may be introduced as they become standards of the industry.

II. PMU Competencies

Communication through the visual means of computer-aided 3D drawing and rendering is the dominant student competency developed by this course. Critical thinking and problem solving are developed through space planning and design projects. Students demonstrate an active, analytical approach to creation of design projects. Although the primary output is by individual students, teamwork is required in small groups through development of concept statements, peer critique and learning exercises. Information technology skills are developed as students use CAD drafting, modeling software, image editing, page layout, e-mail, and the Internet to complete assignments.

III. Detailed Course Description

This course is an advanced computer drafting for architects and interior designers that teaches students the drafting skills required to produce three-dimensional architectural drawings with color rendering, lighting, and animation/walk-through. Small scale design projects provides the site for students to gain an understanding of the commands and features of AutoCAD and 3Ds Max with V-Ray, or other programs if they are considered standards of the industry, for designing, drawing, 3D modeling and rendering of the built environment.

IV. Requirements Filled

This course is required of all students majoring in architecture and interior design. It is taken in the second semester of second year.

V. Required Prerequisites

Prerequisite: COAD 2251: Digital Design I – Computer Aided 2D Drawing

Co-requisite: ARCH 2422: Design Studio IV.

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Model spaces with any design shape such as straight, curved, circular, spherical, etc. using modeling techniques and modifiers.
- Import or merge files with different formats using proper scaling and layering.
- Demonstrate different types of materials and finishes and apply them on the space elements.
- Illustrate the scene with the natural and/or artificial light and environment.
- Produce a model with both static and dynamic cameras.
- Generate realistic renders of final scenes with suitable settings and good quality resolution.

The course focuses on the first and second realms of knowledge required by the U.S. National Architectural Accrediting Board (NAAB):

1. Critical thinking and representation emphasizing creativity, graphic thinking, and abstract analysis.
2. Building practices, technical skills, and knowledge.

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments. Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations
- Portfolio

VIII. Course Format

The course is primarily a studio that incorporates a series of lectures and demonstrations of software. The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of drawings, and critique.

Classroom Hours (3 hours per week)

Class: 1

Studio: 2

IX. Topics to be Covered

- A. 3DS Max, or other program that is standard of the industry, and its interface
- B. AEC modeling
- C. Cameras and views
- D. V-ray or other visualization enhancing program
- E. Modeling shapes and geometry
- F. Materials with focus on UVW mapping
- G. Lighting

X. Laboratory Exercises

The previous list of topics is integrated in several projects.

XI. Learning Technology Component

Students enhance skills in 3D and 2D computer aided programs, Photoshop, PowerPoint and Internet.

XII. Special Projects/Activities

In this course, students learn 3-D rendering techniques through a variety of projects as well as demonstrating knowledge on quizzes. The fundamentals of design techniques and philosophies are integrated seamlessly with the learning of digital representation.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbooks

1. Kuhlo, Markus and Enrico Eggert, *Architectural Rendering with 3ds Max and V-Ray: Photorealistic Visualization*. Focal Press, 2010.
ISBN: 9780240814773
2. Tickoo, Sham, (2014) *Autodesk 3ds Max Design 2015: A Tutorial Approach*. CAD/CIM Technologies, 2014.
ISBN: 9781936646760
3. Crespi, Adam, *Achieving Invisibility: The Art of Architectural Visualization and Rendering*. Fairchild Books, 2008.
ISBN: 9781563675416

B. Alternative Textbooks

Since computer technology evolves quickly, updated books may be available at the time of course introduction.

C. Supplemental Print Materials

Instructors provide reference handouts for programming techniques applicable to the selected project.

Sources include the following:

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Websites that are appropriate for the topics they teach and sources for 3-dimensional furniture and objects.

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Architecture or Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 2332: Environmental Psychology for Design

Semester Credit Hours: 3 (3, 0)

I. Course Overview

The course introduces the students to the basic psychology of designing spaces and places for human occupancy. Concepts introduced provide students with a basic knowledge of crowding, territoriality, attitudes relative to personal space, personality, and the definition of space and privacy as they relate to both residential and non-residential environments. Other concepts include managing limited resources and the design of built environments.

II. PMU Competencies

The study of the impact of human behavior as it effects the built environment is important to designing appropriate spaces. The students are required to employ critical thinking and problem solving. The students use the Internet to retrieve additional information and data to address problem-solving exercises.

III. Detailed Course Description

This course is an introduction to the basic psychology of designing built environments for human occupancy within a cultural context. These concepts provide a foundation for humans' use of space in the public and private built environment. The course provides the students with assimilation of data, organization of information and data, and experience with interpreting data in a graphic format. The course content is important to the development of critical thinking and problem-solving skills.

IV. Requirements Filled

This course is required of all students majoring in architecture. It is taken in the first semester of second year.

V. Required Prerequisites

COAD 1313: Design Studio II- Fundamentals
PSYC 1311: Intro to Psychology

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Recognize the dynamic relationship between human behavior and the built environment.
- Identify and apply theories regarding human behavior and the built environment.
- Evaluate the concepts of privacy, territoriality, proxemics, crowding, demographics, culture and human behavior related to the built environment.
- Categorize the dynamics of human behavior within the built environment based on informal observation and survey assessment methods.
- Acquire sensitivity to user requirements based on social, demographic, economic, physiological, cognitive and cultural factors.
- Develop and administer an informal questionnaire to assess human behavioral responses to a stimulus or stimuli within an existing space.

The course focuses on the first and second realms of knowledge required by the U.S. National Architectural Accrediting Board (NAAB):

1. Critical thinking and representation emphasizing creativity, graphic thinking, and abstract analysis.

VII. Assessment Strategy

Assignments, exams and projects constitute 100% of the grade. Assignments and projects increase professional competence, technological competence, and knowledge of research methods and strategies. Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The class includes lectures, discussions, and project development including research strategies. Students are expected to read the assigned material before class and spend an average of two hours per week outside of class for each hour of class.

Classroom Hours (3 hours per week)

Class: 3

Studio: 0

IX. Topics to be Covered

- A. The human perception and dynamics of the relationship to the built environment.
- B. Foundational theories of environmental psychology and human behavior.
- C. The physiological aspects of behavior – A study of the brain and brain functions that affect behavior.
- D. Demographics, crowding, territoriality, attitudes relative to personal space, personality, and the definition of space and privacy as they relate to both residential and non-residential environments.
- E. Concepts for designing habitable environments in a cross-cultural context for both residential and commercial applications.
- F. Critical thinking and problem solving.
- G. Social space and group living.
- H. Critically evaluate the dynamics of space use based on informal observation.
- I. Analyzing spatial layouts that provide for activity patterns of users and helps users meet their goals.

X. Laboratory Exercises

None

XI. Learning Technology Component

Students will use word processing and the Internet to prepare written report and conduct research. The final presentation will be make use of PowerPoint.

XII. Special Projects/Activities

- Conduct an observation study or an existing space
- Develop and administer an informal questionnaire to assess user/space utilization of an existing space.
- Assignments

- Readings as assigned.
- Write an essay or presentation that is based upon environmental psychology that discusses human interaction with the built environment.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

Kopec, Dac (2012). *Environmental Psychology for Design*, 2nd Edition, Fairchild Books, 2012.

ISBN: 9781609011413

B. Alternative Textbooks

1. Gifford, Robert (2002). *Environmental Psychology: Principles and Practice*, 3rd Edition, Optimal Books, 2002.

ISBN: 9780205189410

2. Hall, Edward T., *The Hidden Dimension*. Anchor Books, 1990.

ISBN: 9780385084765

C. Supplemental Print Materials

1. Bechtel, Robert B. and Arza Churchman, (Eds) *Handbook of Environmental Psychology*. John Wiley & Sons, Inc., 2002.

ISBN: 9780471405948

2. Hall, Edward T. **Personal Space*. Prentice-Hall, Inc., 1969.

ISBN: 9780136575771

**NOTE: This book is out-of-print. The instructor should request permission from the publisher to reprint portions as a library resource.*

3. Lang, Jon, Charles Burnett, Walter Moleski and David Vachon. (Eds.), *Designing for Human Behavior: Architecture and the Behavioral Sciences*, Downen, Hutchinson and Ross, Inc., 1974.

ISBN: 9780879330545

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

1. Other supplemental online materials as provided by the publisher.
2. Instructors will provide a list of suitable, contemporary Websites that are appropriate for the topics and level of detail that they will teach.
 - www.isdesignet.com/
 - www.edra.org/

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: ARCH 2341: Principles of Design with Climate**Semester Credit Hours:** 3 (3,0)

Total (Lecture, Lab)

I. Course Overview

This course provides an introduction to the fundamentals of climate-responsive design. It explores different climate regions around the world and presents examples of how vernacular and contemporary construction methods have responded to changes in climate conditions.

The course uses a case studies approach to introduce the basic principles of thermal comfort, daylighting, ventilation, energy efficiency, and resource efficiency. Case studies from different climate regions will be used to illustrate the possible range of climatic responses. Special focus will be given to vernacular approaches to building in hot and dry areas.

II. PMU Competencies

The course addresses two of PMU's core competencies. It develops the students' *critical thinking* and *problem solving* skills.

III. Detailed Course Description

This course introduces students to the fundamentals of climate classification and climate-responsive architectural design through analyzing a series of case studies of successful vernacular and contemporary building methods in different climate regions around the world, with emphases on hot and dry regions.

The case studies are used as a vehicle to introduce the basic principles of heat flow, thermal comfort, ventilation and air quality, daylighting, and visual comfort, energy and resource efficiency, as well as the use of local materials. The course will introduce students to the ways in which design responses vary with climate and how to develop effective design solutions to achieve multiple objectives.

IV. Requirements Filled

This is a required course taken in the first semester of the second year.

V. Required Prerequisites

None

VI. Learning Outcomes

As the first course in the curriculum's environmental systems and structures sequence ARCH 2341: Principles of Design with Climate prepares the students for related courses focusing on building technology, building performance simulation and analysis, and sustainable architecture.

As an introduction to the basics of building performance and a survey of buildings that have been successful in designing for climate, this course, provides students with a necessary foundation for learning about contemporary building technology.

In this course, students become aware of:

- a. Climate classification systems and differences among world climate regions.
- b. Basic principles of human thermal comfort, visual comfort, and energy and resources efficiency in buildings.
- c. Fundamentals of climate-responsive design and possible climatic design strategies for different climate regions.

The course also introduces students to the principles of research-informed design decision making.

VII. Assessment Strategy

Student evaluation in this course will involve a number of components, including quizzes, case study reports and a final exam. The description of each of these components is included below:

1. Three short quizzes to be held over the course of the semester; each quiz will only cover the topics presented following the previous quiz (30% of final grade).
2. Basic case study analysis (four) of various projects related to different climatic conditions (40% of final grade)
3. A report about one of the case studies analyzed. The report will provide further in-depth analysis of the response of the building in the case study focused to different climatic considerations, as well as an assessment of its success in doing so. (15% of final grade).
4. A final comprehensive exam (15% of final grade).

VIII. Course Format

This course utilizes a lecture format. The course will meet two times per week. Lectures will be used to present course content, including basic principles and case studies. Students will participate in discussions within the class period and online through the course management system. Online discussion groups will be supervised by the instructor.

Classroom Hours (3 hours per week)

Class: 3, Lab: 0

IX. Topics to Be Covered

- a. Climate classifications and major climate regions.
- b. Fundamentals of climate analysis and major climate parameters.
- c. Fundamental principles of human thermal comfort, visual comfort, ventilation and air quality, energy efficiency, materials, and resource efficiency.
- d. Passive heating, cooling, and lighting
- e. Architectural design strategies in different climate regions
- f. Presentation and analysis of building case studies from vernacular and contemporary buildings. At least two case studies, one vernacular and one contemporary, from each of the following climate regions:
 - Hot and arid region
 - Hot and humid region
 - Temperate region
 - Cold region
- g. In-depth analysis of case studies describing climate-responsive buildings in hot and arid climates. Several case studies from across the Middle East and north Africa will be presented to illustrate common features as well as regional differences between them

X. Laboratory Exercises

None

XI. Learning Technology Component

All course material, including syllabus, class presentations, handouts and other resources, will be made available as much as possible on the BLACKBOARD course management system. System e-mail will be used by the instructor to communicate important information to students. Students will be responsible for checking their e-mail accounts regularly. The course management system will also be used to submit projects digitally and to post student grades as they become available. Instructor

will also create discussion groups for students to exchange ideas about course topics.

XII. Special Projects/Activities

- a. Quizzes: Quizzes will include true-false questions, multiple-choice questions and brief calculations and analyses. Each quiz will only cover the topics presented following the previous quiz.
- b. Case Study Reports: Each student will develop a case study analysis for at least four buildings located in four different climate regions. The reports will analyze the buildings' designs and identify design strategies used in achieving thermal comfort, visual comfort, energy efficiency, materials and resource efficiency. A written report will be submitted.
- c. Case Study Final Research: Each student will develop an in-depth case study analysis of one of the four buildings used for their case study reports. The paper will analyze in depth the building's designs and identify design strategies used in achieving thermal comfort, visual comfort, energy efficiency, materials and resource efficiency. Students will present their case study research publicly at the end of the semester. A written report will also be submitted.
- d. Final Exam: A comprehensive final exam will be held at the end of the semester. The exam may include true-false questions, multiple-choice questions and calculations and analyses. The exam and the quizzes will be based on assigned readings from the textbook as well as all class presentations.

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

DeKay, M. and Brown, G.Z. *Sun, Wind, and Light: Architectural Design Strategies, 3rd Edition*. John Wiley and Sons, Hoboken, NJ; 2014. ISBN-13: 978-0470945780

B. Alternative Textbook(s)

Kwok, A. and Grondzik, W. *The Green Studio Handbook: Environmental Strategies for Schematic Design, 3rd Edition*. Routledge, New York, NY; 2018. ISBN-13: 978-1138652293

C. Supplemental Print Materials

- a. Fathy, H. and Shearer, W. *Natural Energy and Vernacular Architecture: Principles and Examples with Reference to Hot Arid Climates*. University of Chicago Press; 1986. ISBN-13: 978-0226239170
- b. Hyde, R. *Climate Responsive Design: A Study of Buildings in Moderate and Hot Humid Climates*. E & FN Spon; 2000. ISBN-13: 978-0419209706
- c. Roaf, S. & Crichton, D., Nicol, F. *Adapting Buildings and Cities for Climate Change, Second Edition: A 21st Century Survival Guide*. Routledge, Architectural Press, New York, NY; 2009. ISBN-13: 978-1856177207
- d. Sayigh, A. *Sustainability, Energy and Architecture: Case Studies in Realizing Green Buildings, 1st Edition*. Elsevier, Inc. Oxford, UK; 2014. ISBN-13: 978-0123972699

D. Supplemental Online Materials

- a. Center for Maximum Potential Building Systems (CMPBS): <http://www.cmpbs.org/>
- b. Agents of Change: <http://aoc.uoregon.edu/>
- c. Building Green: <http://www.buildinggreen.com/>
- d. LEED v4 BD+C: <https://www.usgbc.org/resources/leed-reference-guide-building-design-and-construction>

XIV. Faculty Requirements

Faculty should have a PhD in architecture focusing on sustainable architecture, building performance or a related topic; or faculty should hold a professional Master of Architecture degree and have documented experience in designing climate-responsive and high-performance buildings.

Course Title: ARCH 2342: Materials and Methods

Semester Credit Hours: 3 (2, 1)

Total (Lecture, Lab)

I. Course Overview

The course provides an introduction to concepts and skills fundamental to structure, construction, building enclosure, sustainability, and interior environments. Analysis and selection of materials, components, and assemblies are also explored. The course provides an introduction to the historic role of materials in architecture.

II. PMU Competencies

The course addresses two PMU core competencies, *critical thinking* and *problem solving*.

III. Detailed Course Description

This course provides an introduction to building materials, their proper use and inherent characteristics, problems, and hazards. It addresses construction and the science of building, and it includes a brief history of building materials and conventional and vernacular construction methods, as well as more contemporary applications and innovative approaches, techniques, applications, and materials.

The course requires a basic understanding of such concepts as gravity, tension, compression, bending, etc., as they apply to the characteristics of each material. The understanding will aid in selecting materials used in design. Students will develop an awareness of outside influences such as physical forces, building codes, safety requirements, and regulatory standards for construction. Students will be made aware of the problems of toxic materials in new and existing buildings. The course will also explore the environmental forces that affect the building industry and look at the effect of buildings on the environment. Concepts such as embodied energy and life cycle impacts of materials will be introduced.

IV. Requirements Filled

This is a required course taken in the second semester of the second year.

V. Required Prerequisites

None

VI. Learning Outcomes

- a. Students will recognize and analyze the basic principles used in the appropriate selection of interior and exterior construction materials, finishes, products, components and assemblies based on their inherent performance, including environmental impact and reuse.
- b. Students will describe and evaluate the basic principles involved in the appropriate selection and application of building envelope assemblies relative to fundamental performance, aesthetics, moisture transfer, durability and energy and material resources.

The course focuses on U.S. National Architectural Accrediting Board (NAAB) student performance criteria related to construction materials and methods. I

It also prepares students for courses focusing on building technology, building performance and sustainable architecture.

Additionally, students are introduced to the principles of informed design decision making.

VII. Assessment Strategy

Student evaluation in this course will involve a number of components including quizzes, case study reports and a final exam. The description of each of these components is included below:

- a. Three short quizzes to be held over the course of the semester; each quiz will only cover the topics presented following the previous quiz (30% of final grade).
- b. Six written reports on lab material experiments (30% of final grade)
- c. Research paper about construction material properties (20% of final grade).
- d. A final comprehensive exam (20% of final grade).

VIII. Course Format

This course utilizes a lecture/lab format. The course will be coordinated with the concurrent course PMU ARCH 2422: Design Studio IV Integrated Architectural Design. Lectures will be used to present course content, including basic principles and case studies. Students will participate in discussions within the class period and online through the course management system. Online discussion groups will be supervised by the instructor. Labs will be used to conduct hands-on activities to test the properties of different building materials.

Classroom Hours (4 hours per week)

Class: 2, Lab: 2

IX. Topics to Be Covered

- a. Making a building
- b. Foundations and sitework
- c. Masonry
- d. Concrete
- e. Steel
- f. Wood construction and heavy timber and light wood frames
- g. Doors and windows
- h. Exterior envelope systems
- i. Exterior finishes
- j. Interior finishes

X. Laboratory Exercises

Lab tasks will involve hands-on activities to test the properties of different building materials (masonry, concrete, wood, etc.). Students will then pick one material and write a research paper on the properties and uses of this material.

XI. Learning Technology Component

All course material, including syllabus, class presentations, handouts, and other resources, will be made available as much as possible on the University's BLACKBOARD course management system. System e-mail will be used by the instructor to communicate important information to students. Students will be responsible for checking their e-mail accounts regularly. The course management system will also be used to submit projects digitally and to post student grades as they become available. Instructor will also create discussion groups for students to exchange ideas about course topics.

XII. Special Projects/Activities

- a. Quizzes: Quizzes will include true-false questions, multiple-choice questions, and brief calculations and analyses. Each quiz will cover only the topics presented following the previous quiz.
- b. Laboratory Reports: Each student will report on the results of hands on experiences in the laboratory.
- c. Research Paper: Each student will develop a research paper about the properties and uses of one commonly used building material such as masonry, concrete, etc. Students will present their case studies publicly at the end of the semester. A written report will also be submitted.
- d. Final Exam: A comprehensive final exam will be held at the end of the semester. The exam may include true-false questions, multiple-choice questions, and calculations and analyses. The exam and the quizzes will be based on assigned readings from the textbook as well as all class presentations.

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

Allen, E. and Iano, J. *Fundamentals of Building Construction: Materials and Methods, 6th Edition*. John Wiley and Sons, Hoboken, NJ; 2014. ISBN-13: 978-1118138915

B. Alternative Textbook(s)

McLean, W. and Silver, P. *Introduction to Architectural Technology, 2nd Edition*. Laurence King Publishing, London, UK; 2013. ISBN-13: 978-1780672953

C. Supplemental Print Materials

N/A

D. Supplemental Online Materials

N/A

XIII. Faculty Requirements

Faculty should have a PhD in architecture focusing on construction materials and methods, life cycle assessment or a related topic; or faculty should hold a professional Master of Architecture degree and have documented experience with construction materials and methods.

Course Title: ARCH 2421: Design Studio III- Architectural Design**Semester Credit Hours:** 4 (1, 3)

Total (Lecture, Studio)

I. Course Overview

This course provides a foundational introduction to architecture and architectural design. The course is conceived to address the breadth of knowledge in architecture to encourage students to situate their learning in subsequent courses to begin to identify a future area of focus for their careers. The course will use a design studio method that involves project-based learning.

II. PMU Competencies

While continuing to build skills in the special graphic, textual and verbal *communication* needs of designers as well as *critical thinking* and *problem solving*, this course begins to focus more specifically on *technological competence*, *professional competence*, and *teamwork*.

Development of *technological competence* is focused on information and computing technology. Development of *professional competence* in the course establishes a broad understanding of the field as a social and professional discipline.

III. Detailed Course Description

Topics in this course cover foundational issues in architectural design; an overview of construction and building systems; an overview of building parts and components; an overview of the building industry; architectural licensing; basic issues in building codes and regulation of spatial layouts; architectural programming; site analysis; and basic ideas in architectural expression.

The course sets the pattern for future architecture studio courses of several projects of duration, two to eight weeks each term, beginning with a relatively vague and general brief and culminating in a design review and presentation. In this semester, the focus is on social and psychological issues in architectural design by addressing basic spatial function derived from patterns of human behavior.

IV. Requirements Filled

This is a required course taken in the first semester of the second year.

V. Required Prerequisites

Prerequisite: COAD 1313: Design Studio II- Fundamentals

Co-requisites:

COAD 2251: Digital Design- 2D

COAD 2332: Environmental Psychology

VI. Learning Outcomes

ARCH 2421: Design Studio III- Architectural Design is intended to provide students with a broad knowledge of architecture as a discipline, profession, and industry while advancing students' skills in problem solving and design. Upon completion of the course, students should be able to:

- a. Discuss knowledgeably the role of architects in the building industry and in society.
- b. Describe typical building systems and construction systems.
- c. Describe basic issues in spatial design, circulation, adjacency of spaces, size of spaces, and quality of space.

- d. Discuss knowledgeably the expressive impact of building form.
- e. Design modest residential and commercial buildings at a schematic level, allocating appropriate space for building systems, satisfying spatial function, and achieving a basic level of architectural expression

The course focuses on the second realm of knowledge required by the U.S. National Architectural Accrediting Board (NAAB): building practices, technical skills, and knowledge of architecture and building.

In addition, the course initiates the focus of the PMU Architecture program on technology for architectural design and construction. It also introduces basic ideas in research-informed design process.

VII. Assessment Strategy

Assessment in the course will be based on three factors:

- a. Participation
- b. Test scores
- c. Design, representation and presentation quality

The participation grade will be based on attendance and participation in desk critiques at least once per week in which the student converses with the instructor and shares drawings and models.

Tests will address facts and knowledge of the building industry, the role of architects, building systems, construction systems, and techniques of architectural programming.

Design projects will be graded based on development of an appropriate building program, completion of appropriate drawings at a professional level of quality, addressing building system arrangement, addressing spatial functional arrangements and oral and graphic presentation.

VIII. Course Format

As a studio course, content will be delivered in sessions held twice each week contiguous to lab sessions, using a combination of lectures, working sessions under instructor supervision, and seminar format discussions and reviews. Each section will be assigned a room or space equipped with a drawing desk for each student. To foster an appropriate architectural studio culture, each student desk will be reserved for the sole use by an individual student.

Projects will include an element of teamwork with classmates, such as use of peer review and role playing.

Classroom Hours (7 hours per week)

Class: 1, Studio: 6

IX. Topics to Be Covered

Topics will include:

- a. Overview of the building industry
- b. Overview of building parts and components
- c. Overview of structures
- d. Overview of mechanical systems
- e. Overview of cladding systems
- f. Comparison of different construction systems
- g. Architectural licensing
- h. Basic issues in building codes and regulation of spatial layouts
- i. Architectural programming

- j. Techniques of occupant surveying
- k. Basic ideas in architectural expression
- l. Architectural design methods

X. Studio Exercises

Studio space will include drawing desk and chair or stool, power outlet for computing, Wi-Fi or cabled network, lighting that is appropriate for a computer-based workspace and task lighting that is appropriate for hand-based drawing.

Studio exercises include:

- a. *Precedent study examining building systems.* A significant local or international building will be analyzed with special attention to systems for structure, mechanical air conditioning, plumbing, egress, cladding and roofing.
- b. *Diagrams of building systems.* A significant local or international building will be diagrammed with special attention to systems for structure, mechanical air conditioning, plumbing, egress, cladding, and roofing.
- c. *Diagrams of expressive elements.* A significant local or international building will be diagrammed with special attention to expressive elements in the composition.
- d. *Site analysis.* A designated site from an international urban setting will be analyzed using qualitative methods with respect to building orientation, climate conditions, transportation access, vegetation, hydraulics, and urban relationships. Students will produce drawings of their analyses.
- e. *Residential design.* Students will conceive and develop to a schematic level a residential design for a specific designated site in the local KSA context. Using building design software, students will analyze the site, develop an architectural program, develop multiple concepts, elaborate one or more concepts into a schematic design, and document the building with plans, sections, elevations, diagrams, physical models, and perspective renderings.
- f. *Commercial design.* Students will conceive and develop to a schematic level a commercial design for a specific designated site in the local KSA context. Using building design software, students will analyze the site, develop an architectural program, develop multiple concepts, elaborate one or more concepts into a schematic design, and document the building with plans, sections, elevations, diagrams, physical models and perspective renderings.
- g. *Exhibit design.* Students will, as a team, design an exhibit of the semester work for display to the PMU community.
- h. *Portfolio.* Students will document their work over the term as a book including graphics, photographs, and text.

Labs/studios will include tools and resources for the display of physical artifacts in each class session and to a department-wide audience. Each classroom will be equipped with display walls with proper display lighting and adequate viewing space, as well as digital projection or display capabilities. Stands will be provided for the display of models. A gallery will be provided for display to the entire department of mid-term or end-of-term exhibits.

XI. Learning Technology Component

Various digital learning technologies will be used in conjunction with manual methods. A digital learning technology environment should provide:

- a. Creation and distribution of course syllabus.
- b. Distribution of assignment specifications and collection of digital versions of assignment deliverables, with file sizes that may be very large, such as 100 MB per file per student.
- c. Sharing links to Web sites.
- d. Course calendar for apprising students of deadlines.
- e. Course email utility for managing individual communications between a student and the instructor.

- f. Course discussion list or bulletin board for sharing comments and images with the entire course community.
- g. Grade distribution system for communicating grades from instructor to student, ensuring privacy of the communication.

XII. Special Projects/Activities

Field trips to notable architectural construction sites will be arranged under the guidance of the instructor or guest guides. The intent is to enable students to become familiar with the components that make up a building and the processes for putting those components in place. During the field trip, the Department will provide transportation, lodging and accommodations for students, instructors and guests as necessary. The instructor will arrange permission to visit the sites.

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

1. Gregory, Rob. *Key Contemporary Buildings: Plans, Sections and Elevations* (Key Architecture Series). W. W. Norton & Company, New York, NY; Pap/Cdr edition (April 17, 2008). ISBN-13: 978-0393732429
2. Pena, William M. and Parshall, Steven A. *Problem Seeking: An Architectural Programming Primer, 5th Edition*. Wiley; 2012. ISBN-13: 978-1118084144

B. Alternative Textbook(s)

At the discretion of the instructor

C. Supplemental Print Materials

To be supplied by the instructor

D. Supplemental Online Materials

To be supplied by the instructor

XIV. Faculty Requirements

An instructor should have at a minimum a master's degree in architecture or architectural science or architectural engineering, and at least four years of employment experience as a designer. Preferred qualifications include a doctoral degree with a focus on architecture, design or design pedagogy and an architectural license.

Course Title: ARCH 2422: Design Studio IV- Integrated Architectural Design

Semester Credit Hours: 4 (1, 3)

Total (Lecture, Studio)

I. Course Overview

This course provides a practical knowledge of materials and construction as they relate to architectural design. Working in teams, students will design and construct a small outdoor shelter. The course is conceived to address the breadth of knowledge in architecture to encourage students to situate their learning in subsequent courses and begin to identify a future area of focus for their careers.

The course will use a design studio method that involves project-based learning. It will be carefully coordinated with ARCH 2342: Materials and Methods.

II. PMU Competencies

By intensity, breadth and depth of experience gained through this course in conjunction with ARCH 2342: Materials and Methods, students will gain exceptional knowledge and understanding related directly to the PMU Core Competencies.

The reliance upon teams of students to accomplish a built structure will strongly engage students in *communications, teamwork* and *leadership*. Use of digital fabrication tools as part of manufacturing parts of the structure address *technological competence*. *Professional competence* is addressed through a focus on architectural programming and detailing. The challenge of building a structure will engage students in *critical thinking* and *problem solving*.

III. Detailed Course Description

Content for ARCH 2422: Design Studio IV-Integrated Architectural Design includes architectural design and tectonics; design of structures with respect to construction; fabrication, transport, assembly, and installation of pavilion-scale designs; regulatory approval of pavilion-scale constructions; precedents in construction innovation and expression; fundamental issues in successful teams including leadership, commitment, accountability, domain of authority, and communication; architectural programming with emphasis on financial and time constraints; site analysis; and techniques of architectural significance.

ARCH 2422: Design Studio IV-Integrated Architectural Design is organized around a major team-based term project to design, manufacture and build a small prefabricated structure, such as a bus stop shelter, an exhibit pavilion, or a picnic shelter. It will involve an actual client and thus serve as a significant experience in community engagement and social responsibility.

This kind of experience has been found to be transformative when implemented at schools of architecture.

IV. Requirements Filled

This course is a required course taken in the second semester of the second year.

V. Required Prerequisites

Prerequisite: ARCH 2421: Design Studio III- Architectural Design.

Co-requisites: ARCH 2342: Materials and Methods

COAD 2252: Digital Design II

VI. Learning Outcomes

Students completing this course will have learned the following:

- a. Recognize the critical importance of complete and thorough documentation of a design to support construction.
- b. Demonstrate essential skills and principles of teamwork and collaboration.
- c. Employ principles of architectural detailing and connection of similar and dissimilar materials.
- d. Perform practical experience with multiple materials typically used in architecture.
- e. Develop practical knowledge and experience of both manual and digital fabrication.
- f. Describe and recognize the social impact of architecture.

The course focuses on learning objectives that align with those documented in the U.S. National Architectural Accrediting Board (NAAB) accreditation standards. These include knowledge and abilities in the following four areas:

1. Critical thinking and representation
2. Building practices, technical skills and knowledge of architecture and building
3. Integrated architectural solutions
4. Professional practice

In addition, the course enhances learning in particular areas of focus in the PMU Architecture program including:

- Technology for architectural design and construction
- Research-informed design process

VII. Assessment Strategy

Assessment in the course will be based on three factors:

- a. Participation and teamwork
- b. Design
- c. Structural sufficiency

The participation grade will be based on attendance and participation in class and contribution to fabrication and assembly of the structure. Design projects will be graded based on development of an appropriate building program, completion of appropriate drawings at a professional level of quality, addressing building system arrangement, addressing spatial functional arrangements and oral and graphic presentation. The completed structure will be graded based on structural sufficiency, craftsmanship, anticipation and avoidance of construction problems and public appreciation as documented through a survey of visitors.

VIII. Course Format

As a studio course, content will be delivered in sessions held three times each week contiguous to lab sessions, using a combination of lectures, working sessions under instructor supervision and seminar format discussions and reviews. Each section will be assigned a room or space equipped with a drawing desk for each student. To foster an appropriate architectural studio culture, each student desk will be reserved for the sole use by an individual student.

The major project for the semester will be the design and erection of a structure by a team of students. Minor projects may be assigned for assessment of abilities of individual students and skill acquisition.

Instructor will identify a site and arrange permission to use the site for erection of the structure.

Classroom Hours (7 hours per week)

Class: 1, Studio: 6

IX. Topics to Be Covered

Topics for this course are focused on material and construction and how they are related to architectural expression. They include:

- a. Precedents of structurally inspired architecture
- b. Connections and connectors, including nails, screws, bolts, encasement, welding, riveting, and geometric fitting
- c. Precedents of detailing connections between structural elements
- d. Identification of occupant behavior and requirements and design of a survey instrument for assessing occupant satisfaction
- e. Computer modeling of parametrically varying forms
- f. Exploration of a solution space using parametric models
- g. Computer modeling of elements to be fabricated
- h. Shop drawings
- i. Principles of teamwork
- j. Project delivery methods, including design-bid-build, and integrated project delivery
- k. Fabrication using laser cutters, 3-axis computer numerical control (CNC) cutting machines, multi-axis cutting machines, 3D printing and robots
- l. Project management and scheduling
- m. Project stakeholder coordination
- n. Building regulatory environment
- o. Post-occupancy evaluation

X. Studio/Shop/Field Laboratory Exercises

The course will require a field laboratory, a studio space and a fabrication shop. The field lab is for erection of the structure. This may be on a reserved site on the PMU campus or it may be on a public site away from campus.

The studio space for each student will include drawing desk and chair or stool, power outlet for computing, Wi-Fi or cabled network, lighting that is appropriate for a computer-based workspace and task lighting that is appropriate for hand-based drawing.

The fabrication shop will include a full complement of woodworking, metalworking and concrete casting machine and hand tools. It will also include CNC equipment, such as laser cutters, 3-axis cutting machines for sheet stock and panel stock such as routers and waterjet cutters and high-axis milling machines for wood and metals.

Activities in these labs include:

- a. Design of the structure in the studio space; students will meet in the studio space unless otherwise scheduled for lectures, seminars, reviews and desk critiques.
- b. Introduction to woodworking in the fabrication shop
- c. Introduction to metalworking in the fabrication shop
- d. Introduction to casting in the fabrication shop
- e. Introduction to CNC cutting machines in the fabrication shop
- f. Introduction to 3D printing in the fabrication shop
- g. Prototyping the design project to test assembly in the fabrication shop

- h. Manufacture of components of the structure in the fabrication shop
- i. Erection of the structure designed as a term project; this will take place in the field laboratory

In addition, there will be tools and resources for the display of physical artifacts in each class session and to a department-wide audience. Each classroom will be equipped with display walls with proper display lighting and adequate viewing space, as well as digital projection or display capabilities. Stands will be provided for the display of models. A gallery will be provided for display to the entire department of mid-term or end-of-term exhibits.

XI. Learning Technology Component

Various digital learning technologies will be used in conjunction with manual methods. A digital learning technology environment should provide:

- a. Creation and distribution of course syllabus.
- b. Distribution of assignment specifications and collection of digital versions of assignment deliverables, with file sizes that may be very large, such as 100 MB per file per student.
- c. Sharing links to Web sites.
- d. Course calendar for apprising students of deadlines.
- e. Course email utility for managing individual communications between a student and the instructor.
- f. Course discussion list or bulletin board for sharing comments and images with the entire course community.
- g. Grade distribution system for communicating grades from instructor to student, ensuring privacy of the communication.

XII. Special Projects/Activities

The major project for the semester will be the design and erection of a structure by a team of students. Minor projects may be assigned for assessment of abilities of individual students and skill acquisition.

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

- 1. Jabi, Wassim. *Parametric Design for Architecture*. Laurence King Publishing; 2013. ISBN-13: 978-1780673141
- 2. Menges, Achim. *Computational Design Thinking, 1st Edition*. Wiley; 2011. ISBN-13: 978-0470665657

B. Alternative Textbook(s)

Woodbury, Robert. *Elements of Parametric Design, 1st Edition*. Routledge, New York, NY, 2010. ISBN-13: 978-041577987

C. Supplemental Print Materials

Supplemental texts will be at the discretion of the instructor.

D. Supplemental Online Materials

Supplemental texts will be at the discretion of the instructor.

XIV. Faculty Requirements

An instructor should have at a minimum a master's degree in architecture or architectural science, and at least four years of employment experience as a designer. Preferred qualifications include a doctoral degree with a focus on architecture, design or design pedagogy and an architectural license.

Course Title: COAD 3322: Building Codes and Universal Design**Semester Credit Hours:** 3 (3, 0)**I. Course Overview**

This lecture course covers universal and barrier-free design, means of egress and the international building code as they apply to the built environment.

II. PMU Competencies

Technological competence concerning building technology, and the details and methods of the construction industry is the primary focus of the course. Students also learn professional communication through acquiring the vocabulary of the industry. The course requires critical thinking and problem solving through applied problems on periodic tests.

III. Detailed Course Description

The creation of functional and beautiful built environments requires not only sensitivity to aesthetics but also a strong grounding and understanding of safety, building codes and universal design. Students learn about occupancy classifications and loads, means of egress, building construction types and building sizes, fire and smoke resistant assemblies, fire protection systems, plumbing and electrical code requirements, universal and barrier-free design, and wayfinding requirements.

IV. Requirements Filled

This course is required of all students majoring in architecture. It is taken in the second semester of third year.

V. Required Prerequisites

ARCH 2342: Materials and Methods

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Recognize and define the various parts of an egress system.
- Calculate building occupancy loads based on occupancy types.
- Describe typical fire resistant assemblies and construction methods.
- Calculate doorway, hallway and vertical transition widths needed for egress.
- Evaluate the number and location of exits required for safe egress.
- Recognize and define elements of an accessible restroom.
- Analyze and explain a barrier-free interior environment.
- Demonstrate an ability to navigate the various sections of the International Building Code

The course focuses on the first and second realms of knowledge required by the U.S. National Architectural Accrediting Board (NAAB):

- A. Critical thinking and representation emphasizing creativity, graphic thinking, and abstract analysis.
- B. Building practices, technical skills, and knowledge.

VII. Assessment Strategy

Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at

periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The course is primarily a lecture format that incorporates a series of in class discussion sessions.

Attendance is extremely important for learning the material presented. Each student is allowed three excused absences before her grade is affected.

Web supplement: The course homepage (using the university's Web tool, WebCT or BLACKBOARD) includes the following.

- A. Course syllabus
- B. Course assignments
- C. Course e-mail utility
- D. Course discussion list
- E. Student course grades

Classroom Hours (3 hours per week)

Class: 3

Studio: 0

IX. Topics to be Covered

- A. Occupancy classifications and loads
- B. Building construction, building types and building sizes
- C. Means of egress
- D. Fire protection
- E. Plumbing codes
- F. Electrical codes
- G. Residential codes
- H. Universal and barrier-free design
- I. Field trips – to be determined by professor-of-record.

X. Laboratory Exercises

The previous list of topics is presented through lectures. In addition to lectures, the information is reinforced through in-class exercises related to international building codes and universal design. Group discussions compare and contrast international and local procedures and practices.

XI. Learning Technology Component

Knowledge of building technologies is the primary focus of the course. Students use the Internet to research topics covered in the course

XII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

Ching, Francis D.K and Winkel, Steven R., (2018) *Building Codes Illustrated, 6th Edition*. John Wiley & Sons, Inc., 2018.
ISBN: 9781119480358

B. Alternative Textbooks

Ballast, David Kent, (2013). *Interior Construction and Detailing for Designers and Architects*. Professional Publications, Incorporated, 2013.

ISBN: 9781591264200

C. Supplemental Print Materials

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

2010 ADA Standards for Accessible Design- www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards.pdf

International Building Code 2018 (OR most recent edition)

<http://shop.iccsafe.org/2018-international-building-coder.html>

Saudi Arabian Building Code 2018

ENGLISH: <https://www.sbc.gov.sa/resources/PdfPreview/web/viewer.html?avx=U2FsdGVkX-1912xaZA/2xeBz/uVGcegUQR5XE9bHZ5CQ=>

ARABIC:

<https://www.sbc.gov.sa/resources/PdfPreview/web/viewer.html?avx=U2FsdGVkX193Pbh38t3FB-NX/cftEWIfNQ8pd9bSFmVY=&type=0>

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 3341: Built World Design History and Theory I

Semester Credit Hours: 3 (3, 0)

I. Course Overview

The course surveys the evolution of architecture, design and theory inclusive of the Ancient World period, Classical World period, Middle Ages, Renaissance, Baroque and design work up to 1800CE. The student explores design choices and critically analyzes existing designs based on historical information. This course prepares students to participate in designing in a broader context.

II. PMU Competencies

This course provides the students with experience in critical thinking, reasoning in examining design elements and styles in a global context. Students learn problem solving and creativity in making design decisions for clients. Written and graphic communication skills are enhanced through development of the notebook assignment. Through an examination of design in cultures worldwide, this course supports the Globally Connected PMU competency.

III. Detailed Course Description

The course covers environmental design from prehistoric work to 1800CE including Egypt, classical Greece and Rome, Early Medieval, Romanesque, Gothic, Asian and Islamic design, Renaissance, Baroque, Rococo and Neoclassicism, as well as New World environments. Students explore design

choices and critically analyze existing designs. The course prepares the students to participate in designing in a broader context.

The progression of the theory and design of architectural and interior environments throughout history provides an appreciation for humankind's achievements and aids in understanding current design trends.

IV. Requirements Fulfilled

This course is required of all students majoring in architecture and interior design. It is taken in the first semester of third year.

V. Required Prerequisites

Successful completion of 50 credit hours.

VI. Learning Outcomes

Students in this course learn:

- To recognize architecture, styles, decorative elements and motifs, and design components specific to a historical period.
- To name period styles of architecture and design from the Ancient World, the Classical World, Middle Ages, Renaissance, Baroque, and up to 1800.
- To evaluate the stylistic development of architecture, styles, decorative elements and motifs, and design components as a reflection of changing influences in the social, cultural, political, religious and technological context.
- To employ knowledge gained from the course in sketchbook drawings and apply ancient style to modern environments by implementing old with new.
- To interpret design differences that lead to global consciousness and appreciation for alternative points of view regarding cultural diversity.

The course focuses on the first realm of knowledge required by the U.S. National Architectural Accrediting Board (NAAB):

- A. Critical thinking and representation emphasizing creativity, graphic thinking, abstract analysis, global culture and cultural diversity.

VII. Assessment Strategy

Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The course format will include:

- PowerPoint presentations that include illustrations to support lecture and discussions.
- Lectures
- Discussions

- Guest speaker/s (local and regional artisans)
- Video/CD presentations
- Field trips to museums and other locations

Classroom Hours (3 hours per week)

Class: 3

Studio: 0

IX. Topics to be Covered

- A. Prehistoric and early civilizations
- B. Egypt
- C. Aegean cultures and Greece
- D. Rome
- E. Early Medieval
- F. Romanesque
- G. Gothic
- H. Islamic and Near East
- I. Asia
- J. Early Renaissance- Italy
- K. High Renaissance- Italy
- L. Late Renaissance- Italy
- M. Baroque- Italy
- N. Baroque- Northern Europe
- O. Renaissance- France
- P. Baroque- France
- Q. Regency to Neoclassicism- France
- R. Empire and Provincial Styles- France
- S. Renaissance- Spain and Low Countries
- T. Tudor, Elizabethan and Jacobean- England
- U. Carolean, William and Mary and Queen Anne - England
- V. Georgian- England
- W. Colonial- American and Latin America
- X. Georgian- America
- Y. Federal Style- America

X. Laboratory Exercises

None

XI. Learning Technology Component

Illustrations for notebook assignments can be completed using available computer software.

XII. Special Projects/Activities

Students design a poster to implement ancient styles in modern spaces.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

Ching, Francis D.K, Jarzombek, Mark M., and Prakash, Vikramaditya, *A Global History of Ar-*

chitecture. John Wiley & Sons, Inc., 2017. ISBN: 9781118981337

B. Alternative Textbooks

Fazio, Michael, Moffett, Marian, and Wodehouse, Lawrence. *Buildings across Time: An Introduction to World Architecture*. 4th edition. McGraw-Hill; 2012. ISBN-13: 978-0073379296

Ballantyne, Andrew. *Key Buildings from Prehistory to the Present: Plans, Sections and Elevations*. Laurence King Publishing; 2012. ISBN-13: 978-1856698375

Pile, John F. and Gura, Judith, *History of Interior Design*, John Wiley & Sons, Inc., 2013. ISBN: 9781118403518

C. Supplemental Print Materials

1. Curl, James Stevens. *Oxford Dictionary of Architecture and Landscape Architecture, Second Edition*. Oxford University Press; 2006. ISBN 978-0-19-860678-9
2. Sherrill, Whiton, and Abercrombie, Stanley. *Interior Design & Decoration*, 5th Edition. Prentice Hall, 2002. ISBN: 9780130307484
3. Cranz, Galen, *The Chair: Rethinking Culture, Body, and Design*, W. W. Norton and Company, 2000. ISBN: 9780393046557
4. Boger, Louise Ade, *The Complete Guide to Furniture Styles*. Waveland Press, Inc., 1997. ISBN: 9780881339390
5. Speltz, Alexander (1959). *The Styles of Ornament*: Dover Publications, Inc. 1959 ISBN: 9780486205571
6. Ireland, Jeannie (2018). *History of Interior Design*, 2nd Edition, Fairchild Publications, 2018 ISBN: 9781501319884

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

None

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 3342: Built World Design History and Theory II

Semester Credit Hours: 3 (3, 0)

I. Course Overview

The course continues a survey of architecture, design and theoretical characteristics of specific design styles in selected cultures from 1800CE to the present. The progression and evolution of the design of the built environment throughout history gives an appreciation for humankind's achievements and aids in understanding current design trends.

II. PMU Competencies

The course provides the students with experience in reasoning logically and creatively in making design decisions for clients. Written and graphic communication skills are enhanced through development of the notebook assignment. Critical thinking and problem solving, reasoned thought and research skills will be utilized. Through an examination of design in cultures worldwide, this course supports the Globally Connected PMU competency.

III. Detailed Course Description

The course covers environmental design and theory from 1800 to the present including Industrial Revolution and Victorian design, Arts and Crafts and Craftsman styles, Eclecticism and various Revival phases, Art Nouveau, Art Deco, International Style, Modernism, Postmodernism and emerging design trends. Students explore design choices and critically analyze existing designs. The course prepares the students to participate in designing in a broader global context.

IV. Requirements Fulfilled

This course is required of all students majoring in architecture and interior design. It is taken in the second semester of third year.

V. Required Prerequisites and/or Co-requisites

COAD 3341: Built World Design History and Theory I

VI. Learning Outcomes

Students in this course learn:

- To recognize architecture, styles, decorative elements and motifs, and design components specific to a historical period.
- To name period styles common in architecture and design work after 1800.
- To evaluate the stylistic development of architecture, styles, decorative elements and motifs, and design components as a reflection of changing influences in the social, cultural, political, religious and technological context.
- To apply knowledge gained from the course in sketchbook drawings and projects
- To interpret design differences that lead to global consciousness and appreciation for alternative points of view regarding cultural diversity.

The course focuses on the first realm of knowledge required by the U.S. National Architectural Accrediting Board (NAAB):

- A. Critical thinking and representation emphasizing creativity, graphic thinking, abstract analysis, global culture and cultural diversity.

VII. Assessment Strategy

Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The course format will include:

- A. Power-point presentations that include illustrations included in the lectures and discussions.
- B. Lectures
- C. Discussions
- D. Guest speakers/artisans from local community and region
- E. Video/CD presentations
- F. Field trips to museums, etc.

Classroom Hours (3 hours per week)

Class: 3

Studio: 0

IX. Topics to be Covered

- A. Regency - England
- B. Revivals - Greek and Gothic
- C. Industrial Revolution
- D. Victorian - England and Victorian Furniture
- E. Victorian - United States and Vernacular Styles
- F. Early Skyscrapers
- G. Arts & Crafts - England
- H. Craftsman Style - United States and European Aesthetic Movements
- I. Art Nouveau - Europe
- J. Art Nouveau - The Vienna Secession & United States
- K. Beaux-Arts, US Eclecticism to Skyscrapers
- L. Eclecticism - United States
- M. Eclecticism - Europe
- N. Modernism - Frank Lloyd Wright and De Stijl
- O. International Style - Gropius and van der Rohe
- P. International Style - Le Corbusier and Aalto
- Q. Art Deco - Europe
- R. Art Deco - United States and Industrial Design & Residential Design
- S. Early Modernism - Europe
- T. Early Modernism - United States
- U. Modernism - Europe
- V. Modernism - United States
- W. Future and High Tech Design
- X. Postmodernism and Late Modernism
- Y. Individual Stylists, Deconstructionism and Other Trends

X. Laboratory Exercises

None

XI. Technology Component

Illustrations can be completed using available computer software.

XII. Special Projects/Activities

Special projects as assigned by the instructor.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

Ching, Francis D.K, Jarzombek, Mark M., and Prakash, Vikramaditya, *A Global History of Architecture*, John Wiley & Sons, Inc., 2017.

ISBN: 9781118981337

B. Alternative Textbook(s)

Frampton, Kenneth. *Modern Architecture: A Critical History*. 4th ed. Thames and Hudson, London; 2007. ISBN-13: 978-0500203958

Le Corbusier. *Towards a New Architecture*. Dover Publications, New York; 1986. (Translated from the *Vers une architecture*. Reprint. Originally published: J. Rodker, London; 1931.) ISBN: 0486250237

Zevi, Bruno. *The Modern Language of Architecture*. De Capo Press; 1977. ISBN-13: 978-0306805974

Colquhoun, Alan. *Modern Architecture*. Oxford University Press, New York; 2002. ISBN-13: 978-0192842268

Weston, Richard. *Key Buildings of the 20th Century: Plans, Sections and Elevations (Second Edition)*. W. W. Norton & Company; 2010. ISBN-13: 978-0393733112

C. Supplemental Print Materials

Sykes, A. Krista (Ed.). *The Architecture Reader: Essential Writings from Vitruvius to the Present*. George Braziller, New York; 2007. ISBN-13: 978-0807615805

Mallgrave, Harry Francis and Contandriopoulos, Christina. *Architectural Theory, volume II, an anthology from 1871 – 2005*. Blackwell Publishing; 2011. ISBN 978-1-405102605

D. Supplemental Online Materials

None

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular

office hours, and supporting students' development through learning-centered activities.

Course Title: ARCH 3343: Principles of Structural Systems

Semester Credit Hours: 3 (3,0)

Total (Lecture, Lab)

I. Course Overview

This course provides an introduction to the principles of architectural structures as related to architectural design. It includes consideration of spatial, structural and aesthetic issues of building structural systems and introduces structural behavior, forces and responses in structural systems.

II. PMU Competencies

The course addresses two of PMU's core competencies. It develops the students' *critical thinking* and *problem solving* skills.

III. Detailed Course Description

This course provides students with an understanding of the basic concepts in structural design, the basic structural forms and systems as related to architectural design and construction, as well as the potentials and issues of basic structural systems through built examples. Students will develop knowledge of building systems and interior construction, and an understanding of the basics of statics with a focus on the effects of loads on a structural member or system. Students will also develop the ability to interpret the effects of loads and load combinations on behavior of structures. Students will produce works that demonstrate that design solutions affect and are impacted by structural systems.

The course combines a case studies approach, which introduces students to built examples of the possible structural forms and systems through an applied approach, in which students build physical models of simple structural systems and test them through applying suitable loads.

IV. Requirements Filled

This is a required course taken in the second semester of the third year.

V. Required Prerequisites

ARCH 2342: Materials and Methods

VI. Learning Outcomes

By taking this course students will be able to:

- Describe and analyze basic structural forms and systems as related to architectural design and construction.
- Recognize, criticize and evaluate the potentials and issues of basic structural systems through built examples.
- Interpret the effects of loads and load combinations on the behavior of structures.

As the second course in the environmental systems and structures sequence, the course focuses on U.S. National Architectural Accrediting Board (NAAB) criteria related to structural systems.

It also prepares students for courses focusing on building technology. Additionally, students are introduced to the principles of informed design decision making.

VII. Assessment Strategy

Student evaluation in this course will involve a number of components including quizzes, model building assignments, and a final exam. The description of each of these components is included below:

- Three short quizzes to be held over the course of the semester; each quiz will only cover the topics presented following the previous quiz (30% of final grade).
- Students will research and analyze three case studies of buildings with different structural systems as covered in class (30% of final grade).
- Each student will build two physical models of different structural systems (20% of final grade).
- A final comprehensive exam (20% of final grade).

VIII. Course Format

This course utilizes a lecture format. The course will meet two times per week. Lectures will be used to present course content including basic principles and case studies. Students will participate in discussions within the class period and online through the course management system. Online discussion groups will be supervised by the instructor. Students will also build physical models of structural systems and apply appropriate loads to them until structure failure point is reached.

Classroom Hours (3 hours per week)

Class: 3, Lab: 0

IX. Topics to Be Covered

- Basic structural forces and structural models including: tension-compression, bending, deflection, buckling, cantilevers, cables, and arches
- Stability and strength, loads, and states of stress
- Basic structural systems including: beams and slabs, cantilevers, columns and walls, trusses, cables, arches, frames, vaults and domes, shells and membranes
- Forces and movements
- Stability and equilibrium of forces
- Supports, reactions, and restraints of movements
- Introduction to beam behavior and tributary areas
- Beam behavior; shear force and bending moment in beams

X. Laboratory Exercises

None

XI. Learning Technology Component

All course material, including syllabus, class presentations, handouts and other resources, will be made available as much as possible on the BLACKBOARD course management system. System e-mail will be used by the instructor to communicate important information to students. Students will be responsible for checking their e-mail accounts regularly. The course management system will also be used to submit projects digitally and to post student grades as they become available. Instructor will also create discussion groups for students to exchange ideas about course topics.

XII. Special Projects/Activities

- a. Quizzes: Quizzes will include true-false questions, multiple-choice questions and brief calculations and analyses. Each quiz will only cover the topics presented following the previous quiz.
- b. Case Studies: Students will research and analyze three case studies that represent the use of different structural systems. They will write papers with the bulk of the assessment relying on their analysis.
- c. Physical Models: Each student will develop physical models of two structural systems. The structural system will be tested by applying appropriate loads until structural failure is reached. The first model will be developed in the first half of the semester and will be of a simple structural system (beam and slab, cantilever, truss), while the second will be developed in the second half of the semester and will be a more complex system (cables, arches, membranes, etc.).
- d. Final Exam: A comprehensive final exam will be held at the end of the semester. The exam may include true-false questions, multiple-choice questions and calculations and analyses. The exam and the quizzes will be based on assigned readings from the textbook as well as all class presentations.

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

Sandaker, Bjorn N., Eggen, Arne P., and Cruvellier, Mark R. *The Structural Basis of Architecture, 2nd Edition*. Routledge, Abingdon, Oxon; 2011. ISBN-13: 978-0415415477

B. Alternative Textbook(s)

None

C. Supplemental Print Materials

Dabby, Ramsey and Bedi, Ashwani. *Structure for Architects: A Primer, 1st Edition*. John Wiley and Sons, Hoboken, NJ; 2010. ISBN-13: 978-0470633762

Macdonald, Angus J. *Structure and Architecture, Second Edition, 2nd Edition*. Routledge, New York, NY; 2001. ISBN-13: 978-0750647939

Allen, Edward and Zalewski, Waclaw; Boston Structures Group. *Form and Forces: Designing Efficient, Expressive Structures, 1st Edition*. John Wiley and Sons, Hoboken, NJ; 2009. ISBN-13: 978-0470174654

Place, Jeffrey W. *Architectural Structures*. John Wiley and Sons, Hoboken, NJ; 2007. ISBN-13: 978-0471725510

D. Supplemental Online Materials

None

XIV. Faculty Requirements

Faculty should have a PhD in architecture focusing on architectural structures or a related topic; or faculty should hold a professional Master of Architecture degree and have documented experience in structural systems.

Course Title: COAD 3353: Digital Design III - Building Information Modeling

Semester Credit Hours: 3 (1, 2)

Total (Lecture, Lab)

I. Course Overview

This course expands the student's professional skills in computer-aided design software through experience with building information modeling (BIM) using Revit Architecture, or any other standard of the industry, to build a virtual model and generate 2D and 3D views from the model.

II. PMU Competencies

PMU Competencies are reinforced throughout the course. Communication is a critical component of any studio-based class. Students are required to speak, write and present their work regularly. Critical thinking and problem solving are inherent to the design studio and are required for success. Some projects may require teamwork for a part or all of the assignment.

III. Detailed Course Description

The course continues students' architecture and design education and cultivates the attitudes, values, work habits and skills appropriate to the educational environment and professional practice. Students learn to build a virtual model through building information modeling using Revit Architecture. Using the model, floorplans, sections, 3D views and renderings as well as design specification schedules will be created.

IV. Requirements Fulfilled

This course is a required class that builds on knowledge learned in required courses. It is taken in the first semester of the third year.

V. Required Prerequisites and/or Co-requisites

COAD 2252: Digital Design II- 3D

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Build a complete BIM model using Revit Architecture, or other program.
- Develop various 2D views- plans, elevations, and sections from the model.
- Develop various 3D views- perspectives, and renderings from the model.
- Create schedules based on the model.
- Produce new families to be used in the model.
- Investigate integration of multidisciplinary projects.

All learning outcomes will be measured using rubrics for each project assigned.

The course focuses on the first and second realms of knowledge required by the U.S. National Architectural Accrediting Board (NAAB):

- A. Critical thinking and representation emphasizing creativity, graphic thinking, and abstract analysis.
- B. Building practices, technical skills, and knowledge.

VII. Assessment Strategy

Major design submissions will receive a letter grade. The criteria to be used in grading will be explained in the project statement and grading rubric. It is very important that students understand the nature of the project, what is expected, and how to address the issues of each assignment before spending time on the project. Students should feel free to ask questions and discuss ideas that arise during introductions of projects.

Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique.

Classroom Hours (5 hours per week) **Class:** 1
Studio: 4

IX. Topics to be Covered

Building a virtual model using Revit Architecture and adding

- A. Walls, windows, doors
- B. Components
- C. Custom-created families
- D. Dimensions
- E. Printing
- F. Materials
- G. 3D views and rendering
- H. Sections, elevations, details
- I. Schedules
- J. Stairs
- K. Roof and rooms

X. Laboratory Exercises

None

XI. Technology Component

This course relies entirely on technology while using the computer and computer program to create the virtual model. Students will find information on the Internet to supplement topics covered in lectures.

XII. Special Projects/Activities

The following activities will serve as a skeletal reference and should be supplemented by the individual instructor.

- Project 1: Walls, windows doors

- Project 2: Components
- Project 3: Families
- Project 4: Dimensions
- Project 5: Printing
- Project 6: Materials
- Project 7: 3D views and rendering
- Project 8: Sections, elevations, details
- Project 9: Schedules
- Project 10: Stairs
- Project 11: Roof and rooms
- Final Project- compilation of all topics covered in class
- Portfolio of work

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

1. Kirby, Lance, Krygiel, Eddy, and Kim, Marcus (2017). *Mastering Autodesk Revit 2018*. Sybex, 2017. ISBN: 9781119386728 (OR most recent based on newest program release)
2. Wing, Eric. (2016) *Autodesk Revit 2017 for Architecture: No Experience Required*, John Wiley & Sons, 2017. ISBN: 9781119243311 (OR most recent based on newest program release)

B. Alternative Textbooks

None

C. Supplemental Print Materials

- *Journal of Building Information Modeling*
- *Architectural Digest*

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

www.Revitcity.com

AEC Magazine- aec.com

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: ARCH 3523: Design Studio V- Architectural Design

Semester Credit Hours: 5 (1, 4)

Total (Lecture, Studio)

I. Course Overview

This course focuses on the integration of architectural theories and philosophy with environmental design systems; the study of theoretical approaches to graphic and analytical thinking, problem identification, and design dissemination through various media, case studies, and problem resolution; conditions and forces associated with a variety of building types; and the generation of design solutions.

II. PMU Competencies

This studio course contributes to the following PMU Competencies for students:

- a. *Communication*: The ability to communicate effectively in both English and Arabic in professional and social situations.
- b. *Technological competence*: The ability to use modern technologies to acquire information, communicate, solve problems, and produce intended results.
- c. *Critical thinking and problem solving*: The ability to reason logically and creatively to make informed and responsible decisions and achieve intended goals.
- d. *Professional competence*: The ability to perform professional responsibilities effectively in both local and international contexts.
- e. *Teamwork*: The ability to work effectively with others to accomplish tasks and achieve group goals.
- f. *Leadership*: The ability to be informed, effective, and responsible leaders in family, community, and the Kingdom.
- g. *Conflict Resolution*: The ability recognize and respond to important matters.

III. Detailed Course Description

The course consists of time in the studio and attending visiting lectures. It is the responsibility of each student to demonstrate competence and understanding of the course in the final deliverables for the course.

The studio will consist of one to two projects, with distinct, interrelated phases as outlined in the course schedule. Studio critiques will be in the form of individual desk critiques and occasional “pin-ups.” The teaching methodology includes: a) individual student explorations of design projects, b.) occasional seminars, c.) use of books in the library, and d.) the direct experience of quality works of architecture locally, regionally, and internationally.

The studio will focus on the physical, sensory experience of architecture. In addition to use of the computer, drawing and sketching by hand as well as physical site section models will also be an important form of exploration. It is integrated with COAD 3353: Digital Design III- Building Information Modeling and will lead to a high quality, highly resolved set of BIM computer generated drawings. Students will use orthographic drawings, physical models, and computer models to explore their project’s interior space and experience of moving through the project. Field trips may also be scheduled as part of the studio.

IV. Requirements Filled

This is a required course taken in the first semester of the third year.

V. Required Prerequisites

Prerequisite: ARCH 2422: Design Studio IV- Integrated Architectural Design

Co-requisite: COAD 3353: Digital Design III - Building Information Modeling

VI. Learning Outcomes

- Evaluate, analyze, and integrate information from a variety of sources, such as case studies and historical precedents, and the parameters of site, program, climate, client, and context
- Perform a close reading of a building which entails the ability to understand and critically analyze the ideas that informed its development
- Use appropriate design strategies (e.g., theories of form-making) and tools (e.g., BIM and other computer software) to represent, analyze, and integrate information into a design project
- Develop critical, reasoned positions; this entails the ability to define a design problem, explore a direction, and develop a thesis in an architectural project
- Demonstrate graphic, oral and written communication skills, including the graphic communication of original, creative ideas, in order to present work graphically, orally as well as in writing for the justification and defence of design solutions.
- Employ active and critical listening, and the effective application of received critiques to the advancement of the work

Course requirements are aligned with the NAAB accreditation Student Performance Criteria (SPC). SPC addressed in this course are:

- *A.4. Technical Documentation:* Demonstrate the ability to make technically clear drawings, write outline specifications, and prepare models illustrating and identifying the assembly of materials, systems, and components appropriate for a building design.
- *B. 1. Pre-Design:* Demonstrate the ability to prepare a comprehensive program for an architectural project, such as preparing an assessment of client and user needs, an inventory of space and equipment requirements, an analysis of site conditions (including existing buildings), a review of the relevant laws and standards and assessment of their implications for the project, and a definition of site selection and design assessment criteria.
- *B. 2. Accessibility:* Demonstrate the ability to design sites, facilities, and systems to provide independent and integrated use by individuals with physical (including mobility), sensory, and cognitive disabilities.

VII. Assessment Strategy

Evidence of the successful attainment of the desired learning outcomes will be assessed during juried reviews of the student's work at the middle and end of the semester. These presentations will be comprised of a specified set of graphic and three-dimensional documentation elements, presented orally by the student to the jury. The instructor will use desk critiques to continuously monitor the student's progress toward these goals during regular class time throughout the semester.

A student's work may be considered for an excellent grade when the following characteristics are visibly evident in the work:

- a. The weekly deliverables have been completed and submitted on time (late submittals may lose 1 letter grade) and are clearly identified with the student's name, course number, and semester.
- b. Care in presentation of interim deliverables is apparent (page size, page layout, no spelling or math errors).
- c. Design proposals demonstrate logical consistency from concept through development.
- d. Design proposals meet the standard of quality established by precedents and are presented to the studio in a meaningful way.

- e. Alternative schemes demonstrate the investigation of alternative points of view about the subject, not simple derivations of a single scheme.
- f. The projects are not formally compromised.
- g. The projects demonstrate the result of insights learned from program, precedents, context, and site analysis.
- h. The work demonstrates a range of media to present specific aspects of the character of the work.
- i. The work demonstrates a range of scales of inquiry from detail to component to an overall whole.
- j. The alternatives are presented in the context of the site (extending at least the dimension of the parcel in all directions) and climate (shadows).
- k. The alternatives demonstrate the development of a single train of thought across program, core, structure, and envelope.
- l. Relevant historical precedents play a meaningful part of the student's study (and are included in each deliverable).

VIII. Course Format

The course will be taught in a design studio format using methodologies that are primarily project-based and offer the means by which learning from technical and professional courses is combined with instruction in architectural design. Studios offer the opportunity for students to engage closely with the instructor. Studio project assignments become progressively more complex through the curriculum until the last year when students undertake individual capstone thesis-like projects.

For each year, a student cohort is divided into groups of about 14-16, and each group being assigned to a studio instructor. Studio courses typically meet three days per week. Studio assignments, or projects, are established by the studio instructor, but should be coordinated for each studio level.

Architecture studio teaching involves a number of varied activities. At the beginning of the semester, assignments, or projects, are developed by the studio instructor, which include the scope, goals, expectations, general procedure, and assessment criteria that will be employed for the project. Studio teaching also involves implementing the project assignment through different teacher/student exchanges including lectures, group discussions, individual desk critiques (also known as "crits"), and formal "pin-up", where students receive feedback on their work from the instructor. A final project presentation or "jury" is typically held at the end of the semester in which students present their work to the studio instructor and other instructors or outside guests.

Classroom Hours (9 hours per week)

Class: 1, Studio: 8

The successful student must commit to significant study outside of class time.

IX. Topics to Be Covered

Students will document an architectural project based upon a topic provided by the instructor. Elements will include parti diagrams, project description, a figure/ground context plan, site plan, shaded roof plan, floor plans illustrating furniture and finishes, building sections and elevations, construction details, and model photos, as well as digital imagery of interior and exterior views. There will be additional required graphics for the environmental systems and structural documentation.

X. Studio Exercises

The studio will involve one to two design projects. The projects will be selected by the studio instructor consistent with the studio level and expected learning outcomes. Projects can vary between sections in the same studio level. For third year studios, projects typically focus on one building with medium size and complexity. A project schedule will be provided by the studio instructor indicating the different phases and timeline of every project phases including but not limited to: research,

programming, schematic design, design developing, development of presentation material, and final presentation. Building information modeling will be essential to the integration, completion and presentation of the projects assigned.

Studio space should include a drawing desk and chair or stool, power outlet for computing, Wi-Fi or cabled network, lighting that is appropriate for a computer-based workspace and task lighting that is appropriate for hand-based drawing.

XI. Learning Technology Component

Various digital learning technologies will be used in conjunction with manual methods. A digital learning technology environment should provide:

- a. Creation and distribution of course syllabus
- b. Distribution of assignment specifications and collection of digital versions of assignment deliverables, with file sizes that may be very large, such as 100 MB per file per student
- c. Sharing links to Web sites
- d. Course calendar for apprising students of deadlines
- e. Course email utility for managing individual communications between a student and the instructor
- f. Course discussion list or bulletin board for sharing comments and images with the entire course community
- g. Grade distribution system for communicating grades from instructor to student, ensuring privacy of the communication

In addition, there will be tools and resources for the display of physical artifacts in each class session and to a department-wide audience. Each classroom will be equipped with display walls with proper display lighting and adequate viewing space, as well as digital projection or display capabilities. Stands will be provided for the display of models. A gallery will be provided for display to the entire department for mid-term or end-of-term exhibits.

XII. Special Projects/Activities

In addition to the typical activities of design studios, the course could include relevant guest lectures from other faculty or outside experts and practitioners and experts as well as field-trips to local architectural projects or architectural firms,

XIII. Textbooks and Teaching Aids

A. Required Textbooks

Kwok, Alison and Grondzik, Walter. *The Green Studio Handbook (First or Second Edition)*. Architectural Press; 2006. ISBN 0750680229

Allen, Edward and Iano, Joseph. *The Architects Studio Companion (Third, Fourth or Fifth Edition)*. Wiley; 2011. ISBN 0470641916

Kevin Lynch, Kevin. *Site Planning (any edition)*. MIT Press. ISBN 9780262120500

“The 2010 Americans with Disabilities Act (ADA) Standards for Accessible Design” must be downloaded and printed out. http://www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards_prt.pdf

International Building Code 2018 (OR most recent edition)

<http://shop.iccsafe.org/2018-international-building-coder.html>

Saudi Arabian Building Code 2018

ENGLISH: <https://www.sbc.gov.sa/resources/PdfPreview/web/viewer.html?avx=U2FsdGVkX-19l2xaZA/2xeBz/uVGcegUQR5XE9bHZ5CQ=>

ARABIC:

<https://www.sbc.gov.sa/resources/PdfPreview/web/viewer.html?avx=U2FsdGVkX193Pbh38t-3FBNX/cftEWlfNQ8pd9bSFmVY=&type=0>

XIV. Faculty Requirements

Faculty should have a PhD in architecture; or faculty should hold a professional Master of Architecture degree and have documented architectural design and professional practice experience.

Course Title: ARCH 3524: Design Studio VI- Integrated Architectural Design

Semester Credit Hours: 5 (1, 4) Total (Lecture, Studio)

I. Course Overview

This course focuses on the application of verbal, graphic, research, critical thinking, and fundamental design skills to architectural projects that emphasize the integration of architectural history and theory issues.

II. PMU Competencies

This studio course contributes to the following PMU Competencies for students:

- a. *Communication*: The ability to communicate effectively in both English and Arabic in professional and social situations.
- b. *Technological competence*: The ability to use modern technologies to acquire information, communicate, solve problems, and produce intended results.
- c. *Critical thinking and problem solving*: The ability to reason logically and creatively to make informed and responsible decisions and achieve intended goals.
- d. *Professional competence*: The ability to perform professional responsibilities effectively in both local and international contexts.
- e. *Teamwork*: The ability to work effectively with others to accomplish tasks and achieve group goals.
- f. *Leadership*: The ability to be informed, effective, and responsible leaders in family, community, and the Kingdom.

III. Detailed Course Description

The studio will consist of one to two projects, with distinct, interrelated phases as outlined in the course schedule. Studio critiques will be in the form of individual desk critiques and occasional “pin-ups.” The teaching methodology includes: a) individual student explorations of design projects, b.) occasional seminars, c.) use of books in the library, d.) the direct experience of quality works of architecture both locally, regionally, and internationally.

The studio will focus on the physical, sensory experience of architecture. In addition to use of the computer, drawing and sketching by hand and physical site section models will be an important form of exploration, leading to a high quality, highly resolved set of computer generated drawings. Students will use orthographic drawings, physical models, and computer models to explore their proj-

ect's interior space and experience of moving through the project. Field trips may also be scheduled as part of the studio.

The studio will be taught in parallel with COAD 3342: Built World Design History and Theory II. Selected studio projects and topics will draw from the areas of focus of COAD 3342.

The course consists of time in the studio and attending visiting lectures. It is the responsibility of each student to demonstrate competence and understanding of the course in the final deliverables for the course.

IV. Requirements Filled

This a required course taken in the second semester of the third year.

V. Required Prerequisites

Prerequisite: ARCH 3523: Design Studio V- Architectural Design

Co-requisite: COAD 3342: Built World Design History and Theory II

VI. Learning Outcomes

Students will be expected to:

- Research and design for specific environment-behavior interactions.
- Integrate architectural design with usable outdoor space and surrounding context.
- Apply the basic principles of life-safety systems with an emphasis on egress.
- Communicate concepts with drawing annotations, and written and oral presentations.
- Employ visual communication techniques, including digital renderings.
- Demonstrate effective self-organization, collaboration, and time management skills in collaborative and individual settings.

Course requirements are aligned with the NAAB accreditation Student Performance Criteria (SPC). SPC addressed in this course are:

- *A.4. Technical Documentation:* Demonstrate the ability to make technically clear drawings, write outline specifications, and prepare models illustrating and identifying the assembly of materials, systems, and components appropriate for a building design.
- *B. 1. Pre-Design:* Demonstrate the ability to prepare a comprehensive program for an architectural project, such as preparing an assessment of client and user needs, an inventory of space and equipment requirements, an analysis of site conditions (including existing buildings), a review of the relevant laws and standards and assessment of their implications for the project, and a definition of site selection and design assessment criteria.
- *B. 2. Accessibility:* Demonstrate the ability to design sites, facilities, and systems to provide independent and integrated use by individuals with physical (including mobility), sensory, and cognitive disabilities.
- *B. 5. Life Safety:* Demonstrate the ability to apply the basic principles of life-safety systems with an emphasis on egress.

VII. Assessment Strategy

A student's work may be considered for an excellent grade when the following characteristics are visibly evident in the work:

- a. The weekly deliverables have been completed and submitted on time (late submittals may lose 1 letter grade) and are clearly identified with the student's name, course number, and semester
- b. Care in presentation of interim deliverables is apparent (page size, page layout, no spelling or math errors)

- c. Design proposals demonstrate logical consistency from concept through development
- d. Design proposals meet the standard of quality established by precedents and are presented to the studio in a meaningful way
- e. Design meets current IBC and ADA for life safety and accessibility
- f. Alternative schemes demonstrate the investigation of alternative points of view about the subject, not simple derivations of a single scheme
- g. The projects are not formally compromised
- h. The projects demonstrate the result of insights learned from program, precedents, context, and site analysis
- i. The work demonstrates a range of media to present specific aspects of the character of the work
- j. The work demonstrates a range of scales of inquiry from detail to component to an overall whole
- k. The alternatives are presented in the context of the site (extending at least the dimension of the parcel in all directions) and climate (shadows)
- l. The alternatives demonstrate the development of a single train of thought across program, core, structure, and envelope
- m. Relevant historical precedents play a meaningful part of the student's study (and are included in each deliverable)

VIII. Course Format

The course will be taught in a design studio format using methodologies that are primarily project-based and offer the means by which learning from technical and professional courses is combined with instruction in architectural design. Studios offer the opportunity for students to engage closely with the instructor. Studio project assignments become progressively more complex through the curriculum until the last year when students undertake individual capstone thesis-like projects.

For each year, a student cohort is divided into groups of about 14-16, and each group is assigned to a studio instructor. Studio courses typically meet three days per week. Studio assignments, or projects, are established by the studio instructor, but should be coordinated for each studio level.

Architecture studio teaching involves a number of varied activities. At the beginning of the semester, assignments, or projects, are developed by the studio instructor, which include the scope, goals, expectations, general procedure, and assessment criteria that will be employed for the project. Studio teaching also involves implementing the project assignment through different teacher/student exchanges including lectures, group discussions, individual desk critiques (also known as "crits"), and formal "pin-up", where students receive feedback on their work from the instructor. A final project presentation or "jury" is typically held at the end of the semester in which students present their work to the studio instructor and other instructors or outside guests.

Classroom Hours (9 hours per week)

Class: 1, Studio: 8

The successful student must commit to significant study outside of class time.

IX. Topics to Be Covered

Students will document an architectural project based upon a topic provided by the instructor. Elements will include parti diagrams, project description, a figure/ground context plan, site plan, shaded roof plan, floor plans illustrating furniture and finishes, building sections and elevations, construction details, and model photos, as well as digital imagery of interior and exterior views. There will be additional required graphics for the environmental systems and structural documentation.

X. Studio Exercises

The studio will involve one to two design projects. The projects will be selected by the studio instructor consistent with the studio level and expected learning outcomes. Projects can vary between sections in the same studio level.

For third year studios, projects typically focus on one building with medium size and complexity. Projects for this course will focus on issues of architectural history and theory and will be coordinated with COAD 3342: Built World Design History and Theory. A project schedule will be provided by the studio instructor indicating the different phases and timeline of every project phases including but not limited to: research, programing, schematic design, design developing, development of presentation material, and final presentation.

Laboratory space should include a drawing desk and chair or stool, power outlet for computing, Wi-Fi or cabled network, lighting that is appropriate for a computer-based workspace, and task lighting that is appropriate for hand-based drawing.

XI. Learning Technology Component

Various digital learning technologies will be used in conjunction with manual methods. A digital learning technology environment should provide:

- a. Creation and distribution of course syllabus
- b. Distribution of assignment specifications and collection of digital versions of assignment deliverables, with file sizes that may be very large, such as 100 MB per file per student
- c. Sharing links to Web sites
- d. Course calendar for apprising students of deadlines
- e. Course email utility for managing individual communications between a student and the instructor
- f. Course discussion list or bulletin board for sharing comments and images with the entire course community
- g. Grade distribution system for communicating grades from instructor to student, ensuring privacy of the communication

In addition, there will be tools and resources for the display of physical artifacts in each class session and to a department-wide audience. Each classroom will be equipped with display walls with proper display lighting and adequate viewing space, as well as digital projection or display capabilities. Stands will be provided for the display of models. A gallery will be provided for display to the entire department for mid-term or end-of-term exhibits.

XII. Special Projects/Activities

In addition to the typical activities of design studios, the course could include relevant guest lectures from other faculty or outside experts and practitioners and experts as well as field-trips to local architectural projects or architectural firms.

XIII. Textbooks and Teaching Aids

A. Required Textbooks

Kwok, Alison and Grondzik, Walter. *The Green Studio Handbook (First or Second Edition)*. Architectural Press; 2006. ISBN 0750680229

Allen, Edward and Iano, Joseph. *The Architects Studio Companion (Third, Fourth or Fifth Edition)*. Wiley; 2011. ISBN 0470641916

Kevin Lynch, Kevin. *Site Planning (any edition)*. MIT Press. ISBN 9780262120500

“The 2010 Americans with Disabilities Act (ADA) Standards for Accessible Design” must be downloaded and printed out. http://www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards_prt.pdf

International Building Code 2018 (OR most recent edition)

<http://shop.iccsafe.org/2018-international-building-coder.html>

Saudi Arabian Building Code 2018

ENGLISH: <https://www.sbc.gov.sa/resources/PdfPreview/web/viewer.html?avx=U2FsdGVkX-19l2xaZA/2xeBz/uVGcegUQR5XE9bHZ5CQ=>

ARABIC:

<https://www.sbc.gov.sa/resources/PdfPreview/web/viewer.html?avx=U2FsdGVkX193Pbh38t-3FBNX/cftEWlfnQ8pd9bSFmVY=&type=0>

XIV. Faculty Requirements

Faculty should have a PhD in architecture; or faculty should hold a professional Master of Architecture degree and have documented architectural design and professional practice experience.

Course Title: COAD 4333: History of Islamic Design

Semester Credit Hours: 3 (3, 0)

I. Course Overview

This course examines the architecture, interior design and decorative arts of the Islamic world from pre-Islamic time through today. It studies the main characteristic of the Islamic style, focusing on the form and function of architecture, interior design and decorative arts as well as historical and cultural backgrounds.

II. PMU Competencies

Technology skills are introduced in this course through PowerPoint presentations, slides show, word-processing, as well as through Internet-based materials and research engines. Critical thinking is achieved through an assignment that requires students to use their imagination and learning outcomes. Teamwork is emphasized through group presentation in their field of interest. Communication is supported by reading, writing and presenting in English. Students may be engaged in research, teaming and utilization of modern technology to document the Islamic decorative and architectural heritage and help save it from demolishing.

III. Detailed Course Description

The history of Islamic design course is an introduction to Islamic design and decorative arts. The first section of the course deals with the period of the formation of Islamic design from the advent of Islam to the end of the Abbasid period. The second section consists of a survey of the design and decorative arts of major dynasties of the Islamic world. The last section of the course will introduce the traditional and contemporary Saudi Arabian architecture and decorative arts.

IV. Requirements Fulfilled

This course is an elective course, though it is highly recommended by all students majoring in architecture and interior design. It can be taken anytime following the end of the third year.

V. Required Prerequisites

COAD 3342: Built World Design History and Theory II

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Indicate an awareness of the diversity and main achievements of Islamic architecture, decorative arts and design from the beginnings of Islam to the present day.
- Examine the historic development of architecture, design and decorative arts in the Islamic world and identify the stylistic characteristics of the associated periods.
- Plan and utilize Islamic patterns and motifs in design solutions.
- Examine the process to document and preserve heritage structures.
- State the main factors that influenced the architecture of Saudi Arabia and Gulf countries.
- Recognize the architectural and interior design elements that were a result of European influences on Islamic design.

The course focuses on the first realm of knowledge required by the U.S. National Architectural Accrediting Board (NAAB):

- A. Critical thinking and representation emphasizing creativity, graphic thinking, abstract analysis, global culture and cultural diversity.

VII. Assessment Strategy

Course grading will be based on class participation, assignments, quizzes, and exams. Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students' work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The class has a traditional lecture format. Students will also participate in lecturing by presenting an assigned topic. Students are expected to read before attending the class. All readings are required and should be read before each weekly meeting of the course. All articles will be easy to access online or on reserve at the PMU photocopy center.

Class Hours (3 hours per week)

Class: 3

Studio: 0

IX. Topics to Be Covered

- B. What are Islamic architecture, design and decorative arts?
- C. Pre-Islamic design influences
- D. Other non-Arab influences
- E. Byzantine art
- F. Sasanian art
- G. Early Islamic architecture, design and decorative arts
- H. The formation of Islamic architecture, design and decorative arts
- I. Main characteristics of Islamic architecture, design and decorative arts
- J. Umayyad
- K. Abbasid

- L. Iran, Central Asia, and Spain
- M. Main Islamic architecture, design and decorative arts characteristics; examples of various type of buildings
- N. Fatimid
- O. Seljuks
- P. Ayyubid
- Q. Mamluks
- R. The Ottoman Empire: Turkey and Egypt
- S. Art and design in India under the Mughals
- T. European influences on Islamic architecture, design and decorative arts: mid-19th century: Egypt, Turkey and Iran
- U. The architecture of Saudi Arabia and Gulf countries
- V. Traditional
- W. Contemporary
- X. Field trips-to be determined by professor-of-record.

X. Laboratory Exercises

None

XI. Learning Technology Component

Students will use their AutoCAD and 3Ds Max skills to present their project. Students may improve their photography skills since they may be required to take their own photos to document the decorative arts they have seen in field trips. Students are required to use their technology skills to access online materials.

XII. Special Project /Activities

Special projects as assigned by the instructor.

XIII. Textbooks and Teaching Aids:

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbooks

1. Ettinghausen, Richard, Grabar , Oleg, and Jenkins-Madina, Marilyn, *The Art and Architecture of Islam, 650-1250*, 2nd Edition, The Yale University Press, 2003.

ISBN: 9780300088694

2. Blair, Sheila S. and Bloom, Jonathan M. *The Art and Architecture of Islam 1250-1800*. The Yale University Press, 1996.

ISBN: 9780300064650

B. Alternative Textbooks

1. Creswell, K.A.C., *Early Muslim Architecture I , Umayyads, Early 'Abbasids and Tulunids* Oxford, 1940,
2. Creswell, K.A.C. *Early Muslim Architecture II , 'Abbasids, Umayyads of Cordova, Aghlabids, Tulunids, and Samanids, A.D. 751-905*, Oxford, 1940.
3. Creswell, K.A.C., *The Muslim Architecture of Egypt I, Ikhshids and Fatimids, A.D. 939-1171*, Oxford, 1952.
4. Creswell, K.A.C., *The Muslim Architecture of Egypt II, Ayyubids and Early BahriteMamluks*,

A.D. 1171-1326, Oxford, 1959.

5. Encyclopaedia of Islam
6. O'kane, Bernard, *The Treasures of Islamic Art in the Museums of Cairo*, American University in Cairo Press, 2006.

C. Supplemental Print Material

- *Muqarnas* Journal Articles
- *ArsOrientalis* Journal Articles

D. Supplemental Online Material

www.archnet.org

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: ARCH 4344: Introduction to Environmental Systems

Semester Credit Hours: 3 (3,0)

Total (Lecture, Lab)

I. Course Overview

This course provides an introduction to the design of environmentally responsive buildings and the natural and artificial systems that support them. It includes consideration of topics such as active and passive heating and cooling, indoor air quality, solar orientation, daylighting and artificial illumination, acoustics, embodied energy and building services systems.

II. PMU Competencies

The course addresses two of PMU's core competencies. It develops the students' *critical thinking* and *problem solving* skills as well as skills for *professional competence* through developing an understanding of basic environmental systems and their impact on building design and by introducing the basic building systems and technologies.

III. Detailed Course Description

This course deals with the thermal, visual, acoustical and environmental processes that effect buildings, and how the designer responds to or manipulates the indoor environment through developing an understanding of those processes, the human response to them and the materials and tools with which we may work.

The course will cover information and tools required to design a building successfully in different locations and climates, including a numerical understanding of how loads are calculated.

IV. Requirements Filled

This is a required course, the third course in the environmental systems and structures sequence. It is taken in the first semester of the fourth year.

V. Required Prerequisites

ARCH 2341: Principles of Design with Climate

VI. Learning Outcomes

In this course, students will:

- a. Develop a fundamental and practical knowledge of building environmental systems and strategies relating to thermal, lighting and acoustic conditions in buildings.
- b. Evaluate the interrelated building systems necessary to benefit occupants physiologically.
- c. Analyze and employ passive and active environmental system strategies in heating, ventilating and air-conditioning (HVAC) systems, daylighting, architectural lighting systems, acoustic systems, building design performance and human factors related to building indoor environmental quality.
- d. Use basic design decision support tools, including basic calculations methods and simple performance analysis software, and learn to utilize the output of these tools to inform their design decision making.

As the third course in the environmental systems and structures sequence, the course focuses on U.S. National Architectural Accrediting Board (NAAB) Realm B criteria related to environmental systems building service systems. Additionally, students are introduced to the principles of informed design decision making.

VII. Assessment Strategy

Student evaluation in this course will involve a number of components including quizzes, model building assignments and a final exam. The description of each of these components is included below:

- a. Three short quizzes will be held over the course of the semester. Each quiz will only cover the topics presented following the previous quiz (30% of final grade).
- b. Five assignments (50% of final grade).
- c. A final comprehensive exam (20% of final grade).

VIII. Course Format

This course utilizes a lecture format. The course will meet two times per week. Lectures will be used to present course content, including basic principles and case studies. Students will participate in discussions within the class period and online through the course management system. Online discussion groups will be supervised by the instructor. Students will be assigned a series of short homework assignments related to different topics covered in the course.

Classroom Hours (3 hours per week)

Class: 3, Lab: 0

IX. Topics to Be Covered

- a. Climate change and sustainable architecture
- b. The sun and the earth/the sun and the buildings
- c. Solar geometry
- d. Basic physics of heat transfer (sensible heat and latent heat); heat flow processes, including conduction (building materials, thermal mass) convection and radiation
- e. Human thermal comfort and psychometrics
- f. Climate classification
- g. Light, color, vision
- h. Daylighting design and visual comfort
- i. Architectural lighting systems

- j. Renewable energy systems (photovoltaic systems and wind turbines)
- k. Passive cooling and heating systems
- l. Mechanical cooling and heating systems
- m. Sound and architectural acoustics

X. Laboratory Exercises

None

XI. Learning Technology Component

All course material, including syllabus, class presentations, handouts and other resources, will be made available as much as possible on the BLACKBOARD course management system. System e-mail will be used by the instructor to communicate important information to students. Students are responsible for checking their e-mail accounts regularly. The course management system will also be used to submit projects digitally and to post student grades as they become available. Instructor will also create discussion groups for students to exchange ideas about course topics.

XII. Special Projects/Activities

The course will include five short assignments each addressing one of the main topics covered in the course. Topics are:

1. Solar geometry and shading
2. Human thermal comfort
3. Passive heating and cooling
4. Daylighting and visual comfort
5. Architectural acoustics

Assignment may involve small design exercises, calculations and building and testing physical models.

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

Lechner, Norbert. *Heating, Cooling, Lighting: Sustainable Design Methods for Architects, 4th Edition*. John Wiley and Sons, Hoboken, NJ; 2015. ISBN-13: 978-1118582428

B. Alternative Textbook(s)

Grondzik, Walter T. and Kwok, Alison G. *Mechanical and Electrical Equipment for Buildings, 12th Edition*. John Wiley and Sons; Hoboken, NJ; 2015. ISBN-13: 978-1118615904

C. Supplemental Print Materials

DeKay, Mark. and Brown, G. Z. *Sun, Wind, and Light: Architectural Design Strategies, 3rd Edition*. John Wiley and Sons, Hoboken, NJ; 2014. ISBN-13: 978-0470945780

Kwok, Alison G. and Grondzik, Walter T. *The Green Studio Handbook: Environmental Strategies for Schematic Design, 3rd Edition*. Routledge, New York, NY; 2018. ISBN-13: 978-1138652293

D. Supplemental Online Materials

IEA (International Energy Agency). 2000. *Daylight in Buildings, A Source Book on Daylighting Sys-*

tems and Components. A report of IEA SHC Task 21/ECBCS Annex 29. Available electronically at: <http://gaia.lbl.gov/iea21/> (a hardcopy can also be ordered free of charge from the same Web site).

LBL (Lawrence Berkeley National Laboratory) 1997. *Tips for Daylighting with Windows, the Integrated Approach. LBNL Report Number 39945. Available electronically at: <http://windows.lbl.gov/daylighting/designguide/designguide.html>.*

LEED v4 BD+C: <https://www.usgbc.org/resources/leed-reference-guide-building-design-and-construction>

LEED v4 ID+C: <https://www.usgbc.org/resources/leed-reference-guide-building-design-and-construction>

XIV. Faculty Requirements

Faculty should have a PhD in architecture focusing on sustainable architecture, building performance or a related topic; or faculty should hold a professional Master of Architecture degree and have documented experience in structural systems.

Course Title: ARCH 4345: Architectural Structures

Semester Credit Hours: 3 (2,1) Total (Lecture, Lab)

I. Course Overview

This course provides an advanced study of architectural structures. It considers the physical principles that govern classical statics and strength of materials as well as graphical and mathematical design of structural systems. The course also addresses considerations of the role of structural articulation in the design of buildings.

II. PMU Competencies

The course addresses two of PMU's core competencies. To develop *professional competence*, introduces the students to the basics of architectural structures as a necessary foundation for learning about contemporary structural technology. It also develops students' *critical thinking* abilities by introducing them to making informed design decisions.

III. Detailed Course Description

This course provides students with an understanding of the basics of structures, structural systems and structural mechanisms. The course provides students with a thorough knowledge of the importance in selecting the appropriate structural system and construction method. Course topics form the basis of an exploration of innovative design ideas within real-world settings by means of structural theory, analysis and design. The course addresses the development of the concepts of load transfer mechanism and the effects of loads on structural systems, as well as improving the perception of the capacity of various structural members and structural materials. The course will explore well-known building examples with different high-rise and wide-span structural systems to inspire further research on structures in terms of sustainability and structural articulation considerations.

The course will be conducted concurrently with ARCH 4526: Design Studio VIII- Integrated Architectural Design. This will allow students to develop the ability to assess, select and conceptually integrate structural systems and building envelope systems into building design.

IV. Requirements Filled

This is a required course and the fourth course in the environmental systems and structures sequence of the curriculum. It is taken in the second semester of the fourth year.

V. Required Prerequisites

Prerequisite: ARCH 3343: Principles of Structural Systems

Co-requisite: ARCH 4526: Design Studio VIII- Integrated Architectural Design

VI. Learning Outcomes

Students develop the ability to:

- a. Employ the basic principles of structural systems and recognize their ability to withstand gravitational, seismic and lateral forces
- b. Evaluate, choose and apply the appropriate structural system for a set of design conditions
- c. Design a complex architectural project that demonstrates broad integration and consideration of structural systems

This course meets NAAB accreditation criteria for structural systems. It also prepares the students for courses focusing on building technology. Additionally, students are introduced to the principles of informed design decision making.

VII. Assessment Strategy

Student evaluation in this course will involve a number of components including quizzes, model building assignments, and a final exam. The description of each of these components is included below:

- a. Three short quizzes will be held over the course of the semester, and each quiz will only cover the topics presented following the previous quiz (30% of final grade).
- b. Reports of laboratory work and testing (three at 10% each)
- c. Structural design project: The project will be run concurrently and in coordination with Design Studio VIII: Integrated Architectural Design (20% of final grade).
- d. A final comprehensive exam (20% of final grade).

VIII. Course Format

This course will be taught in a lecture/lab format. The course will be run in parallel with ARCH 4526: Design Studio VIII: Integrated Architectural Design.

The main activity in the lab will be a structural design project, which will be coordinated with the design studio project. Lecture presentations will cover the main course topics and provide, along with the course text book and other resources, the required background information. The lecture/lab format of this course is designed to assist students in applying the knowledge acquired in the course to their studio design projects. The course also aims to introduce students to simplified design and performance evaluation methods and tools that can be used in evaluating their design ideas in studio, thus assisting them in developing creative and integrated design solutions with multiple benefits.

Classroom Hours (4 hours per week)

Class: 2, Lab: 2

IX. Topics to Be Covered

- a. Structural design loads and methods
- b. Design and analysis of trusses
- c. Design and analysis of cables and arches

- d. Design and analysis of beams
- e. Design and analysis of columns and walls
- f. Design and analysis of continuous structures
- g. General design principles of membranes and shells
- h. General design strategies and constructional approaches

X. Laboratory Exercises

The main activity in the lab will be a structural design project that will run concurrently and in coordination with ARCH 4526: Design Studio VIII: Integrated Architectural Design. The project will allow students to identify an appropriate structural system for their design studio projects, appropriately develop this structural system and conduct the needed structural analysis and sizing procedures for different system components. Interim phases for the lab project will be coordinated with the schedule of the design studio to ensure that students can use the outcomes of the structural design project to inform their architectural design decision making.

XI. Learning Technology Component

All course material, including syllabus, class presentations, handouts and other resources, will be made available as much as possible on the BLACKBOARD course management system. System e-mail will be used by the instructor to communicate important information to students. Students are responsible for checking their e-mail accounts regularly. The course management system will also be used to submit projects digitally and to post student grades as they become available. Instructor will also create discussion groups for students to exchange ideas about course topics.

XII. Special Projects/Activities

- a. Quizzes: Quizzes will include true-false questions, multiple-choice questions and brief calculations and analyses. Each quiz will only cover the topics presented following the previous quiz.
- b. Structural Design Project: The project will run concurrently and in coordination with ARCH 4526: Design Studio VIII- Integrated Architectural Design. The project will allow students to identify an appropriate structural system for their design studio projects, appropriately develop these structural systems and conduct the needed structural analysis and sizing procedures for different system components. Laboratory reports on testing and design methods will inform progress with this project.
- c. Final Exam: A comprehensive final exam will be held at the end of the semester. The exam may include true-false questions, multiple-choice questions and calculations and analyses. The exam and the quizzes will be based on assigned readings from the textbook as well as all class presentations.

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

Schodek, Daniel and Bechtold, Martin. *Structures, 7th edition*. Pearson Education Inc., Boston, MA; 2014. ISBN-13: 978-0132559133

B. Alternative Textbook(s)

Sandaker, Bjorn N., Eggen, Arne P. and Cruvellier, Mark R. *The Structural Basis of Architecture, 2nd Edition*. Routledge, Abingdon, Oxon; 2011. ISBN-13: 978-0415415477

C. Supplemental Print Materials

Dabby, Ramsey and Bedi, Ashwani. *Structure for Architects: A Primer, 1st Edition*. John Wiley and

Sons, Hoboken, NJ; 2010. ISBN-13: 978-0470633762

Macdonald, Angus J. *Structure & Architecture, Second Edition*. Routledge, New York, NY; 2001. ISBN-13: 978-0750647939

Allen, Edward and Zalewski, Waclaw; Boston Structures Group. *Form and Forces: Designing Efficient, Expressive Structures, 1st Edition*. John Wiley and Sons, Hoboken, NJ; 2009. ISBN-13: 978-0470174654

Place, Jeffrey W. *Architectural Structures*. John Wiley and Sons, Hoboken, NJ; 2007. ISBN-13: 978-0471725510

D. Supplemental Online Materials

None

XIV. Faculty Requirements

Faculty should have a PhD in architecture focusing on architectural structures or a related topic; or faculty should hold a professional Master of Architecture degree and have documented experience in structural systems.

Course Title: ARCH 4346: Integrated Environmental Systems

Semester Credit Hours: 3 (2,1)

Total (Lecture, Lab)

I. Course Overview

This course covers advanced issues in the design of environmentally responsive buildings and the natural and artificial systems that support them, such as embodied energy, active and passive heating and cooling, indoor air quality, solar orientation, daylighting and artificial illumination, acoustics and building services systems. It includes the use of appropriate performance assessment tools.

II. PMU Competencies

The course addresses two of PMU's core competencies. It develops the students' *critical thinking* and *problem solving* skills as well as skills for *professional competence* through developing an understanding of environmental systems and their impact on building design, as well as introducing them to basic building systems and technologies.

III. Detailed Course Description

This course is driven by the growing realization of the need for more sustainable architecture, the concepts of which can be traced back to architectural principles first stated by Vitruvius in *The Ten Books on Architecture*, written in 26 BCE. The contemporary significance of sustainable architecture is motivated by the increasing recognition of the serious environmental, social and economic problems facing world communities. Problems of human-caused climate change and energy resource depletion, and questions of how the built environment can best respond to them, represent issues that are quickly coming to the forefront of architectural discourse and practice. Topics covered in this course represent some of the fundamental and essential knowledge and skills that architects need to understand and utilize in order to make informed design decisions and ultimately achieve the goals of sustainable design.

The course provides students with an advanced study of the same topics through a variety of applied,

hands-on activities provided through a lecture/lab format. These activities will focus on the design integration of environmental systems content as a means of mitigating the environmental impact of buildings and communities. Students are also introduced to basic performance assessment tools and their use in informing design decisions. Environmental control systems discussed in this course will be introduced from the point of view of their relationship to issues of building and community design with the intention of assisting students in gaining an understanding of how to integrate issues related to these systems into the design process throughout its different stages (conceptual, schematic, design development, etc.), as well as to be aware of the different interactions among these systems and between these and other systems within the building.

IV. Requirements Filled

This is the fifth course in the environmental systems and structures sequence within the curriculum and is usually taken in the second semester of the fourth year. The course meets NAAB accreditation criteria for environmental control systems. It also prepares the students for the final year of the program and the development of their capstone project. Additionally, students are introduced to the principles of informed design decision making,

V. Required Prerequisites

Prerequisite: ARCH 4344: Introduction to Environmental Systems

Co-requisite: ARCH 4526: Design Studio VIII- Integrated Architectural Design.

VI. Learning Outcomes

In this course, students will:

- a. Describe and demonstrate the principles of environmental systems design and how design criteria can vary by geographic region.
- b. Explain and apply active and passive heating and cooling, solar geometry, daylighting, natural ventilation, indoor air quality, solar systems, lighting systems and acoustics.
- c. Employ existing tools used for performance assessment, including calculation methods and performance simulation software.
- d. Apply the content and tools learned in this course to the concurrent integrated design studio, developing their ability to make informed design decisions.

VII. Assessment Strategy

Student evaluation in this course will involve a number of components including quizzes, model building assignments and a final exam. The description of each of these components is included below:

- a. Three short quizzes will be held over the course of the semester, and each quiz will only cover the topics presented following the previous quiz (20% of final grade).
- b. Lab assignments (40% of final grade). Five lab assignments will be conducted by each student. The lab assignments include:
 1. Climate Analysis and Human Thermal Comfort
 2. Solar Geometry and Design of Shading Devices
 3. Passive Environmental Systems
 4. Active Environmental Systems
 5. Architectural Acoustics
- c. A final comprehensive exam (40% of final grade).

VIII. Course Format

This course will be taught in a lecture/lab format. Lecture presentations will cover the main course topics and provide, along with the course text book and other resources, the required background information. Lab sessions will be used to further explore the topics presented in the lectures as well as to conduct a series of short assignments/projects designed to provide students with hands-on qualitative and quantitative experience with each of the major topics of the course.

The lecture/lab format of this course is designed to assist students in applying the knowledge acquired in the course to their studio design projects, with the aim of having these designs relate more to the important issues of sustainability, energy conservation, human comfort, visual and acoustical environment, and life-cycle cost savings and environmental impacts, all of which depend on designing with natural forces instead of in opposition to them. The course also aims to introduce students to simplified design and performance evaluation methods and tools that can be used in evaluating their design ideas in studio, thus assisting them in developing creative and integrated design solutions with multiple benefits.

The course will be run in parallel with ARCH 4526: Design Studio 8- Integrated Architectural Design. The lab assignments will be coordinated with the design studio project and will aim to provide students with the knowledge and analysis needed to make informed design decisions in their studio projects.

Classroom Hours (4 hours per week)

Class: 2, Lab: 2

IX. Topics to Be Covered

- a. Design process
- b. Human thermal comfort
- c. Solar geometry and shading devices
- d. Heat flow and design of thermal envelopes
- e. Passive environmental systems
 - Daylighting
 - Passive heating
 - Passive cooling
 - Integrating passive systems
- f. Active environmental systems
 - Active climate controls
 - Lighting design process
 - Electric lighting design
 - Renewable energy systems
 - Water and waste
- g. Sound in enclosed spaces
- h. Building noise control
- i. Building service systems, including vertical transportation, signal systems, fire protection, electrical systems and plumbing systems

X. Laboratory Exercises

Five lab assignments will be conducted by each student. The assignments will be based on the concurrent ARCH 4526: Design Studio VIII- Integrated Architectural Design, and will aim to provide students with the needed analysis to make informed design decisions. The lab assignments include:

1. Climate analysis and human thermal comfort: The lab will explore methods of climate analysis and the impact of different climate conditions on human thermal comfort as well as the use of passive strategies to achieve thermal comfort conditions for building users. The assignment includes an analysis of the climate of a major city, exploring the impact of that climate on human thermal comfort and identifying appropriate passive design strategies for that climate. Both parts of the assignment will utilize digital tools either Web-based or as downloadable shareware.

2. Solar geometry and design of shading devices: The lab will explore the geometry of the sun in different latitudes and how to design effective shading devices for openings (windows/doors) on different orientations. Several methodologies for designing shading devices will be explored, including the Pilkington Sun Angle Calculator, mathematical methods and computer simulation.
3. Passive environmental systems: The lab will involve designing appropriate passive systems for the concurrent design studio project. The systems addressed include shading, passive heating/cooling and daylighting passive strategies. Students will also design the building's thermal envelop to achieve the desired thermal and lighting performance. Performance simulation tools will be used to provide feedback on design decisions.
4. Active environmental systems: The lab includes the integration of active systems into the concurrent studio design project. These active systems include mechanical heating and cooling (HVAC) systems, electrical lighting systems, renewable energy systems and solar domestic hot water systems, among others. Performance simulation tools will be used to provide feedback on design decisions.
5. Architectural acoustics: The lab will cover methods of assessing acoustic performance in architectural spaces. Sources of noise in buildings will be identified and analyzed.

XI. Learning Technology Component

All course material, including syllabus, class presentations, handouts and other resources, will be made available as much as possible on the BLACKBOARD course management system. System e-mail will be used by the instructor to communicate important information to students. Students are responsible for checking their e-mail accounts regularly. The course management system will also be used to submit projects digitally and to post student grades as they become available. Instructor will also create discussion groups for students to exchange ideas about course topics.

The course will also utilize building performance modeling and simulation tools. Possible software to be used include:

- a. Sefira: an early design stage analysis tool, available at: <http://sefaira.com/>
- b. Autodesk Insight: a tool for simulating building energy and environmental performance. Insight works as a plugin for Autodesk Revit. Available at: <https://insight360.autodesk.com/oneenergy>

XII. Special Projects/Activities

Lab Assignments: The course will include five lab assignments each addressing one of the main topics covered in the course. Topics are:

1. Climate Analysis and Human Thermal Comfort
2. Solar Geometry and Design of Shading Devices
3. Passive Environmental Systems
4. Active Environmental Systems
5. Architectural Acoustics

Assignments will be coordinated with the concurrent ARCH 4526: Design Studio VIII: Integrated Architectural Design, and will aim to provide students with the needed analysis to make informed design decisions. Lab assignments will involve manual calculations, as well as the utilization of state-of-the-art performance simulation tools. Possible performance simulation tools to be used include Sefira and Autodesk Insight.

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

Grondzik, W. and Kwok, A. *Mechanical and Electrical Equipment for Buildings, 12th Edition*. John Wiley and Sons, Hoboken, NJ; 2015. ISBN-13: 978-1118615904

B. Alternative Textbook(s)

Lechner, N. *Heating, Cooling, Lighting: Sustainable Design Methods for Architects, 4th Edition*. John Wiley and Sons, Hoboken, NJ; 2015. ISBN-13: 978-1118582428

C. Supplemental Print Materials

DeKay, M. and Brown, G.Z. *Sun, Wind, and Light: Architectural Design Strategies, 3rd Edition*. John Wiley and Sons, Hoboken, NJ; 2014. ISBN-13: 978-0470945780

Kwok, A. and Grondzik, W. *The Green Studio Handbook: Environmental Strategies for Schematic Design, 3rd Edition*. Routledge, New York, NY; 2018. ISBN-13: 978-1138652293

D. Supplemental Online Materials

LEEDv4 BD+C: <https://www.usgbc.org/resources/leed-reference-guide-building-design-and-construction>

XIV. Faculty Requirements

Faculty should have a PhD in architecture focusing on sustainable architecture, building performance or a related topic; or faculty should hold a professional Master of Architecture degree and have documented experience in structural systems.

Course Title: COAD 4351: Built World Photography**Semester Credit Hours: 3 (2, 1)**

Total (Lecture, Lab)

I. Course Overview

This course is an introduction to photography and will cover the fundamentals of photography and photo appreciation. Students will need a 35 mm single-lens reflex (SLR) camera with manual. This course provides the student with an understanding of the basic technical and creative processes associated with photography. In addition, instruction is given with broad reference to the history of photography, photographic theory, and contemporary photographic practice.

II. PMU Competencies

Communication through the visual means of photography is the dominant student competency developed by this course. Critical thinking and problem solving are developed through understanding photographic composition. Students demonstrate this understanding through an active, analytical approach to creation of each individual photograph and the development of a portfolio. Although the primary output is by individual students, teamwork is required in small groups through peer critique and learning exercises. Information technology skills are developed as students use cameras, image editing, page layout, e-mail, and the Internet to complete assignments.

III. Detailed Course Description

This course is an elective for architecture and design students. Topics covered in this course include parts of the camera; film; lenses; settings; shutter control including pan action, blurred action, and stopped action; aperture control; depth of field including aperture and f/stops; motion control; shutter speeds; black and white photography; color photography; and photographic composition. Students study the history of photography, photographic theory, and contemporary photographic practice. Students will also learn how to use computer software such as Photoshop to manipulate and adapt photographs and develop portfolios.

IV. Requirements Fulfilled

This course is an elective course.

V. Required Prerequisites

ARCH 3524: Design Studio VI

VI. Learning Outcomes

At the conclusion of this course, students will acquire knowledge and skills to:

- Identify the parts of a SLR camera.
- Explain the effect of various apertures on photographic images (depth of field).
- Explain the effect of various shutter speeds and f/stop on photographic images (pan action, stop action, blurred action).
- Produce various images with a variety of aperture/shutter speed combinations for given results.
- Evaluate photographic prints in terms of value, clarity, technical aspects and composition.
- Use Photoshop to manipulate and adapt photographs.
- Develop a portfolio of built environment images.

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments and evaluation of student portfolios. Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The course is primarily a lecture/studio that incorporates a series of lectures and demonstrations of software.

Attendance is mandatory. Much of the student outcome is produced in the class/studio periods.

Students present their work verbally three times throughout the semester for peer critique.

Web supplement: The course homepage (using the university's Web tool, WebCT or BLACKBOARD) includes the following.

- Course syllabus
- Course assignments
- Course e-mail utility
- Course discussion list

- Student course grades

Classroom Hours (4 hours per week)

Class: 2

Lab: 2

IX. Topics to be Covered

- Parts of the camera
- Lenses
- Filters
- Focuses
- Shutter control and speed
- Aperture control, light meters
- Color photography
- Black and white photography
- History of photography

X. Laboratory Exercises

None.

XI. Learning Technology Component

Students enhance skills in the use of the camera, Photoshop, PowerPoint, and the Internet as means of communication.

XII. Special Projects/Activities

This course requires that students integrate digital technology skills while developing a photographic portfolio. The fundamentals of photographic techniques and philosophies are integrated seamlessly with the learning of photographic and digital representation. Final presentations are presented with PowerPoint.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

Stone, Jim and London, Barbara, *A Short Course in Digital Photography*, 3rd Edition, Pearson, 2014. ISBN: 9780205991600

B. Alternative Textbooks

- Siskin, John B., *Photographing Architecture: Lighting, Composition, Postproduction and Marketing Techniques*. Amherst Media, Inc., 2011.

ISBN: 9781608953004

- Long, Ben. *Complete Digital Photography*, 7th edition. Course Technology PTR, 2012. ISBN: 9781285077260

C. Supplemental Print Materials

Ciaglia, Joseph, *Introduction to Digital Photography*, 2nd Edition, Prentice-Hall ISBN: 9780205645923

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary websites that are appropriate for the topics they teach.

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: ARCH 4354: Simulation and Optimization

Semester Credit Hours: 3 (2, 1) **Total (Lecture, Lab)**

I. Course Overview

This course covers architectural design methods; collaboration with representatives of allied disciplines; search for solutions; simulation of various criteria, such as energy performance, structural performance, cost performance, lighting performance, visual performance, and code compliance; optimization and comparison of schemes; performance criteria; and selection of satisficing scheme.

II. PMU Competencies

This course is focused on PMU competencies of *technological competence, critical thinking and problem solving, professional competence, and teamwork.*

III. Detailed Course Description

This course focuses on the use of computing technology to assess the performance of building designs. It largely uses building information modeling (BIM) and interoperable analysis tools. Each student (or team of two or three students) will create a computer model of an existing building, then analyze the building from the standpoint of structure, construction cost, energy use, lighting, and other factors through simulation. Issues of optimization and selection of solutions are discussed. In a final project, students will design a new building of the same type as the sample building, producing multiple schemes, analyzing those schemes, and identifying the best solution from the performance standpoint. The course is essential preparation for ARCH 4526: Design Studio VIII: Integrated Architectural Design.

IV. Requirements Filled

This is a required course taken in the first semester of the fourth year.

V. Required Prerequisites

COAD 3353: Digital Design III- BIM
ARCH 3343: Principles of Structural Systems

VI. Learning Outcomes

A student completing this course will be able to:

- a. Use building information modeling software to represent a building at the design development level of development
- b. Analyze a building using computer simulation tools from various categories of performance
- c. Describe optimization strategies of weighted average and Pareto front optimization
- d. Design a building using computer modeling and the simulation of multiple schemes and optimization across multiple categories of performance

The course addresses various NAAB SPC at a level that demonstrates students' abilities to act — including bringing together the two themes that distinguish the PMU architecture program: technology for architecture and research informed design — by providing students with a rational and performance-based decision process using advanced information technology.

VII. Assessment Strategy

Grades will be based on participation (one-third), tests (one third), and lab work (one third).

1. The participation grade will be based on attendance in class and lab, and verbal contributions to class discussions.
2. There will be a mid-term test and a final exam, each worth 50% of the test grade component.
3. The lab work grade will be based on meeting deadlines, completeness, and production of stated deliverables.

VIII. Course Format

The course will be delivered as two contact hours of lecture per week to reinforce readings and present concepts, and two contact hours of lab per week to give students instruction in software use. Students will produce reports at regular intervals describing the outcome of lab activities.

Students will work in small teams, typically two or three students, to give students practical abilities at scheduling, accountability, commitment, and software for collaboration.

The course is organized into a foundational module and several independent modules. The foundational module provides an overview of building information modeling, multi-criteria design and optimization, and the creation of a basic model of a case study building by a team of students using collaboration software. Following the creation of this model, a series of modules focused on software simulations of a particular category of building performance will enable students to gain knowledge and ability with the simulation tools. Once these modules are completed, students will design multiple schemes of a new building of the same functional type, simulate its performance, and choose an optimal scheme for presentation.

Classroom Hours (4 hours per week)

Class: 2, Lab: 2

IX. Topics to Be Covered

The course covers the following topics:

- Design process using computer modeling, simulation and optimization
- Theory of building information modeling
- Fundamental practical uses of BIM
- Advanced practical uses of BIM
- Building documentation with BIM
- Strategy for successful use of BIM
- BIM representation and process standards
- Principles of physics-based visual simulation of architecture
- Principles of image-based visual simulation of architecture
- Practice of visual simulation with BIM
- Advanced practice of visual simulation
- Principles of structural simulation and BIM
- Practice of structural simulation with BIM
- Structural design with BIM
- Advanced structural practice with BIM
- Principles of building energy simulation and BIM

- Practice of building energy simulation with BIM
- Building energy design with BIM
- Advanced building energy simulation practice with BIM
- Principles of lighting simulation and BIM
- Practice of lighting simulation with BIM
- Lighting design with BIM
- Advanced lighting simulation practice with BIM
- Principles of building code analysis and BIM
- Practice of building code analysis with BIM
- Building code analysis design with BIM
- Advanced building code analysis practice with BIM
- Principles of cost and construction schedule simulation and BIM
- Practice of cost and construction schedule with BIM
- Cost and construction schedule design with BIM
- Advanced cost and construction schedule simulation practice with BIM
- Principles of optimization and design decisions

X. Laboratory Exercises

A series of exercises builds skills through the use of software to complement theory introduced in the lectures. The exercises model and simulate an existing building using small teams of students. A final exercise involves designing a new building of similar type and size and simulating it. Exercises include:

- Exercise 1: Case study BIM. Select an existing building and collect drawings that completely describe the building. Model the building using BIM software to represent the physical elements of the building. Produce orthographic drawings of the building.
- Exercise 2: Visual simulation. Create a visual simulation of the case study.
- Exercise 3: Building code analysis. Create a building code analysis of the case study.
- Exercise 4: Structural simulation. Create a structural simulation of the case study.
- Exercise 5: Energy simulation. Create a simulation of energy performance of the case study.
- Exercise 6: Lighting simulation. Create a lighting simulation of the case study.
- Exercise 7: Construction simulation. Create a construction cost estimate and construction schedule of the case study.
- Final Exercise: Building design. Design a new building of similar type and size, optimizing it for the various performance criteria.

XI. Learning Technology Component

A digital learning technology environment should provide:

- a. Creation and distribution of course syllabus
- b. Distribution of video recordings of lectures
- c. Distribution of assignment specifications and collection of digital versions of assignment deliverables
- d. Collection of student lab exercises as digital files; with files that may be of very large size, in the range of 100 MB
- e. Sharing links to Web sites
- f. Course calendar for apprising students of deadlines
- g. Course email utility for managing individual communications between a student and the instructor
- h. Course discussion list or bulletin board for sharing comments and images with the entire course community
- i. Grade distribution system for communicating grades from instructor to student, ensuring privacy of the communication

j. In-class video conferencing for guest lecturers

The classroom will be equipped to project images and videos at a large size, provide for recording of lectures and discussions, and provide audio performance to facilitate discussions.

Lab exercises can be conducted in a computer lab equipped with networking and large screens for presentations. It is expected that students will provide their own workstations, although, alternatively, high-end desktop workstations that exceed the power of laptop computers could be provided for student use.

XII. Special Projects/Activities

The course is organized around detailed modeling and simulation of existing buildings as case studies. The instructor should arrange with building owners to obtain drawings of the case study buildings and, if possible, construction costs, energy consumption, and operating costs. Students should visit the buildings in either organized class field trips or as individuals or teams of students.

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

Kensek, Karen M. *Building Information Modeling, 1st Edition*. Routledge; 2014. ISBN-13: 978-0415717748

Nawari, Nawari O. *Building Information Modeling: Automated Code Checking and Compliance Processes, 1st Edition*. CRC Press; 2018. ISBN-13: 978-1498785334

Nawari, Nawari O. and Kuenstle, Michael. *Building Information Modeling: Framework for Structural Design, 1st Edition*. CRC Press; 2015. ISBN-13: 978-1482240436

Anderson, Kjell. *Design Energy Simulation for Architects: Guide to 3D Graphics, 1st Edition*. Routledge; 2014. ISBN-13: 978-0415840668

de Wilde, Pieter. *Building Performance Analysis, 1st Edition*. Wiley-Blackwell; 2018. ISBN-13: 978-1119341925

Dykstra, Alison. *Construction Project Management: A Complete Introduction, 2nd Edition*. Kirshner Books; 2018. ISBN-13: 978-0982703434

B. Alternative Textbook(s)

Textbook selection will be reassessed before the course is offered as technology changes rapidly.

C. Supplemental Print Materials

None

D. Supplemental Online Materials

LEED v4 BD+C: <https://www.usgbc.org/resources/leed-reference-guide-building-design-and-construction>

XIV. Faculty Requirements

The instructor should have a doctoral degree with a focus on architecture, design, and design pedagogy and a record of research and publication in architectural computing. Experience in the profession

of architecture as a BIM manager or operator is also desired.

Course Title: ARCH 4361: Preparing the Project Brief

Semester Credit Hours: 3 (3, 0)

Total (Lecture, Lab)

I. Course Overview

This course covers the contents of a project brief; methods for creating a brief; evidence-based design; fundamental concepts in environmental psychology and sociology; benchmarking; development of a basecase; and design using a brief. The course directly addresses research-informed design, one of the hallmarks of the PMU architecture program.

II. PMU Competencies

This course addresses the core PMU competencies. It addresses *communication* by involving students in interviewing architectural clients and users. It involves *technological competence* by focusing on the acquisition and documentation of information through computer methods. It involves *critical thinking* and *problem solving* by learning how to set achievable goals. It involves *professional competence* by addressing a specialization in architecture practice. It involves *teamwork* by involving students in an inherently social aspect of design. It involves *leadership* by equipping students to observe and assess human behavior objectively in multiple settings and in initiating collaborative work by setting the specifications and constraints for that work.

III. Detailed Course Description

The architectural brief (or program of requirements) is the document used to guide the design of a building. Often created by specialist architects or generalist architects, the brief specifies quality, quantity, and performance characteristics of the building. The process of developing a brief generally involves the study of precedents; benchmarking; identification of goals and needs; conceptual costing and construction scheduling; listing of spaces rooms, and sizes; identification of relationships among rooms; and other qualitative and quantitative specifications. Methods for programming increasingly rely upon evidence-based design, by which scientific collection of data is analyzed to produce factual relationships between architectural elements and human behavior.

IV. Requirements Filled

This is a required course taken in the second semester of the fourth year.

V. Required Prerequisites

UNIV 1213: Leadership and Teamwork

COAD 2332: Environmental Psychology

VI. Learning Outcomes

A student completing the course will be able to:

- a. Perform a study of architectural precedents from the perspective of spatial function, floor area provided, spatial arrangement, quality, and other factors, producing a rigorous, thorough and clear document
- b. Collect data through surveys and interviews of people who are or could be occupants of the building under consideration
- c. Research, analyze, and apply evidence about building performance and human behavior as it relates to environments
- d. Compose reasonable budgets for construction costs and operating costs and create a construction

schedule for a building project

- e. Produce an architectural brief as a clear and actionable description of expectations for a building design

The course focuses on the first and second realms of knowledge required by the U.S. National Architectural Accrediting Board (NAAB):

- A. Critical thinking and investigative skills, and abstract analysis.
- B. Building practices, technical skills, and knowledge.

VII. Assessment Strategy

Grades will be based on participation (one-third), assignments (one-third), and a term project (one-third).

Participation grades will be based on attendance, contribution to class discussions, and quantity and quality of posts to class bulletin board.

Assignment grades will be based on meeting milestones, quality of writing, use of approved outlines, and insight revealed in the text.

Term project grades will be based on meeting milestones, quality of writing, completeness of addressing requirements, and insight revealed in the text.

VIII. Course Format

The course consists of a series of lectures supplemented by exercises and assignments.

Assignments include

1. *Precedent study of the subject building.* The student will choose a subject building, complete a precedent study; analyze the building for rooms, systems, and quality; analyze the building site; analyze the context of the building from social and economic standpoints; and write a report describing the building.
2. *Site analysis.* Using the site of the subject building, the student will conduct an analysis of the site and produce a written report supplemented by plans, sections, and other graphics to explain the result of the site analysis; the student will write a report describing the methods and the results.
3. *Economic and technical performance analysis.* Using the subject building, the student will use quantitative methods to establish economic and technical performance of the subject building and write a report describing the methods and the results.
4. *Human needs and preferences analysis.* Upon selecting a design project, the student will prepare instruments and conduct interviews and surveys to establish the requirements for the subject building from the standpoint of human needs and preferences and write a report describing the methods and the results.
5. *Analysis of environmental behavior.* Using the design project as a subject, the student will conduct a review of scientific literature addressing relationship between built environment and human behavior and produce a written report.

The term project will be to write an architectural brief for the selected design project, including precedent study, site analysis, economic performance, technical performance, human needs and preferences requirements, and design principles based on evidence.

Classroom Hours (3 hours per week)

Class: 3, Lab: 0

IX. Topics to Be Covered

The course consists of topics from architectural pre-design services, scientific method as applied to architecture and behavior in the environment, and evidence-based design. These include:

- A. Pre-design and its role in the building industry
- B. Categorizing buildings by functional type, form, size, and quality
- C. Contents and outline of the brief
- D. Literature review methods
- E. Precedent identification
- F. Benchmarking and the basecase
- G. Floor area ratio, gross building area, net building area, direct functional areas, indirect functional areas, building efficiency ratio
- H. Conceptual cost and schedule estimating
- I. Human factors
- J. Methods of discerning people's needs and preferences
- K. Post-occupancy evaluation
- L. Site analysis
- M. Evidence-based design
- N. Collecting data and establishing evidence
- O. Assessing evidence through publications
- P. Translating evidence into building requirements
- Q. Documenting the brief

X. Laboratory Exercises

The course has no laboratory component.

XI. Learning Technology Component

A digital learning technology environment should provide:

- a. Creation and distribution of course syllabus
- b. Distribution of video recordings of lectures
- c. Distribution of assignment specifications and collection of digital versions of assignment deliverables
- d. Collection of student lab exercises as digital files, which may be of very large size, in the range of 100 MB
- e. Sharing links to Web sites
- f. Course calendar for apprising students of deadlines
- g. Course email utility for managing individual communications between a student and the instructor
- h. Course discussion list or bulletin board for sharing comments and images with the entire course community
- i. Grade distribution system for communicating grades from instructor to student, ensuring privacy of the communication
- j. In-class video conferencing for guest lecturers

The classroom will be equipped to project images and videos at a large size, provide for recording of lectures and discussions, and provide audio performance to facilitate discussions.

XII. Special Projects/Activities

The course will involve guest lecturers with expertise in appropriate topics. It may also involve demonstrations of interviews and focus group sessions for collecting people's needs and preferences.

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

1. Peña, William M. and Parshall, Steven A. *Problem Seeking: An Architectural Programming Primer, 5th Edition*. Wiley; 2012. ISBN-13: 978-1118084144
2. Groat, Linda N. and Wang, David. *Architectural Research Methods 2nd Edition*. Wiley; 2013. ISBN-13: 978-0750658515
3. Chong, Gordon H. Brandt, Robert; and W. Mike Martin. *Design Informed: Driving Innovation with Evidence-Based Design, 1st Edition*. Wiley; 2010. ISBN-13: 978-0470395622

B. Alternative Textbook(s)

Sanoff, Henry. *Methods of Architectural Programming (Routledge Revivals), 1st Edition*. Routledge; 2016. ISBN-13: 978-1138688308

Cherry, Edith. *Programming for Design: From Theory to Practice, 1st Edition*. Wiley; 1998. ISBN-13: 978-0471196457

C. Supplemental Print Materials

Fowler, Floyd J. *Survey Research Methods (Applied Social Research Methods) Fifth Edition*. Sage Publications, Inc.; 2013. ISBN-13: 978-1452259000

D. Supplemental Online Materials

None

XIV. Faculty Requirements

The instructor should have a doctoral degree with a focus on architecture, design, and design pedagogy and a record of research and publication in architectural briefs, human factors, or human subjects research.

Course Title: ARCH 4362: Construction Process and Building Economics

Semester Credit Hours: 3 (3, 0)

Total (Lecture, Lab)

I. Course Overview

This course covers the development, design, construction, and operation of buildings; building market analysis; project financial structures; project scheduling; construction cost; facilities operations and management; and life cycle costing. It provides students with the context of architectural practice as related to clients, contractors, tenants, and society.

II. PMU Competencies

Through its content in contributions of major participants in architecture and construction, ethics, diversity, and global challenges, this course is focused competencies for *global connections*, *conflict resolution* and *teamwork* and *leadership*. It also provides knowledge related to *critical thinking* and *problem solving* as well as *professional competence* by providing architecture students with the concepts and vocabulary to work effectively with developers, building owners, contractors, subcontractors, and tenants.

III. Detailed Course Description

The course consists of a series of lectures that introduce knowledge related to the construction process, building economics, and sustainability. A series of assignments provides students the opportunity to apply their knowledge to aid in architectural thought.

The course uses lectures to present material regarding the building process before architectural design and after architectural design. The architect's client, the building owner or developer, uses market analysis to establish a concept for a project, a consideration of the post-construction strategy, and financing and economic projections to determine profitability. The contractor and subcontractors convert the design description into construction cost estimates, project schedules, and ultimately a finished building. Facility managers accept a building at commissioning and devise procedures for operating and managing it, manage renovations and remodels, and ultimately demolition and disposal.

IV. Requirements Filled

This is a required course that is taken in the second semester of the fourth year.

V. Required Prerequisites

ARCH 4344: Introduction to Environmental Systems

VI. Learning Outcomes

A student completing the course will be able to:

- a. Describe and analyze the life cycle of a building from the standpoint of economic, environmental, and social value
- b. Describe issues of paramount importance to building developers and owners and how they affect architects
- c. Prepare a construction cost estimate at conceptual level, assemblies level, and detail level
- d. Produce a construction plan
- e. Describe issues of importance in facility management

The course addresses various NAAB criteria:

- Critical thinking and representation
- Building practices, technical skills, and knowledge of architecture and building
- Integrated architectural solutions
- Professional practice

In addition, particular areas of focus in the PMU architecture program include:

- Technology for architectural design and construction
- Research informed design process

VII. Assessment Strategy

The course is graded based on participation one-third, tests one-third, and assignments one-third.

Participation includes attendance in class and contributions to discussions, both in class and on social media.

Tests cover: 1) developer and owner perspectives; 2) contractor and construction perspectives; 3) facility manager and sustainability perspectives.

A term project will present information gathered in a case study that includes at least one person from a developer team, at least one person from the design team, at least one person from the con-

struction team, and at least one person from the regulatory agency or a tenant. The term paper will be graded based on writing quality, quality of interviews and questioning, and insights gained.

VIII. Course Format

The course is offered as a lecture format with readings and exercises. Guest lecturers provide professional perspectives of owners, designers, contractors, and operators and tenants.

The course may offer lectures as online videos to allow class-time to be devoted to discussions.

Classroom Hours (3 hours per week)

Class: 3, Lab: 0

IX. Topics to Be Covered

The course covers a wide range of topics that enable students of architecture to understand the context of professional practice:

- A. Overview of the architecture and construction industry
- B. Triple bottom line of sustainable development
- C. Market analysis concepts
- D. Pro forma financial analysis
- E. Life cycle cost analysis
- F. Embodied energy
- G. Construction cost estimating concepts
- H. Construction cost estimating practice
- I. Project scheduling concepts
- J. Project scheduling practice
- K. Project controls concepts
- L. Project controls practice
- M. Construction contracts and subcontracts obligations and incentives
- N. Construction project supervision and leadership
- O. Overview of facility management
- P. Occupant and tenant issues
- Q. Social impact of architecture

X. Laboratory Exercises

The course has no laboratory component.

XI. Learning Technology Component

A digital learning technology environment should provide:

- a. Creation and distribution of course syllabus
- b. Distribution of video recordings of lectures
- c. Distribution of assignment specifications and collection of digital versions of assignment deliverables
- d. Collection of student lab exercises as digital files; with files that may be of very large size, in the range of 100 MB
- e. Sharing links to Web sites
- f. Course calendar for apprising students of deadlines
- g. Course email utility for managing individual communications between a student and the instructor
- h. Course discussion list or bulletin board for sharing comments and images with the entire course community
- i. Grade distribution system for communicating grades from instructor to student, ensuring privacy of the communication

j. In-class video conferencing for guest lecturers

The classroom will be equipped to project images and videos at a large size, provide for recording of lectures and discussions, and provide audio performance to facilitate discussions.

XII. Special Projects/Activities

The case study is the most significant special project. The instructor will make arrangements with local practitioners for subjects for the case studies.

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

1. Dykstra, Alison. *Construction Project Management: A Complete Introduction, 2nd Edition*. Kirshner Books; 2018. ISBN-13: 978-0982703434
2. Jerke, Dennis. *Urban Design and the Bottom Line: Optimizing the Return on Perception*. Urban Land Institute; 2008. ISBN-13: 978-0874209969

B. Alternative Textbook(s)

Gould, F. E., and Joyce, N.E. *Construction Project Management, 4th Edition*. Prentice Hall; 2014. ISBN -13: 978-0-13-2787724-4

C. Supplemental Print Materials

None

D. Supplemental Online Materials

None

XIV. Faculty Requirements

The instructor will have a doctorate in architecture, architectural engineering, or a related field with a focus on issues in practice, or serve in a senior management role in a significant architecture firm and have at least four years of teaching experience.

Course Title: ARCH 4365: Architecture Internship Course

Semester Credit Hours: 3 (1, 320)

I. Course Overview

This course enables students to apply their studio and class experience to practical use in a work-world apprentice situation. Students have the opportunity to seek design employment in the surrounding geographic area or in the PMU Community Design Center, if it is established.

II. PMU Competencies

The nature of the internship experience requires that student participants exhibit effective communication through reading, writing, listening and speaking. Critical thinking and problem solving are inherent in the practice of architecture and will be enhanced through this experience. Teamwork is reinforced through everyday work activities to complete assigned tasks. It is anticipated that students will be called upon to use their technology skills towards successful completion of daily and project tasks. Leadership skills are reinforced through interaction with design professionals and clients.

III. Detailed Course Description

Students achieve a broadened knowledge of the Architecture industry through an apprenticeship

experience in a local architecture firm or the PMU Community Design Center. Internships must be pre-approved by the Chair of the Department of Architecture prior to the work experience. This course exposes the students to the professional application of acquired skills and knowledge obtained in all previous ARCH courses.

IV. Requirements Fulfilled

This course is required of all students majoring in architecture. It is to be taken in the summer between fourth and fifth year.

V. Required Prerequisites

- Completion of 100 credit hours
- Departmental approval

VI. Learning Outcomes

Students completing this class will:

- Acquire the ability to function and grow in a professional working environment.
- Apply knowledge learned in previous ARCH classes to real world design experiences
- Prepare project documentation that meet professional expectations of supervisors
- Present the projects to clients, supervisors and PMU instructors
- Summarize work experience via a written log, reflection essay, oral presentation and submission of a portfolio of work completed to PMU.

The course addresses various NAAB criteria:

- Critical thinking and representation
- Building practices, technical skills, and knowledge of architecture and building
- Integrated architectural solutions
- Professional practice

VII. Assessment Strategy

Students are assessed through evaluation of their notebook, supervisor evaluations, final presentation, and participation in weekly reports to the instructor of record.

VIII. Course Format

The principal work is accomplished through the daily work experiences of the student. Students are expected to complete a minimum of 320 hours (8 weeks at 40 hours per week) in a pre-approved design firm or the PMU Community Design Center, if it is established.

A weekly report offers the opportunity for students to discuss issues and experiences about their work with the faculty on assigned subjects.

Classroom Hours (1 hour per week)	Class: 1
	Studio: 0
Field work (8 weeks @ 40 per week)	320 hours

IX. Topics to be Covered

- A. Company organization and specialization
- B. Company interaction and communication
 1. In-house

- 2. Outside
- C. The role of the designer
- D. Unexpected office experiences
- E. Project documentation
- F. Forms utilized in the office environment
- G. Supervisors
- H. Project production and completion

X. Laboratory Exercises

None.

XI. Learning Technology Component

Information technology skills are used to file weekly work reports via the Internet. Students will use their AutoCAD/BIM skills to successfully complete assigned job tasks.

XII. Special Projects/Activities

Each student prepares a work experience portfolio reflecting their assigned tasks, forms, accomplishments, and supervisor evaluation forms.

XIII. Textbooks and Teaching Aids

A. Required Textbook

None

B. Alternative Textbooks

None

C. Supplemental Print Materials

None

D. Supplemental Online Materials

None

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: ARCH 4371: Contemporary Materials in Architecture and Design

Semester Credit Hours: 3 (3,0)

Total (Lecture, Lab)

I. Course Overview

This course serves as an introduction to the development of building materials and their application methods in contemporary architecture, art, design, and the construction industry; aesthetics and performance of selected materials; the application of materials; construction/fabrication methods related to design proposals; and the theoretical understanding of the relationship between materials, materiality, and design intentions and executions.

II. PMU Competencies

The course addresses two of PMU's core competencies. It develops the students' *critical thinking* and *problem solving* skills through developing an understanding of the relationship between materials and design decisions. It also increases students' *technological competence* by exposing them to current materials and material technologies used by world-renowned architects in architectural projects around the world. This worldwide focus supports the PMU competency that students become *globally connected*.

III. Detailed Course Description

Based on a series of lectures, this course provides students with opportunities to conduct research on materials, and processes related to different materials. The lectures will highlight the development of building materials in the context of modern architectural/aesthetic development, as well as their use in the contemporary scene, which relates to the theoretical understanding of their materiality. The discussion also encompasses the relationship between the processes of manufacturing of materials and the application of materials in construction and fabrication.

Students will conduct thorough research on the specific topic through the semester, examining materials, processes, and applications of different materials. These three areas of research are intended to become the knowledge base from which students will formulate a theoretical, cultural, social, economic, and aesthetic understanding of materiality.

IV. Requirements Filled

This course is usually taken in the first semester of the fourth year and is an elective course.

V. Required Prerequisites

ARCH 2241: Materials and Methods

VI. Learning Outcomes

Students successfully completing this course will:

- a. Describe and evaluate the properties of different materials and their use in architectural work by world renowned architects.
- b. Describe and evaluate the relationship between the processes of manufacturing of materials, as well as application of materials in construction and fabrication.
- c. Describe and evaluate the knowledge basis to formulate the theoretical, cultural, social, economic, and aesthetic understanding of materiality.

The course addresses various NAAB criteria:

- Critical thinking and representation
- Building practices, technical skills, and knowledge of architecture and building
- Integrated architectural solutions
- Professional practice

VII. Assessment Strategy

Student evaluation in this course will involve a series of short reports and a final white paper at the end of the semester. The grade distribution is as follows:

- Six graphic reports: 60% of final grade
- Final white paper: 40% of final grade

VIII. Course Format

This course utilizes a lecture format. The course will meet two times per week. Lectures will be used to present course content, including basic principles and case studies. Students will participate in discussions within the class period and online through the course management system. Online discussion groups will be supervised by the instructor. Students will be assigned a series of short assignments related to different topics covered in the course.

Classroom Hours (3 hours per week)

Class: 3, Lab: 0

IX. Topics to Be Covered

- Glass
- Brick
- Wood
- Concrete
- Concrete block
- Ceramic
- Fabric and membrane
- Plastic
- Metal
- Bamboo
- Paper

X. Laboratory Exercises

None

XI. Learning Technology Component

All course material, including syllabus, class presentations, handouts, and other resources, will be made available as much as possible on the course management system (Blackboard or equivalent). System e-mail will be used by the instructor to communicate important information to students. Students are responsible to check their email accounts regularly. The course management system will also be used to submit projects digitally and to post student grades as they become available. Instructor will also create discussion groups for students to exchange ideas about course topics.

XII. Special Projects/Activities

Graphic Reports: Six (6) reports will be required. The reports should follow the examples mentioned in the lecture, though individual students can also find their own topics on which to report. The topics of these reports will be in the following three categories:

1. Material: Focus on a specific material, including the information on the material's physical characteristics, manufacturer, application examples, cost, etc.
2. Process: Focus on a specific production, manufacturing, and/or application process for a specific material, including the information on its manufacturer, fabricator, equipment, examples, etc.
3. Application: Focus on a specific building by an architect or product by a designer, including the information on its construction, fabrication, manufacturing methods, etc.

Each student must produce at least one (1) report in each category (six (6) altogether). It is up to the student to decide the sequence of the content of the reports. The reports are due in preliminary and final forms. Each preliminary report will be presented in class for discussion; final reports are due a week later.

White Paper: One white paper will be due at the end of the semester. Each student is to write a white paper, proposing a potential and innovative process, a new application of a material in any format with a tangible outcome, or a viable production of an innovative material. This white paper involves a design exercise that is to be proposed as part of the idea. This is a hypothetical exercise of each student's understanding of a particular material and its materiality. Use the same In-Design format for the final white paper. Each student will also be required to make a presentation using PowerPoint.

I.

XIII. XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

None

B. Alternative Textbook(s)

None

C. Supplemental Print Materials

Brownell, Blaine E. *Transmaterial: A Catalog of Materials That Redefine our Physical Environment*. Princeton Architectural Press, New York, NY; 2006. ISBN-13: 978-1568985633

Kula, Daniel, Wietzorrek, Ulrike, et al. *Materiology: The Creative Industry's Guide to Materials and Technologies, Revised Edition*. Birkhauser Verlag AD; 2013. ISBN-13: 978-3038212546

Howes, Philip and Laughlin, Zoe. *Material Matters: New Materials in Design*. Black Dog Publishing; 2012. ISBN-13: 978-1907317736

Peterts, Sascha. *Material Revolution. Sustainable and Multi-Purpose Materials for Design and Architecture 2nd Edition*. Birkhäuser Architecture; 2010. ISBN-13: 978-3034606639

D. Supplemental Online Materials

- Material Connexion: <http://www.materialconnexion.com/>
- Materia: <http://www.materia.nl/>
- Stylepark: www.stylepark.com/en/
- Design Spotter: <http://www.designspotter.com/>
- Architonic: <http://www.architonic.com/>
- Mocoloco: <http://mocoloco.com/>
- Architonic: <http://www.architonic.com/>

XIV. Faculty Requirements

Faculty should have a doctorate in architecture or a related topic or hold a professional master of architecture degree and have documented experience in the design and use of materials.

Course Title: ARCH 4525: Design Studio VII- Architectural Design

Semester Credit Hours: 5 (1, 4)

Total (Lecture, Studio)

I. Course Overview

This course covers the application of verbal, graphic, research, critical thinking, and fundamental design skills to architectural projects that emphasize the integration of structural, environmental, life safety, building envelope systems, and building service systems. It also covers code compliance, resource conservation, cost control and economic analysis.

II. PMU Competencies

This studio course contributes to the stated PMU Competencies for students:

- a. *Communication*: The ability to communicate effectively in both English and Arabic in professional and social situations.
- b. *Technological competence*: The ability to use modern technologies to acquire information, communicate, solve problems, and produce intended results.
- c. *Critical thinking and problem solving*: The ability to reason logically and creatively to make informed and responsible decisions and achieve intended goals.
- d. *Professional competence*: The ability to perform professional responsibilities effectively in both local and international contexts.
- e. *Teamwork*: The ability to work effectively with others to accomplish tasks and achieve group goals.
- f. *Leadership*: The ability to be informed, effective, and responsible leaders in family, community, and the Kingdom.

III. Detailed Course Description

The studio will consist of one to two projects, with distinct, interrelated phases as outlined in the course schedule. Studio critiques will be in the form of individual desk critiques and occasional “pin-ups.” The teaching methodology includes: a) individual student explorations of design projects, b.) occasional seminars, c.) use of books in the library, d.) the direct experience of quality works of architecture both locally, regionally, and internationally.

The studio will focus on the physical, sensory experience of architecture. In addition to use of the computer, drawing and sketching by hand and physical site section models will be an important form of exploration, leading to a high quality, highly resolved set of computer generated drawings. Students will use orthographic drawings, physical models, and computer models to explore their project’s interior space and experience of moving through the project. Field trips may also be scheduled as part of the studio.

The course consists of time in the studio and attending visiting lectures. It is the responsibility of each student to demonstrate competence and understanding of the course in the final deliverables for the course.

IV. Requirements Filled

This is a required course taken in the first semester of the fourth year.

V. Required Prerequisites

COAD 3322: Building Codes and Universal Design

ARCH 3524: Design Studio VI- Integrated Architectural Design

VI. Learning Outcomes

Students will be expected to:

- Demonstrate initiative, curiosity, discipline, and integrity throughout the studio and design process
- Prepare architectural designs integrated with usable outdoor space and surrounding context
- Research and design for specific environment-behavior interactions
- Employ effective communication skills regarding design concepts with drawing annotations and through written and oral presentations
- Illustrate visual communication techniques, including digital renderings
- Show effective self-organization, collaboration, and time management skills in collaborative and individual settings

Course requirements are aligned with the NAAB accreditation Student Performance Criteria (SPC). SPC addressed in this course are:

- A.4. Technical Documentation: Demonstrate the ability to make technically clear drawings, write outline specifications, and prepare models illustrating and identifying the assembly of materials, systems, and components appropriate for a building design.
- B. 1. Pre-Design: Demonstrate the ability to prepare a comprehensive program for an architectural project, such as preparing an assessment of client and user needs, an inventory of space and equipment requirements, an analysis of site conditions (including existing buildings), a review of the relevant laws and standards and assessment of their implications for the project, and a definition of site selection and design assessment criteria.
- B. 2. Accessibility: Demonstrate the ability to design sites, facilities, and systems to provide independent and integrated use by individuals with physical (including mobility), sensory, and cognitive disabilities.
- B. 5. Life Safety: Demonstrate the ability to apply the basic principles of life-safety systems with an emphasis on egress.
- B. 10. Building Envelope Systems: Demonstrate the understanding of the basic principles involved in the appropriate application of building envelope systems and associated assemblies relative to fundamental performance, aesthetics, moisture transfer, durability, and energy and material resources.
- B. 12. Building Materials and Assemblies: Demonstrate the understanding of the basic principles utilized in the appropriate selection of construction materials, products, components, and assemblies, based on their inherent characteristics and performance, including their environmental impact and reuse.

VII. Assessment Strategy

A student's work may be considered for an excellent grade when the following characteristics are visibly evident in the work:

- a. The weekly deliverables have been completed and submitted on time (late submittals may lose 1 letter grade) and are clearly identified with the student's name, course number, and semester
- b. Care in presentation of interim deliverables is apparent (page size, page layout; no spelling or math errors)
- c. Design proposals demonstrate logical consistency from concept through development
- d. Design proposals meet the standard of quality established by precedents that are presented to the studio in a meaningful way
- e. Design meets current IBC and ADA for life safety and accessibility
- f. Alternative schemes demonstrate the investigation of alternative points of view about the subject, not simple derivations of a single scheme

- g. The projects are not formally compromised
- h. The projects demonstrate the result of insights learned from program, precedents, context, and site analysis
- i. The work demonstrates a range of media employed to present specific aspects of the character of the work
- j. The work demonstrates a range of scales of inquiry from detail to component to an overall whole
- k. The alternatives are presented in the context of the site (extending at least the dimension of the parcel in all directions) and climate (shadows)
- l. The alternatives demonstrate the development of a single train of thought across program, core, structure, and envelope
- m. Relevant historical precedents play a meaningful part of the student's study (and are included in each deliverable)
- n. Sustainable characteristics of the alternatives (in terms of LEED v4 BD+C) are described in each deliverable

VIII. Course Format

The course will be taught in a design studio format using methodologies that are primarily project-based and offer the means by which learning from technical and professional courses is combined with instruction in architectural design. Studios offer the opportunity for students to engage closely with the instructor. Studio project assignments become progressively more complex through the curriculum until the last year when students undertake individual capstone thesis-like projects.

For each year, a student cohort is divided into groups of about 14-16, and each group is assigned to a studio instructor. Studio courses typically meet three days per week. Studio assignments, or projects, are established by the studio instructor, but should be coordinated for each studio level.

Architecture studio teaching involves a number of varied activities. At the beginning of the semester, assignments, or projects, are developed by the studio instructor, which include the scope, goals, expectations, general procedure, and assessment criteria that will be employed for the project. Studio teaching also involves implementing the project assignment through different teacher/student exchanges including lectures, group discussions, individual desk critiques (also known as "crits"), and formal "pin-up", where students receive feedback on their work from the instructor. A final project presentation or "jury" is typically held at the end of the semester in which students present their work to the studio instructor and other instructors or outside guests.

Classroom Hours (9 hours per week) Class: 1, Studio: 8

The successful student must commit to significant study outside of class time.

IX. Topics to Be Covered

Students are expected to demonstrate mastery of architectural design including successful response to the following themes:

- a. Sculpture: buildings are sculptures in the city
- b. Context: buildings always land somewhere on earth
- c. System: buildings are solutions to a qualitative problem
- d. Pattern: buildings are born naked and therefore need clothing
- e. Cavity: buildings need counter-space if they are to be understood, an internal void where one can step back a pace
- f. Stacking: buildings are stacked programs
- g. Position: buildings are pieces of the chessboard of the city
- h. Arrangement: housing blocks need arranging with the greatest care
- i. Scenario: buildings are the backdrop against which life is enacted

- j. Ensemble: buildings occur in groups
- k. Senses: buildings must be perceived with all the senses
- l. Building: making buildings is not a goal in itself but a means
- m. Silhouette: buildings ought to have flamboyant tops to them
- n. Use: a building is an instrument for people
- o. Weight: buildings need to be extricated from gravity
- p. Texture: buildings need to be pleasant to touch

X. Studio Exercises

The studio will involve one to two design projects. The projects will be selected by the studio instructor consistent with the studio level and expected learning outcomes. Projects can vary between sections in the same studio level.

For fourth year studios, project typically focus on one or more buildings with large size and complexity. Group projects are also possible. A project schedule will be provided by the studio instructor indicating the different phases and timeline of every project phases including but not limited to: research, programing, schematic design, design developing, development of presentation material, and final presentation.

Laboratory space should include a drawing desk and chair or stool, power outlet for computing, Wi-Fi or cabled network, lighting that is appropriate for a computer-based workspace and task lighting that is appropriate for hand-based drawing.

XI. Learning Technology Component

Various digital learning technologies will be used in conjunction with manual methods. A digital learning technology environment should provide:

- a. Creation and distribution of course syllabus
- b. Distribution of assignment specifications and collection of digital versions of assignment deliverables, with that file sizes that may be very large, such as 100 MB per file per student
- c. Sharing links to Web sites
- d. Course calendar for apprising students of deadlines
- e. Course email utility for managing individual communications between a student and the instructor
- f. Course discussion list or bulletin board for sharing comments and images with the entire course community
- g. Grade distribution system for communicating grades from instructor to student, ensuring privacy of the communication

In addition, there will be tools and resources for the display of physical artifacts in each class session and to a department-wide audience. Each classroom will be equipped with display walls with proper display lighting and adequate viewing space, as well as digital projection or display capabilities. Stands will be provided for the display of models. A gallery will be provided for display to the entire department for mid-term or end-of-term exhibits.

XII. Special Projects/Activities

In addition to the typical activities of design studios, the course could include relevant guest lectures from other faculty or outside experts and practitioners and experts as well as field-trips to local architectural projects or architectural firms

XIII. Textbooks and Teaching Aids

A. Required Textbooks

Kwok, Alison and Grondzik, Walter. *The Green Studio Handbook (First or Second Edition)*. Ar-

chitectural Press; 2006. ISBN 0750680229

Allen, Edward and Iano, Joseph. *The Architects Studio Companion (Third, Fourth or Fifth Edition)*. Wiley; 2011. ISBN 0470641916

Kevin Lynch, Kevin. *Site Planning (any edition)*. MIT Press. ISBN 9780262120500

“The 2010 Americans with Disabilities Act (ADA) Standards for Accessible Design” must be downloaded and printed out. http://www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards_prt.pdf

LEED v4 BD+C: <https://www.usgbc.org/resources/leed-reference-guide-building-design-and-construction>

XIV. Faculty Requirements

Faculty should have a PhD in architecture; or faculty should hold a professional Master of Architecture degree and have documented architectural design and professional practice experience.

Course Title: ARCH 4526: Design Studio VIII- Integrated Architectural Design

Semester Credit Hours: 5 (1, 4) Total (Lecture, Studio)

I. Course Overview

This course offers a comprehensive and integrated design studio focused on the integration of design theory with functionally sustainable environmental systems (ARCH 4345: Architectural Structures) and structural systems (ARCH 4346: Integrated Environmental Systems). It considers projects from site analysis and programming through design detailing.

The integrated studio combines a studio focus with the environmental systems and structural course materials.

II. PMU Competencies

This studio course contributes to the stated PMU Competencies for students:

- a. *Communication*: The ability to communicate effectively in both English and Arabic in professional and social situations.
- b. *Technological competence*: The ability to use modern technologies to acquire information, communicate, solve problems, and produce intended results.
- c. *Critical thinking and problem solving*: The ability to reason logically and creatively to make informed and responsible decisions and achieve intended goals.
- d. *Professional competence*: The ability to perform professional responsibilities effectively in both local and international contexts.
- e. *Teamwork*: The ability to work effectively with others to accomplish tasks and achieve group goals.
- f. *Leadership*: The ability to be informed, effective, and responsible leaders in family, community, and the Kingdom.

III. Detailed Course Description

This course focuses on the development and effectively communication of structural, environmental,

envelope, and material systems that are fully integrated into a larger architectural project.

In addition to background research, programming development, context documentation, architectural parti diagramming, site plan, floor plans, elevations, sections, physical models, and perspective views, the student is required to produce the following:

- a. Structural design with approximately sized components
- b. Structural “bones” model of the entire proposed structure
- c. Provision for mechanical equipment spaces, risers, and ducts, all approximately sized
- d. Accessible design to 2010 ADA standards
- e. Design compliant to 2015 International Building Code standards, including egress requirements
- f. Building envelope details

ARCH 4345: Architectural Structures and ARCH 4346: Integrated Environmental Systems will have additional requirements, such as framing plans, mechanical diagrams, and shading studies, based on the architectural project.

IV. Requirements Filled

This required course is taken in the second semester of the fourth year.

V. Required Prerequisites

Prerequisite: ARCH 4525: Design Studio VII- Architectural Design.

Co-requisites: ARCH 4345: Integrated Architectural Structures
ARCH 4346: Integrated Environmental Systems

VI. Learning Outcomes

Students will be expected to:

- Demonstrate initiative, curiosity, discipline, and integrity throughout the studio and design process
- Prepare architectural designs integrated with usable outdoor space and surrounding context
- Research and design for specific environment-behavior interactions
- Employ effective communication skills regarding design concepts with drawing annotations and through written and oral presentations
- Illustrate visual communication techniques, including digital renderings
- Show effective self-organization, collaboration, and time management skills in collaborative and individual settings

Course requirements are aligned with the NAAB accreditation Student Performance Criteria (SPC). They should be periodically reassessed to maintain alignment with revisions by the NAAB. SPC addressed in this course are:

- *A.4. Technical Documentation:* Demonstrate the ability to make technically clear drawings, write outline specifications, and prepare models illustrating and identifying the assembly of materials, systems, and components appropriate for a building design.
- *B. 2. Accessibility:* Demonstrate the ability to design sites, facilities, and systems to provide independent and integrated use by individuals with physical (including mobility), sensory, and cognitive disabilities.
- *B. 5. Life Safety:* Demonstrate the ability to apply the basic principles of life-safety systems with an emphasis on egress.
- *B. 10. Building Envelope Systems:* Demonstrate the understanding of the basic principles involved in the appropriate application of building envelope systems and associated assemblies relative to fundamental performance, aesthetics, moisture transfer, durability, and energy and

material resources.

- *B. 12. Building Materials and Assemblies:* Demonstrate the understanding of the basic principles utilized in the appropriate selection of construction materials, products, components, and assemblies, based on their inherent characteristics and performance, including their environmental impact and reuse.

VII. Assessment Strategy

A student's work may be considered for an excellent grade when the following characteristics are visibly evident in the work:

- The weekly deliverables have been completed and submitted on time (late submittals may lose 1 letter grade) and are clearly identified with the student's name, course number, and semester
- Care in presentation of interim deliverables is apparent (page size, page layout; no spelling or math errors)
- Design proposals demonstrate logical consistency from concept through development
- Design proposals meet the standard of quality established by precedents presented to the studio in a meaningful way
- Design meets current IBC and ADA for life safety and accessibility
- Alternative schemes demonstrate the investigation of alternative points of view about the subject, not simple derivations of a single scheme
- The projects are not formally compromised
- The projects demonstrate the result of insights learned from program, precedents, context, and site analysis
- The work demonstrates a range of media employed to present specific aspects of the character of the work
- The work demonstrates a range of scales of inquiry from detail to component to an overall whole
- The alternatives are presented in the context of the site (extending at least the dimension of the parcel in all directions) and climate (shadows)
- The alternatives demonstrate the development of a single train of thought across program, core, structure, and envelope
- Relevant historical precedents play a meaningful part of the student's study (and are included in each deliverable)
- Sustainable characteristics of the alternatives (in terms of LEED V4 BD+C) are described in each deliverable

VIII. Course Format

The course will be taught in a design studio format using methodologies that are primarily project-based and offer the means by which learning from technical and professional courses is combined with instruction in architectural design. Studios offer the opportunity for students to engage closely with the instructor. Studio project assignments become progressively more complex through the curriculum until the last year when students undertake individual capstone thesis-like projects.

For each year, a student cohort is divided into groups of about 14-16, and each group is assigned to a studio instructor. Studio courses typically meet three days per week. Studio assignments, or projects, are established by the studio instructor, but should be coordinated for each studio level.

Architecture studio teaching involves a number of varied activities. At the beginning of the semester, assignments, or projects, are developed by the studio instructor, which include the scope, goals, expectations, general procedure, and assessment criteria that will be employed for the project. Studio teaching also involves implementing the project assignment through different teacher/student exchanges including lectures, group discussions, individual desk critiques (also known as "crits"), and formal "pin-up", where students receive feedback on their work from the instructor. A final project

presentation or “jury” is typically held at the end of the semester in which students present their work to the studio instructor and other instructors or outside guests.

Classroom Hours (9 hours per week)

Class: 1, Studio: 8

The successful student must commit to significant study outside of class time.

IX. Topics to Be Covered

Students will document an architectural project based on a topic provided by the instructor. Elements will include parti diagrams, project description, a figure/ground context plan, site plan, shaded roof plan, floor plans illustrating furniture and finishes, building sections and elevations, construction details, model photos, as well as digital imagery of interior and exterior views. There will be additional required graphics for the environmental systems and structural documentation.

X. Laboratory Exercises

The studio will involve one to two design projects. The projects will be selected by the studio instructor consistent with the studio level and expected learning outcomes. Projects can vary between sections in the same studio level.

For fourth year studios, projects typically focus on one or more buildings with large size and complexity. Group projects are also possible. Projects for this course will be coordinated with ARCH 4345: Architectural Structures and ARCH 4346: Integrated Environmental Systems. A project schedule will be provided by the studio instructor indicating the different phases and timeline of every project phases including but not limited to: research, programing, schematic design, design development, development of presentation material, and final presentation.

Students are required to maintain a design journal with multiple entries per week that documents their evolving thinking about design, aesthetics, tectonics, architecture, and their studio experiences.

Laboratory space should include a drawing desk and chair or stool, power outlet for computing, Wi-Fi or cabled network, lighting that is appropriate for a computer-based workspace and task lighting that is appropriate for hand-based drawing.

XI. Learning Technology Component

Various digital learning technologies will be used in conjunction with manual methods. A digital learning technology environment should provide:

- a. Creation and distribution of course syllabus
- b. Distribution of assignment specifications and collection of digital versions of assignment deliverables, with file sizes that may be very large, such as 100 MB per file per student
- c. Sharing links to Web sites
- d. Course calendar for apprising students of deadlines
- e. Course email utility for managing individual communications between a student and the instructor
- f. Course discussion list or bulletin board for sharing comments and images with the entire course community
- g. Grade distribution system for communicating grades from instructor to student, ensuring privacy of the communication
- h. Grade distribution system for communicating grades from instructor to student, ensuring privacy of the communication.

In addition, there will be tools and resources for the display of physical artifacts in each class session and to a department-wide audience. Each classroom will be equipped with display walls with proper display lighting and adequate viewing space, as well as digital projection or display capabilities.

Stands will be provided for the display of models. A gallery will be provided for display to the entire department for mid-term or end-of-term exhibits.

XIII. Textbooks and Teaching Aids

A. Required Textbooks

Kwok, Alison and Grondzik, Walter. *The Green Studio Handbook (First or Second Edition)*. Architectural Press; 2006. ISBN 0750680229

Allen, Edward and Iano, Joseph. *The Architects Studio Companion (Third, Fourth or Fifth Edition)*. Wiley; 2011. ISBN 0470641916

Kevin Lynch, Kevin. *Site Planning (any edition)*. MIT Press. ISBN 9780262120500

Sandaker, Bjorn N., Eggen, Arne P. and Cruvellier, Mark R. *The Structural Basis of Architecture, 2nd edition*. Routledge; 2011. ISBN-13: 978-0415415477

Ching, Francis D. K. and Winkel, Steven R. *Building Codes Illustrated: A Guide to Understanding the 2015 International Building Code, 5th Edition*. Wiley; 2016. ISBN-13: 978-1119480358

“The 2010 Americans with Disabilities Act (ADA) Standards for Accessible Design” must be downloaded and printed out. http://www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards_prt.pdf

LEED v4 BD+C: <https://www.usgbc.org/resources/leed-reference-guide-building-design-and-construction>

XIV. Faculty Requirements

Faculty should have a PhD in architecture; or faculty should hold a professional Master of Architecture degree and have documented architectural design and professional practice experience.

Course Title: ARCH 5327: Design Studio IX- Capstone Project Programming

Semester Credit Hours: 3 (1, 2)

Total (Lecture, Studio)

I. Course Overview

This first part of the capstone course in the Assessment Capstone Series is a research class that addresses the creative, professional, technical, and historical issues involved in a problem chosen and defined by the student. This course culminates in the formal presentation of a completed design program in preparation for the design segment of the capstone classes.

II. PMU Competencies

This studio course contributes to the stated PMU Competencies for students:

- a. *Communication*: The ability to communicate effectively in both English and Arabic in professional and social situations.
- b. *Technological competence*: The ability to use modern technologies to acquire information, communicate, solve problems, and produce intended results.
- c. *Critical thinking and problem solving*: The ability to reason logically and creatively to make informed and responsible decisions and achieve intended goals.
- d. *Professional competence*: The ability to perform professional responsibilities effectively in both local and international contexts.
- e. *Teamwork*: The ability to work effectively with others to accomplish tasks and achieve group goals.
- f. *Leadership*: The ability to be informed, effective, and responsible leaders in family, community, and the Kingdom.

III. Detailed Course Description

The capstone course of the Architecture degree provides the opportunity to design a project that will be the focal point of the student's portfolio. This course provides the opportunity for students to exhibit the competency and knowledge obtained in all previous architecture courses. Past course work is called upon to create and produce the appropriate documentation for a project selected by the student. Students prepare their final portfolio with this project serving as the key item.

IV. Requirements Filled

This is a required course taken in the first semester of the fifth year.

V. Required Prerequisites

ARCH 4526: Design Studio VIII- Integrated Architectural Design

VI. Learning Outcomes

Students successfully completing this course will:

- Integrate and apply concepts from previous course work.
- Research the chosen architectural problem independently and through consultation with faculty and advisors from the professional community.
- Utilize programming procedures.
- Apply the design process in the development of a project.
- Formulate a complete program document for the problem which satisfies aesthetic and functional requirements while adhering to legal codes and observing consideration of public and individual welfare.
- Present the program formally to an audience of faculty and student peers.

Course requirements are aligned with the NAAB accreditation Student Performance Criteria (SPC). They should be periodically reassessed to maintain alignment with revisions by the NAAB. SPC addressed in this course are:

- A. 3. Visual Communication Skills: Demonstrate the ability to use appropriate representational media, such as traditional graphic and digital technology skills, to convey essential formal elements at each stage of the programming and design process.
- A.4. Technical Documentation: Demonstrate the ability to make technically clear drawings, write outline specifications, and prepare models illustrating and identifying the assembly of materials, systems, and components appropriate for a building design.
- A. 6. Fundamental Design Skills: Demonstrate the ability to use basic architectural and environmental principles in design effectively.
- A. 7. Use of Precedents: Demonstrate the ability to examine and comprehend the fundamental principles present in relevant precedents and to make choices regarding the incorporation of such principles into architecture and urban design projects.
- A. 8. Ordering Systems Skills: Demonstrate an understanding of the fundamentals of both natural and formal ordering systems and the capacity of each to inform two- and three-dimensional design.
- B. 1. Pre-Design: Demonstrate the ability to prepare a comprehensive program for an architectural project, such as preparing an assessment of client and user needs, an inventory of space and equipment requirements, an analysis of site conditions (including existing buildings), a review of the relevant laws and standards and assessment of their implications for the project, and a definition of site selection and design assessment criteria.
- B. 2. Accessibility: Demonstrate the ability to design sites, facilities, and systems to provide independent and integrated use by individuals with physical (including mobility), sensory, and cognitive disabilities.

- B. 3. Sustainability: Demonstrate the ability to design projects that optimize, conserve, or reuse natural and built resources, provide healthful environments for occupants/users, and reduce the environmental impacts of building construction and operations on future generations through means such as carbon-neutral design, bioclimatic design, and energy efficiency.
- B. 4. Site Design: Demonstrate the ability to respond to site characteristics such as soil, topography, vegetation, and watershed in the development of a project design.
- B. 5. Life Safety: Demonstrate the ability to apply the basic principles of life-safety systems with an emphasis on egress.

VII. Assessment Strategy

A student's work may be considered for an excellent grade when the following characteristics are visibly evident in the work:

- a. The weekly deliverables have been completed and submitted on time (late submittals may lose 1 letter grade) and are clearly identified with the student's name, course number, and semester.
- b. Care in presentation of interim deliverables is apparent (page size, page layout; no spelling or math errors).
- c. Design program demonstrates logical consistency from concept through development.
- d. Design programs meet the standard of quality established by precedents they present to the studio in a meaningful way.
- e. Design meets current IBC and ADA for life safety and accessibility.
- f. The projects are not formally compromised.
- g. The projects demonstrate the result of insights learned from program, precedents, context, and site analysis.
- h. The work demonstrates a range of media employed to present specific aspects of the character of the work.
- i. Relevant historical precedents play a meaningful part of the student's study (and are included in each deliverable).
- j. Sustainable characteristics of the alternatives (in terms of LEED V4 BD+C) are described in each deliverable.

VIII. Course Format

The course will be taught in a design studio format using methodologies that are primarily project-based and offer the means by which learning from technical and professional courses is combined with instruction in architectural design. Studios offer the opportunity for students to engage closely with the instructor. Studio project assignments become progressively more complex through the curriculum until the last year when students undertake individual capstone thesis-like projects.

For each year, a student cohort is divided into groups of about 14-16, and each group is assigned to a studio instructor. Studio courses typically meet three days per week. Studio assignments, or projects, are established by the studio instructor, but should be coordinated for each studio level.

Architecture studio teaching involves a number of varied activities. At the beginning of the semester, assignments, or projects, are developed by the studio instructor, which include the scope, goals, expectations, general procedure, and assessment criteria that will be employed for the project. Studio teaching also involves implementing the project assignment through different teacher/student exchanges including lectures, group discussions, individual desk critiques (also known as "crits"), and formal "pin-up", where students receive feedback on their work from the instructor. A final project presentation or "jury" is typically held at the end of the semester in which students present their work to the studio instructor and other instructors or outside guests.

Classroom Hours (5 hours per week)

Class: 1, Studio: 4

The successful student must commit to significant study outside of class time.

IX. Topics to Be Covered

ARCH 5327 and ARCH 5628, the capstone sequence, aim for the student to independently develop a design project. Specific topics to be covered will vary depending on the student's selected area of interest and specific project selected. Students are expected to demonstrate mastery of architectural design skills in their capstone project.

Students will perform an extensive programming of their architectural project. Elements will include project description, site analysis, programming, project brief and parti diagrams.

X. Studio Exercises

The capstone will be selected by each student in consultancy with and under the guidance of the studio instructor. Topics will vary depending on the specific areas of interest of the students. Capstone projects may focus on one or more buildings and will typically be of large size and high complexity. A schedule will be provided by the studio instructor indicating the different phases and timeline of the project.

Students are required to maintain a design journal with multiple entries per week that documents their evolving thinking about design, aesthetics, tectonics, architecture, and their studio experiences.

Laboratory space should include a drawing desk and chair or stool, power outlet for computing, Wi-Fi or cabled network, lighting that is appropriate for a computer-based workspace and task lighting that is appropriate for hand-based drawing.

XI. Learning Technology Component

Various digital learning technologies will be used in conjunction with manual methods. A digital learning technology environment should provide:

- a. Creation and distribution of course syllabus
- b. Distribution of assignment specifications and collection of digital versions of assignment deliverables, with file sizes that may be very large, such as 100 MB per file per student
- c. Sharing links to Web sites
- d. Course calendar for apprising students of deadlines
- e. Course email utility for managing individual communications between a student and the instructor
- f. Course discussion list or bulletin board for sharing comments and images with the entire course community
- g. Grade distribution system for communicating grades from instructor to student, ensuring privacy of the communication

In addition, there will be tools and resources for the display of physical artifacts in each class session and to a department-wide audience. Each classroom will be equipped with display walls with proper display lighting and adequate viewing space, as well as digital projection or display capabilities. Stands will be provided for the display of models. A gallery will be provided for display to the entire department for mid-term or end-of-term exhibits.

XII. Special Projects/Activities

Activities for the capstone project will vary depending on the students' selected projects and areas of interest. Some projects may involve site visits and field trips.

XIII. Textbooks and Teaching Aids

A. Required Textbooks

Each student will have differing text needs determined by the focus of their final project.

“The 2010 Americans with Disabilities Act (ADA) Standards for Accessible Design” must be downloaded and printed out. http://www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards_prt.pdf

International Building Code 2018 (OR most recent edition)
<http://shop.iccsafe.org/2018-international-building-coder.html>

Saudi Arabian Building Code 2018

ENGLISH: <https://www.sbc.gov.sa/resources/PdfPreview/web/viewer.html?avx=U2FsdGVkX-19l2xaZA/2xeBz/uVGcegUQR5XE9bHZ5CQ=>

ARABIC:

<https://www.sbc.gov.sa/resources/PdfPreview/web/viewer.html?avx=U2FsdGVkX193Pbh38t-3FBNX/cftEWlfNQ8pd9bSFmVY=&type=0>

LEED v4 BD+C: <https://www.usgbc.org/resources/leed-reference-guide-building-design-and-construction>

XIV. Faculty Requirements

Faculty should have a PhD in architecture; or faculty should hold a professional Master of Architecture degree and have documented architectural design and professional practice experience.

Course Title: ARCH 5363: Professional Practice and Ethics**Semester Credit Hours:** 3 (3, 0) Total (Lecture, Lab)**I. Course Overview**

This course is a required course meeting accreditation standards and covers business, legal, and social issues in the practice of architecture; ethics in architecture and the environment; and architectural challenges of the 21st century.

II. PMU Competencies

This course strongly contributes to PMU Competencies of *professional competence, teamwork, and leadership*. It especially addresses issues of leadership, competitiveness, and ethical actions in global markets. As such, it also supports the PMU competency for students to become *globally connected*.

III. Detailed Course Description

This course presents practical issues an architect will confront in the profession. It includes pragmatic matters, such as structure of the architecture and construction industry, and organization and operation of a design firm; legal matters, such as contracts, regulations, and other obligations; and social issues, such as ethics as a designer, ethics as a business person, social obligations, challenges in global practice, and 21st century challenges and opportunities.

IV. Requirements Filled

This is a required course typically taken in the second semester of the fifth year.

V. Required Prerequisites

ARCH 4526 Design Studio VIII- Integrated Architectural Design

VI. Learning Outcomes

A student completing this course should be able to:

- List and prepare contractual, legal, and regulatory contexts for the practice of architecture
- Research, describe and compare the various roles that contribute to the design, production, and operation of architecture
- Describe and evaluate both conventional and new forms of practice and contracts, such as design/bid/build, design architect and architect-of-record, design/build, project manager-led, and integrated project delivery
- Recognize common organizations and operations of an architecture firm
- Explain ethical expectations of architects
- State and assess architectural trends and challenges in the 21st century

The course contributes strongly to the distinguishing competencies of the PMU Architecture Program through the NAAB criteria:

5. Technology for architectural design and construction
6. Research informed design process

VII. Assessment Strategy

Grades will be assigned based on 1/3 participation, 1/3 tests, and 1/3 term project. Participation is based on attendance and contribution to discussions. There will be a mid-term and final test, each worth 50% of the test grade. The term project grade will be based on completeness to stated require-

ments, delivery on time, writing and presentation quality, and insight. In the situation of team production of term projects, each student in the team will receive the same grade.

VIII. Course Format

The course will be delivered in a rich format that incorporates digital, video, and Web resources for presentation during class sessions and review outside of class. Some lectures will be pre-recorded and must be reviewed by students before they come to class, facilitating discussion in class. Other lectures will be delivered by guests from practice. Work will typically be done individually.

Classroom Hours (3 hours per week)

Class: 3, Lab: 0

IX. Topics to Be Covered

Topics include:

- a. Overview of business, legal and social issues in the practice of architecture
- b. Roles in the architecture and construction industry
- c. Stages in an architecture project and standards of service
- d. Licensing of architects and other professionals and legal obligations and responsibilities
- e. Activities within an architecture firm
- f. Organization of architecture firms
- g. Ethics in the workplace
- h. Ethics in architecture and the environment
- i. Contracts and obligations
- j. Standards and regulations
- k. Conventional and alternative forms of project delivery
- l. Construction documents, drawings, and specifications
- m. Contrasts and similarities in practice around the world
- n. Efficiency, economy, and waste in the architecture and construction industry
- o. Architectural challenges of the 21st century

X. Laboratory Exercises

The course does not have a lab component.

XI. Learning Technology Component

The course will be delivered in a rich format that incorporates rich digital, video, and Web resources for presentation during class sessions and review outside of class. A digital learning technology environment should provide:

- a. Creation and distribution of course syllabus
- b. Distribution of video recordings of lectures
- c. Distribution of assignment specifications and collection of digital versions of assignment deliverables
- d. Sharing links to Web sites
- e. Course calendar for appraising students of deadlines
- f. Course email utility for managing individual communications between a student and the instructor
- g. Course discussion list or bulletin board for sharing comments and images with the entire course community
- h. Grade distribution system for communicating grades from instructor to student, ensuring privacy of the communication
- i. In-class video conferencing with guest lecturers

The classroom will be equipped to project images and videos at a large size, provide for recording of

lectures and discussions, and provide audio performance to facilitate discussions.

XII. Special Projects/Activities

Each student or team of two students will visit an architecture firm and conduct a case study of how the firm is organized and operates.

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

1. American Institute of Architects. *The Architecture Student's Handbook of Professional Practice 15th Edition*. Wiley; 2017. ISBN-13: 978-1118738979
2. Swett, Richard N. *Leadership by Design: Creating an Architecture of Trust*. Greenway Communications; 2005. ISBN-13: 978-0975565407
3. Fisher, Thomas. *Ethics for Architects: 50 Dilemmas of Professional Practice (Architecture Briefs)* Kindle Edition. Princeton Architectural Press; 2010. ISBN-13: 978-1568989464

B. Alternative Textbook(s)

Segal, Paul. *Professional Practice: A Guide to Turning Designs into Buildings*. W. W. Norton & Company; 2006. ISBN-13: 978-0393731804

C. Supplemental Print Materials

Pressman, Andrew; and Fisher, Thomas. *Professional Practice 101: Business Strategies and Case Studies in Architecture 2nd Edition*. Wiley; 2008. ISBN-13: 978-0471683667

D. Supplemental Online Materials

n/a

XIV. Faculty Requirements

The instructor will have credentials of either a doctorate in architecture with a focus upon issues in practice or have a senior management role in a significant architecture firm with at least four years of teaching experience.

Course Title: ARCH 5372: Building Energy Use Modeling and Simulation

Semester Credit Hours: 3 (2,1)

Total (Lecture, Lab)

I. Course Overview

This course offers an advanced study of the integration of building energy use modeling and simulation into the design process to improve building performance in new and existing buildings. It utilizes state-of-the-art design-phase energy use and carbon emissions simulation tools.

II. PMU Competencies

The course addresses two of PMU's core competencies. It increases students' *technological competence* by exposing them to the latest directions in architectural performance simulation and the state-of-the-art software tools used for that. It also increases students' *critical thinking* and *problem solving* abilities by introducing them to performance-based design decision making.

III. Detailed Course Description

This course is based on the increasing need to integrate environmental performance considerations in the form-making processes of architectural design. Such a need responds to and is motivated by the growing interest of built environment professionals in achieving a more sustainable and environmen-

tally conscious built environment. This integration aims to inform design decisions by an assessment of the expected performance of the community, building, or building component in question, which is based on measurable criteria. Integrating performance considerations in the early stages of the design is recognized to be particularly important because of the high impact that design decisions taken in these stages have over the subsequent performance of the building or community especially when aiming for carbon-neutral designs.

This course will introduce state-of-the-art design-decision-support and energy-use simulation tools, currently used by practitioners and/or researchers, as a means of informing net-zero, and carbon neutral designs. The course will provide opportunities for students to have hands-on experiences using these tools, which they can then utilize in their future academic and professional design activities. These hands-on exercises will also be used to demonstrate how sustainable design practices can reduce the negative environmental impact of the built environment, while providing more comfortable, healthy, and economical buildings and communities.

To take full advantage of the course, students need to have a good level of experience in the use of digital tools. The majority of the modeling and simulation activities performed in this class will also require having prior knowledge of the principles and strategies of high-performance building gained through the required environmental systems courses.

IV. Requirements Filled

This course is a professional elective usually taken in the fifth year.

V. Required Prerequisites

ARCH 4354: Simulation and Optimization

ARCH 4346: Integrated Environmental Systems

VI. Learning Outcomes

Upon successful completion of this course, students will:

- Recognize the basic components of whole building energy use simulation.
- Employ basic skills needed to perform whole building energy use simulations, and become aware of the latest software tools used for this purpose.
- Assess the impact of passive strategies on building energy use.
- Evaluate the impact of basic design decisions on building energy use.
- Interpret the results of energy simulation analyses and integrate them into the design decision-making processes.

VII. Assessment Strategy

Student evaluation in this course will be based on a series of exercises and a final semester project.

The grade will be distributed as follows:

- a. Modeling and simulation exercises (6): 60% of final grade
- b. Semester project: 40% of final grade

VIII. Course Format

This course will be taught in a lecture/lab format.

Lecture presentations will cover the basic concepts of whole building energy use simulation, provide tutorials on the use of simulation tools, and present case studies of performance simulation projects.

Lab sessions will allow the students to gain practical hands-on experience in the use of the simulation tools and the integration of simulation results into design decision making. The labs will involve a series of short exercises designed to provide students with experience in basic modeling and simulation tasks.

A final semester project will allow students to apply the performance simulation skills gained to optimize a small- or medium-scale design project.

Classroom Hours (4 hours per week)

Class: 2, Lab: 2

IX. Topics to Be Covered

- a. Assessing environmental impacts, building environmental analysis, personal carbon footprint
- b. Basics of performance modeling and simulation, performance metrics, building loads
- c. Identification of performance benchmarks
- d. Climate classification and analysis
- e. Passive climatic strategies
- f. Basics of performance models: model building, material properties, parent/child relationship
- g. Workflow with SketchUp and Revit, exporting and importing using DXF, and gbXML
- h. Performance feedback using plugins

- i. Simulation of solar access and shading, solar radiation analysis
- j. Energy analysis introduction: building systems, internal gains, schedules, construction
- k. Energy analysis: profiles and schedules
- l. Dynamic thermal simulation, analysis and results interpretation, performance optimization

X. Laboratory Exercises

- a. *Personal Carbon Footprint*: The purpose of this exercise is for the students to evaluate their personal annual personal carbon footprints. A personal footprint is the equivalent amount of carbon dioxide produced by an individual or a family during their everyday activities, including household energy use, transportation, air travel, and consumption of food and other goods. The objective of the exercise is for students to explore issues of analysis of environmental impacts and making decisions based on valid performance information, and verifying the impact of these decisions compared to established goals.
- b. *Performance Benchmarking*: The objective of this exercise is for students to understand the need for identifying suitable performance benchmarks as a critical starting point for the performance simulation and analysis process, and to investigate several available information sources and processes for benchmarking.
- c. *Climate Analysis*: The objective of this exercise is to conduct an analysis of the local climate in a selected city using climate analysis software.
- d. *Shading and Solar Analysis*: The objective of this exercise is to examine the solar and shading analysis functions in the simulation tools being utilized in the class and to learn to use them as the bases for informing basic design decisions.
- e. *Basics of Performance Modeling*: The objective of this exercise is to learn the basic concepts of building a performance model of a building, including geometry, envelope characteristics, schedules, and systems.
- f. *Thermal and Whole Building Energy Use Modeling*: The objective of this exercise is to conduct a simulation and analysis of the thermal conditions and whole building energy use of a small- to medium-size building.

XI. Learning Technology Component

All course material, including syllabus, class presentations, handouts, and other resources, will be made available as much as possible on the BLACKBOARD course management system. System e-mail will be used by the instructor to communicate important information to students. Students are responsible to check their email accounts regularly. The course management system will also be used to submit projects digitally and to post student grades as they become available. Instructor will also create discussion groups for students to exchange ideas about course topics.

This course utilizes several performance simulation tools, including freeware, shareware, and commercial tools (see section XIII, Textbooks and Teaching Aids). This software should be made available to students on the college computer labs.

XII. Special Projects/Activities

In addition to the lab exercises, the course will include a final semester project in which students will use performance simulation tools to optimize the design of a selected design project. The projects could be one of the studio projects developed by the students in a previous semester or a suitable existing building.

XIII. Textbooks and Teaching Aids

- A. Required Textbook(s)

n/a

B. Alternative Textbook(s)

n/a

C. Supplemental Print Materials

n/a

D. Supplemental Online Materials

Climate Consultant 6: Freeware for the analysis of climate conditions and human thermal comfort. Can be downloaded from: <http://www.energy-design-tools.aud.ucla.edu/>

eQUEST 3.65 (the Quick Energy Simulation Tool): Freeware for the simulation of whole building energy use. Software download from: <http://doe2.com/equest/index.html>

IES-VE: An in-depth suite of building performance analysis tools. For use at any stage of the design process, a variety of different interconnected modules and capabilities are available, so users can build the suite to meet their needs. The IES-VE software also includes two plug-ins for SketchUp and Revit. Students can download a full reduced-price student copy of IES-VE 2015 with a one-year license from the following website: <http://www.iesve.com/software/download/ve-for-students>

SEFAIRA: A collaborative platform for performance-based design that allows architects, engineers, and sustainability specialists to work on the same performance analysis model. Sefaira works as a plug in for SketchUp and Revit. While Sefaira is commercial software, students will be provided with Sefaira accounts that will allow them to download the software and use it on their personal computers for the duration of the semester. Sefaira software can be downloaded from the following site: <https://apps.sefaira.com/page/login>

LEED v4 BD+C: <https://www.usgbc.org/resources/leed-reference-guide-building-design-and-construction>

XIV. Faculty Requirements

Faculty should have a doctorate in architecture focusing on sustainable architecture, building performance, or a related topic or hold a professional master of architecture degree and have documented experience in building performance simulations.

Course Title: ARCH 5373: Sustainable Housing and GeoDesign

Semester Credit Hours: 3 (2,1)

Total (Lecture, Lab)

I. Course Overview

This course explores the fundamentals of sustainable housing and community design in different world regions; theories and principles of dealing with different urban form and patterns of housing; and an introduction to tools using Geodesign, 3D analysis, and urban analytic approaches.

II. PMU Competencies

The course addresses two of PMU's core competencies. It develops the students' *critical thinking* and *problem solving* skills through developing an understanding of the fundamentals of sustainable housing and community design. It also increases the *technological competence* of the students through introducing them to concepts of 3D analysis and GeoDesign. By addressing issues of sustainable building worldwide, it supports the PMU competency that students become *globally connected*.

III. Detailed Course Description

This course discusses the fundamentals of sustainable housing and community design in different world regions. Theories and principles of dealing with different urban form and patterns of housing will be discussed. Tools using geodesign, 3D analysis, and urban analytic approaches will be used to understand how cities are shaped. Emphasis will be placed on cities in the Gulf Region. Geographic information systems (GIS) lab and design assignments will offer an opportunity to examine sustainability principles on an urban scale. The second part of the semester will encompass a team project for selecting, analyzing, and designing one housing typology for a selected community. This could entail multifamily, mixed use, infill, or single family housing. The design could be for a new construction, renovation, or adaptive reuse concepts.

IV. Requirements Filled

This course is an elective usually taken in the fifth year.

V. Required Prerequisites

ARCH 4354: Simulation and Optimization

VI. Learning Outcomes

Students successfully completing this course will:

- Describe the principles of sustainability in making architecture and urban design decisions that conserve natural resources and integrate renewable energy sources into designs.
- Map and evaluate sustainable housing and sustainable urbanism effectively.
- Evaluate and incorporate energy-efficient materials and advanced techniques in housing design as well as in neighborhood planning.
- Recognize the basic forms of land development planning patterns and housing typologies.
- Explain and integrate principles of energy-efficiency and spatially sensitive design in urban housing design.

VII. Assessment Strategy

Student evaluation in this course will involve a number of components including lab assignments, a housing design charrette, and a final semester project. The description of each of these components is included below:

- a. Up to six short lab assignments will be held over the course of the semester: 30% of final grade
- b. Housing design charrettes: 30% of final grade
- c. Semester project report and presentation: 40% of final grade)

VIII. Course Format

This course will be taught in a lecture/lab format. Lecture presentations will cover the basic concepts of sustainability and geodesign, and provide tutorials on the use of mapping and 3D analysis tools. Lab sessions will allow the students to gain practical hands-on experience in the use of mapping tools and the integration of 3D analysis results into design decision making. The labs will involve a series of short exercises designed to provide students with experience in using relevant tools. A final semester project will allow students to apply the performance simulation skills gained to optimizing a small- or medium-scale design project.

Classroom Hours (4 hours per week)

Class: 2, Lab: 2

IX. Topics to Be Covered

- a. ArcGIS, geodesign, and sustainability
- b. Principles of sustainable housing and urbanism
- c. Case studies of sustainable housing development
- d. Rating systems for sustainable urbanism

X. Laboratory Exercises

The course will include a series of lab exercises. The lab topics are:

- a. Introduction to GIS
- b. Layers and data frames
- c. Table and map manipulation
- d. Density and buffers
- e. Digitizing and 3D analysis
- f. Layouts, scales, and presentation

XI. Learning Technology Component

All course material, including syllabus, class presentations, handouts, and other resources, will be made available as much as possible on the course management system (Blackboard or equivalent). System e-mail will be used by the instructor to communicate important information to students. Students are responsible to check their email accounts regularly. The course management system will also be used to submit projects digitally and to post student grades as they become available. Instructor will also create discussion groups for students to exchange ideas about course topics.

The course will also utilize several software packages including:

- a. ESRI's ArcGIS suite, also known as geographic information systems (GIS); the suite includes the following components:
 - ArcMap for desktop
 - Arc Catalog
 - Arc Scene
- b. AutoCAD and MS Office

XII. Special Projects/Activities

The main activity of the course will involve a housing design semester project. The project will consist of several design charrettes, each focusing on one of the following aspects of housing and community design: morphology and mobility, infrastructure and ecology, environment, streets and open

spaces, and visual presentation. A final project report and final presentation will also be required of each student.

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

Urban Design Associates. *The Urban Design Handbook: Techniques and Working Methods, Second Edition*. W. W. Norton & Company; 2013. ISBN-13: 978-0393733686

B. Alternative Textbook(s)

Farr, D. *Sustainable Urbanism: Urban Design With Nature*. Wiley, Hoboken, NJ; 2008. ISBN-13: 978-0471777519

C. Supplemental Print Materials

USGBC. *LEED reference Guide for Neighborhood Development. LEED v4*. US Green Building Council; 2014. ISBN: 978-1-932444-48-3

D. Supplemental Online Materials

None

XIV. Faculty Requirements

Faculty should have a doctorate in architecture focusing on sustainable architecture and urbanism, housing, or a related topic or hold a professional master of architecture degree and have documented experience in sustainable urbanism and housing.

Course Title: ARCH 5374: Advanced Design Visualization

Semester Credit Hours: 3 (2,1)

Total (Lecture, Lab)

I. Course Overview

This course serves as an introduction to the history, elements, and rules of graphic design, including terminology, techniques, and tools. It also encompasses the advanced exploration of graphic processes and techniques utilized in the design of the built environment.

II. PMU Competencies

The course addresses three of PMU's core competencies: *communication*, by developing students' graphic design skills; *technological competence*, by introducing them to digital tools used in graphic design and design visualization; and *professional competence*, by increasing students' abilities to represent their own design work.

III. Detailed Course Description

This course presents an introduction to the history, elements and rules of graphic design, including terminology, techniques, and tools. The course is structured as a graphic design workshop providing a critical review of student work augmented by presentations of new means, materials, and methods. The course will introduce students to current directions in visualization of architectural design projects and the latest tools used by architects to communicate their work to their peers and to the public.

IV. Requirements Filled

This is an elective course usually taken in the fifth year.

V. Required Prerequisites

None

VI. Learning Outcomes

Students successfully completing this course will:

- Recognize the basic concepts and principles of graphic design and design visualization
- Evaluate current directions in visualization of design projects
- Use existing software and other tools used in design visualization and graphic design
- Demonstrate their abilities to graphically visualize and represent their design work in multiple methods and media

VII. Assessment Strategy

Student evaluation in this course will be based on a series short graphic design and design visualization projects each focusing on one or more elements, and/or methods and tools of graphic design. A final semester project will serve as the vehicle for students to demonstrate comprehensively the knowledge they gained in the course. The distribution of the grades will be as follows:

- a. Short projects (seven): 70% of final grade
- b. Final semester project: 30% of final grade)

VIII. Course Format

This course will be taught in a lecture/lab format. Lecture presentations will cover the basic concepts of graphic design and design visualization, introduce the tools and methods used for that, and present case studies of graphic design and design visualization work. Lab sessions will allow the students to gain applied experience on the application of design visualization concepts and tools to actual design work.

Classroom Hours (4 hours per week)

Class: 2, Lab: 2

IX. Topics to Be Covered

- a. Introduction to graphic design
- b. History of graphic design
- c. Design elements, form, and space
- d. Logo design
- e. Color theory, chromatic interaction, color systems
- f. Structure and object, style, mechanics of text
- g. Texture and space
- h. Images, media and methods, presentation options, content and concept
- i. Merging type and image, working with grids, design as a system.

X. Laboratory Exercises

- Project 1: Form and space
- Project 2: Color
- Project 3: Letter form, the mechanics of text
- Project 4: Type and color
- Project 5: Use of images
- Project 6: Organizational systems
- Project 7: The grid and the fold

XI. Learning Technology Component

All course material, including syllabus, class presentations, handouts, and other resources, will be made available as much as possible on the BLACKBOARD course management system. System e-mail will be used by the instructor to communicate important information to students. Students are responsible to check their email accounts regularly. The course management system will also be used to submit projects digitally and to post student grades as they become available. Instructor will also create discussion groups for students to exchange ideas about course topics.

The course will utilize several graphic design and design visualization tools, including Adobe Photoshop, Adobe InDesign, and Adobe Illustrator. Students will use digital cameras and scanners to develop original material for their projects. A color printer will also be required.

XII. Special Projects/Activities

In addition to the lab exercises, the course will include a final semester project in which students will demonstrate their competence in visualizing architectural work and graphically designing presentations.

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

Samara, Timothy. *Design Elements: A Graphic Style Manual. 2nd Edition.* Rockport Publishers, Beverly, MA; 2014. ISBN-13: 978-1592539277

B. Alternative Textbook(s)

None

C. Supplemental Print Materials

Meggs, Philip B. and Purvis, Alston W. *Meggs' History of Graphic Design, 6th Edition.* Wiley, Hoboken, NJ; 2016. ISBN-13: 978-1118772058

Tufte, Edward R. *Envisioning Information.* Graphics Press; 1990. ISBN-13: 978-0961392116

Armstrong, Helen. *Graphic Design Theory: Readings from the Field.* Princeton Architectural Press; 2009. ISBN-13: 978-1568987729

Resnick, Elizabeth. *Design for Communication: Conceptual Graphic Design Basics.* John Wiley and Sons. Hoboken, NJ; 2003. ISBN-13: 978-0471418290

D. Supplemental Online Materials

None

XIV. Faculty Requirements

Faculty should have a doctorate in architecture focusing on design visualization or a related topic or hold a professional master of architecture degree and have documented experience in design visualization and graphic design.

Course Title: ARCH 5375: Computational Modeling and Simulation

Semester Credit Hours: 3 (2, 1)

Total (Lecture, Lab)

I. Course Overview

This course explores the fundamentals of computer software development for problems in architecture; software development processes and methods; fundamental concepts in software; object-oriented programming; fundamentals of database systems; fundamentals of HTML and Web development; parametric modeling scripting; application programming interfaces; process modeling; product modeling; workflow analysis; and entrepreneurship.

II. PMU Competencies

The course provides *technological competence* through instruction in software development and process engineering. By examining current practices in architecture from a critical standpoint, the course engages students in *critical thinking* and *problem solving*. Its introduction to innovation and entrepreneurship equips students in *leadership*.

III. Detailed Course Description

ARCH 5375: Computational Modeling and Simulation provides students with deep computing and information technology knowledge that enables them to be leaders in innovation in the future of architecture and building. It teaches students to examine processes in architectural practice and devise innovations that make processes more efficient. It teaches students the basics of creating applications that integrate with building information modeling (BIM) and other design software. It discusses how to evaluate software and other process innovations to reveal the degree of the software's effectiveness.

Content includes artificial intelligence, neural networks, and machine learning, areas that will be of major importance with the proliferation of computing technology in architecture.

IV. Requirements Filled

This is an elective typically taken in the fifth year.

V. Required Prerequisites

ARCH 4354: Simulation and Optimization

ARCH 4526: Design Studio VIII- Integrated Architectural Design

VI. Learning Outcomes

A student completing the course will be able to:

- Describe and explain fundamental concepts in software
- Describe and explain the major principles and techniques in artificial intelligence
- Describe and explain software development processes and common practices
- Describe and explain concepts and steps in the commercialization of innovations
- Describe and apply techniques of process analysis, process modeling, and process innovation with a focus on the architecture and construction industry
- Write non-trivial software applications for the architecture and construction industry using a popular language

Course requirements are aligned with the following NAAB accreditation Student Performance Crite-

ria (SPC):

5. Technology for architectural design and construction
6. Research informed design process

VII. Assessment Strategy

The course will be graded based on participation (one-third), effective completion of assignments (one-third), and production of a term project (one-third).

Participation will be assessed based on attendance, active contributions to discussions, and insights posted to course social media.

Assignments will be graded based on meeting deadlines, correctness of reports, and creative extension beyond minimum requirements.

The term project will be graded based on meeting milestone deadlines, utility of the topic to architectural practice, clarity of descriptions of the results, and quality of software produced.

VIII. Course Format

The course format is lecture/lab. The course will be delivered in a rich format that incorporates digital, video, and Web resources for presentation during class sessions and review outside of class. Students will be encouraged to learn at their own pace. Class time will largely be used for discussion, problem-solving, and peer-to-peer learning through demonstrations by students. Several assignments will be given. Students must complete a term project. Online materials and social media will be used to foster discussion.

Classroom Hours (4 hours per week)

Class: 2, Lab: 2

IX. Topics to Be Covered

The overriding content of the course is how to use information and computing technology to innovate in the architecture and construction industry. Topics include:

- a. Overview of history of architectural computing
- b. Understanding architecture design and construction processes
- c. Fundamental concepts in software data structures
- d. Fundamental concepts in software control structures
- e. Parametric modeling scripting
- f. Visual programming for parametric modeling
- g. Functional and structured programming
- h. Object-oriented programming
- i. Fundamentals of database systems
- j. Query languages
- k. Software development process and methods
- l. Fundamentals of HTML and Web development
- m. XML and Web data access
- n. Application programming interfaces and interoperability
- o. Process modeling
- p. Product modeling
- q. Workflow analysis
- r. Expert systems
- s. Neural networks and machine learning
- t. Entrepreneurship

X. Laboratory Exercises

This course laboratory assignments must be completed:

- a. Installation of software development environment and application programming interface
- b. Controlling software interaction within the BIM tool to modify an element
- c. Loops to modify many elements
- d. Branching to take one of two or more options
- e. Query to retrieve data from the Web
- f. Analysis of processes in architectural practice
- g. Expert systems for architecture
- h. Machine learning for architecture
- i. Process model of subject process in architectural practice
- j. Object model in support of automating the subject process

XI. Learning Technology Component

A digital learning technology environment should provide:

- a. Creation and distribution of course syllabus
- b. Distribution of video recordings of lectures
- c. Distribution of assignment specifications and collection of digital versions of assignment deliverables
- d. Collection of student lab exercises as digital files, with files that will be of very large size, in the range of 100 MB
- e. Sharing links to Web sites
- f. Course calendar for apprising students of deadlines
- g. Course email utility for managing individual communications between a student and the instructor
- h. Course discussion list or bulletin board for sharing comments and images with the entire course community
- i. Grade distribution system for communicating grades from instructor to student, ensuring privacy of the communication
- j. In-class video conferencing for guest lecturers

XII. Special Projects/Activities

A final presentation will involve showing the various term projects to guests.

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

Lutz, Mark. *Learning Python: Powerful Object-Oriented Programming 5th Edition*, Kindle Edition. O'Reilly; 2013. ISBN-13: 978-1449355739

B. Alternative Textbook(s)

Matthes, Eric. *Python Crash Course: A Hands-On, Project-Based Introduction to Programming, 1st Edition*. No Starch Press; 2015. ISBN-13: 978-1593276034

C. Supplemental Print Materials

Raschka, Sebastian. *Python Machine Learning: Machine Learning and Deep Learning with Python, scikit-learn, and TensorFlow, 2nd Edition*. Packt Publishing; 2017. ISBN-13: 978-1787125933

Joshi, Prateek. *Artificial Intelligence with Python: A Comprehensive Guide to Building Intelligent Apps for Python Beginners and Developers*. Packt Publishing; 2017. ISBN-13: 978-1786464392

D. Supplemental Online Materials

None

XIV. Faculty Requirements

The instructor should have a professionally oriented bachelor of architecture or master of architecture degree, and a doctoral degree with a focus on architecture as well as computational design, and a record of research and publication in architectural computing. Experience in the profession of architecture is also desired.

Course Title: ARCH 5628: Design Studio X- Architectural Capstone

Semester Credit Hours: 6 (1, 5)

Total (Lecture, Studio)

I. Course Overview

The second part of capstone course in the Assessment Capstone Series is a design studio that addresses the creative, professional, technical, and historical issues involved in a problem chosen and defined by the student. This course culminates in the formal presentation of a unique solution to the problem as a part of the final professional portfolio.

II. PMU Competencies

This studio course contributes to the stated PMU Competencies for students:

- a. *Communication*: The ability to communicate effectively in both English and Arabic in professional and social situations.
- b. *Technological competence*: The ability to use modern technologies to acquire information, communicate, solve problems, and produce intended results.
- c. *Critical thinking and problem solving*: The ability to reason logically and creatively to make informed and responsible decisions and achieve intended goals.
- d. *Professional competence*: The ability to perform professional responsibilities effectively in both local and international contexts.
- e. *Teamwork*: The ability to work effectively with others to accomplish tasks and achieve group goals.
- f. *Leadership*: The ability to be informed, effective, and responsible leaders in family, community, and the Kingdom.

III. Detailed Course Description

The second capstone course of the Architecture degree involves designing a project that will be the focal point of the student's portfolio. This course provides the opportunity for students to exhibit the competency and knowledge obtained in all previous architecture courses. Past course work is called upon to create and produce the appropriate design solution for a project selected by the student. Students prepare their final portfolio with this project serving as the key item. Final project will be presented for formal review.

IV. Requirements Filled

This is a required course taken in the second semester of the fifth year.

V. Required Prerequisites

ARCH 5327: Design Studio IX- Capstone Project Programming

VI. Learning Outcomes

Students successfully completing this course will:

- Integrate and apply concepts from all previous course work.
- Formulate a creative solution for the problem that satisfies aesthetic and functional requirements while adhering to legal codes and observing consideration of public and individual welfare.
- Employ phases of the design process as expected in the profession.
- Present the project formally to an audience of faculty, professional practitioners, and student peers.

Course requirements are aligned with the NAAB accreditation Student Performance Criteria (SPC). SPC addressed in this course are:

- A. 3. Visual Communication Skills: Demonstrate the ability to use appropriate representational media, such as traditional graphic and digital technology skills, to convey essential formal elements at each stage of the programming and design process.
- A.4. Technical Documentation: Demonstrate the ability to make technically clear drawings, write outline specifications, and prepare models illustrating and identifying the assembly of materials, systems, and components appropriate for a building design.
- A. 6. Fundamental Design Skills: Demonstrate the ability to use basic architectural and environmental principles in design effectively.
- A. 7. Use of Precedents: Demonstrate the ability to examine and comprehend the fundamental principles present in relevant precedents and to make choices regarding the incorporation of such principles into architecture and urban design projects.
- A. 8. Ordering Systems Skills: Demonstrate an understanding of the fundamentals of both natural and formal ordering systems and the capacity of each to inform two- and three-dimensional design.
- B. 1. Pre-Design: Demonstrate the ability to prepare a comprehensive program for an architectural project, such as preparing an assessment of client and user needs, an inventory of space and equipment requirements, an analysis of site conditions (including existing buildings), a review of the relevant laws and standards and assessment of their implications for the project, and a definition of site selection and design assessment criteria.
- B. 2. Accessibility: Demonstrate the ability to design sites, facilities, and systems to provide independent and integrated use by individuals with physical (including mobility), sensory, and cognitive disabilities.
- B. 3. Sustainability: Demonstrate the ability to design projects that optimize, conserve, or reuse natural and built resources, provide healthful environments for occupants/users, and reduce the environmental impacts of building construction and operations on future generations through means such as carbon-neutral design, bioclimatic design, and energy efficiency.
- B. 4. Site Design: Demonstrate the ability to respond to site characteristics such as soil, topography, vegetation, and watershed in the development of a project design.
- B. 5. Life Safety: Demonstrate the ability to apply the basic principles of life-safety systems with an emphasis on egress.
- B. 12. Building Materials and Assemblies: Demonstrate the understanding of the basic principles utilized in the appropriate selection of construction materials, products, components, and assemblies, based on their inherent characteristics and performance, including their environmental impact and reuse.
- B. 10. Building Envelope Systems: Demonstrate the understanding of the basic principles involved in the appropriate application of building envelope systems and associated assemblies relative to fundamental performance, aesthetics, moisture transfer, durability, and energy and material resources.

VII. Assessment Strategy

A student's work may be considered for an excellent grade when the following characteristics are visibly evident in the work:

- a. The weekly deliverables have been completed and submitted on time (late submittals may lose 1

- letter grade) and are clearly identified with the student's name, course number, and semester
- b. Care in presentation of interim deliverables is apparent (page size, page layout; no spelling or math errors)
 - c. Design proposals demonstrate logical consistency from concept through development
 - d. Design proposals meet the standard of quality established by precedents they present to the studio in a meaningful way
 - e. Design meets current IBC and ADA for life safety and accessibility
 - f. Alternative schemes demonstrate the investigation of alternative points of view about the subject, not simple derivations of a single scheme
 - g. The projects are not formally compromised
 - h. The projects demonstrate the result of insights learned from program, precedents, context, and site analysis
 - i. The work demonstrates a range of media employed to present specific aspects of the character of the work
 - j. The work demonstrates a range of scales of inquiry from detail to component to an overall whole
 - k. The alternatives are presented in the context of the site (extending at least the dimension of the parcel in all directions) and climate (shadows)
 - l. The alternatives demonstrate the development of a single train of thought across program, core, structure, and envelope
 - m. Relevant historical precedents play a meaningful part of the student's study (and are included in each deliverable)
 - n. Sustainable characteristics of the alternatives (in terms of LEED v4 BD+C) are described in each deliverable

VIII. Course Format

The course will be taught in a design studio format using methodologies that are primarily project-based and offer the means by which learning from technical and professional courses is combined with instruction in architectural design. Studios offer the opportunity for students to engage closely with the instructor. Studio project assignments become progressively more complex through the curriculum until the last year when students undertake individual capstone thesis-like projects.

For each year, a student cohort is divided into groups of about 14-16, and each group is assigned to a studio instructor. Studio courses typically meet three days per week. Studio assignments, or projects, are established by the studio instructor, but should be coordinated for each studio level.

Architecture studio teaching involves a number of varied activities. At the beginning of the semester, assignments, or projects, are developed by the studio instructor, which include the scope, goals, expectations, general procedure, and assessment criteria that will be employed for the project. Studio teaching also involves implementing the project assignment through different teacher/student exchanges including lectures, group discussions, individual desk critiques (also known as "crits"), and formal "pin-up", where students receive feedback on their work from the instructor. A final project presentation or "jury" is typically held at the end of the semester in which students present their work to the studio instructor and other instructors or outside guests.

Classroom Hours (11 hours per week)

Class: 1, Studio: 10

The successful student must commit to significant study outside of class time.

IX. Topics to Be Covered

ARCH 5327 and ARCH 5628, the capstone sequence, aim for the student to independently develop a design project. Specific topics to be covered will vary depending on the student's selected area of interest and specific project selected. Students are expected to demonstrate mastery of architectural

design skills in their capstone project.

Students will document their architectural project. Elements will include parti diagrams, project description, a figure/ground context plan, site plan, shaded roof plan, floor plans illustrating furniture and finishes, building sections and elevations, construction details, model photos, as well as digital imagery of interior and exterior views.

X. Studio Exercises

The capstone will be selected by each student in consultancy with and under the guidance of the studio instructor. Topics will vary depending on the specific areas of interest of the students. Capstone projects may focus on one or more buildings and will typically be of large size and high complexity. A schedule will be provided by the studio instructor indicating the different phases and timeline of the project.

Students are required to maintain a design journal with multiple entries per week that documents their evolving thinking about design, aesthetics, tectonics, architecture, and their studio experiences.

Studio space should include a drawing desk and chair or stool, power outlet for computing, Wi-Fi or cabled network, lighting that is appropriate for a computer-based workspace and task lighting that is appropriate for hand-based drawing.

XI. Learning Technology Component

Various digital learning technologies will be used in conjunction with manual methods. A digital learning technology environment should provide:

- a. Creation and distribution of course syllabus
- b. Distribution of assignment specifications and collection of digital versions of assignment deliverables, with file sizes that may be very large, such as 100 MB per file per student
- c. Sharing links to Web sites
- d. Course calendar for apprising students of deadlines
- e. Course email utility for managing individual communications between a student and the instructor
- f. Course discussion list or bulletin board for sharing comments and images with the entire course community
- g. Grade distribution system for communicating grades from instructor to student, ensuring privacy of the communication

In addition, there will be tools and resources for the display of physical artifacts in each class session and to a department-wide audience. Each classroom will be equipped with display walls with proper display lighting and adequate viewing space, as well as digital projection or display capabilities. Stands will be provided for the display of models. A gallery will be provided for display to the entire department for mid-term or end-of-term exhibits.

XII. Special Projects/Activities

Activities for the capstone project will vary depending on the students' selected projects and areas of interest. Some projects may involve site visits and field trips.

XIII. Textbooks and Teaching Aids

A. Required Textbooks

Kwok, Alison and Grondzik, Walter. *The Green Studio Handbook (First or Second Edition)*. Architectural Press; 2006. ISBN 0750680229

Allen, Edward and Iano, Joseph. *The Architects Studio Companion (Third, Fourth or Fifth Edition)*. Wiley; 2011. ISBN 0470641916

Kevin Lynch, Kevin. *Site Planning (any edition)*. MIT Press. ISBN 9780262120500

“The 2010 Americans with Disabilities Act (ADA) Standards for Accessible Design” must be downloaded and printed out. http://www.ada.gov/regs2010/2010ADAStandards/2010ADAStandards_prt.pdf

LEED v4 BD+C: <https://www.usgbc.org/resources/leed-reference-guide-building-design-and-construction>

XIV. Faculty Requirements

Faculty should have a PhD in architecture; or faculty should hold a professional Master of Architecture degree and have documented architectural design and professional practice experience.

NOTE TO PMU:

The following is a version of a syllabus that TIEC created as part of the original design for PMU in 2004. As mathematics courses are administered and taught by the PMU Core Curriculum Program, it is TIEC's recommendation that the faculty of the Department of Architecture work together with the mathematics faculty of the Core Curriculum to adapt this syllabus to the particular needs of architecture students. At this point, TIEC has only changed the course name to indicate that it will be an Architecture course and replaced references to Interior Design (the original focus of the course) with the term Architecture .

Course Title: MATH 1321 Pre-Calculus for Architects

Semester Credit Hours: 3 (3,0)

I. Course Overview

Pre-Calculus for Architects covers those topics needed for successful completion of Calculus I. Such topics include modeling with functions: linear, quadratic, exponential, and logarithmic. In addition, trigonometric functions with the related laws and identities are covered in some detail. Students should acquire the necessary mathematical knowledge and skills for further studies in calculus and engineering. The prerequisite for MATH 1321 is the algebraic manipulation skill commensurate with that gained in the Preparation Year Program.

II. PMU Competencies and Learning Outcomes

Students of MATH 1321 will begin to develop the quantitative skills needed to be successful in subsequent courses in calculus as well as architecture. These skills will enhance their ability to analyze and solve problems in a technical context and communicate their solutions to other professionals using the language of mathematics. Students will become adept at using the Web-based course supplement to access course materials and communicate with fellow classmates and the instructor. They will enhance their teamwork and leadership skills by working in groups to achieve the solutions to designated exercises.

III. Detailed Course Description

MATH 1321 covers topics normally assumed to be prerequisite knowledge and skills for calculus, as well as applicable to the field of architecture. These topics include modeling with linear, quadratic, exponential, and logarithmic functions. A significant portion of the course is devoted to Trigonometry including properties of sine, cosine, and other trigonometric functions. The laws of sines and cosines are covered along with the sum and difference formulas for each. Compositions, inverses, and combinations of functions are also covered. The emphasis is on concepts and applications to physical science, architecture, and engineering, with minimal emphasis on memorization of formula and algorithms.

IV. Requirements Fulfilled

MATH 1321 satisfies three hours of the university core mathematics requirements. MATH 1321, or skills and knowledge there from, is required for entry into MATH 1422: Calculus I.

V. Required Prerequisites

The prerequisite for MATH 1321 is the algebraic manipulation skill commensurate with that gained in the Preparation Year Program.

VI. Learning Outcomes

- To learn the basic tools required for the study of calculus.
- To develop the ability to employ functions to model real-world phenomenon.
- To learn to solve problems using the tools of mathematical modeling.
- To learn to communicate the solutions of technical problems to others.
- To develop improved collaborative skills.

VII. Assessment Strategy

For the purpose of final course grades (summative assessment), students should be assessed via their performance on in-class quizzes and exams which focus on the applications of the mathematics to business and finance.

- Weekly 15-minute, in-class quizzes over assigned homework to motivate students to do the work and award credit accordingly.
- Three class-length, in-class exams to assess students' accumulative mastery of content covered prior to time of exam.
- A comprehensive final exam to assess students' accumulative mastery of course material.

Students' final grades will be based on 15% credit for the quizzes, 50% for the exams, and 35% for the final.

Feedback from the instructor (formative assessment) should come via the students' "reflective notebooks."

- At the end of each week the instructor collects the students notebooks. He then reads the students' reflections and chosen problems for that week and enters appropriate written responses into the notebooks.

The final grades and student and instructor observations from the student's "reflective notebook" will be included in the student's portfolio for use in the final assessment capstone course. The intent here is to document the student's maturation as he proceeds through the curriculum.

VIII. Course Format

Instruction: Primary instruction is to be in a lecture format with the course meeting three times per week for one hour each meeting. At least once per week the students should be allowed to work for at least 30 minutes in class, in groups of two or three, on an application problem chosen from the text by the instructor.

Web Supplement: Course homepage (using BLACKBOARD) should contain the following:

- Course syllabus.
- Course assignments.
- Keys to quizzes and exams (after students have completed them).
- Course calendar (an active utility).
- Course e-mail utility (an active utility).
- Course discussion list (an active utility).
- Student course grades (an active utility).

Classroom Hours (3 hours per week)

Class: 3

Lab: 0

IX. Topics to be Covered

- A. Functions, lines, and change
 1. Notation
 2. Rate of change
 3. Linear functions
 4. Fitting linear functions to data
- B. Functions, quadratics, and concavity
 1. Input/Output
 2. Domain/Range
 3. Piecewise defined functions
 4. Inverse functions
 5. Concavity
 6. Quadratics
- C. Exponential functions
 1. Family of exponential functions
 2. Comparison of exponential with linear functions
 3. Graphs of exponential functions
 4. Continuous growth and the number e
- D. Logarithmic functions
 1. Logarithms and their properties
 2. Logarithms and exponential models
 3. The logarithm function
 4. Logarithmic scales
- E. Graphs of functions
 1. Shifts
 2. Reflections and symmetry
 3. Stretches and compression
 4. Families of quadratic functions
- F. Trigonometric functions
 1. Periodic functions
 2. Sine and cosine functions
 3. Radians
 4. Graphs
 5. Sinusoidal functions
 6. Other trigonometric functions

7. Inverse trigonometric functions
 8. Laws of sines and cosines
 9. Identities
 10. Sum and difference formula
 11. Trigonometric models
 12. Polar coordinates
 13. Complex numbers and polar coordinates
- G. Compositions, inverses, and combinations of functions
1. Composition
 2. Inverse
 3. Combination
- H. Polynomial and rational functions
1. Power functions
 2. Polynomials
 3. Short-run behavior of polynomials
 4. Rational functions
 5. Sort-run behavior of rational functions
 6. Comparison of power, exponential, and log functions
 7. Fitting exponentials and polynomials to data

X. Laboratory Exercises

This course does not require a separate lab.

XI. Technology Component

Calculator or computer program capable of performing regression analysis using real-world data. Students should have access to a computer algebra system (MAPLE recommended). Students should be given minimal instruction in the use of these technologies and urged to use them to compare graphs of functions and their first and second derivatives.

XII. Special Projects/Activities

Students will be required to keep a “reflective notebook” in which, after each class, they enter their own assessments of what they learned, and what questions they are left with from the class. The student will select one problem, which the student thinks best reflects the way the mathematical topic will be used in a technical context, from each exercise set. A detailed solution to the problem will be included in the student’s reflective notebook.

XIII. Textbooks and Teaching Aids

A. Required Textbook

Connally, Eric, Deborah Hughes-Hallett, and Andrew Gleason, et al. *Functions Modeling Change*, Second Edition. Hoboken, NJ: John Wiley and Sons, Inc, 2004. ISBN: 0471-45653-5

B. Alternative Textbooks

None

C. Supplemental Print Materials

As provided by publisher

D. Supplemental Online Materials

As provided by publisher

B. INTERIOR DESIGN CURRICULUM

1. Introduction

The task for this project was to review and update the PMU Interior Design Curriculum that TIEC originally designed for the University in 2004 and subsequently reviewed in 2012. In compiling this report, TIEC gave consideration to current standards of the accrediting bodies in the U.S., such as the Council for Interior Design Accreditation (CIDA), along with feedback on the existing curriculum TIEC received from the PMU Interior Design faculty.

The appropriate sequencing of courses in the Department of Interior Design, as well as learning outcomes and objectives, was reviewed with consideration of current emerging design research and trends as well as best practices employed within other Interior Design programs around the world.

2. Review Process and Critical Issues

2.1 *Consideration of the CIDA Professional Standards*

For more than 40 years, CIDA (formerly named FIDER) has been a non-profit accrediting agency for Interior Design degree programs in colleges and universities across the United States, Canada, and, more recently, Qatar and Dubai. Volunteers of faculty and practicing professionals identify, develop, and promote standards that are expected of degree programs that have been evaluated through both program self-evaluation and peer review. The Council for Higher Education Accreditation (CHEA) in the U.S. recognizes CIDA as a “reliable authority” (<https://accredit-id.org/about/>) on Interior Design education. A list of the more than 150 universities that are accredited by CIDA includes all of the benchmark programs to which other campuses aspire.

Within this context, the 2018 CIDA Professional Standards contain 16 Standards structured within two sections:

- *Section 1. Program Identity and Context* includes Program Identity and Curriculum, Faculty and Administration, and Learning Environments and Resources
- *Section 2. Knowledge Acquisition and Application* covers Global Context, Collaboration, Business Practices and Professionalism, Human-Centered Design, Design Process, Communication, History, Design elements and Principles, Light and Color, Products and Materials, Environmental Systems and Comfort, Construction, and Regulations and Guidelines.

More detailed information on CIDA accreditation may be found on the on the organization’s website: <https://accredit-id.org/>

In this report, both the PMU faculty and TIEC have considered the significance of incorporating the full range of concerns faced by Interior Design students and Interior Design professionals. These concerns include the study of human behavior patterns within the environment, developing multi-cultural awareness, participating in community service, focusing on human well-being related to the built environment, gaining exposure to ever-evolving technology, and understanding the designer’s role in applying laws, codes, regulations and guidelines regarding sustainability, wellness, safety, and accessibility.

2.2 *Consideration of Professional Organization Values*

Professional organizations such as the American Society of Interior Designers (ASID), the International Interior Design Association (IIDA), Interior Designers of Canada (IDC), and others retain their

own research teams to support the industry’s emerging design patterns and issues related to human behavior. A recent certification supported by ASID is WELL AP, administered by the International WELL Building Institute (IWBI). Although many of the environmental attributes recommended by the IWBI have been interlaced into the PMU curriculum, it would greatly benefit PMU students to have an awareness of this organization and what it offers to Interior Design professionals.

TIEC further recommends that the faculty consider including an expanded scope of class projects that address familial situations, including multigenerational arrangements and aging-in-place. This inclusion would require research on behalf of the students that would prepare them for clientele internationally, as such situations possibly are more prominent in other countries than in the KSA. It may be that PMU course projects do, in fact, touch on these two issues, but were not specifically called out in syllabi.

The PMU Department of Interior Design added evidence-based design, building information modeling (BIM), and integrated design projects to the curriculum after the 2012 TIEC curriculum review, and these are still prominent paradigms today. This 2018 review notes the further opportunity to add design with 3D printing in a new course proposed in this report as IDES 4314: Advanced Design Methods for Interior Design. 3D printing provides a step forward in technological approaches to design that has opened the door to a new career specialty for both architects and designers.

2.3 Curricular Structure and Course Sequencing

According to CIDA Program Expectations under Standard I. d), “The curriculum follows a logical sequence and is structured to achieve the program mission and goals and educate graduates ready for entry-level practice and advanced study.” The modified curriculum suggested by the PMU faculty readily meets this standard through consistent application of learned skills and information that continues to build from simple to more complex as the student progresses through the program.

Additionally, the PMU curriculum shows evidence of application of design knowledge and skills in a variety of specialties and sizes of projects, exposures to business types, collaboration with colleagues and professionals, and exposure to varying economic design needs. Hands-on learning with constant oversight by faculty is also evident.

The course sequencing in the modified curriculum recommended by the PMU faculty is similar to benchmark universities in the United States where General Education is heavy in the First and Second years but decreases in the subsequent years to allow for more focus on the courses in the major. The chart below illustrates the credits of required General Education and Interior Design courses by year at PMU, as well as the Interior Design percentage of the total credits by year. These percentages are comparable to many of those at U.S. universities.

	General Education Credits	Interior Design Credits	Total Credits / Year	% of ID Credits Compared to Year’s Total
First Year	18	12	30	40.0%
Second Year	16	16	32	50.0%
Third Year	10	*26	*36	*72.2%
Fourth Year	7	21	28	75.0%
* Includes Internship taken during summer following Third year				

2.4. Incorporation of Learning Competencies

The six original core competencies address what PMU graduates will need to know, and what they must be able to do, in order to be successful in their chosen fields and to contribute to the development of their community and the Kingdom. These six PMU Competencies are:

- **Communication:** The ability to communicate effectively in both English and Arabic in professional and social situations.
- **Technological Competence:** The ability to use modern technologies to acquire information, communicate, solve problems, and produce intended results.
- **Critical Thinking and Problem Solving:** The ability to reason logically and creatively to make informed and responsible decisions and achieve intended goals.
- **Professional Competence:** The ability to perform professional responsibilities effectively in both local and international contexts.
- **Teamwork:** The ability to work effectively with others to accomplish tasks and achieve group goals.
- **Leadership:** The ability to be informed, effective, and responsible leaders in family, community, and the Kingdom.

Since the original design of PMU was completed, two additional competencies have been included in the University’s list. These are:

- **Globally Connected:** The ability to respect all cultures and understand religious and ethnic customs that shape the opinions and actions of others from different backgrounds.
- **Conflict Resolution:** The ability to control emotions, behavior and nonverbal communication, and to maintain a healthy response to conflict such as recognizing and responding to important matters, a readiness to forgive, and a belief that resolution can support the interest and needs of both parties.

While the original six competencies are addressed in specially designed courses, the two new competencies are to be addressed as components of either new or existing courses offered by each of the University’s academic disciplines. The Department of Interior Design addresses these competencies in its degree program as follows:

Competency	Courses Covering
Communication	COMM 1311: Written Communication COMM 1312: Writing and Research COMM 2311: Oral Communication COMM 2312: Technical and Professional Communication All IDES classes have written and oral presentation components
Technological Competence	COAD 2251: Digital Design I - Computer Aided 2D Drawing COAD 2252: Digital Design II – Computer Aided 3D Modeling and Rendering COAD 3353: Digital Design III- BIM Upper level IDES studios all contain rigorous technological requirements

Critical Thinking and Problem Solving	UNIV 1212 Critical Thinking and Problem Solving Every IDES class requires critical thinking in the application of theory to design solutions
Professional Competence	UNIV 1211 Professional Development and Competencies IDES 4343 Professional Practices for Interior Designers
Teamwork	UNIV 1213 Leadership and Teamwork Many IDES classes require teamwork in the application of theory to design solutions
Leadership	UNIV 1213 Leadership and Teamwork
Globally Connected	COAD 3341: Design History and Theory I COAD 3342: Design History and Theory II IDES 4337: Sustainable Design IDES 4344: Interior Design Study Tour
Conflict Resolution	PSYC 1311: Introduction to Psychology Included in various courses. *See statement below.

**The nature of all studio courses and some of others addresses “Conflict Resolution,” as students will learn how to both give and receive criticism in a positive manner in critiques of design projects. In courses such as “Residential Design,” “Environmental Psychology for Design,” “Interior Design Internship,” and others, students will also learn to listen to, understand and empathize with clients, all of which are necessary skills for successful professional designers.*

The Department of Interior Design strives to provide an environment in which these core competencies will be both recognized in their importance and centrality to the degree programs and actively pursued within each course. Courses are specifically designed to:

- Foster improved communication through classroom and other presentations and through discussion and critique of those presentations.
- Enhance analysis, synthesis and other critical-thinking and problem-solving components through programming and other projects throughout the curriculum.
- Provide opportunities for teamwork and leadership skills to be practiced through group projects within much of the curriculum and particularly within the capstone sequence.

2.5 Issues for Further Consideration

To ensure the Interior Design curriculum is meeting the educational needs of the program’s graduates for a well-prepared entry-level position in the Interior Design profession, while also meeting the requirements of the Ministry of Higher Education of the KSA, **TIEC suggests that the PMU Department of Interior Design pursue accreditation with CIDA.**

This accreditation will offer a number of benefits to the Department, including:

- The PMU curriculum will be assessed regularly to meet the standards as set forth in the CIDA process, including awareness of current research and trends, as well as application of the same.
- Attaining CIDA accreditation will allow those graduates who want to pursue graduate-level degrees a far easier admittance into master’s programs without needing a comprehensive portfolio review from the accepting university.
- PMU will gain recognition internationally, and its graduates will be able to better compete for jobs around the world with those from other CIDA-accredited programs such as Virginia Commonwealth University in Qatar and American University in Dubai as well as those located in the United States and Canada.

In TIEC’s opinion, the curriculum in the modified recommendations provided by the PMU Interior Design faculty adheres to most of the 2018 CIDA standards. It is therefore well positioned for possible CIDA accreditation.

Another consideration recommended by both TIEC and the PMU faculty is to recognize **the difference between studio and lab time**. Studios require considerable faculty one-on-one time with each student to reinforce competencies or to make suggestions for improvement on design projects. Lab time, on the other hand, merely requires a facilitator to monitor the room. *Most U.S. universities have come to the realization that faculty load hours should be equal to contact hours for studio time*. To accommodate this, they have labeled studio hours as “discussions” for record-keeping in the registrar’s office and for scheduling of faculty. It is highly advised that PMU make a policy change that recognizes the nature of and requirements on faculty for studio time in order to retain and recruit quality faculty for its programs.

All PMU students, including those studying Interior Design are required to have **personal laptop computers** to assist in their studies. This personal technology will enable students to benefit from having continuous computing access to support research, communication, and studio practice. It will give them access to the University-wide technology-infused environment including wireless Internet access.

At PMU, technologies such as interactive television, video conferencing, and BLACKBOARD are central to maintaining effective communication between faculty and students and among students. Faculty and students involved in classroom presentations have access to modern presentation technology connected to University computing and library resources as well as to the Internet.

However, students in the Interior Design program have specific computing requirements that stem largely from the demanding software created for the architecture and design industry. To learn these technologies, Interior Design students will require a laptop computer capable of handling this software. Laptop computers should meet or exceed the capabilities of the computers in the department’s dedicated computer labs.

Since access to a personal computer is essential for the successful completion of the Interior Design degree, the Department requires all incoming Interior Design students must have the following minimum configurations, based on Autodesk requirements, in their Windows laptops:

<p>Operating system</p>	<p>Microsoft Windows 7 SP1 64-bit: Enterprise, Ultimate, Professional, or Home Premium</p> <p>Microsoft Windows 8.1 64-bit: Enterprise, Pro, or Windows 8.1</p> <p>Microsoft Windows 10 Anniversary Update 64-bit (version 1607 or higher): Enterprise, or Pro</p>
<p>CPU type</p>	<p>64-bit Intel® or AMD® multi-core processor with SSE4.2 instruction set</p> <p>OR</p> <p>Multi-Core Intel Xeon, or i-Series processor or AMD equivalent with SSE2 technology.</p> <p>Highest affordable CPU speed rating recommended.</p>
<p>Memory</p>	<p>16 GB RAM</p>

Video display resolutions	<p>Minimum: 1920 x 1200 with true color</p> <p>Maximum: Ultra-high (4k) definition monitor</p>
Video adapter	DirectX 11 capable graphics card with Shader Model 5
Disk space	<ul style="list-style-type: none"> • 5 GB free disk space • 10,000+ RPM (for Point Cloud interactions) or Solid State Drive
Media	DVD9 or USB key
Pointing device	MS-Mouse or 3Dconnexion compliant device
Browser	<p>Autodesk recommends the latest version of the following web browsers for access to online supplemental content:</p> <ul style="list-style-type: none"> • Microsoft® Edge • Google Chrome™ • Microsoft® Internet Explorer® • Mozilla® Firefox®
Connectivity	Internet connection for license registration and prerequisite component download
Software	<p>Autodesk AutoCad, 3DS Max, Revit, Illustrator</p> <p>Adobe Creative Suite</p> <p>Any other program the Department requires</p>

Entrance requirements into the Interior Design Program should state that *individuals must complete all mathematics courses required by the PMU Preparation Year Program* before beginning their Interior Design coursework. Departmental research has indicated that student performance in Interior Design coursework is stronger when math courses have been completed. This is due to the need for Interior Design students to fully comprehend basic math computations, such as fractions, for working with architectural scales.

The Interior Design program also should have the ability to institute a *review process that limits progression of non-qualified students into the program*. This could include, but not be limited to, student portfolio review, essays, GPA requirements, further prerequisites, or other measures of readiness.

3. TIEC Syllabus Review and Update

The task for TIEC was to review 27 syllabi for previously offered courses. The TIEC review makes the following recommendations:

3.1 Merging of courses

Upon recommendation by the PMU faculty and with agreement by TIEC, IDES 1211: Intro to Interior Design and IDES 1212: Interior Design I now are merged into a new course, COAD 1311: Design Studio I- Fundamentals.

- Merging these courses is designed to:
 - Enhance scheduling opportunities for students.
 - Provide students with a better opportunity to apply learned design concepts and principles within the same class, as opposed to experiencing a lecture in one class and studio design work in another.
- The merger results in a change of credit hours from 2 + 2 in the previous two courses to 3 for the updated version, while maintaining the same number of clock hours in the classroom.

3.2 Changing an elective to a required course

Upon recommendation by the PMU faculty and with agreement by TIEC, IDES 1352: Freehand Sketching should be renumbered, renamed, and changed to a required course. Justification for this change includes:

- Most IDES students enter the program with limited preparatory art training. A survey of 51 PMU IDES entry level students showed that only about 12% had some form of art instruction prior to enrolling in IDES at PMU. This means that nearly all beginning IDES students lack knowledge of even basic level sketching, let alone complex technical drawing. Moreover, IDES students need to develop the capacity to think and design spatially. Research has shown that if programs use increased sketching and drawing, spatial abilities increase.
- Changing IDES 1352: Freehand Sketching to required class would assist with improved art training and increased three dimensional visualization abilities for IDES students. It would also provide them with a better foundation for upper level IDES courses and enhance their learning experiences within the program.
- Renaming and changing the course number reflects more accurately what is taught in the class and aligns it with the overall course sequencing. The new number and name should be *IDES 1312: Hand Drawing and Rendering Techniques*.

3.3 Division of courses

Another modification recommended by both the PMU faculty and TIEC is to create two classes from IDES 4513: Interior Design VIII, ID Graduation Project.

- The new courses will be:
 - IDES 4112: Interior Design Capstone Project Research, to be completed in the first semester of the fourth year.
 - IDES 4413: Interior Design Capstone Project, to be completed in the second semester of the fourth year.
- This division is designed to provide adequate time for students to more thoroughly research all the requirements of their projects such as codes, regulations, and standards prior to attempting to design the project.
- This recommendation will leave the total credit hours at 5 (1 and 4), but contact hours will change from (2, 8) to (1, 0) and (0, 8).

3.4 Adjustments to course names, prerequisites, and hours

All other changes to existing courses deemed important by the PMU faculty and TIEC involved adjustments to name changes to reflect the intent of the course, prerequisite modifications to enhance student scheduling and progression, contact hour reductions for early studios, or credit hour changes. These changes are indicated in this report's section 3.6 Summary table of course modifications, with more detail in the syllabus for individual courses, presented in section 4 Revised Course Syllabi.

3.5 Addition of new courses

The PMU faculty and TIEC recommend four new courses be added to the University's Interior Design curriculum:

Required:

- COAD 1314: Construction Documents and Detail Drawings
 - This course is required for acceptance as a practicing designer by the Saudi Council of Engi-

- neers.
- Graduates planning to pursue advanced degrees in international colleges or universities must have completed a course covering the information and skills development in this course if they are to be accepted into a program without incurring leveling penalties.
- COAD 3353: Digital Design III: BIM
 - This course is required for CIDA accreditation Standard 5c.
 - BIM has become the standard of the industry for graphic communication. To be successful in the profession, students must have BIM training.

Electives:

- IDES 4314: Advanced Design Methods for Design
- IDES 4344: Interior Design Study Tour.

These two recommended new courses are considered to be Technical Electives. As they require increased rigor, they will be assigned to the 3000-4000 level of courses. Each is a three credit-hour course designed so that by taking one of the electives, the student can meet the requirement for three credit hours in Technical Electives.

The details of these courses are presented in the course syllabi in section 4 Revised Course Syllabi.

3.6 Modification of elective courses

A further recommendation is to modify each of the existing Technical Electives to a three credit-hour course rather than a two credit-hour course to avoid the need for students to take additional courses to meet the Department's requirement of three credit hours in Technical Electives.

3.7 Summary tables of course modifications

The following two tables present a complete list of recommended courses in the PMU Interior Design Curriculum.

The first table presents an overview of modifications to existing courses.

The second table presents an overview of recommended new courses.

In each table, changes are indicated in red.

Recommended Interior Design course modifications					
Current course	(P) Pre-requisite, (C)Co-requisite	Credit hours	Modified course	(P) Pre-requisite, (C)Co-requisite	Credit hours
Prefix, number, title			Prefix, number, title		
IDES 1211: Intro to Interior Design		2 (2,0)	COAD 1311: Design Studio I- Fundamentals	(P)PRPM 0012 or equivalent	3(1,2)
IDES 1212: Interior Design I	(C) IDES 1211	2 (1,3)		(C) COAD 1312	
IDES 1352: Free-hand Sketching	Elective	3(2,4)	COAD 1312: Hand Drawing and Rendering Techniques	(C) COAD 1311	3(1,2)
IDES 1413: Interior Design II	(P) IDES 1211 and IDES 1212	4 (2,6)	COAD 1313: Design Studio II- Fundamentals	(P) COAD 1311 (P) COAD 1312 (C) COAD 1314	3 (1,2)
IDES 2251: Digital Design I	(P) IDES 1413 (C) IDES 2411	2(1,3)	COAD 2251: Digital Design I - 2D	(P) COAD 1314 (C) IDES 2311	2(1,1)
IDES 2252: Digital Design II	(C) IDES 2412	2(1,3)	COAD 2252: Digital Design II - 3D	(P) COAD2251 (C) IDES 2312	2(1,1)
IDES 2411: Interior Design III	(P) IDES 1413	4 (2,6)	IDES 2311: Interior Design III - Residential Design Studio	(P) COAD 1313 (P) COAD 1314 (C) COAD 2251	3 (1,2)
IDES 2412: Interior Design IV	(P) IDES 2411	4 (2,6)	IDES 2312: Interior Design IV - Commercial Programming and Space Planning Studio	(P) IDES 2311 (C) COAD 2252	3 (1,2)
IDES 2331: Behavior and Physical Environment	(P) IDES 1413 (C) IDES 2411	3 (3,0)	COAD 2332: Environmental Psychology for Design	(P) PSYC 1311 (P) COAD 1313	3(3,0)
IDES 2332: Materials for Interior Design	(P) IDES 2331 (P)IDES 2411 (C) IDES 2412	3(3,0)	IDES 2331: Materials for Interior Design	(P) COAD 1313	3(3,0)
IDES 3341: History of Furniture, Décor and Interior Design I	Completion of Second Year	3(3,0)	COAD 3341: Built World Design History and Theory I	Completion of 50 Credit hours	3(3,0)
IDES 3342: History of Furniture, Décor and Interior Design II	(P)IDES 3341	3(3,0)	COAD 3342: Built World Design History and Theory II	(P) COAD 3341	3(3,0)
IDES 3411: Interior Design V	(P) IDES 2412	4(2,6)	IDES 3411: Interior Design V: Office Design Studio	(P) IDES 2312 (P) COAD 2252	4 (1,3)
IDES 3321: Interior Building Systems I	(P) IDES 2412 (P) IDES 2332	3(3,0)	IDES 3321: Interior Building Systems	(P) IDES 2331 (P) COAD 1314	3(3,0)

Recommended Interior Design course modifications (continued)					
Current course	P) Pre-requisite, C)Co-requisite	Credit hours	Modified course	(P) Pre-requisite, (C)Co-requisite	Credit hours
Prefix, number, title			Prefix, number, title		
IDES 3412: Interior Design VI - Hospitality	(P) IDES 3411	4(2,6)	IDES 3412: Interior Design VI - Hospitality Design Studio	(P) IDES 3411	4 (1,3)
IDES 3322: Interior Building Systems II	(P) IDES 3321	3(3,0)	COAD 3322: Building Codes and Universal Design	(P) IDES 3321	3(3,0)
IDES 3331: Interior Lighting	(P) IDES 2412	3(3,0)	IDES 3331: Interior Lighting	(P) COAD 1314 (P) IDES 2331 (P) MATH 1312	3(2,1)
IDES 4337: Sustainable Design	(P) IDES 3412 (P) IDES 3322 (P) IDES 3343	3(3,0)	IDES 4337: Sustainable Design	(P) IDES 3321	3(3,0)
IDES 4338: Interior Design Internship	Work and registration in previous summer	3(0,3)	IDES 3338: Interior Design Internship	Completion of 80 credit hours (Summer before graduation) and Departmental Approval	8 Weeks (320 hours) Full time
IDES 4425: Interior Design VII: Healthcare	(P) IDES 3412	4(2,6)	IDES 4425: Interior Design VII - Healthcare Design Studio	(P) IDES 3412	4 (1,3)
Technical Elective I	Technical Elective I	3 (3,0)	IDES Technical Elective I	(P) Varies. Select from List	3(3,0)
IDES 3343: Professional Practices	(P) IDES 3411	3 (3,0)	IDES 4343: Professional Practices	(P) IDES 4112	3(3,0)

IDES 4513: Interior Design VIII: ID Graduation Project	(P) IDES 4425 & all pre-requisites	5(2,8)	IDES 4112: Interior Design Capstone Project Research	(P) IDES 3412	1(1,0)
			IDES 4413: Interior Design Capstone Project	(P)IDES 4112 (P)IDES 4425	4 (0,8)
Technical Elective II	Technical Elective II	3(3,0)	IDES Technical Elective II	(P) Varies. Select from List	3(3,0)
IDES 3332	Introduction to Furniture Design	3(3,0)	IDES 4332: Custom Furniture Design	(P) IDES 3412	3(3,0)
IDES 3344	History of Islamic Furniture & ID	3(3,0)	COAD 4333: History of Islamic Design	(P) COAD 3342	3(3,0)
IDES 3251	Photography	2(1,1)	COAD 4351: Built World Photography	(P) IDES 3412	3(1,2)

Recommended new Interior Design courses			
Prefix, Number, Title	P) Pre-requisite, C)Co-requisite	Credit hours	Explanation
COAD 1314: Construction Documents and Detail Drawings	(P) COAD 1311 (C) COAD 1314	3(1,2)	New Course
COAD 3353: Digital Design III: BIM	(P) COAD 2252	3(1,2)	New Course
IDES 4314: Advanced Design Methods for Design	(P) COAD 2252	3(1,2)	IDES Technical Elective
IDES 4344: Interior Design Study Tour	(P) COAD 3342	3(1,80)	IDES Technical Elective

The following classes will be shared with Architecture as COAD prefixed courses:

IDES 1311/ARCH 1311: Design Studio I- Fundamentals
 IDES 1312/ARCH 1312: Hand Drawing and Rendering Techniques
 IDES 1313/ARCH 1313: Design Studio II- Fundamentals
 IDES 1314/ARCH 1314: Construction Documents and Detail Drawings
 IDES 2251/ARCH 2251: Digital Design I - Computer Aided 2D Drawing
 IDES 2252/ARCH 2252: Digital Design II - Computer Aided 3D Modeling and Rendering
 IDES 2332/ARCH 2332: Environmental Psychology for Design
 IDES 3322/ARCH 3322: Building Codes and Universal Design
 IDES 3341/ARCH 3341: Built World Design History and Theory I
 IDES 3342/ARCH 3342: Built World Design History and Theory II
 IDES 3353/ARCH 3353: Digital Design III – BIM
 IDES 4333/ARCH 4333: History of Islamic Design (Elective)
 IDES 4351/ARCH 4351: Built World Photography (Elective)

4. Revised Course Syllabi

Updated syllabi, with new titles, code numbers, or prerequisites, are presented on the following pages.

<u>Course Title: COAD 1311: Design Studio I- Fundamentals</u>	227
<u>Course Title: COAD 1312: Hand Drawing and Rendering Techniques</u>	231
<u>Course Title: COAD 1313: Design Studio II- Fundamentals</u>	235
<u>Course Title: COAD 1314: Construction Documents and Detail Drawings</u>	239
<u>Course Title: COAD 2251: Digital Design I – Computer Aided 2D Drawing</u>	243
<u>Course Title: COAD 2252: Digital Design II–Computer Aided 3D Modeling and Rendering</u>	247
<u>Course Title: IDES 2311: Interior Design III- Residential Design Studio</u>	251
<u>Course Title: IDES 2312: Interior Design IV- Commercial Programming and Space Planning Studio</u>	255
<u>Course Title: IDES 2331: Materials for Interior Design</u>	259
<u>Course Title: COAD 2332: Environmental Psychology for Design</u>	263
<u>Course Title: IDES 3321: Interior Building Systems</u>	267
<u>Course Title: COAD 3322: Building Codes and Universal Design</u>	271
<u>Course Title: IDES 3331: Interior Lighting</u>	275
<u>Course Title: IDES 3338: Interior Design Internship</u>	279
<u>Course Title: COAD 3341: Built World Design History and Theory I</u>	282
<u>Course Title: COAD 3342: Built World Design History and Theory II</u>	286
<u>Course Title: COAD 3353: Digital Design III - Building Information Modeling</u>	290
<u>Course Title: IDES 3411: Interior Design V - Office Design Studio</u>	294
<u>Course Title: IDES 3412: Interior Design VI – Hospitality Design Studio</u>	298
<u>Course Title: IDES 4112: Interior Design Capstone Project Research</u>	302
<u>Course Title: IDES 4314: Advanced Design Methods</u>	305
<u>Course Title: IDES 4332: Custom Furniture Design</u>	308
<u>Course Title: COAD 4333: History of Islamic Design</u>	312
<u>Course Title: IDES 4337: Sustainable Design</u>	316
<u>Course Title: IDES 4343: Professional Practices for Interior Designers</u>	320
<u>Course Title: IDES 4344: Interior Design Study Tour</u>	324
<u>Course Title: COAD 4351: Built World Photography</u>	327
<u>Course Title: IDES 4413: Interior Design Capstone Project</u>	331
<u>Course Title: IDES 4425: Interior Design VII - Healthcare Design</u>	335

Course Title: COAD 1311: Design Studio I- Fundamentals**Semester Credit Hours:** 3 (1, 2)

Total (Lecture, Studio)

I. Course Overview

This foundation course exposes students to interior design as a profession utilizing new skills and knowledge. It focuses on learning about interior spaces through graphic conventions and hand drafting.

II. PMU Competencies

PMU Competencies are reinforced throughout the course. Communication is a critical component of any studio-based class. Students are required to speak, write and present their work regularly. Critical thinking and problem solving are inherent to the design studio and are required for success. Some projects may require teamwork for a part or all of the assignment.

III. Detailed Course Description

The course is foundational learning for all following Interior Design program classes. It covers the basic techniques and processes necessary to complete a design project. Topics learned in this class will be expanded on in upper level courses. It also provides an introduction to interior design and cultivates the attitudes, values, work habits and skills appropriate to the educational environment and professional practice. Students develop hand drafting skills and learn drafting conventions needed for design communication.

IV. Requirements Filled

This course is required for all Interior Design students in the first semester of the first year and is a foundation for all subsequent courses.

V. Required Prerequisites

Prerequisite: PRPM 0012: Intermediate Algebra or equivalent

Co-requisite: COAD 1312: Hand Drawing and Rendering Techniques.

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Demonstrate use of various scales in drawings.
- Accurately draw walls, doors, windows, and other interior elements.
- Draw accurate and legible dimensions
- Illustrate mastery of architectural title blocks, symbols, and hand lettering.
- Draw multi-view images such as plans, sections, elevations, and 3D representations.

CIDA Standards met by this course: 9e, 11b

VII. Assessment Strategy

Major design submissions will receive a letter grade. The criteria to be used in grading will be explained in the project statement and grading rubric. It is very important that students understand the nature of the project, what is expected, and how to address the issues of each assignment before spending time on the project. Students should feel free to ask questions and discuss ideas that arise during introductions of projects.

All subjective learning outcomes will be measured using rubrics for each project assigned.

All projects must be turned in complete and on time. Late projects will be penalized by as much as one letter grade per day. The exact penalty for incomplete work will depend on the discretion of the studio instructor. Students should ask about this statement if not made clear.

Grades are generated by project submission, in-class participation, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas.

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Presentations
- Final pass/fail in-class drawing exam

VIII. Course Format

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique.

Classroom Hours (5 hours per week)

Class: 1

Studio: 4

IX. Topics to be Covered

Introductory interior design graphics conventions such as:

- A. Drafting tools, line types and weights, pencil control
- B. Scale
- C. Architectural lettering
- D. Floorplan drawing, furniture plan, and furniture placement
- E. Dimensions
- F. Drawing restrooms/bathrooms
- G. Reflected ceiling plans
- H. Elevations/ sections
- I. One point and two-point perspective drawings
- J. Typical sheet layout

X. Laboratory Exercises

None

XI. Learning Technology Component

This course is not technology-driven. However, students will be expected to use BLACKBOARD and find information on the Internet to supplement topics covered in lectures.

XII. Special Projects/Activities

The following activities will serve as a skeletal reference and should be supplemented by the individual instructor.

- Project 1: Line types and weights, pencil control
- Project 2: Title blocks, page layout, symbols
- Project 3: Scale
- Project 4: Floorplan drawing, dimensions
- Project 5: Drawing walls, doors and windows

- Project 6: Furniture plan and furniture placement
- Project 7: Reflected ceiling plans
- Project 8: Drawing restrooms/ bathrooms
- Project 9: Drawing elevations and sections
- Project 10: One-point perspective drawings
- Project 11: Two-point perspective drawings
- Throughout the semester: Architectural lettering practice

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

1. Wilson, Travis Kelly, *Drafting and Design: Basics for Interior Design*. : Fairchild Books, 2011. ISBN: 9781563678370
2. Binggeli, Corky, *Interior Graphic Standards: Student Edition (2nd Edition)*. : John Wiley & Sons, 2011. ISBN: 9780470889015
3. Neufert, Ernst and Neufert, Peter, *Neufert Architects' Data, 4th Edition*. Wiley-Blackwell, 2012. ISBN: 9781405192538
4. Tilley, A.R. *The Measure of Man and Woman: Human Factors in Design*, John Wiley & Sons, 2001. ISBN: 9780471099550

B. Alternative Textbooks

Karlen, M. and Fleming, Rob, *Space Planning Basics*, 4th Edition, John Wiley & Sons, 2016
ISBN: 9781118882009

C. Supplemental Print Materials

Journals and magazines:

1. *Interior Design*
2. *Interiors*
3. *Architectural Digest*

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

www.dezeen.com
<http://design-milk.com>
<http://www.designsponge.com>
www.houzz.com

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 1312: Hand Drawing and Rendering Techniques**Semester Credit Hours: 3 (1, 2)**

Total (Lecture, Studio)

I. Course Overview

Hand drawing and rendering are essential tools in interpreting ideas and visual thinking. The course focuses on simple, basic techniques for drawing and rendering. Even in the computer age, hand drawing is the designer's most useful tool for notation, design exploration, and graphic communication. This course will build skill and confidence through the techniques of hand drawing and rendering using various media.

II. PMU Competencies

PMU Competencies are reinforced throughout the course. Communication is a critical component of any studio-based class. Students are required to speak, write and present their work regularly. Critical thinking and problem solving are inherent to the design studio and are required for success. Some projects may require teamwork for a part or all of the assignment.

III. Detailed Course Description

The course is foundational learning for all subsequent design program classes. It introduces and develops student hand drawing and rendering techniques focusing on various media: pencil, ink, colored pencil, markers, and watercolor paint. The course also trains students to recognize and reproduce shading and shadows while exploring the concept of object, space, angle, and proportions. It teaches students to design and convert cubes from simple wireframe objects into recognizable items while employing artistic representation of finishes and materials. Representing spaces using multiple views including rendered floorplans, elevations, and one and two point perspective is also emphasized.

IV. Requirements Fulfilled

This course is required for all Interior Design students in the first semester of the first year.

V. Required Prerequisites and/or Co-requisites

Co-requisite: COAD 1311: Design Studio 1- Fundamentals

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Demonstrate various skills in sketching, producing, and interpreting drawings such as artistry, consistency in style, and visual presentation.
- Develop the sense of depth of line, shape, mass, and texture, as well as the concepts of object, space, angle, and proportions.
- Show competency in a variety of media using hand rendering techniques such as color pencils, markers, watercolors, technical pens, graphite pencils, or other media.
- Develop and produce images that show drawing skills while using appropriate tools, equipment, materials, processes, medium selection, techniques of drawings and graphics, etc.
- Identify and/ or construct one-, two- and three-point perspective drawings of interior spaces.
- Exhibit the ability to add and control color values, shade and shadow effects, and materials and

textures for use in hand sketches and perspective drawings.

CIDA Standards met by this course: 9d

VII. Assessment Strategy

Major submissions will receive a letter grade. The criteria to be used in grading will be explained in the project statement and grading rubric. It is very important that students understand the nature of the project, what is expected, and how to address the issues of each assignment before spending time on the project. Students should feel free to ask questions and discuss ideas that arise during introductions of projects.

All subjective learning outcomes will be measured using rubrics for each project assigned.

All projects must be turned in complete and on time. Late projects will be penalized by as much as one letter grade per day. The exact penalty for incomplete work will depend on the discretion of the studio instructor. Students should ask about this statement if it is not made clear.

Grades are generated by project submission, in-class participation, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas.

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- In class demonstrations
- Projects
- Presentations

VIII. Course Format

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique.

Classroom Hours (5 hours per week)

Class: 1

Studio: 4

IX. Topics to be covered

The course is divided into following sections

A. *Rendering and toning*

Students in this class should develop skills in graphic design and visual communication. Students will learn to create basic 2D and 3D shapes using different media. Media could include but is not limited to - graphite pencils, color pencils, markers, paint, and plain papers. Hand sketches will be rendered to show monochrome/ color visual quality tonal changes on flat and curved surfaces (orthographic/ pictorial) including highlights, texture and shadow.

B. *Shades and shadows*

This section focuses on the basic principle of shades and shadows. Students will learn to apply a set of basic rules to achieve accurate, believable shade and shadow effects for use in freehand sketches and perspective drawings of interior spaces. Basic theory of light, how it falls on surfaces, and general rules for the visualization and construction of shade and shadow in orthographic projection and perspective will be covered, with an emphasis on a quick, practical technique useful in a studio environment.

C. *Visual quality and proportion*

Hand drawing will train the students to understand the sense of proportion of elements in 2D and 3D spaces. Here no instruments or straight edges to be used.

D. *Perspective and sketching*

This section requires assimilation of previous stages of the course to prepare a complete composition to express proportion/scale/visual quality/rendering and toning/shade and shadow

X. Laboratory Exercises

None

XI. Learning Technology Component

Information technology skills are not required for this course. Students are assigned reading and research projects that require use of the computer and library resources.

XI. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

1. Scalise, Christine M., *Interior Design Illustrated: Marker and Watercolor Techniques*. Fairchild Books, 2008. ISBN: 9781563675317
2. Montague, John, *Basic Perspective Drawing: A Visual Approach*, 6th Edition, John Wiley & Sons, Inc., 2013. ISBN: 9781118134146
3. Ching, Francis D.K., *Drawing: A Creative Process*, John Wiley & Sons, Inc., 1989. ISBN: 9780471289685
4. Lin, Mike W., *Drawing and Designing with Confidence: A Step-By-Step Guide*. , John Wiley & Sons, Inc., 1993. ISBN: 9780471283904
5. Lin, Mike W., *Architectural Rendering Techniques: A Color Reference*, John Wiley & Sons, Inc., 1985. ISBN: 9780471289395

B. Alternative Textbooks

As specified by instructor of record.

C. Supplemental Print Materials

Journals and magazines:

- *Interior Design*
- *Interiors*
- *Architectural Digest*

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

www.dezeen.com
<http://design-milk.com>
<http://www.designsponge.com>
www.houzz.com

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 1313: Design Studio II- Fundamentals**Semester Credit Hours:** 3 (1, 2)

Total (Lecture, Studio)

I. Course Overview

This course is a continuation of the foundations class sequence begun in IDES 1311: Design Studio I- Fundamentals. It continues the introduction to professional skills and to written, graphic, and oral communication through creative projects.

II. PMU Competencies

PMU Competencies are reinforced throughout the course. Communication is a critical component of any studio-based class. Students are required to speak, write and present their work regularly. Critical thinking and problem solving are inherent to the design studio and are required for success. Some projects require teamwork for a part, or all of the assignment.

III. Detailed Course Description

The course continues the introduction to interior design education and cultivates the attitudes, values, work habits and skills appropriate to the educational environment and professional practice. Students establish a basic understanding of the design process, design decision making and the factors that influence design solutions.

IV. Requirements Fulfilled

This course is required of all students majoring in interior design. It is taken in the second semester of the first year.

V. Required Prerequisites

Prerequisite: COAD 1311: Design Studio I- Fundamentals

Prerequisite: COAD 1312: Hand Drawing and Rendering Techniques

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Explain color theories, perception, and the psychological and emotional responses to color and light.
- Recognize the elements and principles of design and their applications.
- Identify the physical as well as social and psychological aspects of design.
- State and describe introductory human factors, ergonomics, building code requirements, and universal design applicable to interior environments.
- Describe and apply the design process and program.
- Produce design diagrams including: adjacency, bubble, relationship, zoning, and stacking
- Demonstrate ability to represent design work on sample boards and present orally

CIDA Standards met by this course: 4b; 7a-e; 8a-h; 9a-d; 11a-c; 12g-h, j, k; 15 j; 16d-e.

VII. Assessment Strategy

Major design submissions will receive a letter grade. The criteria to be used in grading will be explained in the project statement. It is very important that students understand the nature of the project, what is expected, and how to address the issues of each assignment before spending time on the project. Students should feel free to ask questions and discuss ideas that arise during introductions of projects.

All subjective learning outcomes will be measured using rubrics for each project assigned.

All projects must be turned in complete and on time. Late projects will be penalized by as much as one letter grade per day. The exact penalty for incomplete work will depend on the discretion of the studio instructor. Students should ask about this statement if not made clear.

VIII. Course Evaluation

Grades are generated by project submission, in-class participation, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas.

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Presentations
- Final pass/fail in class drawing exam

IX. Course Format

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique.

Classroom Hours (5 hours per week) **Class:** 1
Studio: 4

X. Topics to be Covered

- A. Elements and principles of design
- B. Color theories and applications
- C. Physical and social aspects of interior spaces
- D. Ergonomics
- E. Design process
- F. Basic design program
- G. Existing space measurements
- H. Design diagramming
- I. Continuation of drafting conventions
 - Lettering
 - Layout and construction of plan, section, and elevation
 - Perspective drawing
- Hand sketching

XI. Laboratory Exercises

None

XII. Technology Component

This course will lay the traditional groundwork in design, hand drafting, and other skills that are the basis for later skills in CAD and design tools using computers. Students will find information on the Internet to supplement topics covered in lectures.

XIII. Special Projects/Activities

The following activities will serve as a skeletal reference and should be supplemented by the individual instructor.

- Digital notebook with images showing representations of the principles and elements of design,

color theory applications, and physical and social aspects of interior spaces.

- Analysis drawings of elements in an image: line, shape, form, shadow, texture, etc.
- Drawings of ergonomic requirements
- Design of kindergarten classroom spaces based on the measurements and constraints of the assigned studio classroom to demonstrate student comprehension of basic design precepts including programming, ergonomics, diagramming, and other material learned in the class. The design also should demonstrate understanding of application, continuation, and reinforcement of topics covered in Design I.

XIV. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbooks

1. Pile, John F. (2008). *Interior Design*, 4th Edition, Pearson Education, 2008. ISBN: 9780132408905
2. Kilmer, Rosemary and W. Otie Kilmer, *Designing Interiors*, 2nd edition,. Wadsworth Boston Press, 2014. ISBN: 9781118024645
3. Karlen, Mark and Fleming, Rob, *Space Planning Basics*, 4th Edition), John Wiley & Sons, 2016. ISBN: 9781118882009
4. Ching, Francis D. K., *Architecture, Form, Space and Order*, 4th Edition, Fairchild Books, 2014. ISBN: 9781118745083
5. Feisner, E. A. and Reed, Ron, *Color Studies*, 3rd Edition, Fairchild Books, 2013. ISBN: 9781609015312

B. Alternative Textbooks

1. Ching, Francis, D.K.. *Design Drawing*, John Wiley & Sons, 1997. ISBN: 04712865402
2. Ching, Francis, D.K., *Interior Design Illustrated*. John Wiley & Sons, 1978. ISBN: 0471288683
3. Panero, Julius, *Human Dimension & Interior Space: A Source Book of Design Reference Standards*. Watson-Guptill, 1979. ISBN: 9780823072712

C. Supplemental Print Materials

Journals and magazines:

- *Interior Design*
- *Interiors*
- *Metropolis*
- *Dwell*
- *Wallpaper*
- *Architectural Digest*
- *Elle D'cor*
- *Metropolitan Home*

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

2010 ADA Standards for Accessible Design- www.ada.gov/regs2010/2010ADAStandards/2010ADASTandards.pdf

International Building Code 2015 (OR most recent edition adopted by KSA)

<http://shop.iccsafe.org/2015-international-building-coder.html>

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assess-

ing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 1314: Construction Documents and Detail Drawings

Semester Credit Hours: 3 (1, 2)

I. Course Overview

This studio course covers architectural/interior environment construction documents and detail drawings that graphically represent and communicate how to construct and/or install a design project.

II. PMU Competencies

PMU Competencies are reinforced throughout the course. Communication is a critical component of any studio-based class. Students are required to speak, write and present their work regularly. Critical thinking and problem solving are inherent to the design studio and are required for success. Some projects may require teamwork for a part or all of the assignment.

III. Detailed Course Description

The course continues students' architecture and interior design education and cultivates the attitudes, values, work habits and skills appropriate to the educational environment and professional practice. Students learn technical drawing protocol and create construction documents and detail drawings which graphically communicate how to construct and/or install a project.

IV. Requirements Filled

This course is required of all students majoring in interior design. It is taken in the first semester of second year.

V. Required Prerequisites

Prerequisite: COAD 1311: Design Studio I- Fundamentals

Co-requisite: COAD 1313: Design Studio II- Fundamentals

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Read and analyze technical drawings.
- Draw floor plans, section and elevations with professional dimensioning.
- Produce detailed finish and FF&E plans with legends and schedules.
- Create detailed specialty drawings such as millwork and cabinetry.
- Produce reflected ceiling, basic lighting and electric/power drawings.
- Design and draw mechanical and plumbing plans.
- Draw safety and egress plans
- Write and draw detailed legends and schedules.

CIDA Standards covered by this course: 5a; 6g, h; 9e; 13b, d; 15b, d, h-j; 16a, c-e.

VII. Assessment Strategy

Assignments and projects constitute 100% of the grade. Assignments and projects increase professional competence, technological competence, and knowledge of research methods and strategies. Students' work will be assessed through regular supervision and reviews made at periodic intervals in the following areas: Grades are generated according to evaluation of:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, and note taking
- Projects

- Quizzes and exams, if applicable
- Presentations
- Final pass/fail in class drawing exam

VIII. Course Format

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique. Students may also verbally present their work for critique by peers and a jury.

Classroom Hours (5 hours per week) **Class:** 1
Studio: 4

IX. Topics to be Covered

- Drafting equipment and drafting fundamentals review
- As built drawings and demolition plans
- Floor plans- with professional-quality dimensions (review)
- Elevations- with professional-quality dimensions (review)
- Sections- with professional-quality dimensions
- Specialty drawings & detail drawings- with professional-quality dimensions
- Finish plans with detailed finish schedules
- Furnishings and equipment plans, installation plans & schedules
- Reflected ceiling, lighting and electrical/power plans, legends & schedules
- Mechanical and plumbing plans, legends & schedules
- Safety and egress plans, legends & schedules
- Field trips – to be determined by professor-of-record.

X. Laboratory Exercises

None

XI. Learning Technology Component

This course will lay the traditional groundwork in technical drafting and other skills that are the basis for later skills in CAD and design tools using computers. Students will find information on the Internet to supplement topics covered in lectures.

XI. Special Projects/Activities

The following activities will serve as a skeletal reference and should be supplemented by the individual instructor.

- Project 1: Floor plans with professional-quality dimensions
- Project 2: Elevations with professional-quality dimensions
- Project 3: Sections with professional-quality dimensions
- Project 4: Specialty drawings with legends, schedules and professional-quality dimensions
- Midterm Exam
- Project 5: Finish plans with detailed legends and finish schedules
- Project 6: Furniture, finishes, and equipment (FF&E) plans, installation plans with legends and schedules
- Project 7: Reflected ceiling, lighting and electric/power plans with legends and schedules
- Project 8: Mechanical, plumbing plans with legends and schedules
- Project 9: Safety and egress plans with legends and schedules
- Final Project: Compilation of all topics covered in class
- Final exam: Pass/fail

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

1. Kilmer, W. Otie and Kilmer, Rosemary. (2016) *Construction Drawings and Details for Interiors*, 3rd Edition), John Wiley & Sons, Inc., 2016. ISBN: 9781118944356
2. Ballast, David Kent, *Interior Construction and Detailing for Designers and Architects*. Professional Publications, Incorporated, 2002. ISBN: 9781888577785
3. Ramsey, C.G., and Sleeper, H.R., *Architectural Graphic Standards for Architects, Engineers, Decorators, Builders and Draftsmen, 1932 Edition (A Reissue of a Design Classic) 1st Edition* John Wiley & Sons, Inc., 1998. ISBN: 9780471247623

B. Alternative Textbooks

None

C. Supplemental Print Materials

Journals and magazines:

- *Interior Design*
- *Interiors*
- *Architectural Digest*

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

2010 ADA Standards for Accessible Design- www.ada.gov/regs2010/2010ADAStandards/2010ADASTandards.pdf

International Building Code 2015 (OR most recent edition adopted by KSA)

<http://shop.iccsafe.org/2015-international-building-coder.html>

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 2251: Digital Design I – Computer Aided 2D Drawing**Semester Credit Hours: 2 (1,1)**

Total (Lecture, Lab)

I. Course Overview

This course is an introduction to computer drafting for architects and designers that teaches students the drafting skills required to produce two-dimensional architectural drawings. Small scale design projects (such a house, an art gallery, boutique, café, etc.) provides the site for students to gain an understanding of the commands and features of AutoCAD, or other standard of the industry, for designing and drawing architectural spaces. Students will expand other computer and design skills through the design and development of interior design presentations developed through the use of Photoshop or other presentation media.

II. PMU Competencies

Communication through the visual means of computer-aided 2D drawing is the dominant student competency developed by this course. Critical thinking and problem solving are developed through space planning and design. Students demonstrate an active, analytical approach to creation of projects. Although the primary output is by individual students, teamwork is required in small groups through development of concept statements, peer critique and learning exercises. Information technology skills are developed as students use CAD drafting, image editing, page layout, e-mail, and the Internet to complete assignments.

III. Detailed Course Description

This course is the first of two computer-aided drawing courses. Topics covered in this course include two-dimensional drafting of a complete set of construction documents that include floor plans, furniture plans, lighting plans, etc. Students study space planning as it relates to the human body.

IV. Requirements Filled

This course is required of all students majoring in interior design. It is taken in the first semester of second year.

V. Required Prerequisites

Prerequisite: COAD 1314: Construction Documents and Detail Drawings

Co-requisite: IDES 2311: Interior Design III – Residential Design

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Apply two-dimensional digital drafting skills using familiarity with the user interface.
- Effectively utilize layer properties including line weights, line style, colors, and hatch.
- Use blocks- import, edit, and create.
- Produce two-dimensional digital drawing with speed and skill in a clear and legible manner.
- Demonstrate proper dimension styles with correct scale and complete legibility.
- Illustrate and edit design drawings, perspectives, logos, posters, and design layouts using Illustrator, basic Photoshop or other presentation program.

CIDA Standards met by this course: 9e; 11b-c; 13f; 15h.

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments. Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations
- Portfolio

VIII. Course Format

The course is primarily a studio that incorporates a series of lectures and demonstrations of software. The course is conducted in the context of the professional design office. Students and the instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of drawings, and critique.

Classroom Hours (3 hours per week)

Class: 1

Studio: 2

IX. Topics to be Covered

- A. AutoCAD commands for two-dimensional drafting
- B. Layers and how to use them to control drawing elements
- C. Understanding, creating and using blocks
- D. Dimensions
- E. Development of construction documents including floor plans, lighting plans, furniture plans, legible dimensions, etc.
- F. Advanced work with Photoshop or other presentation media

X. Laboratory Exercises

The previous list of topics is integrated in several semester-long studio projects to design small architectural projects.

XI. Learning Technology Component

Students enhance skills in AutoCAD, Photoshop, and Internet.

XII. Special Projects/Activities

This course requires that students integrate digital technology skills while designing an interior

project. The fundamentals of design techniques and philosophies are integrated seamlessly with the learning of digital representation.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

1. James M. Kirkpatrick, James M, and Beverly L. Kirkpatrick, *AutoCAD 2015 for Interior Designers and Space Planning*. Prentice Hall, 2015. ISBN: 9780133144857 OR most recent based on newest program release
2. Smith, Jennifer, AGI Creative Team, *Adobe Photoshop CS4 Digital Classroom: A Complete Training Package*, John Wiley & Sons, 2008. ISBN: 9780470410905.

B. Alternative Textbooks

Since computer technology evolves quickly, updated books may be available at the time of course introduction.

C. Supplemental Print Materials

Instructors provide reference handouts for programming techniques applicable to the selected project.

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Websites that are appropriate for the topics they teach and sources for 2-dimensional furniture and objects.

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design or Architecture. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 2252: Digital Design II–Computer Aided 3D Modeling and Rendering

Semester Credit Hours: 2 (1, 1)

Total (Lecture, Lab)

I. Course Overview

This course is the second of two computer-aided drawing courses. Topics covered in this course include three-dimensional drafting or modeling and color rendering of an interior space. Students study space planning and dimensioning as it relates to the human body. Students explore the use of V-Ray rendering engine for improved design visualization. Other programs may be introduced as they become standards of the industry.

II. PMU Competencies

Communication through the visual means of computer-aided 3D drawing and rendering is the dominant student competency developed by this course. Critical thinking and problem solving are developed through space planning and design projects. Students demonstrate an active, analytical approach to creation of interior projects. Although the primary output is by individual students, teamwork is required in small groups through development of concept statements, peer critique and learning exercises. Information technology skills are developed as students use CAD drafting, modeling software, image editing, page layout, e-mail, and the Internet to complete assignments.

III. Detailed Course Description

This course is an advanced computer drafting for interior designers that teaches students the drafting skills required to produce three-dimensional architectural drawings with color rendering, lighting, and animation/walk-through. Small scale design projects provides the site for students to gain an understanding of the commands and features of AutoCAD and 3Ds Max with V-Ray, or other programs if they are considered standards of the industry, for designing, drawing, 3D modeling and rendering of interior spaces.

IV. Requirements Filled

This course is required of all students majoring in interior design. It is taken in the second semester of second year.

V. Required Prerequisites

Prerequisite: COAD 2251: Digital Design I – Computer Aided 2D Drawing

Co-requisite: IDES 2312: Interior Design IV.

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Model spaces with any design shape such as straight, curved, circular, spherical, etc. using modeling techniques and modifiers.
- Import or merge files with different formats using proper scaling and layering.
- Demonstrate different types of materials and finishes and apply them on the space elements.
- Illustrate the scene with the natural and/or artificial light and environment.
- Produce a model with both static and dynamic cameras.
- Generate realistic renders of final scenes with suitable settings and good quality resolution.

CIDA Standards met by this course: 9e; 11b, d; 13f; 15h.

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments.

Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations
- Portfolio

VIII. Course Format

The course is primarily a studio that incorporates a series of lectures and demonstrations of software. The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of drawings, and critique.

Classroom Hours (3 hours per week)

Class: 1

Studio: 2

IX. Topics to be Covered

- A. 3DS Max, or other program that is standard of the industry, and its interface
- B. AEC modeling
- C. Cameras and views
- D. V-ray or other visualization enhancing program
- E. Modeling shapes and geometry
- F. Materials with focus on UVW mapping
- G. Lighting

X. Laboratory Exercises

The previous list of topics is integrated in several projects.

XI. Learning Technology Component

Students enhance skills in 3D and 2D computer aided programs, Photoshop, PowerPoint and Internet.

XII. Special Projects/Activities

In this course, students learn 3-D rendering techniques through a variety of projects as well as demonstrating knowledge on quizzes. This course requires that students integrate digital technology skills while designing an interior project. The fundamentals of design techniques and philosophies are integrated seamlessly with the learning of digital representation.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbooks

1. Kuhlo, Markus and Enrico Eggert, *Architectural Rendering with 3ds Max and V-Ray: Photorealistic Visualization*. Focal Press, 2010. ISBN: 9780240814773
2. Tickoo, Sham, (2014) *Autodesk 3ds Max Design 2015: A Tutorial Approach*. CADCIM Technologies, 2014. ISBN: 9781936646760
3. Crespi, Adam, *Achieving Invisibility: The Art of Architectural Visualization and Rendering*. Fairchild Books, 2008. ISBN: 9781563675416

B. Alternative Textbooks

Since computer technology evolves quickly, updated books may be available at the time of course introduction.

C. Supplemental Print Materials

Instructors provide reference handouts for programming techniques applicable to the selected project.

Sources include the following:

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Websites that are appropriate for the topics they teach and sources for 3-dimensional furniture and objects.

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design or Architecture. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: IDES 2311: Interior Design III- Residential Design Studio

Semester Credit Hours: 3 (1, 2)

Total (Lecture, Studio)

I. Course Overview

This course continues student learning of two-dimensional and three-dimensional hand drafting and representation of interior spaces while focusing on residential design. Students study the effects of light, color, furniture and decorative objects in residential design. Space planning and volumetric study as it relates to the human body are emphasized.

II. PMU Competencies

Critical thinking and problem solving are developed through space planning and design. Students demonstrate an active, analytical approach to the creation of interior projects. Although the primary output is by individual students, teamwork is required in small groups through peer critique and learning exercises. Information technology skills develop as students use image editing, page layout, e-mail, and the Internet to complete homework assignments. Communication is developed through visual means of drawing and digital modeling.

III. Detailed Course Description

This course is the third in a series of eight design studios. Topics in this course include two-dimensional and three-dimensional drafting and representation of interior spaces. Students study the effects of light, color, furniture and decorative objects in residential design. Space planning and volumetric study as it relates to the human body (individuals and groups) are emphasized.

IV. Requirements Filled

This course is required of all students majoring in interior design. It is taken in the first semester of second year.

V. Required Prerequisites

Prerequisites: COAD 1313: Design Studio II- Fundamentals

COAD1314: Construction Documents and Detail Drawings

Co-requisite: COAD 2251: Digital Design I

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Utilize programming procedures for residential spaces.
- Apply the design process in the development of a residential project.
- Practice two and three-dimensional hand-drafting skills and hand-drawing skills as they apply to residential interior spaces.
- Employ space planning techniques to design all interior spaces based on residential standards and minimum dimensions according to residential building code requirements.
- Write residential interior specifications and recognize main components and design needs for residential interiors.
- Plan and design all interior spaces for accessibility, multi-generational inhabitants and aging in place.

CIDA standards met by this course : 4a-f; 5a-e; 6c, m; 7b-e; 8a-h; 9a-e; 10b, f; 11a-d; 12e-l; 13a-d; 14b; 15g, j; 16a-c.

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments and

an evaluation of students' sketchbooks. Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations
- Final pass/fail in class drawing exam

VIII. Course Format

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique. Students also verbally present their work for critique by peers and a jury.

Classroom Hours (5 hours per week)

Class: 1

Studio: 4

IX. Topics to be Covered

- A. Standard residential construction techniques
- B. Review of human scale and dimensions
- C. Residential space programming
- D. Residential floor plan design
- E. The building shell
- F. Kitchen, bathroom, bedroom design
- G. Residential luxury design
- H. Stairs, windows, doors

- I. Furniture and material selection
- J. Residential lighting
- K. Residential specification writing
- L. Advanced drafting techniques
- M. Presentation board layout
- N. Presentation and design communication
- O. Field trips – to be determined by professor-of-record

X. Laboratory Exercises

The previous list of topics is integrated in a semester-long studio project for the design of a single-family house.

XI. Learning Technology Component

Students learn the fundamentals of PowerPoint and Internet.

XII. Special Projects/Activities

This course requires that students design a single-family residence. Process sketches are required as part of the final presentation. Final presentations are made and include the following components:

- Programming
- Sketches of preliminary diagrams: adjacency, bubble, blocking relationship, zoning, and stacking, as needed
- Furniture plan(s), reflected ceiling plan(s)
- Sketches of preliminary design ideas
- Three-dimensional drawings of primary spaces

- Detail drawings

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

1. Mitton, Maureen and Nystuen, Courtney, *Residential Interior Design: A Guide to Planning Spaces*, 3rd Edition, John Wiley & Sons, Inc., 2016. ISBN: 9781119013976
2. National Kitchen and Bath Association, *NKBA Kitchen and Bathroom Planning Guidelines with Access Standards* (2nd Edition). : John Wiley & Sons, Inc., 2016. ISBN: 9781119216001

B. Alternative Textbooks

Nissen, Luann and Faulkner, Ray, *Inside Today's Home*, 6th Edition, Wadsworth Cengage Learning, 1994. ISBN: 9780030554926

C. Supplemental Print Materials

Sources include the following:

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

International Residential Code

<https://codes.iccsafe.org/public/document/IRC2018> (OR most recent edition)

Instructors will develop a list of suitable, contemporary Websites that are appropriate for the topics they teach.

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: IDES 2312: Interior Design IV- Commercial Programming and Space Planning Studio

Semester Credit Hours: 3 (1, 2)

Total (Lecture, Studio)

I. Course Overview

This class emphasizes the study of programming, complex space planning, circulation patterns and building codes related to non-residential design. It continues student learning of two-dimensional and three-dimensional hand and/or computer aided drafting and representation of interior spaces while focusing on non-residential design.

II. PMU Competencies

Communication through the visual means of drawing and digital modeling is the dominant student competency developed by this course. Critical thinking and problem solving are developed through space planning and design. Students demonstrate an active, analytical approach to creation of interior projects. Although the primary output is by individual students, teamwork is required in small groups through peer critique and learning exercises. Information technology skills are developed as students use CAD drafting, 3D modeling, image editing, page layout, animation, e-mail, and the Internet to complete homework assignments.

III. Detailed Course Description

This course is the fourth in a series of eight design studios. Topics covered in this course emphasize space planning, complex space planning, and volumetric study as it relates to the human body (individuals and groups). Students may also study the effects of light, color, furniture, and decorative objects in non-residential design. It includes two-dimensional and three-dimensional drafting as well as basic CAD and 3D computer work.

IV. Requirements Fulfilled

This course is required of all students majoring in interior design. It is taken in the second semester of second year.

V. Required Prerequisites

Prerequisites: IDES 2311: Interior Design III

Co-requisite: COAD 2252: Digital Design II

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Utilize programming procedures for non-residential spaces.
- Apply the design process in the development of a small commercial project.
- Employ space planning techniques to design all interior spaces based on graphic standards and minimum dimensions, for accessibility, and according to basic building code requirements.
- Plan and design main circulation paths and secondary paths that include a successful wayfinding system.
- Design and specify furniture, fixtures and equipment (FF&E) and finish materials for commercial interior environments including meeting budget/cost limit requirements for selected spaces.
- Practice two and three-dimensional hand and/or computer drafting skills as they apply to non-residential interior spaces.

CIDA Standards met: 4a-c; 6c, m; 7a-f; 8a-h; 9a-e; 10b, f; 11a-d; 12g-l; 13a-d; 15g, i-j; 16a-e.

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments and evaluation of student sketchbooks. Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations
- Final pass/fail in class drawing exam

VIII. Course Format

The course is primarily a studio class that incorporates a series of lectures and studio demonstrations. The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique. Students also verbally present their work for critique by peers and a jury.

Classroom Hours (5 hours per week)

Class: 1

Studio: 4

IX. Topics to be Covered

- A. Programming for non-residential projects
- B. Design process
- C. Zoning and diagramming
- D. Developing floor plans
- E. Understanding typical non-residential building types
- F. Review of human scale and dimension
- G. Reflected ceiling plans
- H. Non-residential furniture and material specification
- I. Advanced presentation techniques
- J. Field trips – to be determined by professor-of-record

X. Laboratory Exercises

The previous list of topics is integrated in a semester-long studio project to design a small non-residential project such as an art gallery, boutique, or café.

XI. Learning Technology Component

Students enhance skills in AutoCAD, 3Ds Max, PowerPoint and Internet.

XII. Special Projects/Activities

Special projects as assigned by the instructor.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

1. Rengel, R. J., *Shaping Interior Space*, 3rd Edition, Fairchild Books, 2014. ISBN: 9781609018962.
2. Piotrowski, Christine, *Designing Commercial Interiors*, 3rd Edition, John Wiley and Sons, Inc., 2016. ISBN: 9781118882085

3. Neufert, Ernst and Neufert, Peter (2012). *Neufert Architects' Data*, 4th Edition, Wiley-Blackwell, 2012. ISBN: 9781405192538

B. Alternative Textbooks

1. Scott-Webber, Scott, *Programming: A Problem Solving Approach for Users of Interior Spaces*. Thomson Learning, 1998. ISBN: 0873936744

2. Karlen, M., and Fleming, Rob, *Space Planning Basics*, 4th Edition, John Wiley & Sons, 2016 ISBN: 9781118882009

C. Supplemental Print Materials

Instructors provide reference handouts for programming techniques applicable to the selected project.

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

2010 ADA Standards for Accessible Design- www.ada.gov/regs2010/2010ADAStandards/2010ADASTandards.pdf

International Building Code 2018 (OR most recent edition)

<http://shop.iccsafe.org/2018-international-building-coder.html>

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: IDES 2331: Materials for Interior Design**Semester Credit Hours: 3 (3, 0)****I. Course Overview**

The course covers the technical aspects of surface and structural materials in relation to function and appropriate application in the interior environment. It covers ways in which materials are communicated in design projects including: estimation, specification writing and contract documentation.

II. PMU Competencies

The course increases professional competence in the area of interior materials and their application, enhances ability to work as a team and enhances communication skills (written, graphic, and oral). Technological competence is supported through product research using the Internet. Teamwork and leadership skills are developed through the activity of functioning as a design team to present product research and problem-solve.

III. Detailed Course Description

This exploration of the materials used in interior environments concentrates on the functional aspects of finishes and materials and how they are communicated in design projects including: estimation, specification writing and contract documentation. Codes and appropriate testing of materials will also be addressed.

IV. Requirements Filled

This course is required of all students majoring in interior design. It is taken in the first semester of second year.

V. Required Prerequisites

COAD 1313: Design Studio II- Fundamentals

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Define the functional aspects of interior materials.
- Estimate materials for budget assessment.
- Recognize the CSI format for specification.
- Identify codes and standard testing procedures for interior materials.
- Specify furniture, fabric and equipment for interiors.
- Apply research processes for interior materials specification.

CIDA Standards met by this course: 4c; 5b; 7b; 13a-e; 16a-c.

VII. Assessment Strategy

Grades are generated by homework, in-class participation and productivity, quizzes, and the final examination. Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

This course is taught in lecture format with some in-class team assignments to reinforce research methodologies. Students are expected to complete assigned reading prior to class and participate in class discussion and inquiry.

Classroom Hours (3 hours per week)

Class: 3

Studio: 0

IX. Topics to be Covered

- A. Physical environment
 1. Air quality
 2. LEED certification
- B. Paint and finishes
 1. Components
 2. Types
 3. Finishes
 4. Color
 5. Application
 6. Estimation
 7. Specification
- C. Textiles
 1. History and function
 2. Fibers
 3. Construction methods
 4. Dyeing
 5. Testing
 6. Estimation
 7. Specification
 8. Installation

- D. Carpet
 1. History and function
 2. Fibers
 3. Construction methods
 4. Dyeing
 5. Testing
 6. Estimation
 7. Specification
 8. Installation
- E. Flooring and Floor Finishes
 1. Types
 2. Applications
 3. Estimation
 4. Specification
- F. Wall Finishes
 1. Types and finishes
 2. Applications
 3. Estimation
 4. Specification
- G. Ceiling Finishes
 1. Types
 2. Applications
 3. Estimation
 4. Specification
- H. Components, Hardware and Architectural Woodwork
 1. Types
 2. Application
 3. Specification
- I. Cabinet construction
 1. Joinery
 2. Edge treatments
 3. Drawers and doors
 4. Joints
 5. Hardware
 6. Documentation
- J. Kitchen and baths
 1. Application of materials specifically for these environments.
- K. Field trips – to be determined by professor-of-record.

X. Laboratory Exercises

None

XI. Learning Technology Component

Information technology skills including use of the Internet and Microsoft Word are required to complete research assignments.

XII. Special Projects/Activities

Student teams are selected to research and prepare a project brief and class presentation about current products and projected trends in specific areas of the course material. Small in-class projects reinforce methods of researching and specifying materials in interior environments.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that

information delivered is as current as possible.

A. Required Textbook

1. Riggs, J. Rosemary, *Materials and Components of Interior Architecture*, 8th Edition. Prentice Hall, 2013. ISBN: 9780132769150
2. Binggeli, Corky, *Materials for Interior Environment*, 3rd Edition, John Wiley & Sons, 2016. ISBN: 9781118925546
3. Peters, Sascha, *Material Revolution II: New Sustainable and Multi-Purpose Materials for Design and Architecture*. Birkhäuser, 2013. ISBN: 9783038214762

B. Alternative Textbooks

Rezinkoff, S.C., *Specifications for Commercial Interiors*. Whitney Library of Design, 1989. ISBN: 9780823048939

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

C. Supplemental Print Materials

None

D. Supplemental Online Materials

None

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 2332: Environmental Psychology for Design**Semester Credit Hours: 3 (3, 0)****I. Course Overview**

The course introduces the students to the basic psychology of designing spaces and places for human occupancy. Concepts introduced provide students with a basic knowledge of crowding, territoriality, attitudes relative to personal space, personality, and the definition of space and privacy as they relate to both residential and non-residential environments. Other concepts include managing limited resources and the design of built environments.

II. PMU Competencies

The study of the impact of human behavior as it effects the built environment is important to designing appropriate interior spaces. The students are required to employ critical thinking and problem solving. The students use the Internet to retrieve additional information and data to address problem-solving exercises.

II. Detailed Course Description

This course is an introduction to the basic psychology of designing built environments for human occupancy within a cultural context. These concepts provide a foundation for humans' use of space in the public and private built environment. The course provides the students with assimilation of data, organization of information and data, and experience with interpreting data in a graphic format. The course content is important to the development of critical thinking and problem-solving skills.

IV. Requirements Filled

This course is required of all students majoring in interior design. It is taken in the second semester of second year.

V. Required Prerequisites

COAD 1313: Design Studio II- Fundamentals
PSYC 1311: Intro to Psychology

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Recognize the dynamic relationship between human behavior and the built environment.
- Identify and apply theories regarding human behavior and the built environment.
- Evaluate the concepts of privacy, territoriality, proxemics, crowding, demographics, culture and human behavior related to the built environment.
- Categorize the dynamics of human behavior within the built environment based on informal observation and survey assessment methods.
- Acquire sensitivity to user requirements based on social, demographic, economic, physiological, cognitive and cultural factors.
- Develop and administer an informal questionnaire to assess human behavioral responses to a stimulus or stimuli within an existing space.

CIDA Standards met by this course: 4b, 6c, 7a-d, 11b

VII. Assessment Strategy

Assignments and projects constitute 100% of the grade. Assignments and projects increase professional competence, technological competence, and knowledge of research methods and strategies. Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at

periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The class includes lectures, discussions, and project development including research strategies. Students are expected to read the assigned material before class and spend an average of two hours per week outside of class for each hour of class.

Classroom Hours (3 hours per week)

Class: 3

Studio: 0

IX. Topics to be Covered

- A. The human perception and dynamics of the relationship to the built environment.
- B. Foundational theories of environmental psychology and human behavior.
- C. The physiological aspects of behavior – A study of the brain and brain functions that affect behavior.
- D. Demographics, crowding, territoriality, attitudes relative to personal space, personality, and the definition of space and privacy as they relate to both residential and non-residential environments.
- E. Concepts for designing habitable environments in a cross-cultural context for both residential and commercial applications.
- F. Critical thinking and problem solving.
- G. Social space and group living.
- H. Critically evaluate the dynamics of space use based on informal observation.
- I. Analyzing spatial layouts that provide for activity patterns of users and helps users meet their goals.

X. Laboratory Exercises

None

XI. Learning Technology Component

Students will use word processing and the Internet to prepare written report and conduct research. The final presentation will be make use of PowerPoint.

XII. Special Projects/Activities

- Conduct an observation study for an existing space
- Develop and administer an informal questionnaire to assess user/space utilization of an existing space.
- Assignments
- Readings as assigned.
- Write an essay or presentation that is based upon environmental psychology that discusses human interaction with the built environment.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

Kopec, Dac (2012). *Environmental Psychology for Design*, 2nd Edition, Fairchild Books, 2012. ISBN: 9781609011413

B. Alternative Textbooks

1. Gifford, Robert (2002). *Environmental Psychology: Principles and Practice*, 3rd Edition, Optimal Books, 2002. ISBN: 9780205189410
2. Hall, Edward T., *The Hidden Dimension*. Anchor Books, 1990. ISBN: 9780385084765

C. Supplemental Print Materials

1. Bechtel, Robert B. and Arza Churchman, (Eds) *Handbook of Environmental Psychology*. John Wiley & Sons, Inc., 2002. ISBN: 9780471405948
2. Hall, Edward T. **Personal Space*. Prentice-Hall, Inc., 1969. ISBN: 9780136575771

**NOTE: This book is out-of-print. The instructor should request permission from the publisher to re-print portions as a library resource.*

3. Lang, Jon, Charles Burnett, Walter Moleski and David Vachon. (Eds.), *Designing for Human Behavior: Architecture and the Behavioral Sciences*, Downen, Hutchinson and Ross, Inc., 1974. ISBN: 9780879330545

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

1. Other supplemental online materials as provided by the publisher.
2. Instructors will provide a list of suitable, contemporary Websites that are appropriate for the topics and level of detail that they will teach.
 - www.isdesignet.com/
 - www.edra.org/

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: IDES 3321: Interior Building Systems**Semester Credit Hours: 3 (3, 0)****I. Course Overview**

This lecture course covers standard interior building systems including partitions, ceilings, floors, and stairs. Students learn about glazing, woodwork, hardware, structural coordination, heating, ventilation, air conditioning, plumbing, and electrical distribution.

II. PMU Competencies

Technological competence concerning building technology, and the details and methods of the construction industry is the primary focus of the course. Students also learn professional communication through acquiring the vocabulary of the industry. The course requires critical thinking and problem solving through applied problems on periodic tests.

III. Detailed Course Description

The creation of functional and aesthetically pleasing interior spaces requires not only sensitivity to aesthetics but also a strong grounding and understanding of construction systems. This course deals specifically with interior building systems. Students learn about all building systems as well as floor, wall, ceiling and other construction methods in a lecture and discussion format.

IV. Requirements Filled

This course is required of all students majoring in interior design. It is taken in the first semester of third year.

V. Required Prerequisites

IDES 2331: Materials for Interior Design

COAD 1314: Construction Documents and Detail Drawings

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Recognize and define the technical aspects of interior building systems
- Explain and draw the assembling and finishing of floor systems.
- Differentiate between and draw the construction methods and finishing of walls, ceiling systems and glazing.
- Evaluate the acoustics of an interior space.
- Identify the varied types of stair design and draw construction plans.
- Prioritize and define the aspects of structural coordination.
- Identify and describe all aspects of an interior HVAC system and its importance to indoor air quality.
- Know the elements of water supply and waste elimination systems.
- Describe the principles of electricity and electrical distribution systems.

CIDA Standards met by this course: 4a-c; 5b; 9a-d; 14a-g; 15a-g; 16b.

VII. Assessment Strategy

Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The course is primarily a lecture format that incorporates a series of in class discussion sessions. Attendance is extremely important for learning the material presented. Each student is allowed three excused absences before her grade is affected.

Web supplement: The course homepage (using the university's Web tool, WebCT or BLACKBOARD) includes the following.

- A. Course syllabus
- B. Course assignments
- C. Course e-mail utility
- D. Course discussion list
- E. Student course grades

Classroom Hours (3 hours per week)

Class: 3

Studio: 0

IX. Topics to be Covered

- A. Partitions and partition systems
- B. Ceiling assemblies and systems
- C. Door Assemblies
- D. Glazing and glazing systems
- E. Floor construction, assemblies and systems
- F. Acoustics
- G. Stair design and construction
- H. Signage systems
- I. Security systems
- J. Audiovisual systems
- K. Structural coordination
- L. Energy overview
- M. Climate comfort and design strategies
- N. Thermal control
- O. Heat flow
- P. Designing for heating and cooling
- Q. Indoor air quality
- R. Water supply
- S. Solid waste
- T. Electricity
- U. Standard for energy efficient building design
- V. Field trips – to be determined by professor-of-record.

X. Laboratory Exercises

The previous list of topics is presented through lecture. In addition to lectures, the information is reinforced through in-class exercises related to structural systems, building codes, and barrier-free design. Group discussions compare and contrast international and local construction procedures and practices.

XI. Learning Technology Component

Knowledge of building technologies is the primary focus of the course. Students use the Internet to research topics covered in the course

XII. Special Projects/Activities

Students complete in-class exercises related to structural systems, interior systems, and elements. The subject for the exercises may relate to the student's project in IDES 3411: Interior Design Studio

V – Office Design, which is taken the same semester.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbooks

Binggeli, Corky. (2016). *Building Systems for Interior Designers, 3rd Edition*, Wiley, 2016. ISBN: 9781118925546

Ballast, David Kent. (2013). *Interior Construction and Detailing for Designers and Architects*, Professional Publications, Incorporated, 2013. ISBN: 9781591264200

B. Alternative Textbooks

Ching, Francis D.K. and Adams, Cassandra. (2014) *Building Construction Illustrated, 5th Edition*, Wiley, John and Sons, Incorporated, 2014. ISBN: 9781118458341

C. Supplemental Print Materials

Instructors provide handouts for construction techniques and practices specific to local customs and traditions, including local/regional construction systems, techniques, materials, and building codes.

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Websites that are appropriate for the topics they teach, including local/regional materials suppliers, construction companies, and structural systems).

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 3322: Building Codes and Universal Design

Semester Credit Hours: 3 (3, 0)

I. Course Overview

This lecture course covers universal and barrier-free design, means of egress and the international building code as they apply to interior environments.

II. PMU Competencies

Technological competence concerning building technology, and the details and methods of the construction industry is the primary focus of the course. Students also learn professional communication through acquiring the vocabulary of the industry. The course requires critical thinking and problem solving through applied problems on periodic tests.

III. Detailed Course Description

The creation of functional and beautiful built environments requires not only sensitivity to aesthetics but also a strong grounding and understanding of safety, building codes and universal design. Students learn about occupancy classifications and loads, means of egress, building construction types and building sizes, fire and smoke resistant assemblies, fire protection systems, plumbing and electrical code requirements, universal and barrier-free design, and wayfinding requirements.

IV. Requirements Filled

This course is required of all students majoring in interior design. It is taken in the second semester of third year.

V. Required Prerequisites

IDES 3321: Interior Building Systems.

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Identify occupancy classifications and building construction types.
- Calculate building occupancy loads based on occupancy types.
- Recognize and define the various parts of an egress system.
- Calculate doorway, hallway and vertical transition widths needed for egress.
- Evaluate the number and location of exits required for safe egress.
- Describe typical fire resistant assemblies and construction methods.
- Analyze and explain barrier-free interior environments.
- Demonstrate an ability to navigate the various sections of the International Building Code CIDA Standards covered by this course: 5a, b; 6h; 15e, g; 16.

VII. Assessment Strategy

Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentation

VIII. Course Format

The course is primarily a lecture format that incorporates a series of in class discussion sessions. Attendance is extremely important for learning the material presented. Each student is allowed three excused absences before her grade is affected.

Web supplement: The course homepage (using the university's Web tool, WebCT or BLACKBOARD) includes the following.

- A. Course syllabus
- B. Course assignments
- C. Course e-mail utility
- D. Course discussion list
- E. Student course grades

Classroom Hours (3 hours per week)

Class: 3

Studio: 0

IX. Topics to be Covered

- A. Occupancy classifications and loads
- B. Building construction, building types and building sizes
- C. Means of egress
- D. Fire protection
- E. Plumbing codes
- F. Electrical codes
- G. Residential codes
- H. Universal and barrier-free design
- I. Field trips – to be determined by professor-of-record.

X. Laboratory Exercises

The previous list of topics is presented through lectures. In addition to lectures, the information is reinforced through in-class exercises related to international building codes and universal design. Group discussions compare and contrast international and local procedures and practices.

XI. Learning Technology Component

Knowledge of building technologies is the primary focus of the course. Students use the Internet to research topics covered in the course

XII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

Ching, Francis D.K and Winkel, Steven R., (2018) *Building Codes Illustrated, 6th Edition*. John Wiley & Sons, Inc., 2018.

ISBN: 9781119480358

B. Alternative Textbooks

Ballast, David Kent, (2013). *Interior Construction and Detailing for Designers and Architects*. Professional Publications, Incorporated, 2013.

ISBN: 9781591264200

C. Supplemental Print Materials

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

2010 ADA Standards for Accessible Design- www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards.pdf

International Building Code 2018 (OR most recent edition)
<http://shop.iccsafe.org/2018-international-building-coder.html>

Saudi Arabian Building Code 2018

ENGLISH: <https://www.sbc.gov.sa/resources/PdfPreview/web/viewer.html?avx=U2FsdGVkX-1912xaZA/2xeBz/uVGcegUQR5XE9bHZ5CQ=>

ARABIC:

<https://www.sbc.gov.sa/resources/PdfPreview/web/viewer.html?avx=U2FsdGVkX193P-bh38t3FBNX/cftEW1fNQ8pd9bSFmVY=&type=0>

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: IDES 3331: Interior Lighting**Semester Credit Hours:** 3 (2, 1)

Total (Lecture, Lab)

I. Course Overview

This course focuses on lighting design for interior spaces. Students gain knowledge of the perception and psychological aspects of light as well as technical information related to current fixture types and appropriate application.

II. PMU Competencies

Students learn professional communication through the means of reflected ceiling plans and fixture schedules. Technological competence is gained by Internet searches of products, online learning tools, e-mail, and word processing. The course requires critical thinking and problem solving through the application of knowledge gained in the classroom to class projects. The course teaches professional competence through the learning of industry-specific vocabulary and the development of written and graphic communication.

III. Detailed Course Description

Topics covered in this course include perception and psychology of light, brightness, color, use of daylight, lamp types, fixture types, light control, photometrics, electrical distribution systems, and lighting layout/design.

IV. Requirements Filled

This course is required of all students majoring in interior design. It is taken in the first semester of third year.

V. Required Prerequisites

COAD 1314: Construction Documents and Detail Drawings

IDES 2331: Materials for Interior Design

Math 1312: Calculus for Business

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Describe how light is seen and perceived through the human eye/brain system, and the psychological and emotional impact of light.
- Explain and recognize how surface finish and reflectance affect brightness.
- Identify and apply variations of color temperature and color rendering.
- Select various lamp and fixture types for appropriate use in residential and commercial lighting design.
- Calculate lighting requirements for different functions or tasks, to create emotional impact and brightness contrast for various types of environments.
- Write lighting specifications for residential and commercial electrical/lighting plans including electrical distribution and control systems as related to lighting design.
- Prepare contract documents required for residential lighting/electrical plans and commercial reflected ceiling plans, wiring plans, and communication/data plans that include fixture schedules.

CIDA Standards covered by this course: 5a-c; 9f; 12a-f; 15e, f, j.

VII. Assessment Strategy

Assessment for this course consists of quizzes, examinations and the evaluation of several small projects leading to a final project.

- A. Exams and quizzes
- B. Project drawings and specifications.

VIII. Course Format

The course is primarily a lecture format that incorporates a studio component. The studio allows for hands-on application of material learned in lectures.

Attendance is extremely important for learning the material presented. Each student will be allowed three excused absences before her grade is affected.

Web supplement: The course homepage (using the university's Web tool, WebCT or BLACKBOARD) includes the following.

- A. Course syllabus
- B. Course assignments
- C. Course e-mail utility
- D. Course discussion list
- E. Student course grades

Classroom Hours (4 hours per week)

Class: 2

Studio: 2

IX. Topics to be Covered

- A. Perception of light
- B. Psychology of light
- C. Brightness
- D. Color
- E. Daylight
- F. Lamps: Incandescent, halogen, fluorescent, CFL, LED, etc.
- G. Auxiliary equipment
- H. Light control
- I. Photo metrics
- J. Electricity
- K. Luminaries
- L. Design issues
- M. Reflected ceiling plans and schedules
- N. Field trips – to be determined by professor-of-record.

X. Laboratory Exercises

The previous list of topics is presented through lecture. In addition to lectures, the information is reinforced through hands-on studio/lab sessions and relevant computer programs.

XI. Learning Technology Component

Students use AutoCAD for the completion of reflected ceiling plans and Excel for the completion of lighting schedules. Other specialized programs may be used as well.

XII. Special Projects/Activities

Specific requirements for the lighting design component of that project include a reflected ceiling plan, a light fixture schedule, and a lighting concept statement.

XIII. Textbooks and Teaching Aids

A. Required Textbook

1. Gordon, Gary, *Interior Lighting for Designers*, 5th Edition), John Wiley & Sons, Inc. 2015. ISBN: 9780470114223
2. Karlen, Mark, Spangler, Christina, and Benya, James R. (2017). *Lighting Design Basics*, 3rd Edition, John Wiley & Sons, Inc., 2017. ISBN: 9781119312277.

3. Steffy, Gary (2008). *Architectural Lighting Design*, 3rd Edition), John Wiley & Sons, Inc. 2008. ISBN: 9780470112496.

B. Alternative Textbooks

As needed by instructor of record.

C. Supplemental Print Materials

Instructors provide reference handouts for examples of reflected ceiling plans and schedules provided by local design/architecture firms.

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Websites that are appropriate for the topics they teach and lighting manufacturers.

- Cooper Lighting – www.cooperlighting.com
- Lightolier – www.lightolier.com
- Nessen Lighting – www.nessenlighting.com

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: IDES 3338: Interior Design Internship**Course Semester Credit Hours:** 3 (1, 320)**I. Course Overview**

This course enables students to apply their studio and class experience to practical use in a work-world apprentice situation. Students have the opportunity to seek design employment in the surrounding geographic area or in the PMU Community Design Center, if it is established.

II. PMU Competencies

The nature of the internship experience requires that student participants exhibit effective communication through reading, writing, listening and speaking. Critical thinking and problem solving are inherent in the practice of Interior Design and will be enhanced through this experience. Teamwork is reinforced through everyday work activities to complete assigned tasks. It is anticipated that students will be called upon to use their technology skills towards successful completion of daily and project tasks. Leadership skills are reinforced through interaction with design professionals and clients.

III. Detailed Course Description

Students achieve a broadened knowledge of the Interior Design industry through an apprenticeship experience in a local design related firm or the PMU Community Design Center. Internships must be pre-approved by the Chair of the Department of Interior Design prior to the work experience. This course exposes the students to the professional application of acquired skills and knowledge obtained in all previous IDES courses.

IV. Requirements Fulfilled

This course is required of all students majoring in interior design. It is to be taken in the summer between third and fourth year.

V. Required Prerequisites

- Completion of 80 credit hours
- Departmental approval

VI. Learning Outcomes

Students completing this class will:

- Acquire the ability to function and grow in a professional working environment.
- Apply knowledge learned in previous IDES classes to real world design experiences
- Prepare project documentation that meet professional expectations of supervisors
- Present the projects to clients, supervisors and PMU instructors
- Summarize work experience via a written log, reflection essay, oral presentation and submission of a portfolio of work completed to PMU.

CIDA Standards covered in this course: 4-16. Students may experience various levels of each standard depending on their internship assignments.

VII. Assessment Strategy

Students are assessed through evaluation of their notebook, supervisor evaluations, final presentation, and participation in weekly reports to the instructor of record.

VIII. Course Format

The principal work is accomplished through the daily work experiences of the student. Students are expected to complete a minimum of 320 hours (8 weeks at 40 hours per week) in a pre-approved design firm or the PMU Community Design Center, if it is established.

A weekly report offers the opportunity for students to discuss issues and experiences about their work with the faculty on assigned subjects.

Classroom Hours (1 hour per week)

Class: 1

Field work (8 weeks @ 40 per week)

Studio: 0

320 hours

IX. Topics to be Covered

- A. Company organization and specialization
- B. Company interaction and communication
 - 1. In-house
 - 2. Outside
- C. The role of the designer
- D. Unexpected office experiences
- E. Project documentation
- F. Forms utilized in the office environment
- G. Supervisors
- H. Project production and completion
- I. Field trips – to be determined by professor-of-record.

X. Laboratory Exercises

None.

XI. Learning Technology Component

Information technology skills are used to file weekly work reports via the Internet. Students will use their AutoCAD skills to successfully complete assigned job tasks.

XII. Special Projects/Activities

Each student prepares a work experience portfolio reflecting their assigned tasks, forms, accomplishments, and supervisor evaluation forms.

XIII. Textbooks and Teaching Aids

A. Required Textbook

None

B. Alternative Textbooks

None

C. Supplemental Print Materials

None

D. Supplemental Online Materials

None

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 3341: Built World Design History and Theory I**Semester Credit Hours:** 3 (3, 0)**I. Course Overview**

The course surveys the evolution of architecture, design and theory inclusive of the Ancient World period, Classical World period, Middle Ages, Renaissance, Baroque and design work up to 1800CE. The student explores design choices and critically analyzes existing designs based on historical information. This course prepares students to participate in designing in a broader context.

II. PMU Competencies

This course provides the students with experience in critical thinking, reasoning in examining design elements and styles in a global context. Students learn problem solving and creativity in making design decisions for clients. Written and graphic communication skills are enhanced through development of the notebook assignment. Through an examination of design in cultures worldwide, this course supports the Globally Connected PMU competency.

III. Detailed Course Description

The course covers environmental design from prehistoric work to 1800CE including Egypt, classical Greece and Rome, Early Medieval, Romanesque, Gothic, Asian and Islamic design, Renaissance, Baroque, Rococo and Neoclassicism, as well as New World environments. Students explore design choices and critically analyze existing designs. The course prepares the students to participate in designing in a broader context.

The progression of the theory and design of architectural and interior environments throughout history provides an appreciation for humankind's achievements and aids in understanding current design trends.

IV. Requirements Fulfilled

This course is required of all students majoring in interior design. It is taken in the first semester of third year.

V. Required Prerequisites

Successful completion of 50 credit hours.

VI. Learning Outcomes

Students in this course learn:

- To recognize architecture, styles, decorative elements and motifs, and design components specific to a historical period.
- To name period styles of architecture and design from the Ancient World, the Classical World, Middle Ages, Renaissance, Baroque, and up to 1800.
- To evaluate the stylistic development of architecture, styles, decorative elements and motifs, and design components as a reflection of changing influences in the social, cultural, political, religious and technological context.
- To employ knowledge gained from the course in sketchbook drawings and apply ancient style to modern spaces by implementing old with new.
- To value design differences that lead to global consciousness and appreciation for alternative points of view regarding cultural diversity.

CIDA Standards covered in this course: 4a-b; 7a; 9d; 10.

VII. Assessment Strategy

Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The course format will include:

- PowerPoint presentations that include illustrations to support lecture and discussions.
- Lectures
- Discussions
- Guest speaker/s (local and regional artisans)
- Video/CD presentations
- Field trips to museums and other locations

Classroom Hours (3 hours per week)

Class: 3

Studio: 0

IX. Topics to be Covered

- A. Prehistoric and early civilizations
- B. Egypt
- C. Aegean cultures and Greece
- D. Rome
- E. Early Medieval
- F. Romanesque
- G. Gothic
- H. Islamic and Near East
- I. Asia
- J. Early Renaissance- Italy
- K. High Renaissance- Italy
- L. Late Renaissance- Italy
- M. Baroque- Italy
- N. Baroque- Northern Europe

- O. Renaissance- France
- P. Baroque- France
- Q. Regency to Neoclassicism- France
- R. Empire and Provincial Styles- France
- S. Renaissance- Spain and Low Countries
- T. Tudor, Elizabethan and Jacobean- England
- U. Carolean, William and Mary and Queen Anne - England
- V. Georgian- England
- W. Colonial- American and Latin America
- X. Georgian- America
- Y. Federal Style- America

X. Laboratory Exercises

None

XI. Learning Technology Component

Illustrations for notebook assignments can be completed using available computer software.

XII. Special Projects/Activities

Students design a poster to implement ancient styles in modern spaces.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

Ching, Francis D.K, Jarzombek, Mark M., and Prakash, Vikramaditya, *A Global History of Architecture*. John Wiley & Sons, Inc., 2017.

ISBN: 9781118981337

B. Alternative Textbooks

Fazio, Michael, Moffett, Marian, and Wodehouse, Lawrence. *Buildings across Time: An Introduction to World Architecture*. 4th edition. McGraw-Hill; 2012. ISBN-13: 978-0073379296

Ballantyne, Andrew. *Key Buildings from Prehistory to the Present: Plans, Sections and Elevations*. Laurence King Publishing; 2012. ISBN-13: 978-1856698375

Pile, John F. and Gura, Judith, *History of Interior Design*, John Wiley & Sons, Inc., 2013.
ISBN: 9781118403518

C. Supplemental Print Materials

1. Sherrill, Whiton, and Abercrombie, Stanley. *Interior Design & Decoration*, 5th Edition. Prentice Hall, 2002. ISBN: 9780130307484
2. Cranz, Galen, *The Chair: Rethinking Culture, Body, and Design*, W. W. Norton and Company, 2000. ISBN: 9780393046557
3. Boger, Louise Ade, *The Complete Guide to Furniture Styles*. Waveland Press, Inc., 1997. ISBN: 9780881339390
4. Speltz, Alexander (1959). *The Styles of Ornament*: Dover Publications, Inc. 1959. ISBN: 9780486205571

5. Ireland, Jeannie (2018). *History of Interior Design*, 2nd Edition, Fairchild Publications, 2018
ISBN: 9781501319884

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

None

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 3342: Built World Design History and Theory II

Semester Credit Hours: 3 (3, 0)

I. Course Overview

The course continues a survey of architecture, design and theoretical characteristics of specific design styles in selected cultures from 1800CE to the present. The progression and evolution of the design of the built environment throughout history gives an appreciation for humankind's achievements and aids in understanding current design trends.

II. PMU Competencies

The course provides the students with experience in reasoning logically and creatively in making design decisions for clients. Written and graphic communication skills are enhanced through development of the notebook assignment. Critical thinking and problem solving, reasoned thought and research skills will be utilized. Through an examination of design in cultures worldwide, this course supports the Globally Connected PMU competency.

III. Detailed Course Description

The course covers environmental design from 1800 to the present including Industrial Revolution and Victorian design, Arts and Crafts and Craftsman styles, Eclecticism and various Revival phases, Art Nouveau, Art Deco, International Style, Modernism, Postmodernism and emerging design trends. Students explore design choices and critically analyze existing designs. The course prepares the students to participate in designing in a broader context.

IV. Requirements Fulfilled

This course is required of all students majoring in interior design. It is taken in the second semester of third year.

V. Required Prerequisites

COAD 3341: Design History and Theory I

VI. Learning Outcomes

Students in this course learn:

- To recognize architecture, styles, decorative elements and motifs, and design components specific to a historical period.
- To name period styles common in architecture and design work after 1800.
- To identify the stylistic development of architecture, styles, decorative elements and motifs, and design components as a reflection of changing influences in the social, cultural, political, religious and technological context.
- To apply knowledge gained from the course in sketchbook drawings and projects
- To value design differences that lead to global consciousness and appreciation for alternative points of view regarding cultural diversity.

CIDA Standards covered in this course: 4a-b; 7a; 9d; 10.

VII. Assessment Strategy

Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The course format will include:

- A. Power-point presentations that include illustrations included in the lectures and discussions.
- B. Lectures
- C. Discussions
- D. Guest speakers/artisans from local community and region
- E. Video/CD presentations
- F. Field trips to museums, etc.

Classroom Hours (3 hours per week)

Class: 3

Studio: 0

IX. Topics to be Covered

- A. Regency - England
- B. Revivals - Greek and Gothic
- C. Industrial Revolution
- D. Victorian - England and Victorian Furniture
- E. Victorian - United States and Vernacular Styles
- F. Early Skyscrapers
- G. Arts & Crafts - England
- H. Craftsman Style - United States and European Aesthetic Movements
- I. Art Nouveau - Europe
- J. Art Nouveau - The Vienna Secession & United States
- K. Beaux-Arts, US Eclecticism to Skyscrapers
- L. Eclecticism - United States
- M. Eclecticism - Europe
- N. Modernism - Frank Lloyd Wright and De Stijl

- O. International Style - Gropius and van der Rohe
- P. International Style - Le Corbusier and Aalto
- Q. Art Deco - Europe
- R. Art Deco - United States and Industrial Design & Residential Design
- S. Early Modernism - Europe
- T. Early Modernism - United States
- U. Modernism - Europe
- V. Modernism - United States
- W. Future and High Tech Design
- X. Postmodernism and Late Modernism
- Y. Individual Stylists, Deconstructionism and Other Trends

X. Laboratory Exercises

None

XI. Technology Component

Illustrations can be completed using available computer software.

XII. Special Projects/Activities

Special projects as assigned by the instructor.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

Ching, Francis D.K, Jarzombek, Mark M., and Prakash, Vikramaditya, *A Global History of Architecture*, John Wiley & Sons, Inc., 2017.

ISBN: 9781118981337

B. Alternative Textbooks

Pile, John F. and Gura, Judith, *History of Interior Design.*, John Wiley & Sons, Inc., 2013. ISBN: 9781118403518

Frampton, Kenneth. *Modern Architecture: A Critical History. 4th ed.* Thames and Hudson, London; 2007. ISBN-13: 978-0500203958

Le Corbusier. *Towards a New Architecture.* Dover Publications, New York; 1986. (Translated from the *Vers une architecture.* Reprint. Originally published: J. Rodker, London; 1931.) ISBN: 0486250237

Zevi, Bruno. *The Modern Language of Architecture.* De Capo Press; 1977. ISBN-13: 978-0306805974

Colquhoun, Alan. *Modern Architecture.* Oxford University Press, New York; 2002. ISBN-13: 978-0192842268

Weston, Richard. *Key Buildings of the 20th Century: Plans, Sections and Elevations (Second Edition).* W. W. Norton & Company; 2010. ISBN-13: 978-0393733112

C. Supplemental Print Materials

Sherrill, Whiton, and Abercrombie, Stanley. *Interior Design & Decoration, 5th Edition.* Prentice Hall, 2002. ISBN: 9780130307484

Cranz, Galen, *The Chair: Rethinking Culture, Body, and Design,* W. W. Norton and Company, 2000. ISBN: 9780393046557

Boger, Louise Ade, *The Complete Guide to Furniture Styles.* Waveland Press, Inc., 1997. ISBN:

9780881339390

Speltz, Alexander (1959). *The Styles of Ornament*: Dover Publications, Inc. 1959. ISB:

9780486205571

Sykes, A. Krista (Ed.). *The Architecture Reader: Essential Writings from Vitruvius to the Present*.

George Braziller, New York; 2007. ISBN-13: 978-0807615805

Mallgrave, Harry Francis and Contandriopoulos, Christina. *Architectural Theory, volume II, an anthology from 1871 – 2005*. Blackwell Publishing; 2011. ISBN 978-1-405102605

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

None

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 3353: Digital Design III - Building Information Modeling

Semester Credit Hours: 3 (1, 2)

Total (Lecture, Lab)

I. Course Overview

This course expands the student's professional skills in computer-aided design software through experience with building information modeling (BIM) using Revit Architecture, or any other standard of the industry, to build a virtual model and generate 2D and 3D views from the model.

II. PMU Competencies

PMU Competencies are reinforced throughout the course. Communication is a critical component of any studio-based class. Students are required to speak, write and present their work regularly. Critical thinking and problem solving are inherent to the design studio and are required for success. Some projects may require teamwork for a part or all of the assignment.

III. Detailed Course Description

The course continues students' architecture and interior design education and cultivates the attitudes, values, work habits and skills appropriate to the educational environment and professional practice. Students learn to build a virtual model through building information modeling using Revit Architecture. Using the model, floorplans, sections, 3D views and renderings as well as design specification schedules will be created.

IV. Requirements Fulfilled

This course is a required class that builds on knowledge learned in required courses. It is to be taken in the second semester of the third year.

V. Required Prerequisites

COAD 2252: Digital Design II-3D

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Build a complete BIM model using Revit Architecture, or other program.
- Develop various 2D views- plans, elevations, and sections from the model.
- Develop various 3D views- perspectives, and renderings from the model.
- Create schedules based on the model.
- Produce new families to be used in the model.
- Investigate integration and collaboration within multidisciplinary projects.

CIDA Standards covered in this course: 5c; 6g; 9d-f; 11b, d; 13f; 15h-j.

All learning outcomes will be measured using rubrics for each project assigned.

VII. Assessment Strategy

Major design submissions will receive a letter grade. The criteria to be used in grading will be explained in the project statement and grading rubric. It is very important that students understand the nature of the project, what is expected, and how to address the issues of each assignment before spending time on the project. Students should feel free to ask questions and discuss ideas that arise during introductions of projects.

Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique.

Classroom Hours (5 hours per week)

Class: 1

Studio: 4

IX. Topics to be Covered

Building a virtual model using Revit Architecture and adding

- A. Walls, windows, doors
- B. Components
- C. Custom-created families
- D. Dimensions
- E. Printing
- F. Materials
- G. 3D views and rendering
- H. Sections, elevations, details
- I. Schedules
- J. Stairs
- K. Roof and rooms
- L. Collaboration with built environment disciplines

X. Laboratory Exercises

None

XI. Technology Component

This course relies entirely on technology while using the computer and computer program to create the virtual model. Students will find information on the Internet to supplement topics covered in lectures.

XII. Special Projects/Activities

The following activities will serve as a skeletal reference and should be supplemented by the individual instructor.

- Project 1: Walls, windows doors
- Project 2: Components
- Project 3: Families
- Project 4: Dimensions
- Project 5: Printing
- Project 6: Materials
- Project 7: 3D views and rendering
- Project 8: Sections, elevations, details
- Project 9: Schedules
- Project 10: Stairs
- Project 11: Roof and rooms
- Final Project- compilation of all topics covered in class

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

1. Kirby, Lance, Krygiel, Eddy, and Kim, Marcus (2017). *Mastering Autodesk Revit 2018*. Sybex, 2017. ISBN: 9781119386728 (OR most recent based on newest program release)
2. Wing, Eric. (2016) *Autodesk Revit 2017 for Architecture: No Experience Required*, John Wiley & Sons, 2017. ISBN: 9781119243311 (OR most recent based on newest program release)

B. Alternative Textbooks

None.

C. Supplemental Print Materials

Journals and magazines:

- *Journal of Building Information Modeling*
- *Interiors*
- *Architectural Digest*

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

- www.Revitcity.com
- AEC Magazine- aec.com

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: IDES 3411: Interior Design V - Office Design Studio

Semester Credit Hours: 4 (1, 3)

Total (Lecture, Studio)

I. Course Overview

This course focuses on contemporary approaches to office design projects. In addition to refining students design skills for non-residential projects, the studio emphasizes research and programming methods. Selection and specification of office system products, finishes, and design of custom mill-work balance practical aspects of practice with a design solution that meets client requirements for corporate branding and budget.

II. PMU Competencies

Communication through the means of drawing, digital modeling, and preparation of visual and verbal presentations is the dominant student competency developed by this course. Critical thinking and problem solving skills are developed through space planning and design. Students demonstrate an active, analytical approach to creation of interior projects. Although the primary output is by individual students, teamwork is required in small groups through group research and programming as well as peer critique. Students develop technology skills as they use CAD drafting, 3D modeling, image editing, page layout, e-mail, and the Internet to complete assignments.

III. Detailed Course Description

Topics covered in this course include research, programming, specification, and design of medium scale office projects. Students incorporate digital representation with specific product knowledge. Designs mix custom elements with industry-standard systems furniture. The course also emphasizes space planning and volumetric study as it relates to the human body and ergonomics in the work environment.

IV. Requirements Fulfilled

This course is required of all students majoring in interior design. It is taken in the first semester of third year.

V. Required Prerequisites

IDES 2312: Interior Design IV

COAD 2252: Digital Design II

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Utilize programming procedures for office environments.
- Apply the design process in the development of an office design project.
- Demonstrate space planning skills as related to office design.
- Design a space within a specified budget/cost limit and produce written specifications and budget for that space.
- Use 2D digital drafting and 3D digital modeling skills.
- Prepare selection and specifications of integrated lighting systems, interior materials, finishes, and furnishings.

CIDA Standards covered by this course: 4a-c; 6c, g, h; 7a-f; 8a-k; 9a-f; 10b-f; 11a-d; 12a-l; 13a-f; 15g-j; 16a-e.

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments and evaluation of students sketch books. Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations
- Final pass/fail in class drawing exam

VIII. Course Format

The course is primarily a studio that incorporates a series of lectures, discussions, and product presentations. The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique. Students also verbally present their work for critique by peers and a jury.

Classroom Hours (7 hours per week)

Class: 1

Studio: 6

IX. Topics to be Covered

- A. Research and programming for office projects
- B. Developing diagrams: adjacency, zoning, bubble, blocking
- C. Developing floor plans and functional space plans
- D. Building a digital model
- E. Understanding office building construction types
- F. Lighting design for office design
- G. Furniture selection and specification
- H. Specifying all elements and preparing a budget for office spaces that meet the given cost allowance.
- I. Material and finish selection
- J. Human scale, dimension, and ergonomics
- K. Design of custom millwork or construction items
- L. Preparing verbal and visual presentations
- M. Field trips – to be determined by professor-of-record.

X. Laboratory Exercises

The previous list of topics is integrated in a semester-long studio project to design a medium size office including systems furniture.

XI. Learning Technology Component

Students enhance their skills in AutoCAD, 3Ds Max, Photoshop, InDesign, PowerPoint and use of the Internet.

XII. Special Projects/Activities

This course requires that students integrate digital technology skills while designing an office project. The fundamentals of office design techniques and philosophies provide the foundation for partial specification of products and design of custom items. In addition to digital techniques, students are required to maintain a sketchbook. Process sketches are scanned and integrated into the final presentation. Final presentations include the following components:

- A. Written project requirements, research and programming document
- B. Sketches of preliminary adjacency, zoning, bubble, and blocking diagrams
- C. Sketches of preliminary design ideas
- D. Furniture plan(s)
- E. Ceiling plan(s) with lighting solutions
- F. Detail and specification plans as needed
- G. Budget and costing
- H. Three-dimensional digital models

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

1. Rayfield, Julie K., *The Office Interior Design Guide: An Introduction for Facility and Design Professionals*, John Wiley and Sons, Inc., 1997 ISBN: 9780471181385
2. DeChiara, Josephy, Panero, Julius, and Zelnik, Martin. *Time-Saver Standards for Interior Design and Space Planning*, McGraw-Hill, 2001. ISBN: 9780071346160

B. Alternative Textbooks

None

C. Supplemental Print Materials

Instructors provide reference handouts for programming techniques and product information applicable to the selected project.

Sources include the following.

1. Webber, Scott, *Programming: A Problem Solving Approach for Users of Interior Spaces*. Thomson Learning, 1998. ISBN: 0873936744
2. Karlen, Mark and Fleming, Rob, *Space Planning Basics*, 4th edition, John Wiley & Sons., 2016 ISBN: 9781118882009

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Websites that are appropriate for the topics they teach and furniture manufacturers.

- Knoll, Inc. - www.knoll.com
- Herman Miller - www.hermanmiller.com
- Steelcase - www.steelcase.com

2010 ADA Standards for Accessible Design- www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards.pdf

International Building Code 2018 (OR most recent edition)

<http://shop.iccsafe.org/2018-international-building-coder.html>

Saudi Arabia Building Code

<http://www.sbc.gov.sa/books.htm>

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: IDES 3412: Interior Design VI – Hospitality Design Studio

Semester Credit Hours: 4 (1, 3)

Total (Lecture, Studio)

I. Course Overview

In this course, students develop a restaurant and hotel project that applies research and specific knowledge related to the hospitality industry. The course builds the student's ability to apply acquired interior design knowledge by adding specialized information and skills appropriate in the hospitality industry.

II. PMU Competencies

PMU Competencies are reinforced throughout the course. Communication is a critical component of any studio-based class. Students are required to speak, write and present their work regularly. Critical thinking and problem solving are inherent to the design studio and are required for success. Some parts of the project require teamwork. Professional leadership opportunities are exhibited through project supervision and presentation.

III. Detailed Course Description

This course exposes the students to hospitality design by utilizing skills and knowledge obtained in all previous Interior Design courses. Project experience includes the following: working experience on a phased project, adjacency needs, spatial requirements, code restrictions, specification for fixtures, furnishing, and equipment, budget, aesthetic considerations, oral and visual presentation methods, contract documents requirements, integration of art and accessories, materials performance, and custom lighting and millwork.

IV. Requirements Filled

This course is required of all students majoring in Interior Design. It is taken in the second semester of third year.

V. Required Prerequisites

IDES 3411- Interior Design V

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Utilize programming procedures for hospitality environments.
- Apply the design process in the development of hospitality design projects.
- Identify and apply code restrictions in hospitality settings.
- Select and write specifications for furniture, finishes, fixtures, equipment, materials, art, and accessories for appropriate use in hospitality situations.
- Formulate specifications and budget/cost limit for all elements of the standard room that meet a client specified cost allowance for that space.
- Use and document custom lighting and millwork in hospitality environments.
- Recognize and formulate contract documents required for implementation.

CIDA Standards covered by this course: 4a-c; 6c, g, h; 7a-f; 8a-k; 9a-f; 10b-f; 11a-d; 12a-l; 13a-f; 15g-j; 16a-e.

VII. Assessment Strategy

Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations
- Final pass/fail in class drawing exam

VIII. Course Format

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique. Students also verbally present their work for critique by peers and a jury.

Classroom Hours (7 hours per week)

Class: 1

Studio: 6

IX. Topics to be Covered

A. Lodging Facilities

1. Overview
2. Types of lodging facilities
3. Planning and design requirements, budget, and costing
4. Design applications: lobby, function and meeting spaces, guest rooms, food and beverage facilities

B. Food and beverage facilities

1. Overview
2. Types of food and beverage facilities
3. Planning and design requirements: exterior, space allocation, entry and waiting, dining, public restrooms, kitchen and back of facility

C. Field trips – to be determined by professor-of-record.

X. Laboratory Exercises

None

XI. Learning Technology Component

Students use their AutoCAD skills to complete their project documentation. Students use the Internet to broaden their product knowledge for appropriate selection and specification of fixtures, furnishing, and equipment.

XII. Special Projects/Activities

Students develop solutions for a hospitality project. The project includes a dining facility and a portion of the lodging in a small boutique hotel in a pre-existing structure. Client and program are determined by the instructor.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

Penner, Richard, Adams, Lawrence and Robson, Stephani K.A., *Hotel Design, Planning, and Development*, 2nd Edition, W. W. Norton & Company, 2012.

ISBN: 9780393733853

B. Alternative Textbooks

1. Piotrowski, Christine, *Designing Commercial Interiors*, 3rd Edition, John Wiley and Sons, Inc., 2016. ISBN: 9781118882085

2. Neufert, Ernst and Neufert, Peter, *Neufert Architects' Data*, 4th Edition, Wiley-Blackwell, 2012. ISBN: 9781405192538

C. Supplemental Print Materials

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

2010 ADA Standards for Accessible Design-

www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards.pdf

International Building Code 2018 (OR most recent edition)

<http://shop.iccsafe.org/2018-international-building-coder.html>

Saudi Arabia Building Code

<http://www.sbc.gov.sa/books.htm>

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: IDES 4112: Interior Design Capstone Project Research

Semester Credit Hours: 1 (1, 0)

I. Course Overview

This first part of the capstone course in the Assessment Capstone Series is a research class that addresses the creative, professional, technical, and historical issues involved in a problem chosen and defined by the student. This course culminates in the formal presentation of a completed design program in preparation for the design segment of the capstone classes.

II. PMU Competencies

Communication (reading, writing, listening, and speaking in English) is the dominant student competency developed by this course. The student develops critical thinking and problem solving skills through reading, listening, and speaking activities that require them to demonstrate an active, analytical approach to material. The broad use of technology skills will be required for the successful completion of the course. Leadership skills will be exhibited through the individual student's ability to create and complete the capstone project.

III. Detailed Course Description

The capstone course of the Interior Design degree provides the opportunity to design a project that will be the focal point of the student's portfolio. This course provides the opportunity for students to exhibit the competency and knowledge obtained in all previous interior design courses. Past course work is called upon to create and produce the appropriate documentation for a project selected by the student. Students prepare their final portfolio with this project serving as the key item. It represents the type of design specialization the student will seek upon graduation.

IV. Requirements Fulfilled

This is a required course taken in the first semester of the fourth year.

V. Required Prerequisites

IDES 3412: Interior Design Studio VI – Hospitality Design Studio

VI. Learning Outcomes

Students in this course learn to:

- Integrate and apply concepts from previous course work.
- Research the chosen interior design problem independently and through consultation with faculty and advisors from the professional community.
- Utilize programming procedures.
- Apply the design process in the development of a project.
- Formulate a complete program document for the problem which satisfies aesthetic and functional requirements while adhering to legal codes and observing consideration of public and individual welfare.
- Present the program formally to an audience of faculty and student peers.

CIDA Standards covered: 4; 6g; 7; 8; 9a-d; 10; 12e-f; 13a-c; 14; 15a-c, e-g, i; 16

VII. Assessment Strategy

Assessment will be based on progress through the research and programming phases of the chosen project. Formal presentation of the complete program will be evaluated by faculty.

VIII. Course Format

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique. Students also verbally present their work for critique by peers and a jury.

Classroom Hours (1 hour per week)

Class: 1

Studio: 0

IX. Topics to be Covered

1. Topics are determined by the individual student as they select the type of project, location of interior space, and develop their solution.
2. Field trips – to be determined by professor-of-record.

X. Laboratory Exercises

There are no specific laboratory assignments for this course.

XI. Learning Technology Component

Students are expected to exhibit competence in their use of technology for the creation of their construction documents and preparation of program brief, final presentation materials and their portfolio.

XII. Special Projects/Activities

- A. A printed book containing all drawings, documents, photos, and written material involved in the project. The book contains a table of contents. It includes the following written material that is appropriate to the project:
 1. Historical background
 2. Existing conditions
 3. Client requirements
 4. Design program- completed and covering all aspects of the project
 5. Case studies
- B. Presentation of research and design program submitted as electronic document.
- C. Copy of chosen floorplan submitted as electronic document.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

Each student will have differing text needs determined by the focus of their final project.

B. Alternative Textbooks

None

C. Supplemental Print Materials

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

2010 ADA Standards for Accessible Design- www.ada.gov/regs2010/2010ADAStandards/2010ADASTandards.pdf

International Building Code 2018 (OR most recent edition)

<http://shop.iccsafe.org/2018-international-building-coder.html>

Saudi Arabia Building Code

<http://www.sbc.gov.sa/books.htm>

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: IDES 4314: Advanced Design Methods

Semester Credit Hours: 3 (1, 2)

Total (Lecture, Studio)

I. Course Overview

This course expands student professional skills in various media used for design ideation and communication. Media could include, but are not limited to, Photoshop, Rhino, Microstation, 3D printing applications, fabrication techniques, video and internet communications as well as programs/methods that may be developed in the future.

II. PMU Competencies

PMU Competencies are reinforced throughout the course. Communication is a critical component of any studio-based class. Students are required to speak, create and present their work regularly. Critical thinking and problem solving are inherent to this graphic and rendering based studio course and are required to achieve the professional skills. Some projects will require teamwork for the assignment.

III. Detailed Course Description

The Advanced Design Methods class focuses on existing, new and developing methods for communicating design solutions. Creative project assignments will allow students to apply and achieve professional skills in innovative programs. The course cultivates the attitudes, values, work habits and skills appropriate to the educational environment and professional practice.

IV. Requirements Filled

This course is an elective for students majoring in interior design. It is available at the third level and above.

V. Required Prerequisites

IDES 3412: Interior Design Studio VI – Hospitality Design Studio

VI. Learning Outcomes

The major goal of this course is to enable students to apply advanced techniques, computer programs and other methods to the presentation of visual and /or virtual solutions to interior design problems.

At the conclusion of this course, students will:

- Create projects that demonstrate mastery of the technique learned
- Manipulate computer programs and output interfaces to produce presentation products
- Produce projects that show innovation and creativity with the given media.

VII. Assessment Strategy

Major design submissions will receive a letter grade. The criteria to be used in grading will be explained in the project statement. Understanding the nature of the project is important. Students should feel free to ask questions and discuss ideas that arise during the introduction of project requirements and expectations. All projects will have a rubric for grading.

Every project must be complete and turned in on time. Late projects will be penalized by as much as one letter grade per day. The exact penalty for incomplete work will depend on the discretion of the studio instructor.

To pass the course, the students must demonstrate competency in understanding and application of any techniques and will be demonstrated through projects presented through course assignments.

VIII. Course Format

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique. Students also verbally present their work for critique by peers and a jury.

Classroom Hours (5 hours per week)

Class: 1

Studio: 4

IX. Topics to be Covered

The major topics to be considered- but not limited to or all covered- are:

- A. Photoshop rendering techniques
- B. 3D printing design techniques
- C. Fabrication techniques
- D. Video or internet presentations
- E. Application development
- F. Professional presentation techniques/ composition
- G. New and innovative fabrication/presentation methods

X. Laboratory Exercises

Studio based projects

XI. Learning Technology Component

There is specific requirement for extensive use of computer technology for this course.

XII. Textbooks and Teaching Aids**A. Required Textbook**

As available and/or needed by the instructor depending on topic covered.

B. Alternative Textbooks

As available and/or needed by the instructor

C. Supplemental Online Materials

As needed or specified by the instructor.

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: IDES 4332: Custom Furniture Design

Semester Credit Hours: 3 (3, 0)

I. Course Overview

The course covers the basic skills of concept development, three-dimensional fabrication, and presentation techniques appropriate to furniture design and object making for application in the interior environment.

II. PMU Competencies

The course increases professional competence in the area of materials and their application, enhances ability to work as a team and enhances communication skills (written, graphic, and oral). Technological competence is supported through product research using the Internet. Leadership skills are developed through group presentations of product research, development, and models.

III. Detailed Course Description

This exploration of the appropriate use of materials and construction methods for furniture and other objects concentrates on the functional aspects of finishes and materials and how they are communicated in design projects including: machine processes, material manipulation, computer-based studies of furniture and object designs, and developing, documenting and prototyping of design ideas.

IV. Requirements Filled

This course is an elective for students majoring in interior design.

V. Required Prerequisites

IDES 3412: Interior Design Studio VI – Hospitality Design Studio

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Recognize the functional aspects of furniture and designed-object materials.
- Explain the machine processes for construction of furniture and designed-objects.
- Analyze the design process for developing and prototyping of design ideas.
- Describe and compare the methods of material manipulation.
- Compare the relationship of design history to the creation of new products for interior design.
- Draw complete technical drawings necessary to produce custom furniture.

VII. Assessment Strategy

Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique. Classes will include lecture, discussion, presentation and field trips to observe manufacturing processes and applications.

Classroom Hours (3 hours per week)

Class: 3

Studio: 0

IX. Topics to be Covered

- A. Furniture and object design methodologies
- B. Typical materials for furniture and objects
 1. Wood
 - a. Basic properties
 - b. Basic joinery
 - c. Basic fabrication techniques
 - d. Finishing
 2. Metals
 - a. Basic properties
 - b. Basic joinery
 - c. Basic fabrication techniques
 - d. Finishing
 3. Plastics
 - a. Basic properties
 - b. Basic joinery
 - c. Basic fabrication techniques
 - d. Finishing
 4. Other
 - a. Glass
 - b. Stone
 - c. Fabric
 - d. New materials

- C. Production methodologies
 - 1. Machine processes
 - 2. Applications
- D. Design development for three-dimensional objects
- E. Production drawings
- F. Prototype creation and evolution
- G. Field trips to be determined by professor of record

X. Laboratory Exercises

None

XI. Learning Technology Component

Information technology skills are developed through a variety of tools. The Internet, Microsoft Office, AutoCAD, 3DS Max, and Photoshop are required to complete assignments.

XII. Special Projects/Activities

Students will complete a variety of projects that include: an evaluation of the materials, construction, and manufacturing processes of a classic 20th century object, and the creation of construction documentation and scaled prototypes.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

Postell, Jim, *Furniture Design*, 2nd Edition, John Wiley & Sons, Inc. 2012.
ISBN: 9781118090787

B. Alternative Textbooks

1. Natale, Christopher. *Furniture Design and Construction for the Interior Designer*; Fairchild Books, 2009. ISBN: 9781563675652
2. Jurgen-Sembach, Klaus, *Furniture Design*, Taschen, 2002. ISBN: 9783822821404
3. Fine Woodworking, *Practical Design Solutions and Strategies: Key Advice for Sound Construction from Fine Woodworking (Essentials of Woodworking)*, Taunton Press, 2000. ISBN: 9781561583447
4. Ashby, Michael, *Materials and Design: The Art and Science of Material Selection in Product Design*, 3rd Edition, Butterworth-Heinemann, 2014. ISBN: 9780080982052
5. Faud-Luke, Alastair. (2006). *Eco Design, the Sourcebook*, Chronicle Books. 2006. ISBN: 9780811855327

C. Supplemental Print Materials

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

None

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: COAD 4333: History of Islamic Design**Semester Credit Hours: 3 (3, 0)****I. Course Overview**

This course examines the architecture, interior design and decorative arts of the Islamic world from pre-Islamic time through today. It studies the main characteristic of the Islamic style, focusing on the form and function of architecture, interior design and decorative arts as well as historical and cultural backgrounds.

II. PMU Competencies

Technology skills are introduced in this course through PowerPoint presentations, slides show, word-processing, as well as through Internet-based materials and research engines. Critical thinking is achieved through an assignment that requires students to use their imagination and learning outcomes. Teamwork is emphasized through group presentation in their field of interest. Communication is supported by reading, writing and presenting in English. Students may be engaged in research, teaming and utilization of modern technology to document the Islamic decorative and architectural heritage and help save it from demolishing.

III. Detailed Course Description

The history of Islamic design course is an introduction to Islamic design and decorative arts. The first section of the course deals with the period of the formation of Islamic design from the advent of Islam to the end of the Abbasid period. The second section consists of a survey of the design and decorative arts of major dynasties of the Islamic world. The last section of the course will introduce the traditional and contemporary Saudi Arabian architecture and decorative arts.

IV. Requirements Fulfilled

This course is an elective course, though it is highly recommended by all students majoring in architecture or interior design. It can be taken anytime following the end of the third year.

V. Required Prerequisites

COAD 3342: Built World Design History and Theory II

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Indicate an awareness of diversity and the main achievements of Islamic architecture, decorative arts and design from the beginnings of Islam to the present day.
- Examine the historic development of architecture, design and decorative arts in the Islamic world and identify the stylistic characteristics of the associated periods.
- Plan and utilize Islamic patterns and motifs in design solutions.
- Examine the process to document and preserve heritage structures.
- State the main factors that influenced the architecture of Saudi Arabia and Gulf countries.
- Recognize the architectural and interior design elements that were a result of European influences on Islamic architecture, interior design and decoration.

VII. Assessment Strategy

Course grading will be based on class participation, assignments, quizzes, and exams. Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students' work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The class has a traditional lecture format. Students will also participate in lecturing by presenting an assigned topic. Students are expected to read before attending the class. All readings are required and should be read before each weekly meeting of the course. All articles will be easy to access online or on reserve at the PMU photocopy center.

Class Hours (3 hours per week)

Class: 3

Studio: 0

IX. Topics to Be Covered

- A. What are Islamic architecture, design and decorative arts?
- B. Pre-Islamic design influences
- C. Other non-Arab influences
 - Byzantine art
 - Sasanian art
- D. Early Islamic architecture, design and decorative arts
- E. The formation of Islamic architecture, design and decorative arts
- F. Main characteristics of Islamic architecture, design and decorative arts
 - Umayyad
 - Abbasid
 - Iran, Central Asia, and Spain
- G. Main Islamic architecture, design and decorative arts characteristics; example of various type of buildings
 - Fatimid
 - Seljuks
 - Ayyubid
 - Mamluks
- H. The Ottoman Empire: Turkey and Egypt
- I. Art and design in India under the Mughals
- J. European influences on Islamic architecture, design and decorative arts: mid-19th century: Egypt, Turkey and Iran
- K. The architecture of Saudi Arabia and Gulf countries
 - Traditional
 - Contemporary
- L. Field trips-to be determined by professor-of-record.

XI. Laboratory Exercises

None

XI. Learning Technology Component

Students will use their AutoCAD and 3Ds Max skills to present their project. Students may improve their photography skills since they may be required to take their own photos to document the decorative arts they have seen in field trips. Students are required to use their technology skills to access online materials.

XII. Special Project /Activities

Special projects as assigned by the instructor.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbooks

1. Ettinghausen, Richard, Grabar, Oleg, and Jenkins-Madina, Marilyn, *The Art and Architecture of Islam, 650-1250*, 2nd Edition, The Yale University Press, 2003. ISBN: 9780300088694
2. Blair, Sheila S. and Bloom, Jonathan M. *The Art and Architecture of Islam 1250-1800*. The Yale University Press, 1996. ISBN: 9780300064650

B. Alternative Textbooks

1. Creswell, K.A.C., *Early Muslim Architecture I, Umayyads, Early 'Abbasids and Tulunids* Oxford, 1940,
2. Creswell, K.A.C. *Early Muslim Architecture II, 'Abbasids, Umayyads of Cordova, Aghlabids, Tulunids, and Samanids, A.D. 751-905*, Oxford, 1940.
3. Creswell, K.A.C., *The Muslim Architecture of Egypt I, Ikhshids and Fatimids, A.D. 939-1171*, Oxford, 1952.
4. Creswell, K.A.C., *The Muslim Architecture of Egypt II, Ayyubids and Early BahriteMamluks, A.D. 1171-1326*, Oxford, 1959.
5. Encyclopaedia of Islam
6. O'kane, Bernard, *The Treasures of Islamic Art in the Museums of Cairo*, American University in Cairo Press, 2006.

C. Supplemental Print Material

- *Muqarnas* Journal Articles
- *ArsOrientalis* Journal Articles

D. Supplemental Online Material

www.archnet.org

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: IDES 4337: Sustainable Design**Semester Credit Hours: 3 (3, 0)****I. Course Overview**

The course will expand the student's awareness of the relationship between ecology and the built environment. It exposes the student to sustainable design utilizing skills and knowledge obtained in all previous IDES courses.

II. PMU Competencies

Continued development of PMU Competencies is supported through traditional classroom activities. Communication is supported through reading, writing, listening, and speaking in English. Critical thinking and problem solving are supported through reading, listening, and speaking activities that require students to demonstrate an active, analytical approach to material. Teamwork is emphasized through small group activities in the classroom. Information technology skills are developed as students use word-processing and the Internet to complete assignments. Through the consideration of environmental issues, this course helps build the PMU competency "Globally Connected."

III. Detailed Course Description

The course provides an exploration of the relationships of culture, design, and technology as they relate to the built and natural environments. Areas of study include environmental history, societal development, consumerism, and ethical behavior in a global setting.

IV. Requirements Fulfilled

This course is required of all students majoring in interior design. It is taken in the first semester of fourth year.

V. Required Prerequisites

IDES 3321: Interior Building Systems

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Discuss environmental history.
- Analyze the effects of consumerism on the environment.
- Apply sustainable practices in everyday life.
- Evaluate contemporary products and solutions to environmental design issues in the built environment.
- Recognize the importance of safe indoor air quality
- Specify systems and products that produce nontoxic and sustainable interior environments.

CIDA Standards covered by this course: 4c, 14b-g, 15 f & j.

VII. Assessment Strategy

Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The class has a traditional lecture format. Students are expected to complete reading assignments prior to class.

Classroom Hours (3 hours per week)

Class: 3

Studio: 0

IX. Topics to be Covered

- A. Global Sustainability: The macro perspective (the need, challenges, definitions)
- B. Environmentally sustainable interior design
- C. Indoor air quality
- D. HVAC- heating and cooling
- E. Ventilation
- F. Sustainable water use
- G. Sustainable energy - solar
- H. Sustainable energy - wind and geothermal
- I. Sustainable energy - hydropower and biofuels
- J. Environmentally responsible lighting - lamps and daylighting
- K. Environmentally responsible lighting - controls and distribution
- L. Environmentally responsible lighting - calculations
- M. Material selection - general
- N. Material selection
- O. Furnishings selection
- P. Noise pollution
- Q. Site evaluation
- R. Certification programs
- S. Rating systems
- T. LEED for commercial interiors
- U. Field trips – to be determined by professor-of-record.

X. Laboratory Exercises

None.

XII. Learning Technology Component

Students are required to use their acquired skills, including Internet use, in researching an assigned topic related to the course.

XIII. Special Projects/Activities

Special projects as assigned by instructor.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible

A. Required Textbook

1. Jones, Louise, *Environmentally Responsible Design: Green and Sustainable Design for Interior Designers*, John Wiley & Sons, Inc., 2008. ISBN: 9780471761310
2. McDonough, William and Braungart, Michael. *Cradle-To-Cradle: Remaking the Way We Make Things*, North Point Press, 2002. ISBN: 9780865475878

B. Alternative Textbooks

1. Mendler, Sandra F. and Odell, William (2005 & 2019 coming out). *The HOK Guidebook to Sustainable Design*, John Wiley & Sons, Inc., 2005 and 2019. ISBN: 9780471696131 or 9780470635063(2019)
2. Roaf, Sue, *EcoHouse: A Design Guide*, 4th Edition. Routledge, 2013. ISBN: 9780415526777

C. Supplemental Print Materials

- *Building Design & Construction*
- *Environmental Building News*
- *Green @ Work*
- *EnvironDesign Journal*

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Saudi Energy Conservation Code (SBC 601-602) https://www.sbc.gov.sa/En/Feedback/Pages/SBC_601.aspx

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: IDES 4343: Professional Practices for Interior Designers

Semester Credit Hours: 3 (3, 0)

I. Course Overview

This course covers standard practices and procedures of the interior design profession. Students gain knowledge of the history of the profession, ethics, business structures, organization, management, legal issues, fee structures, and promotional activities.

II. PMU Competencies

Students learn professional communication through writing resumes and letters of application for jobs. They gain technological competence through Internet searches of interior design and architecture firms, and through the use of e-mail and word processing. The course builds critical thinking and problem-solving abilities through project management exercises. Students gain professional competence as they learn the language, procedures, and traditions of practice.

III. Detailed Course Description

Contemporary practice of interior design is a relatively young profession. This course defines the profession and explains its history. The course includes topics of professional conduct and proper business procedures. It explains allied professions and advisors, differences in business formations, management strategies, job descriptions, legal responsibilities, financial management, preparation of design contracts, marketing, relationships with trade sources, contract administration, and career options.

IV. Requirements Filled

This course is required of all students majoring in interior design. It is taken in the second semester of fourth year.

V. Required Prerequisites

IDES 4112- Interior Design Capstone Research

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Describe the history of the profession of interior design.
- Recognize professional business structures and management techniques both internationally and locally.
- Define legal issues specific to the profession.
- Contrast the differences between marketing, selling, and promotion.
- Engage with trade sources.
- Identify the basics of contract documents and contract administration including devising fee structure and design contracts.
- Know career options for women in Saudi Arabia, with emphasis on innovative methods of practice including how to establish and run a business from the home.

CIDA Standards covered by this course: 6; 13d; 15j.

VII. Assessment Strategy

Assessment for this course consists of examinations and several projects. Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The course is primarily a lecture format that incorporates a series of in class discussion sessions.

Attendance is extremely important for learning the material presented. Each student will be allowed

three excused absences before her grade is affected.

Web supplement: The course homepage (using the university's Web tool, WebCT or BLACKBOARD) includes the following.

- Course syllabus
- Course assignments
- Course e-mail utility
- Course discussion list
- Student course grades

Classroom Hours (3 hours per week)

Class: 3

Studio: 0

IX. Topics to be Covered

- A. The profession
- B. Ethics
- C. Advice and counsel
- D. Business formations
- E. Business organization and management
- F. Legal responsibilities
- G. Determining design fees
- H. Preparing design contracts
- I. Product pricing considerations
- J. Marketing and promoting interior design practice
- K. Project management techniques
- L. Working with trade sources
- M. Contract documents and specifications
- N. Contract administration
- O. Career options
- P. Field trips – to be determined by professor-of-record.

X. Laboratory Exercises

The previous list of topics is presented through lecture. In addition to lectures, the information is reinforced through in-class exercises related to project management and fee calculations. Group discussions compare and contrast international and local business procedures and practices.

XIV. Learning Technology Component

Students enhance their Internet skills through online research of major design firms. Students use word processing, Photoshop, and InDesign to create personal marketing and job search materials.

XII. Special Projects/Activities

Students create an application letter, resume, and portfolio.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

Piotrowski, Christine, *Professional Practices for Interior Designers*, 5th Edition, John Wiley & Sons, Inc., 2013 ISBN: 9781118090794.

B. Alternative Textbooks

None

C. Supplemental Print Materials

Instructors provide handouts for business practices specific to local customs and traditions including resumes, cover letters, business contracts, and descriptions of business formations.

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Websites appropriate for the topics they teach, including local and regional design and architectural firms, and professional organizations.

XIV. **Faculty Requirements**

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: IDES 4344: Interior Design Study Tour

Semester Credit Hours: 3 (1, 80)

Total (Lecture, Travel)

I. **Course Overview**

This course examines architecture, interior design and decorative arts of the world through tours to historic places both national and international. It studies design and culture on location and explores historical and cultural backgrounds.

II. **PMU Competencies**

Leadership and professional competence are reinforced through field trips since PMU interior design students will represent PMU in the visited area as researchers. Technology skills are introduced in this course through power point presentations, slides show, word-processing and the internet to access online materials and research engines. Critical thinking will be achieved through an assignment that requires students to use their imagination and learning outcomes. Teamwork is emphasized through group presentation in their field of interest. Communication is supported reading, writing and presenting in English. Students will be engaged in research, teaming and utilization modern technology to document their travel and architecture and design engagement. Visits to design and historic sites in other countries helps build the PMU competency "Globally Connected."

III. **Detailed Course Description**

This class involves hands-on learning through travel to historic locations and experiencing involvement with the cultures that developed the designs, architecture and interiors there. Students will document their experiences through photography and sketching and will present on what they learned and experienced when they return.

IV. **Requirements Filled**

This course is an elective course, though it is highly recommended by all students majoring in interior design. It can be taken anytime following the end of the third year.

V. Required Prerequisites

COAD 3342: Design History and Theory II
 IDES 3412: Interior Design Studio VI – Hospitality Design Studio

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Describe the culture and history of the travel location.
- Examine the historic development of interior design, decorative arts, and design in the travel location and identify these developments.
- Record, document, and present on the travel location.
- Recognize the architectural and interior design elements that were a result of historic influences on travel location.

VII. Assessment Strategy

Course grading will be based on class participation and assignments. Grades are generated by project submission, in-class participation, and presentation. Students' work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation includes oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Presentations

VIII. Course Format

The class has a minimal lecture format to prepare students for travel and research travel location. Most of the time will be spent on location exploring historic sites. Fees may be associated with this course to cover the costs of travel.

Class Hours (3 hours per week)

Class: 1

Studio/Travel: 80

IX. Topic to Be Covered

Field trips-to be determined by professor-of-record.

X. Laboratory Exercises

None

XI. Learning Technology Component

Students will improve their photography skills since they will be required to take their own photos to document the decorative arts they have seen in field trips. Students are required to use their technology skills to access online materials.

XII. Special Project /Activities

Special projects as assigned by the instructor.

XIII. Textbooks and Teaching Aids:

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbooks

Will vary according to travel location

B. Supplemental Print Material

Will vary according to travel location

C. Supplemental Online Material

Will vary according to travel location

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities. Faculty will also chaperone and guide students during their travel.

Course Title: COAD 4351: Built World Photography

Semester Credit Hours: 3 (2, 1)

Total (Lecture, Studio)

I. Course Overview

This course is an introduction to photography and will cover the fundamentals of photography and photo appreciation. Students will need a 35 mm single-lens reflex (SLR) camera with manual. This course provides the student with an understanding of the basic technical and creative processes associated with photography. In addition, instruction is given with broad reference to the history of photography, photographic theory, and contemporary photographic practice.

II. PMU Competencies

Communication through the visual means of photography is the dominant student competency developed by this course. Critical thinking and problem solving are developed through understanding photographic composition. Students demonstrate this understanding through an active, analytical approach to creation of each individual photograph and the development of a portfolio. Although the primary output is by individual students, teamwork is required in small groups through peer critique and learning exercises. Information technology skills are developed as students use cameras, image editing, page layout, e-mail, and the Internet to complete assignments.

III. Detailed Course Description

This course is an elective for Interior Design students. Topics covered in this course include parts of the camera; film; lenses; settings; shutter control including pan action, blurred action, and stopped action; aperture control; depth of field including aperture and f/stops; motion control; shutter speeds; black and white photography; color photography; and photographic composition. Students study the history of photography, photographic theory, and contemporary photographic practice. Students will also learn how to use computer software such as Photoshop to manipulate and adapt photographs and develop portfolios.

IV. Requirements Fulfilled

This course is an elective course.

V. Required Prerequisites

IDES 3412: Interior Design Studio VI – Hospitality Design Studio

VI. Learning Outcomes

At the conclusion of this course, students will acquire knowledge and skills to:

- Identify the parts of a SLR camera.
- Explain the effect of various apertures on photographic images (depth of field).
- Explain the effect of various shutter speeds and f/stop on photographic images (pan action, stop action, blurred action).
- Produce various images with a variety of aperture/shutter speed combinations for given results.
- Evaluate photographic prints in terms of value, clarity, technical aspects and composition.
- Use Photoshop to manipulate and adapt photographs.
- Develop a portfolio of built environment images.

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments and evaluation of student portfolios. Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas:

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations

VIII. Course Format

The course is primarily a studio that incorporates a series of lectures and demonstrations of software.

Attendance is mandatory. Much of the student outcome is produced in the three-hour class periods.

Students present their work verbally three times throughout the semester for peer critique.

Web supplement: The course homepage (using the university's Web tool, WebCT or BLACKBOARD) includes the following.

- Course syllabus
- Course assignments
- Course e-mail utility
- Course discussion list
- Student course grades

Classroom Hours (4 hours per week)

Class: 2

Studio: 2

IX. Topics to be Covered

- A. Parts of the camera
- B. Lenses
- C. Filters
- D. Focuses
- E. Shutter control and speed
- F. Aperture control, light meters
- G. Color photography
- H. Black and white photography
- I. History of photography

X. Laboratory Exercises

None.

XI. Learning Technology Component

Students enhance skills in the use of the camera, Photoshop, PowerPoint, and the Internet as means of communication.

XII. Special Projects/Activities

This course requires that students integrate digital technology skills while developing a photographic portfolio. The fundamentals of photographic techniques and philosophies are integrated seamlessly with the learning of photographic and digital representation. Final presentations are presented with PowerPoint.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

Stone, Jim and London, Barbara, *A Short Course in Digital Photography*, 3rd Edition, Pearson, 2014. ISBN: 9780205991600

B. Alternative Textbooks

1. Siskin, John B., *Photographing Architecture: Lighting, Composition, Postproduction and Marketing Techniques*. Amherst Media, Inc., 2011. ISBN: 9781608953004
2. Long, Ben. *Complete Digital Photography*, 7th edition. Course Technology PTR, 2012. ISBN: 9781285077260

C. Supplemental Print Materials

Ciaglia, Joseph, *Introduction to Digital Photography*, 2nd Edition, Prentice-Hall ISBN: 9780205645923

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Websites that are appropriate for the topics they teach.

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the College of Architecture and Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: IDES 4413: Interior Design Capstone Project**Semester Credit Hours:** 4 (0, 4)

Total (Lecture, Studio)

I. Course Overview

The second part of capstone course in the Assessment Capstone Series is a design studio that addresses the creative, professional, technical, and historical issues involved in a problem chosen and defined by the student. This course culminates in the formal presentation of a unique solution to the problem as a part of the final professional portfolio.

II. PMU Competencies

Communication (reading, writing, listening, and speaking in English) is the dominant student competency developed by this course. Students develop critical thinking and problem-solving skills through reading, listening, and speaking activities that require them to demonstrate an active, analytical approach to material. The broad use of technology skills will be required for the successful completion of the course. Leadership skills will be exhibited through the individual student's ability to create and complete the capstone project.

III. Detailed Course Description

The capstone course of the Interior Design degree provides the opportunity to design a project that will be the focal point of the student's portfolio. This course provides the opportunity for students to exhibit the competency and knowledge obtained in all previous interior design courses. Past course work is called upon to create and produce the appropriate documentation for a project selected by the student. Students prepare their final portfolio with this project serving as the key item. It represents the type of design specialization the student will seek upon graduation.

IV. Requirements Filled

In the Interior Design Curriculum, the course is taken in the second semester of the fourth year.

V. Required Prerequisites

IDES 4112: ID Capstone Project Research

IDES 4425: Interior Design VII- Healthcare Design

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Integrate and apply learning from all previous course work.
- Formulate a creative solution for the problem that satisfies aesthetic and functional requirements while adhering to legal codes and observing consideration of public and individual welfare.
- Employ phases of the design process as expected in the profession.
- Present the project formally to an audience of faculty, professional practitioners, and student peers.

CIDA Standards met by this course: 4, 5c, 6g, h, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

VII. Assessment Strategy

This course includes two formal critiques with faculty. The first occurs approximately four weeks into the semester. At this time, the student exhibits her program, plans, and all other anticipated drawings in draft form and rough furniture, finishes, and equipment (FF&E) selections.

The second and final review occurs in the last week of the semester. The student presents her final project and portfolio to a faculty and outside practicing professional panel.

VIII. Course Format

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique. Students also verbally present their work for critique by peers and a jury.

Classroom Hours (8 hours per week)

Class: 0

Studio: 8

IX. Topics to be Covered

- A. Topics are determined by the individual student as they design the type of project, location of interior space, and develop their solution.
- B. Field trips – to be determined by professor-of-record.

X. Laboratory Exercises

There are no specific laboratory assignments for this course.

XI. Learning Technology Component

Students are expected to exhibit competence in their use of technology for the creation of their construction documents and preparation of program brief, final presentation materials and their portfolio.

XII. Special Projects/Activities

- A. Drawings that clearly illustrate the design and its construction. Suggested drawings include: a construction/demolition plan with full dimensions; a furniture plan coded to correlate with furniture specifications; an architectural finish plan coded to correlate with finish specifications; and a lighting/electrical plan with schedule. Other drawings include building sections, interior elevations, and selected details.
- B. A formal presentation package of professional quality. This package includes: color perspective drawings, color-enhanced plans and elevations, axonometric drawings, three-dimensional models, finish sample boards and selected furniture photos- either 2D, 3D digital images or video. All convey a sense of professionalism.
- C. A printed book containing all drawings, documents, photos, and written material involved in the project. The book contains a table of contents. It includes the following written material that is appropriate to the project:
 - Historical background
 - Existing conditions
 - Client requirements
 - Design program outline

In addition, the book will include all furniture, fixtures and equipment (FF&E) specifications and photos. All large documents should be reduced to book size for binding. A set of digital images of all presentation materials is required to be submitted to the instructor. Students are encouraged to make an additional copy for their portfolio, as the program faculty will retain the book submitted.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

Each student will have differing text needs determined by the focus of their final project.

B. Alternative Textbooks

Neufert, Ernst and Neufert, Peter. (2012). *Neufert Architects' Data, 4th Edition*, Wiley-Blackwell, 2012.

ISBN: 9781405192538 (Students purchase this book in their first studio class)

C. Supplemental Print Materials

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

2010 ADA Standards for Accessible Design- www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards.pdf

International Building Code 2018 (OR most recent edition)

<http://shop.iccsafe.org/2018-international-building-coder.html>

Saudi Arabia Building Code

<http://www.sbc.gov.sa/books.htm>

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

Course Title: IDES 4425: Interior Design VII - Healthcare Design

Semester Credit Hours: 4 (1, 3)

Total (Lecture, Studio)

I. Course Overview

The course focuses on the interior design of healthcare facilities including hospital and out-patient services. Emphasis is placed on emerging technologies as well as space planning critical to healthcare facilities.

II. PMU Competencies

PMU students are engaged in research, teaming, and utilization of modern technology to develop a comprehensive healthcare design project. The process of research requires critical thinking, and design analysis. The students work in teams to analyze data, assess the needs of a special population, and to assimilate the information for design of a health care facility.

III. Detailed Course Description

This course exposes the student to healthcare design utilizing skills and knowledge obtained in all previous IDES courses. The comprehensive studio develops the student's ability to design healthcare facilities for both hospital and out-patient settings. Appropriate computer-aided design softwares are used for final presentation drawings.

IV. Requirements Fulfilled

This course is required of all students majoring in Interior Design. It is taken in the first semester of fourth year.

V. Required Prerequisites

IDES 3412: Interior Design Studio VI - Hospitality

VI. Learning Outcomes

At the conclusion of this course, students will be able to:

- Utilize programming procedures for healthcare spaces that respond to the special needs of health-care practices.
- Apply the design process in the development of a healthcare project.
- Demonstrate competency in space planning that is specific to health care facilities.
- Lay out healthcare furniture, equipment, fixtures, and reflected ceiling plans that are specific to the needs of healthcare practices.
- Demonstrate knowledge of sources for materials and products specific to design of the healthcare built environment, including writing specifications, budget and cost projection.
- Recognize the importance of infection control and apply international building codes and universal design requirements specific to healthcare design.

CIDA Standards covered by this course: 4a-e; 5a-e; 6c, g, h; 7a-f; 8a-k; 9a-g; 10b-f; 11a-d; 12a-l; 13a-f; 14a-g; 15a-j; 16a-e.

VII. Assessment Strategy

The course includes a combination of projects based on concepts and principles related to health care design. Grades are generated by project submission, in-class participation, quizzes and exams, if applicable, and presentation. Students work will be assessed through regular supervision and reviews made at periodic intervals in the following areas.

- In-class participation, including presentation of homework, oral responses, interactive group work, discussions, presentations, note taking
- Projects
- Quizzes and exams, if applicable
- Presentations
- Final pass/fail in class drawing exam

VIII. Course Format

The course will include a combination of lecture, discussion, individual research, team collaboration, field trips to local health care facilities and application/implementation of design process. A major focus of the course is the gathering and assimilation of information, written, graphic and oral communication of the findings in a final healthcare plan accompanied by process drawings, specifications, and final presentation drawings.

The course is conducted in the context of the professional design office. Students and instructor will attend each studio period, much as the practitioner is expected to be in the office each working day. This time period will be used for individualized one-on-one instruction, analysis of design solutions, and critique. Students also verbally present their work for critique by peers and a jury.

Classroom Hours (7 hours per week)

Class: 1

Studio: 6

IX. Topics to be Covered

- A. Brief history of healthcare industry (culminating in a 21st century model that includes operating rooms, recovery rooms/intensive care units linked to hotel accommodations)
- B. Technological advancement in healthcare industry.
- C. Hospital settings (may include field trip)
- D. Outpatient settings (may include field trip)
- E. Textiles, furniture, and non-toxic materials for healthcare facilities (ceilings, acoustical materials, furniture, upholstery, floor coverings, wall coverings, and window treatments)
- F. Working in teams and successful strategies for collaboration
- G. Regulations and regulatory agencies including building codes
- H. Wayfinding
- I. Design process (selection of team, programming and pre-design, schematic designs, design development, construction drawings and presentation)
- J. Lighting appropriate to the healthcare setting.
- K. Budget/cost projections
- L. Spaces may include: public lobbies, religious areas, food services, retail services, community and volunteer spaces, administrative and staff offices, hospital or outpatient facilities, patient rooms, family rooms, consultation rooms, examination rooms, treatment and procedure rooms, electronic communication centers, laboratories, resource centers, maintenance support services, teaching and conferencing facilities, and physician consultation rooms. Some facilities may not require all the areas identified.
- M. Field trips – to be determined by professor-of-record.

X. Laboratory Exercises

None.

XI. Learning Technology Component

Students are required to use their acquired skills, including Internet use, in researching assigned topics related to the course. Students use computer aided design to produce drawings for final presentations.

XII. Special Projects/Activities

A final project is based on research including programming, team collaboration, written communication, design/plans and final presentation drawings. Development of the project includes both individual and team input. The project can be a hospital or out-patient setting with a specialized practice that requires specific design solution research.

XIII. Textbooks and Teaching Aids

Note: All textbooks are subject to departmental review and replacement as needed to ensure that information delivered is as current as possible.

A. Required Textbook

1. Kobus, Richard, et al, *Building Type Basics for Healthcare Facilities*, 2nd Edition, John Wiley & Sons, Inc., 2008 ISBN: 9780470135419
2. Malkin, Jain, *Medical and Dental Space Planning: A Comprehensive Guide to Design, Equipment, and Clinical Procedures*, 4th Edition, John Wiley & Sons, Inc., 2014. ISBN: 9781118456729
3. Leibrock, C. A. & Harris, D.D. (2011). *Design Details for Health: Making the Most of Interior Design's Healing Potential*, 2nd Edition, John Wiley & Sons, 2011. ISBN 9780470524718

4. Miller, R.L., Swensson, E.S., Robinson, J.T. (2012). *Hospital and Healthcare Facility Design*, 3rd Edition, W. W. Norton & Company, 2012. ISBN: 9780393733099

B. Alternative Textbooks

Joint Commission on Accreditation of Healthcare Organizations (1997). *Planning, Design, and Construction of Healthcare Environments*. One Renaissance Boulevard, Oakland Terrace, IL ISBN 0866885439 OR Several Joint Commission on Accreditation of Healthcare Organizations health-care publications found at: <https://www.jointcommissioninternational.org/store/publications-1/manuals/>

Saudi Central Board for the Accreditation of Healthcare Institutions (CBAHI). National Hospital Standards 3rd Edition 2016 AND The Healthcare Building Specifications Guide. <https://portal.cbahi.gov.sa/english/cbahi-standards>

C. Supplemental Print Materials

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Guidelines for Design and Construction of Hospital and Healthcare Facilities (2006) More recent versions available for purchase

<https://www.fgiguilines.org/wp-content/uploads/2016/07/2006guidelines.pdf>

2010 ADA Standards for Accessible Design- www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards.pdf

International Building Code 2018 (OR most recent edition)

<http://shop.iccsafe.org/2018-international-building-coder.html>

Saudi Arabia Building Code

<http://www.sbc.gov.sa/books.htm>

The Center for Health Design – www.healthdesign.org

National Symposium on Healthcare Design – www.hcaredesign.com

Healthcare Design Magazine – www.hcmagazine.com

The Journal for Healthcare Design and Development – www.healthdesign.org/jour_hc_des.html

XIV. Faculty Requirements

Primary teaching responsibilities of the program's courses belong to the faculty of the Department of Interior Design. Other responsibilities include the selection of texts, developing course syllabi and lectures, planning and facilitating all in-class collaborations and individual assignments, assessing student work, recording student grades, tutoring as necessary, maintaining regular office hours, and supporting students' development through learning-centered activities.

C. GRAPHIC DESIGN CURRICULUM

1. Introduction

The Prince Mohammad Bin Fahd University (PMU) will offer a Bachelor of Science degree in Graphic Design. The program will be offered to male and female students who are Saudi or non-Saudi nationals who qualify for admission. Through this undergraduate curriculum, students will gain comprehensive learning experiences within the field of Graphic Design, including its subfields of brand identity, editorial design, packaging design, motion design, and user experience design (UX/UI).

The Graphic Design program will focus on enabling students to achieve the designated PMU learning outcomes as described in this report in section 2.3 *PMU Core Competencies*. Assessment methods and strategies will be employed throughout the curriculum through course sequencing and prerequisite requirements. The four-year program will give students the professional knowledge and skills they need to enter the profession of graphic design. It may also serve as a preparation for PMU graduates to continue their studies in graduate schools offering advanced degrees in graphic design or related areas.

The PMU Graphic Design curriculum has been developed to address the need for preparing future leaders in the field of graphic design in Saudi Arabia. Innovative graphic technologies and teaching methods have been proposed to contribute to the development of design knowledge.

In addition to proposing a comprehensive Graphic Design curriculum, the report includes recommendations for selection of both administration and faculty, and outlines the responsibilities of the department to address contributions to the cultural growth of the Kingdom of Saudi Arabia (KSA). In addition, the student enrollment process, the content of the program, teaching methods and strategies for delivery of the program, technology requirements, and the course syllabi are included in this report.

The changing political, economic, and social climate in Saudi Arabia is moving toward providing increased employment opportunities for both men and women. The Graphic Design program designed for PMU will provide learning experiences that can enable students of both genders to pursue careers in graphic design and related areas such as UI/UX design, editorial design, branding, and packaging. This degree will broaden the role of designer in the workforce and the economic development of Saudi Arabia. Also, this area of study will provide a worthwhile and equitable future for PMU Graphic Design graduates.

With the exception of a limited number of electives in Core Curriculum topics and a limited number of frequently changing “Special Topics” in graphic design, the PMU Graphic Design program is designed with a lock-step format in which each entering group of students will take the same courses at the same time. The report includes syllabi for each course in the program. This format will ensure the university’s ability to maintain standards of quality by providing a standardized program to all students. The program will ensure that the students will have a learning experience that educates the “whole” person.

2. Mission, Vision, and Philosophy

2.1. Vision and Mission

The PMU Graphic Design curriculum will provide knowledge and appropriate training for individuals to be creative and innovative designers not bound by geography. The graduates of the program will contribute to community and economic development of the KSA. The Graphic Design curriculum will support respect for Islamic traditions and advancement of Saudi cultural and social values.

2.1.1 Program Learning Outcomes

The graduates of the Graphic Design Program at PMU will:

- Acquire and demonstrate fluency in the visual vocabulary, use of tools and technical skills relevant to creative problem solving skills for graphic design.
- Develop skills in multi-dimensional problem solving including the ability to perceive, research, analyze, and creatively interpret the needs of clients.
- Generate original concepts, build prototypes, integrate feedback and carry projects through to the production process.
- Employ basic business practices, work effectively as part of a team, and demonstrate the ability to organize design projects.
- Appreciate global and regional design traditions as ways of adapting design to contemporary society in the KSA.

2.2. Program Characteristics

- The Graphic Design program may enroll both male and female students.
- Enrollment in the program is expected to be 380 students, with a typical entering class between 40 (in the first year of the program's operation) and 95 (when the program is at full operation).
- The program will be housed administratively within the College of Architecture and Design.

1.3. PMU Core Competencies

The six original core competencies established when PMU was founded address what the University's graduates will need to know, and what they must be able to do, in order to be successful in their chosen fields and to contribute to the development of their community and the Kingdom. These six PMU Competencies are:

- **Communication:** The ability to communicate effectively in both English and Arabic in professional and social situations.
- **Technological Competence:** The ability to use modern technologies to acquire information, communicate, solve problems, and produce intended results.
- **Critical Thinking and Problem Solving:** The ability to reason logically and creatively to make informed and responsible decisions and achieve intended goals.
- **Professional Competence:** The ability to perform professional responsibilities effectively in both local and international contexts.
- **Teamwork:** The ability to work effectively with others to accomplish tasks and achieve group goals.
- **Leadership:** The ability to be informed, effective, and responsible leaders in family, community, and the Kingdom.

Since the original design of PMU was completed, two additional competencies have been includ-

ed in the university’s list. These are:

- **Globally Connected:** The ability to respect all cultures and understand religious and ethnic customs that shape the opinions and actions of others from different backgrounds.
- **Conflict Resolution:** The ability to control emotions, behavior and nonverbal communication, and to maintain a healthy response to conflict such as recognizing and responding to important matters, a readiness to forgive, and a belief that resolution can support the interest and needs of both parties.

While the original six competencies are addressed in specially designed courses, the two new competencies are to be addressed as components of either new or existing courses offered by each of the University’s academic disciplines. The Department of Graphic Design addresses these competencies in its degree program as follows:

Competency	Courses Covering
Communication	COMM 1311: Written Communication COMM 1312: Writing and Research COMM 2311: Oral Communication COMM 2312: Technical and Professional Communication
Technological Competence	GDES 1312: Digital Imaging GDES 2322: Digital Photography GDES 3322: Motion Design GDES 3331: Interaction Design I GDES 3332: Interaction Design II
Critical Thinking and Problem Solving	UNIV 1212: Critical Thinking and Problem Solving GDES 2332: Design Thinking
Professional Competence	UNIV 1211: Professional Development and Competencies GDES 4322: Portfolio Development
Teamwork	UNIV 1213: Leadership and Teamwork
Leadership	UNIV 1213: Leadership and Teamwork
Globally Connected	GDES 1331: Art Appreciation GDES 1332: Art History GDES 2331: History of Visual Communication GDES 2332: Design Thinking GDES 3338: Internship GEGR 1311: World Regional Geography_ HIST 1311: World Civilizations 1500-Present
Conflict Resolution	Included in various courses. *See the following statement. GDES 3338: Internship PSYC 1311: Introduction to Psychology_ HIST 1311: World Civilizations 1500-Present

**The nature of all studio courses and some of others address “Conflict Resolution,” as students will learn how to both give and receive criticism in a positive manner in critiques of design projects. Students will also learn to listen to, understand and empathize with clients, all of which are necessary skills for successful professional designers. The Internship courses supports the competency for “Conflict Resolution” by placing students in real-world offices and design studios where employees must work together and reach agreeable solutions despite conflicts of opinion regarding design solutions.*

The faculty of the department will provide an environment in which these core competencies are both recognized in their importance to the degree program and actively pursued within each course. The manner in which each course will contribute to these competencies is described in the syllabus for the course. Syllabi for the program curriculum appear in Section 7. Course Syllabi, of this report.

The Graphic Design curriculum especially will stress the skills of critical thinking, problem solving, teamwork, and leadership. These are important skills that all graphic design students must have as they enter the profession.

3. Administration and Faculty

3.1. Departmental Administration

Initially the Department of Graphic Design will be a division of the PMU College of Architecture and Design. As such, the Chair of the Department of Graphic Design will report to the Dean of the College of Architecture and Design and the Vice Rector of Academic Affairs.

The Chair of Graphic Design will have responsibility and authority for the daily operations of the Department, including academics, facilities, and financial affairs. The Chair will provide leadership to the faculty, staff, and students.

Detailed discussions of the duties, responsibilities, and qualifications of the Department chairs, the Dean of the College of Architecture and Design, and the Vice Rector of Academic Affairs are provided in the 2004 TIEC report, *PMU Organization*.

3.2. Faculty Selection

The quality of faculty will be a critical component of the quality and success of the Department of Graphic Design. Faculty will be academically prepared and will be proven effective teachers based on a review of their teaching portfolio by a faculty search committee of the Department. Faculty will be expected to demonstrate a history and currency in providing quality education that aligns well with the PMU core competencies and with the PMU educational philosophy and methods that provide a student-centered and positive environment.

All faculty selection will conform to requirements of the Ministry of Higher Education, including requirements governing the ratio of Saudi nationals and expatriates teaching at the university.

3.2.1. Responsibilities

The faculty of the Department of Graphic Design will have the primary teaching responsibilities for the program's academic courses. These will include selecting texts, preparing course syllabi, planning in-class team activities, constructing student assessments, keeping grade records, supervising laboratory sessions, and holding regular office hours.

3.2.2. Degrees and Experience

Members of the Graphic Design faculty should hold a Master of Fine Arts (MFA) or Master of Design (MDes) degree or higher in a specialization that is relevant to the courses they will be teaching. These areas may include, for example, Visual Communication or Photography. Faculty also may have a degree in a closely related field. Faculty should have at least two years of teaching experience at the university level.

For more traditionally academic courses, such as Art History, faculty should hold a Ph.D. in Art History or a related field.

If possible, all graphic design faculty should have a minimum of two years of professional design experience in areas that relate to their teaching assignment. Experience with Adobe Creative Cloud and design related software also will be required.

International experience in the professional field will be preferred, both to help the Department meet the new PMU competency for “Globally Connected” students and also to facilitate the wide range of Graphic Design courses in the curriculum, which will include, for example, typography skills for both Roman and Arabic lettering.

3.2.3. English Language

Because the university is an English language institution, faculty will teach students in English. All Graphic Design faculty members, therefore, must have achieved proficiency in the English language. Preference will be given to faculty who are either native English speakers or have achieved native-level proficiency as demonstrated by a band score of 8.0 or higher on the IELTS, with minimum component test scores of at least 7.5 (or equivalent score on a comparable exam).

3.2.4. Student-Centered Approach

For some faculty, student-centered learning may be a challenge that requires training, guidance, and support from the staff of the PMU Teaching Development Center (as described in the 2004 TIEC report, *Teaching Development Center*).

Willingness to undertake professional development activities necessary to learn how to implement student-centered cooperative and collaborative methodologies will be a necessity, along with sensitivity to Arab culture.

Another consideration recommended by TIEC is to recognize the difference between time spent at studio courses, lecture courses, and lab time. Student-centered design studios require considerable one-on-one time between faculty and each student to reinforce competencies or to make suggestions for improvement on design projects. This type of interaction takes place in a less structured manner than a lecture course, as it attends to each student’s specific learning needs. Lab time, on the other hand, merely requires a facilitator to monitor the room while students do their work. Most U.S. universities have come to the realization that faculty hours should be equal to contact hours for studio time. To accommodate this, they have labeled studio hours as “discussions” for record-keeping in the Registrar’s office and for scheduling of faculty. It is highly advised that PMU make a policy change that recognizes the nature of studio time and its requirements on faculty in order to retain and recruit quality faculty for its programs.

3.3. Departmental Responsibilities and Strategies

The following strategies will foster collaboration among the faculty of the PMU Department of Graphic Design. These strategies also will assist students in making transition through each level of the program.

- Graphic design faculty will meet monthly to review pre-established assessment protocols (including expectations, indicators, criteria and standards) as they are addressed in each course.
- Faculty will meet annually to review the curriculum and select textbooks and materials for each Graphic Design course.
- Faculty will develop consistent criteria and standards for assessing student performance and advancing students through the Graphic Design curriculum. (For proposed initial academic standards, see section 4.2. *Performance Expectations* of this report.)
- In cooperation with the PMU Learning Resources Center, the faculty will create tutoring and supplementary instructional programs to assist students who need extra assistance with academic

programs or study skills. (A detailed discussion of such offerings and the organization that will provide them is provided in the 2004 TIEC report *Learning Resources Center*.)

- Faculty will use immersive learning strategies such as role-playing, service learning projects, and field experiences to teach ethics. Such strategies will include moral considerations and the implications of professional and business decisions. These strategies will help support the new PMU competency that students develop skills for “Conflict Resolution.”
- Faculty will provide learning experiences that increase all students’ understanding of their graphic design heritage through knowledge of other world cultures and their design influences. This experience will help support the new PMU competency that students be “Globally Connected.”
- Faculty will prepare skilled graphic designers who are ready to assume entry-level positions within the profession and who can successfully contribute to the cultural growth of the KSA and the world.

4. Student Enrollment

4.1. Admissions Process and Requirements

Admission to studies in the Department of Graphic Design will be open to students who have completed the PMU Preparation Year Program or who have met the university criteria for bypassing the program.

The Department of Graphic Design will accept both male and female students.

4.1.1. Required Courses in the Preparation Year Program

The PMU Preparation Year Program is designed to prepare students for studies at the University with a curriculum of courses in English language, mathematics, and study skills and learning strategies (including basic computer competencies). All students are required to follow the same curriculum (with placement in English courses tailored to their abilities) during the first semester. During the second semester, students have a choice of two mathematics courses, depending on their desired major at the university.

Students seeking entrance to the Department of Graphic Design should take PRPM 0012: Intermediate Algebra, during the second semester of the Preparation Year Program.

4.1.2. Application for Admission

Upon completion (or waiver) of the Preparation Year Program, students wishing to enroll in the Graphic Design program make application to the College of Architecture and Design.

This application includes:

- Preparation Year Program Certificate of Completion
- PMU Placement Test results
- Interview with the College and/or the Department
- Student essay or portfolio of design work

The topic of the application essay or the contents of the student portfolio will be determined by the Chair and faculty of the Department of Graphic Design.

The option to submit a portfolio will be at the discretion of the Chair and the faculty of the Department of Graphic Design. If a portfolio is submitted, it should provide evidence of the student’s existing skill and interest in art or design. Such evidence might include drawings, photography, and video

recordings, along with a written statement. The portfolio would be designed to indicate the student's talent and desire to achieve success. Essays also should focus on the student's interest in and understanding of the profession. Essays or portfolios will be submitted toward the end of the Preparation Year Program.

4.2. Performance Expectations

The Department of Graphic Design will require students to maintain minimum standards of academic performance. Using a 4.0 scale for course grades, the department will require that students maintain minimum grade point averages (GPA) for various categories of courses:

- 2.0 GPA in courses from the PMU Core Curriculum
- 2.25 GPA in electives
- 2.50 GPA in Graphic Design courses

A student who receives a D or F in any course will be required to repeat the course (in the case of an elective, another elective may be selected) and to achieve the required grade point average for that category of course. These students will be required to participate in tutoring and remediation programs offered by the faculty and the PMU Learning Resources Center. (See this report's Section 3, Departmental Responsibilities and Strategies.)

Students may repeat a course one time, with additional repeats allowed at the discretion of the faculty. However, no more than 10 repeated courses will be allowed over the student's career at the PMU. After the first repeat, prior grades will count toward the student's GPA. For example: A student who receives a D followed by an A will have the D erased and replaced with the A on the transcript. A student who receives an F followed by a D followed by an A will have the F erased, and the D and the A will be averaged into the GPA.

In order to graduate, all students at the PMU will be required to maintain an overall GPA of 2.0.

5. The Educational Experience

5.1. Content of the Program

The Graphic Design program will provide a firm foundation for aspiring entry-level professionals. Courses will provide a broad perspective of the profession and issues of practice as well as detailed instruction and experience in how to apply learning in a professional setting.

With the exception of six credit-hours of Core Curriculum electives, all students in the Graphic Design program will pursue the same lock-step program in which they take the same courses in the same sequence. In order to best include the topics necessary to develop the necessary design skills, the curriculum will center on a combination of lecture classes and design studios. In the studios, students will have the opportunity to integrate multiple aspects and concepts of graphic design into their projects. Electives will provide students an opportunity to select additional courses from specified list to enhance their educational experience.

Courses taught by the Department of Graphic Design will be:

- GDES 1311: Drawing
- GDES 1312: Digital Imaging
- GDES 1321: Two-Dimensional Design
- GDES 1322: Three-Dimensional Design
- GDES 1331: Art Appreciation
- GDES 1332: Art History
- GDES 2311: Typography I

GDES 2312: Arabic Typography
 GDES 2321: Illustration
 GDES 2322: Digital Photography
 GDES 2331: History of Visual Communication
 GDES 2332: Design Thinking
 GDES 3311: Typography II
 GDES 3312: Information Design
 GDES 3321: Brand Identity
 GDES 3322: Motion Design
 GDES 3331: Interaction Design I
 GDES 3332: Interaction Design II
 GDES 3338: Internship
 GDES 4112: Graphic Design Capstone Project Research
 GDES 4321: Advanced Graphic Design
 GDES 4322: Portfolio Development
 GDES 4413: Graphic Design Capstone Project
 GDES 4331: Special Topics in Graphic Design

In the senior year, the Department of Graphic Design also will offer Special Topics and Elective courses. The Special Topics course is tentatively designated as GDES 4331 and will be offered based on the expertise of graphic design faculty, the interest of students, and current trends in the field, with subject matter varying from year to year as needed.

This will be a required course, though if the Department chooses to provide more than one Special Topics offering, students may treat them as a required elective and choose one course from among them.

Graphic Design Electives will include courses to be defined (and syllabi written) at a later date when the courses are first offered. There may also be opportunities for Graphic Design students to take relevant courses in related disciplines of Interior Design, Architecture or Business, depending on the offerings of those programs.

A detailed presentation of the course sequence for the program appears in Section 6, The Degree Program, of this report. This section also demonstrates the way in which the Graphic Design program is integrated with requirements of the PMU Core Curriculum. The courses have been sequenced to provide a continuum of learning experiences, though the Chair and faculty of the department may determine a different sequence.

5.2. *Teaching Methods and Strategies*

5.2.1. Classroom Environment

The faculty of the Department of Graphic Design will make full use of classroom elements that reflect the defining characteristics of the University. Classes will include a practical approach to the curriculum, a technology-enabled learning experience, teamwork and group assignments, an emphasis on communication enhanced by student presentations, and assessment through the use of portfolio presentations.

In order to enable the highest quality of teaching and learning in the program, faculty of the Department will include both male and female instructors. For courses required by the PMU Core Curriculum as well as courses within the Department of Graphic Design, students may receive instruction via closed circuit television in order to meet necessary gender separation requirements.

Students may also receive instruction using these techniques from guest speakers who are specialists

in design and who are located either elsewhere on the PMU campus or off-campus, including locations overseas.

5.2.2. Student / Faculty Ratio

In order to enhance opportunities for class participation and individual attention, the student / faculty ratio in PMU Graphic Design classes and studios will be kept as low as possible.

Studio classes should not exceed a student / faculty ratio of 15/1. This limit takes into consideration the need for individual attention dedicated to each student.

Courses that lend themselves to a lecture format may have enrollments as large as 75 to 100 students.

Faculty teaching large lecture classes may receive a reduced course load.

5.2.3. Teaching Methods

The Graphic Design faculty will employ diverse teaching methods throughout the curriculum to assist students in achieving the desired PMU core competencies and strategies for professional success.

- A sequenced curriculum will focus on student engagement and student learning outcomes.
- Assessment protocols and expectations will be defined for each course in the Graphic Design program.
- Lecture formats will be used to effectively convey factual knowledge in both studio and non-studio classes.
- Entry-level designers will be prepared to be problem solvers through course content, book materials and selections, class activities, assignments, projects, and tests.
- Experiential learning activities will be used to effectively involve students through use of panel discussions, role-playing, and internships.
- Learning in groups will be used to effectively instruct the students toward a common, problem-solving goal. This method will emphasize both individual accountability and group accountability.
- Readings will be assigned to support active learning, research, and the use of technology for information gathering.
- Writing exercises relevant to specific graphic design subject matter will be assigned and evaluated to assist students in learning and retaining information.
- Projects in studio courses will be designed to require students to demonstrate their ability to illustrate and show evidence of appropriate use of technologies related to graphic design.
- Assignments will enhance techniques for graphic, written, and oral communication of design solutions.
- The curriculum will provide educational experiences that assess the student's ability to assimilate knowledge taught in the Graphic Design program.
- Assignments will assist students in developing the ability to conduct cross-cultural analysis as a means for learning about their own rich cultural design heritage.
- Faculty will determine specific blocks of time when students may communicate with them concerning class assignments in person or via computer chat.

5.2.4. Assessment Procedures

Student advancement through the Graphic Design program will be determined by a series of assessments at which each student must demonstrate readiness to step up to more advanced study.

- Each course will include evaluation criteria based on course level and course criteria. These criteria will include digital and design skills, graphical, and oral presentations, exams, written papers, use of principles and elements of design process, notebooks, and project development.
- Studio work will be assessed based on written materials, graphic presentations, appropriate problem-solving, technical skills, and oral presentations.
- The student's understanding of materials presented in lectures will be assessed by exams, written essays, quizzes, individual and group assignments, and student-produced sketches.

Annual advancement reviews

All students majoring in Graphic Design must successfully complete required annual advancement reviews. The reviews are evaluations of portfolios consisting of work from Graphic Design courses. The portfolios will be collected late in the spring semester and their evaluation will be made by a committee of full and part-time Design faculty.

- For freshman to sophomore reviews, the faculty will assess the individual portfolios as “conditional” or “unconditional” indicating the student's readiness to advance. “Conditional” assessments will be made in writing signed by the faculty. The student must comply with the faculty recommendations within one semester. A student not meeting the conditions of the “conditional” evaluation will not advance to the next level of course work.
- For junior to senior reviews, the evaluation will be pass/no pass. A “pass” with a minimum grade is required for admission into the next year's Graphic Design courses. In the case of a grade of “no pass,” the student will be required to repeat coursework and a re-review must be satisfactorily completed before continuing in the program. Reviews may be repeated only once. This policy promotes the Graphic Design Department's encouragement of continuous growth and improvement in its majors' work.
- Portfolio requirements
- For freshman, sophomore and junior year reviews, students will use a 14” x 17” ITOYA art portfolio with spine and will design an insert for the spine that identifies and brands the owner. A table of contents will appear in page one, identifying the project, course and page. The portfolio is a design project in itself and the presentation and craft of the portfolio will also be criteria for evaluation.
- For senior year reviews, students will use custom-made portfolio books such as those used by professionals in the industry. Portfolios must contain a minimum of ten pieces selected from Graphic Design courses completed during the junior and senior years in addition to their Senior Project which is to be the centerpiece of the portfolio. Selected freelance projects and relevant internship work may also be included in addition to the ten samples from junior and senior courses. In the case of a grade of no pass, the student will not be included in the senior show of design work.

For further discussion, see the syllabi for senior-level Graphic Design Courses, GDES 4322: Portfolio Development and GDES 4413: Graphic Design Capstone Project.

5.2.5. Learning Objectives

In all aspects of the Graphic Design program, faculty will consistently work toward achieving specific goals and objectives with their students. Faculty will develop courses and employ methods that will aid students in developing design-related outcomes that foster the following:

- An appreciation for global and regional design traditions as ways of adapting design to contemporary society in the KSA.
- Development of skills in multi-dimensional problem solving that enable the individual to perceive, analyze, and interpret creatively the needs of their future clients.
- Development of skills for self-instruction and professional self-development

5.3. *Studio-based approach*

5.3.1. Studio Design and Equipment

The Department of Graphic Design emphasizes the development of both practical and conceptual skills and enables students to integrate a command of visual language with imagination, creativity, theory, and technology. Students are trained in print and publication design, web and interface design, user interface/user experience (UI/UX), motion graphics, branding and identity, and type design. The program also trains students for secondary careers in communication and the visual arts.

Classes in Graphic Design are studio- and lecture-based, fostering debate and discussion as well as imparting formal and practical knowledge. This class format will support the new PMU competency for “Conflict Resolution,” as it will help students build skills for both delivering and receiving constructive criticism of design work.

All classes must have access to the studio facilities and computer labs. The facility will provide an environment that encourages creativity, collaboration, and effective management of the design process.

The best learning environment for graphic design provides students with their own individual work areas with separate shared studio spaces. Each workspace should be in an “L” configuration.

Workspaces should have one work surface for drawing, measuring 0.8 meters deep x 1.5 meters wide. It should have another work surface for a laptop computer measuring 0.5 meters deep x 0.6 meters wide. Thus, the total workstation for each student should measure 1.5 meters x 1.4 meters, or 2.1 square meters.

With space added for circulation, this area will be comparable to that allocated for science labs in courses taught in the Core Curriculum, labs in the College of Architecture and Design, and computer labs throughout the university.

Classes will also require ergonomic task chairs as students will spend many hours working on design projects.

All workstations must have adequate electrical supply (one duplex outlet). Computer connectivity can be accommodated through the PMU high-speed wireless network.

Much learning in graphic design studios occurs by students teaching other students. Therefore all graphic design studios should be adjacent to a spacious shared space with a large table for collaborative work. Students should have their own desks, flat files, and metal storage cabinets.

There also should be a large shared studio where students have their own desks. This studio should

receive natural lighting. It should be equipped with pin-up boards for inspiration or work-in-progress, as well as whiteboards for brainstorming and collaborative work.

Spread among the individual studio spaces should be informal areas for conferences and critiques. These spaces should be equipped with movable tables and chairs to seat up to 15 students (the equivalent to one studio class), a projection screen, and at least 4.9 linear meters of vertical surface for pinning up materials for display. There should be one common shared area space for every four studios, to allow for peer-to-peer communication and collaborative possibilities.

Based on an enrollment of 380 students, as described in this report's section 2.2. *Program Characteristics*, the preceding facilities description will require the approximate total space described in the following table.

Space description	Square meters	Quantity	Total square meters
Student workstations	2.1	180	378
Conference/critique space	35	5	175
Resource center	65	1	65
Subtotal			618
Plus 35% circulation space			216.3
Total square meters			834.2

With the exception of the studio used by seniors for the course, GDES 4413: Graphic Design Capstone Project, each studio is designed to accommodate as many as three class meetings a day.

As described in this report's section 6.2. *The Graphic Design Capstone Series*, GDES 4413: Graphic Design Capstone Project is envisioned as an intensive, independent project. In this course, students will be expected to simulate a work experience. As a result, this studio will require space for more detailed works and presentations than other graphic design classes.

It should be noted that the descriptions of space requirements presented in this report do not include allocations for faculty offices, administrative offices, storage or a computer/printing/ scanning lab. It also should be noted that in keeping with the prevailing gender separation practices of the KSA, separate studio spaces must be provided for male and female students.

5.3.2. Lecture / Non-Studio

A space suitable for lectures that can accommodate 75 to 100 students should be included in the Graphic Design facilities. For this space, auditorium seating is recommended. Multi-media audio/visual (A/V) capabilities should be included with high definition (HD) projection.

At least two non-studio classrooms (for about 40 students) should include moveable tables and chairs to accommodate group work in a lecture setting. Multi-media audio/visual (A/V) capabilities should be included with high definition (HD) projection. Whiteboards and at least 4.9 linear meters of vertical surface for pinning up materials for display for in class critique are required as well. Adequate power supply for laptop use is also essential.

Facilities also should include a lounge for laptop use and class discussions.

5.3.3. Materials / Resource Room

Most books, journals and research materials related to Graphic Design program will be housed in the Learning Resources Center in open stacks in order to provide ready access for students. Locating materials in the Learning Resources Center, rather than a satellite library in the Department also will provide for their professional care and coordination while making efficient use of the University's staff of professional librarians.

In addition to books, journals and research materials, it will be important for Graphic Design students to have access to computer-aided tools, software, and digital equipment. The graphic design facilities therefore will have state-of-the-art digital media spaces and resource rooms for preparing student portfolios and framing, a student lounge, a digital photography studio, an A/V projects studio, and a display or gallery space. This area, which can be maintained and administered by the Department faculty and staff, will offer graphic design students a professional-grade working environment.

These resources should be centrally located in the building housing the Department of Graphic Design, so they are easily accessible to all graphic design studios. The organization system of the Construction Specifications Institute (CSI) is the most common procedure for cataloguing and laying out such a resource room.

5.4. *Technology-infused environment*

The integration of digital media into the curriculum has been one of the most significant evolution in Graphic Design education—and the methods of digital learning utilized at PMU will place students and faculty in a leadership role among Graphic Design programs worldwide.

To create such an environment in the Department of Graphic Design, a state-of-the-art computer lab should offer distinct areas tailored to diverse modes of working, including a distance-learning classroom; a configurable collaborative space for group activities; and a large, quiet study room with individual desks.

Students need access to a constantly evolving array of technological tools and activities that demand problem-solving, decision-making, teamwork, and innovation. In technology-infused activities, Internet research, virtual manipulatives, and multimedia resources allow students to explore unanswered questions, and to develop creativity and problem-solving skills. Through the effective use of technology, each student will have the opportunity to reach out to a global audience.

Learning digital media is best accomplished when the computer-based work has a direct and meaningful impact on students' design work. Thus, rather than separating the digital process into a discreet course with its own exercises, the proposed plan for Graphic Design at PMU integrates digital learning with the design studios. Studio projects provide the best framework for learning digital skills. In each studio class, students will learn the skills needed for the designated design projects. This type of learning results in better retention of information than attempting to learn large numbers of skills without connection to how they will be used. In the studio approach, students can appreciate the potential of digital media more readily when it enables them to communicate their creative intent.

In GDES 1312: Digital Imaging, each student will experience daily interaction with a digital device that will provide the foundation for a technology-infused learning environment. Projects in this course will be kept to a small size so students can spend time on both the design and on learning digital media. Curriculum-based software tools will allow for ongoing assessment and differentiated instruction.

The subsequent course GDES 2322: Digital Photography can be seen as an intermediate-level digital course. Projects in this course will be technology-driven. Complex presentations will require more advanced digital exploration.

Once the foundation of digital representation and design exploration has been established in GDES 1321: Two-Dimensional Design, GDES 2311: Typography I, and GDES 2321: Illustration, the following five studios in the junior and senior years can be considered advanced digital media courses. These courses are GDES 3331: Interaction I, GDES 3332: Interaction II, GDES 3312: Information Design, GDES 3322: Motion Design, and GDES 4321: Advanced Graphic Design.

Students in the junior- and senior-level courses will learn a new and vast array of innovative design technology applications with encouragement from faculty.

5.4.1. Student Computing Requirements

Like all other students at the PMU, students studying Graphic Design will be required to have personal laptop computers to assist in their studies. Students will benefit from having continuous computing access to support research, communication, and studio practice. They will have access to the university-wide technology-infused environment including wireless Internet access. Technologies such as interactive television, video conferencing, and BLACKBOARD will be central to maintaining effective communication between faculty and students and among students. Faculty and students involved in classroom presentations will have access to modern presentation technology connected to University computing and library resources as well as to the Internet.

However, students will have specific computing requirements that stem largely from the demanding software created for the graphic design industry that they must learn and use. As a result, students in the Graphic Design program will require a laptop computer capable of handling this software. Laptop computers should meet or exceed the capabilities of the computers in the department's dedicated computer labs.

Since access to a personal computer is essential for the successful completion of the Graphic Design degree, the university requires all incoming Graphic Design students must have the following minimum configurations in their Apple or Windows laptops:

Apple laptop	
Display	MacBook Pro 15" Retina Display
Operating system	Mac OS
Processor	3.1GHz Quad-core Intel Core i7
Memory	16GB RAM
Storage	2TB SSD
Graphics card	Radeon Pro 550 2GB

Windows laptop	
Display	DELL Alienware 15" G-SYNC Display
Operating system	Windows 10 64-bit
Processor	3.1GHZ Quad-core Intel Core i7
Memory	16GB RAM
Storage	128GB SSD
Graphics card	Nvidia GeForce GTX1070 8GB

5.4.2. Dedicated Computer Labs and Equipment

Though Graphic Design students will have laptop computers that they can take anywhere to handle much of the work required for their classes, they will still require dedicated computer labs for group projects, working with faculty, or for individual work on specialized software.

Typically, computer labs will be built to a size that allocates 2 square meters per student (as noted in the May 3, 2004 memorandum, PMU Space Program: Report of Zuhair Fayez Architect visit to Austin, Texas). Each lab should accommodate 15 students for a teaching ratio of 15:1.

Additionally, there should be a computer station available for the instructor and another dedicated computer with scanning capabilities.

In order to provide students with the most up-to-date equipment best matched to the needs of their courses, a detailed analysis of the lab requirements and hardware/software specifications should be provided by the faculty of the Department of Graphic Design sufficiently ahead of the program's opening to allow for the equipment's purchase and deployment.

The computer lab for the Graphics Design program must be equipped with the latest Macintosh and Windows PC workstations with high-speed Internet connections and peripherals that support the installation of the following design-related capabilities:

- Flatbed and film scanning
- Digital tablet and stylus use
- Green screen and lighting equipment
- Wide-format color printers
- A/V high-definition projectors
- Digital still and digital video cameras
- Digitizing tablet devices
- Multimedia authoring
- Non-linear video editing

In addition, the computer lab must provide students with hands-on experience and advanced skills for creating digital and print-based work for UI/UX design, drawing, photography, video, 3D modeling, sound editing, digital 3D printing, web and open source projects.

To support these skills, the computer lab for the Graphic Design program should provide the following software:

- Adobe Creative Suites - with annual updates
- Apple Pro Applications - with annual updates
- Autodesk Entertainment Creation Suite and 3D Printing
- Any other programs that become standards of the industry

Throughout the computing environment, the policies of the Department of Graphic Design will prohibit the use of pirated software. To have access to the PMU network, students will be expected to certify that all software on their computer is legitimate.

5.5. Opportunities for PMU Graduates

In order to enhance the employment opportunities and options for graduates of the PMU Graphic Design Program, the department will emphasize the use of technology and its application to creative problem solving. This focus will provide students with the necessary skills for working for a range of employers.

The faculty of the Department of Graphic Design should regularly conduct surveys of the Eastern Province to determine what employment possibilities currently exist. Such surveys might be a component of the Graphic Design internship course, which occurs in the summer between the junior and the senior year. The internship requirement can serve as a marketing tool for acquainting local and regional design-related companies with PMU students.

6. The Degree Program

The PMU Graphic Design curriculum, as currently designed (see section 6.3 Graphic Design Degree Plan for options), will consist of 125 semester credit hours (including courses required by the PMU Core Curriculum) in conformity to standards typical of North American universities. These standards are modeled on requirements established by the National Association of Schools of Art and Design (NASAD).

PMU may download the NASAD Handbook from the Standards and Guidelines section of the website at no charge from the following location:

<https://nasad.arts-accredit.org/accreditation/standards-guidelines/handbook/>

Further information is available from:

National Association of Schools of Art and Design
11250 Roger Bacon Drive, Suite 21 Reston, Virginia 20190-5248

Telephone: (703) 437-0700

Facsimile: (703) 437-6312

Email: info@arts-accredit.org

Website: <https://nasad.arts-accredit.org>

The NASAD standards are designed to provide students with competencies required to meet North American standards in accredited programs. Institutions undergoing review for accreditation should refer to the NASAD website for the most recent guidance and procedures for self-study and preparations for an on-site review.

6.1. Program components

The PMU Graphic Design program consists of two basic components:

Department of Graphic Design Requirements: As the program is designed, these requirements will comprise 71 credit hours of study, including a 3-credit-hour Internship. They will consist of courses in both the lecture and the studio formats. Courses will cover a wide range of topics designed to give the graduate a comprehensive and solid foundation in a career in graphic design.

Within the 71 hours of required Graphic Design courses, students will be required to take 3 hours (one course) as a Special Topic or Graphic Design Elective, though options exist for expanding this number (as described in section 6.3 Graphic Design Degree Plan). These types of courses are offered to provide students with skills they will need to operate a graphic design practice as a business, and to work together with other professionals and clients. As the PMU graphic design program becomes established, the faculty will create graphic design electives to expand on these special topics as necessary and appropriate to meet the needs of the profession and industry in the region.

University Core Curriculum Requirements: Students will take 51 hours of courses from the PMU Core Curriculum, 20 of which will be electives in three areas. mathematics, social and behavioral sciences, and natural and physical sciences.

As the PMU Graphic Design program becomes established, the faculty will create additional electives as necessary and appropriate to meet the needs of students and the profession in the region.

6.2. *The Graphic Design capstone series*

During their senior year, each student will perform a two part comprehensive design project including research and ideation for the project the first semester and realization during the second semester in consultation with Department faculty. Intended to simulate a real-world design project in the specialization the student intends to pursue after graduation, the courses will include skills and subject-matter the student has learned in earlier classes including concepts, procedures, and processes.

The project will include problem identification, research, creative problem-solving strategies, and the production of a final capstone project, which will serve as the centerpiece in their professional portfolio. Seniors will use this project to synthesize what they have learned, what they may still want to learn, and to create a vehicle to distinguish or promote themselves in a specific niche in the field.

The Graphic Design Capstone Project must be similar or greater in volume and breadth as the sum of output from the first semester Senior level courses. In other words, this full semester project should be larger in scope than any set of course projects to date.

6.3. *Graphic Design degree plan*

The designated eight-semester course sequence appears on the following pages.

It should be noted that **TIEC has endorsed the revised degree plan** submitted by PMU in response to the TIEC Draft Report of May 2018. Among the changes provided by PMU is to begin the required courses in Arabic and Islamic Studies (ALIS) in the Sophomore year rather than the Freshman year. This change, along with reducing the total number of ALIS courses to four semesters, created significant differences from the original TIEC proposal in the sequencing of Graphic Design courses. **TIEC approves these changes.**

1st year – FRESHMAN PROGRAM – GRAPHIC DESIGN CURRICULUM					
FIRST SEMESTER			SECOND SEMESTER		
Course Number	Course Title	Credit Hours	Course Number	Course Title	Credit Hours
COMM 1311	Written Communication	3	COMM 1312	Writing and Research	3
ELECTIVE*	Mathematics	3	UNIV 1211	Professional Development and Competencies	2
PHED 1111	Physical Education	1	PHED 1112	Physical Education II	1
GDES 1311	Drawing	3	GDES 1312	Digital Imaging	3
GDES 1321	2D Design	3	GDES 1322	3D Design	3
GDES 1331	Art Appreciation	3	GDES 1332	Art History	3
	Total	16		Total	15

ELECTIVE * Mathematics: 6 semester hours (two 3-hour courses) must be taken. Students may take any mathematics course offered by PMU, but the Department of Graphic Design strongly recommends the following: MATH 1311: Finite Mathematics for Students of Business and MATH 1313: Statistical Methods. Students may take these in any order, but the Department recommends MATH 1311 be taken first.

2nd year – SOPHOMORE PROGRAM – GRAPHIC DESIGN CURRICULUM					
FIRST SEMESTER			SECOND SEMESTER		
Course Number	Course Title	Credit Hours	Course Number	Course Title	Credit Hours
COMM 2311	Oral Communication	3	ALIS 1211	Arabic / Islamic Studies	2
UNIV 1212	Critical Thinking and Problem Solving**	2	COMM 2312	Technical and Professional Communication	3
ASSE 2111	Learning Outcome Assessment I	1	ELECTIVE*	Mathematics	3
GDES 2311	Typography I	3	GDES 2312	Arabic Typography	3
GDES 2321	Illustration	3	GDES 2322	Digital Photography	3
GDES 2331	History of Visual Communication	3	GDES 2332	Design Thinking	3
	Total	15		Total	17

** TIEC strongly suggests that UNIV 1212: Critical Thinking and Problem Solving be taken in an earlier semester than GDES 2332: Design Thinking, as the UNIV course lays much of the groundwork that students will use in the GDES course.

3rd year – JUNIOR PROGRAM – GRAPHIC DESIGN CURRICULUM					
FIRST SEMESTER			SECOND SEMESTER		
Course Number	Course Title	Credit Hours	Course Number	Course Title	Credit Hours
ALIS 1212	Arabic / Islamic Studies	2	ALIS 2211	Arabic / Islamic Studies	2
ASSE 3211	Learning Outcome Assessment II	2	ELECTIVE*	Natural and Physical Sciences	4
GDES 3311	Typography II	3	GDES 3312	Information Design	3
GDES 3321	Brand Identity	3	GDES 3322	Motion Design	3
GDES 3331	Interaction I	3	GDES 3332	Interaction II	3
ELECTIVE*	Social and Behavioral Sciences	3			
Total		16	Total		15

ELECTIVE * Social and Behavioral Sciences: 6 semester hours (two 3-hour courses) must be taken from the following: PSYC 1311 Introduction to Psychology, ECON 1311: Introduction to Macroeconomics, ECON 1312: Introduction to Microeconomics, GEGR 1311: World Regional Geography, or HIST 1311: World Civilizations, 1600 – Present

ELECTIVE * Natural and Physical Sciences: 8 semester hours (two 4-hour courses) must be taken from the following: PHYS 1411: Introductory Physics, BIOL 1411: Introductory Biology or CHEM 1411 Introductory Chemistry

Summer following Junior Year – GRAPHIC DESIGN CURRICULUM		
Course Number	Course Title	Credit Hours
GDES 3338	Internship	3 (8 weeks with a total of 320 hours, for an average of 40 hours per week)

4th year – SENIOR PROGRAM – GRAPHIC DESIGN CURRICULUM					
FIRST SEMESTER			SECOND SEMESTER		
Course Number	Course Title	Credit Hours	Course Number	Course Title	Credit Hours
ELECTIVE*	Social and Behavioral Sciences	3	ELECTIVE*	Natural and Physical Sciences	4
ALIS 2212	Arabic / Islamic Studies	2	GDES 4322	Portfolio Development	3
UNIV 1213	Leadership and Teamwork	2	GDES 4413	Graphic Design Capstone Project	4
GDES 4112	Graphic Design Capstone Project Research	1	ELECTIVE*	GDES 4331: Special Topics in Graphic Design or Graphic Design Elective*	3
GDES 4321	Advanced Graphic Design	3			
ELECTIVE*	GDES 4331: Special Topics in Graphic Design or Graphic Design Elective*	3			
Total		14	Total		14

ELECTIVE * Natural and Physical Sciences: 8 semester hours (two 4-hour courses) must be taken from the following: PHYS 1411: Introductory Physics, BIOL 1411: Introductory Biology or CHEM 1411 Introductory Chemistry

ELECTIVE * Social and Behavioral Sciences: 6 semester hours (two 3-hour courses) must be taken from the following: PSYC 1311 Introduction to Psychology, ECON 1311: Introduction to Macroeconomics, ECON 1312: Introduction to Microeconomics, GEGR 1311: World Regional Geography, or HIST 1311: World Civilizations, 1600 - Present

ELECTIVE * Mathematics: 6 semester hours (two 3-hour courses) must be taken. Students may take any mathematics course offered by PMU, but the Department of Graphic Design strongly recommends the following: MATH 1311: Finite Mathematics for Students of Business and MATH 1313: Statistical Methods. Students may take these in any order, but the Department recommends MATH 1311 be taken first.

GDES 4331*: SPECIAL TOPICS IN GRAPHIC DESIGN. This course presents an opportunity for students to explore a specialized topic in detail. Courses will be offered based on the expertise of faculty (full or part-time) and could include topics such as Typeface Design, Typography in Motion, Storytelling, or Lettering. PMU might also consider creating an outreach design program as a Special Topics course that would provide partnerships between the Department of Graphic Design and the surrounding community.

Special Topics courses typically vary from year to year depending on faculty availability, student interest and current trends in the profession. TIEC recommends that PMU offer only one Special Topics course at a time and that it be a required course for all Senior students. If the Department chooses to offer more than one such course, Special Topics still will be required but students may choose which Special Topics course to take. In any instance, syllabi will be created in the semester before the course is offered.

Graphic Design Elective* courses differ from Special Topics courses in that they are offered without variance every year. Based on TIEC experience with Graphic Design programs at US universities, potential topics for Graphic Design Electives might include:

- Advanced UI/UX design
- Advertising Design
- Data Visualization
- Design Entrepreneurship
- Design Research
- Service Design

To maintain currency with developments in the profession, syllabi for electives will be written in the semester before they are first offered, then updated as needed during the lifetime of the course.

To extend the exposure of Graphic Design students to related fields and create linkages between disciplines within the University, the Department of Graphic Design might also consider allowing students to take electives from related fields, such as IDES 4333: History of Islamic Design from the Interior Design curriculum. If the PMU Architecture program offers courses in topics such as Way-finding that are relevant to Graphic Design students, these also may be taken. Students also may be able to take Accounting and Business courses that would assist them with their professional practices following graduation.

GRAPHIC DESIGN PROGRAM TOTAL CREDIT HOURS	125
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7. Course Syllabi

7.1. Course numbering system

A common system for naming courses will be applied throughout all academic programs at the PMU.

Each course title begins with four letters that indicate the subject matter of the course. For syllabi in the report *Graphic Design Program*, these letterings include:

- GDES Graphic Design

The letters are followed by four numbers:

- First digit indicates the earliest year a course can be taken. A number 1 course may be taken at any time.
- Second digit indicates credit hours. Most courses carry 3 hours of credit. Science courses with labs carry 4 hours of credit. A small number of courses carry 1 or 2 hours of credit.
- Third digit indicates a course that is part of a group or family of courses. For example, calculus courses are assigned the number 2. More advanced math courses are assigned the number 3.
- Fourth digit serves only to differentiate courses from one another within a family. For example, the four calculus courses are numbered 1, 2, 3, and 4.

7.2. *Graphic Design Syllabi*

Syllabi for courses offered by the Department of Graphic Design appear on the following pages.

Course Title: GDES 1311: Drawing	365
Course Title: GDES 1312: Digital Imaging	369
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Course Title: GDES 1322: Three-Dimensional Design	377
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Course Title: GDES 2321: Illustration	395
Course Title: GDES 2322: Digital Photography	399
Course Title: GDES 2331: History of Visual Communication	402
Course Title: GDES 2332: Design Thinking	406
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Course Title: GDES 3312: Information Design	413
Course Title: GDES 3321: Brand Identity	417
Course Title: GDES 3322: Motion Design	420
Course Title: GDES 3331: Interaction Design I	423
Course Title: GDES 3332: Interaction Design II	426
Course Title: GDES 3338: Internship	429
Course Title: GDES 4112: Graphic Design Capstone Project Research	433
Course Title: GDES 4321: Advanced Graphic Design	437
Course Title: GDES 4322: Portfolio Development	440
Course Title: GDES 4413: Graphic Design Capstone Project	444

Course Title: GDES 1311: Drawing

Semester Credit Hours: 3 (1,2)

I. Course Overview

This course focuses on the development of fundamental drawing skills. Students will develop skills in observing the physical environment and recording it on a two-dimensional surface with accuracy and sensitivity. Emphasis will be placed on developing core technical skills in a variety of drawing techniques and the exploration of various technical approaches to produce both descriptive and expressive drawings.

II. PMU Competencies

Visual *communication* is the dominant student competency developed by this course, using a structured approach to drawing, emphasizing space, volume, linear and free-hand perspective. *Critical thinking* and *problem solving* are developed through understanding graphic composition. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. Information *technology skills* are developed as students use technical programs for image editing, page layout, etc., to complete assignments. Students are expected to acquire *professional development* skills through the development of disciplined work habits and demonstrated understanding of the language, concepts and practice of drawing.

III. Detailed Course Description

The documentation and communication of ideas require fluency with symbolic and illustrative methods. Topics include basic drawing skills, including perspective, line, texture, shape, light, shade and value, step-by-step processes, tools and materials, the design process and concept sketches, and presentations. Construction methods of drawing will be emphasized: drawing through and beyond the form; planar analysis of form; and using diagonal, horizontal and vertical comparisons on the drawing to sight angles, to measure proportions and to create pictorial space. Subject matter will include still-life, interiors and nature. Media will include charcoal and graphite. The course will be divided into sections based on one or more of the formal elements of art and principles of design. Slide lectures, vocabulary and/or demonstrations will introduce each section. The tentative order of the elements of art to be addressed is:

1. Line: line gesture, sustained gesture, blind contour line, contour line, hatched and cross-hatched lines
2. Shape: positive and negative shapes, organic and geometric shapes, planes
3. Value: mass gesture, value shapes
4. Form: cross-contour, organic and geometric form, modeling and volume
5. Space: one- and two-point linear perspective, atmospheric perspective
6. Texture

The principles of design underpinning the course are: balance, scale and proportion.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

There are no prerequisites to take this course.

VI. Learning Outcomes

As a result of taking this course, students are expected to:

- Recognize and apply the elements of art and the principles of organization as it relates to drawing
- Demonstrate knowledge of techniques and form, especially line, positive/negative space, shade/ tone, texture, color, etc.
- Experiment with techniques and materials, both traditional and non-traditional to expand their visual arts vocabulary
- Show creative expression beyond preconceived boundaries
- Practice the process of conceptualization, drawing and sketching to communicate ideas
- Apply professionalism in both work ethic and quality of projects

VII. Assessment Strategy

Course assessment will emphasize drawing skills, such as visual problem solving, composition and techniques while using various tools to execute the artwork. Performance will be evaluated based on the following criteria:

- a. Class attendance and participation
- b. Craftsmanship and proficiency in the use of tools and materials
- c. Satisfactory completion of studio exercises and assignments
- d. Presentation of art works

VIII. Course Format

This studio course will consist of a series of face-to-face classroom lectures, software demonstrations and assignments. Students will work on a variety of art and design presentations demonstrating different concepts covered by the course. Online video resources and multimedia hyperlinks will be provided throughout the semester to enhance the learning process.

Classroom Hours (5 hours per week) Class: 1, Studio: 4

IX. Topics to Be Covered

- a. Drawing tools and material usage
- b. One-point, two-point, three-point linear perspective
- c. Planar analysis and line variation
- d. Controlled contour, cross contour, blind contour and gesture drawing
- e. Free-hand perspective and urban sketching
- f. Line into value exercises

X. Studio Exercises

Students will be taught and provided tools to create preparatory drawings; participate in group sketch exercises and participate in daily class critiques to become self-sufficient artists.

XI. Learning Technology Component

Students will be given access to technology-based media i.e.; online links, broadcast video and audio recordings, e-pubs, interactive websites, animation, and virtual simulation.

XII. Special Projects and Activities

- a. Art gallery field trips
- b. Artists classroom visits
- c. Learn to research and write an artist statement
- d. Group discussion and critiques

XIII. Textbooks and Teaching Aids

A. Required Textbook

Faber, David. *A Guide to Drawing*. Wadsworth Publishing; 8th Edition, 2011. ISBN-10: 1111344221

B. Alternative Textbook(s)

Curtis, Brian. *Drawing from Observation: An Introduction to Perceptual Drawing*. McGraw-Hill Education; 2nd Edition, 2009. ISBN-10: 125911399X

Edwards, Betty. *Drawing on the Right Side of the Brain*, Tarcher; 4th edition (paperback), 2012 ISBN-13: 978-1585429202

B. Supplemental Print Materials

Stewart, Mary. *Launching the Imagination*. McGraw-Hill Education; 5th Edition, 2014. ISBN-10: 0073379301

D. Supplemental Online Resources

<http://www.artstor.org>

<http://www.artcyclopedia.com>

<http://www.artnet.com>

XIV. Art Materials

Students will be expected to bring sketchbook and newsprint pad and assigned drawing media to each class. For specific exercises, the instructor will require better quality paper (18x24 drawing pad). All drawings should be signed, dated and placed in a portfolio to be turned in at mid-term and the end of the semester.

Necessary materials include:

- Art-bin/tackle or toolbox for drawing tools
- 9” x 12” sketchbook: spiral bound or hardbound
- 18” x 24” Strathmore (or other) drawing paper pad
- 18” x 24” Strathmore (or other) newsprint pad
- Set of six (6) drawing pencils (3B, 2B, B, HB, H, 2H) or similar
- Colored pencils
- Compressed charcoal sticks: soft and medium
- Large kneaded erasers
- Pencil sharpener
- Masking tape (regular, blue or green)
- Drawing board clamps (as an alternate to masking tape)
- India ink and brushes
- Additional supplies as needed throughout the semester

XV. Faculty Requirements

The faculty should have a Master of Fine Arts degree with a significant record of exhibitions and other related professional activities. He/she should be able to teach traditional drawing materials and techniques and possess knowledge of contemporary critical and theoretical drawing practices that employ other mediums and non-traditional formats relevant to the discipline.

Course Title: GDES 1312: Digital Imaging

Semester Credit Hours: 3 (1,2)

I. Course Overview

This course provides an introduction to computers as a creative tool and explores topics such as the development of image making techniques, data handling and image compositing. This course introduces students to the fundamentals of digital drawing. Students will undertake a series of projects that encompass traditional drawing skills and scanning methods. They will learn digital illustration techniques, image manipulation, layout, color, digital output and graphic design visual literacy. Students will investigate visual aesthetics and explore digital media to produce works of art.

II. PMU Competencies

Visual *communication* is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through the production and analysis of digital images. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. *Technology skills* are developed as students use technical programs for making expressive visual statements utilizing computer technology. Students are expected to acquire *professional development* skills through the development of disciplined work habits and demonstrated understanding of the language, concepts and practice of digital imaging.

III. Detailed Course Description

This course will instruct students in the study of digital illustration as a visual interpretation of words, concepts and ideas. Using a studio format, it will employ traditional illustration skills, such as

visual problem solving, composition and drawing using pressure sensitive digital tablets, in combination with raster and vector-based software. Assignments and critiques will enable students to acquire perceptual skills, understand conceptual strategies and the design process, develop technical proficiency and use the skills and knowledge they gain in practical applications to be explored during the class.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 1311: Drawing

VI. Learning Outcomes

As a result of this course, students will be able to:

- Demonstrate an understanding of basic photographic principles and digital manipulation
- Utilize the elements and principles of design in two-dimensional image work
- Employ Adobe Photoshop, Raw and Illustrator software for creative expression, or any other program that is the standard of the industry
- Examine the unique characteristics of digital image capture use, digital scanners and cameras
- Apply digital imaging as a means to artistic communication
- Demonstrate entry-level skills in digital workflow, including applications of relevant industry-related software and working methods

VII. Assessment Strategy

Course assessment will emphasize problem solving, composition and techniques while using various tools to execute the artwork. Performance will be evaluated based on the following criteria

- a. Class attendance and participation
- b. Craftsmanship and proficiency in the use of tools and materials
- c. Satisfactory completion of studio exercises and assignments
- d. Presentation of art works

VIII. Course Format

This studio course will consist of a series of face-to-face classroom lectures, software demonstrations and assignments. Students will work on a variety of art and design presentations demonstrating different concepts covered by the course. Online video resources and multimedia hyperlinks will be provided throughout the semester to enhance the learning process.

Classroom Hours (5 hours per week)

Class: 1, Studio: 4

IX. Topics to Be Covered

- a. Digital imaging tools, technical illustration, bitmap to vector conversion, typography and output considerations
- b. Manipulation of scanned images and digital photographs using photo restoration, composite imaging, masking and the adjustment and correction of images used in graphic design and photography
- c. Use of the camera, scanner and output processes
- d. Communication techniques using the visual language of photography

X. Studio Exercises

- a. Assignments will cover auto tracing line art, painting with brushes, using color, drawing and designing characters, creating icons, translating photographic images into flat color, color renderings, drawing, page layout and basic typography
- b. Software topics will include drawing, brushes, patterns, organic textures, gradients, gradient meshes, object blending, color usage, masking, pathfinder, character and paragraph palette, layers, filters, effects, styles, perspective guidelines, image size formats and printing settings.

XI. Learning Technology Component

Students will learn Adobe Photoshop, Illustrator and Lightroom Creative Cloud in developing drawing skills, image editing, exercise tool and palette knowledge while exploring a variety of different drawing and digital techniques through a series of creative assignments.

XII. Special Projects and Activities

- a. Photography and graphic design company field trips
- b. Resource speaker classroom visits
- c. Industry software demonstrations
- d. Group discussion and critiques

XIII. Textbooks and Teaching Aids

A. Required Textbook

Bloch, Christian. *The HDRI Handbook 2.0: High Dynamic Range Imaging for Photographers and CG Artists*. Rocky Nook Press, 2013. ISBN-10: 193753816

B. Alternative Textbook(s)

Wood, Allan. *The Graphic Designer's Digital Toolkit: A Project-Based Introduction to Adobe Photoshop Creative Cloud, Illustrator Creative Cloud & InDesign Creative Cloud*. Cengage Learning; 7th Edition, 2014. ISBN-10: 1305263650

C. Supplemental Print Materials

Warren, Bruce. *Digital Photography*. Wadsworth Publishing; 2nd Edition, 2011. ISBN 0495897809

Vebell, Victoria. *Exploring the Basics of Drawing*. Cengage Learning; 2nd Edition, 2015. ISBN-10: 1305386469

D. Supplemental Online Resources

<http://www.photographycourse.net>
<http://www.pixabay.com/>

XIV. Art Materials

Students will be required to have use of a camera. Also, students will be required to purchase some form of removal media that is relatively reliable and inexpensive (USB drive).

XV. Faculty Requirements

The faculty should have Master of Fine Arts degree in Communication Design or Photography and possess a broad understanding of a wide range of photographic approaches with strengths in technical, conceptual and physical object making. He/she should demonstrate expertise in the different uses of digital imaging and possess knowledge of industry software applications relevant to the discipline.

Course Title: GDES 1321: Two-Dimensional Design

Semester Credit Hours: 3 (1,2)

I. Course Overview

This course is the study of the elements and concepts of two-dimensional (2D) design, including the basic design principles and sources of design inspiration fundamental to all visual arts through readings, discussion, exercises and laboratory application. This is a visual design theory course that introduces the core concepts of visual design — visual elements, principles of design and creative process. Composition issues and strategies valid in all areas of visual design are explored through examples, exercises, critiques and creative projects.

II. PMU Competencies

Communication through the visual means of two-dimensional graphics is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through understanding graphic composition. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. *Technology skills* are developed as students use technical programs for image editing, page layout, etc., to complete assignments.

III. Detailed Course Description

This two-dimensional design course is structured to provide the student with an introduction to visual problem solving, formal analysis and skills in making art. The vocabulary of design and analysis is an important part of the course. Visual organization is initially guided by rules, principles and concepts. Design is the process of selection of all visual elements used by artists to express themselves. These elements are shape, value, texture, color, line, space and mass. Visual sensitivity and a working knowledge of the design elements is developed by solving a series of 2D problems, employing a variety of media and materials. The studio experience is different from most classes and is interactive by nature. As concepts are presented, projects will be assigned to provide an opportunity to express a visual understanding of the design principles.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

There are no prerequisites to take this course.

VI. Learning Outcomes

Students in this course acquire knowledge and skills to:

- Express a working vocabulary of art, design and visual communication terminology
- Recognize and examine various design forms, elements, traits of elements and formal relationships
- Relate the process of design, design analysis and creative problem-solving
- Apply visual design principles to concept development and design analysis
- Evaluate and justify design choices/solutions relative to client/project's posed problem and a student-crafted concept statement
- Practice and develop illustrative sketching and rapid visualization techniques in development sketches, concept presentations and in-process project discussions/critiques
- Demonstrate understanding of design issues in oral presentations, class discussions and critiques

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments and evaluation of student sketchbooks. Specific assessment includes the following:

- a. Class attendance and participation
- b. Craftsmanship and proficiency in the use of tools and materials
- c. Satisfactory completion of studio exercises and assignments
- d. Presentation of art works

VIII. Course Format

This studio course will consist of a series of face-to-face classroom lectures, software demonstrations and assignments. Students will work on a variety of art and design presentations demonstrating different concepts covered by the course. Online video resources and multimedia hyperlinks will be provided throughout the semester to enhance the learning process.

Classroom Hours (5 hours per week)

Class: 1, Studio: 4

IX. Topics to be Covered

- a. Line, shape and form
- b. Texture
- c. Perspective
- d. Color
- e. Rhythm, repetition, pattern, grouping and interruption
- f. Similarity: figure and ground
- g. Structure, gradation, radiation
- h. Anomaly, contrast concentration
- i. Design using chance and happenstance

Projects will be assigned to visually realize the design principles covered.

X. Studio Exercises

- a. Complete creative assignments applying design principles and the creative process
- b. Complete short awareness and exploratory exercises of specific design concepts
- c. Develop, implement and present solutions to complex/extended problems

- d. Create preparatory sketches, notes and research in the course of design development
- e. Present finished designs — verbal presentation.

XI. Technology Component

Students enhance skills in the use of visual communication through Photoshop, Illustrator and InDesign.

XII. Special Projects/Activities

- a. Individual written or verbal critiques of personal designs
- b. Class critiques — verbal or written
- c. Small group critique discussions — verbal or written
- d. Diagrams/charts/notations and written analysis of professional designs — written, online and/or tests

XIII. Textbooks and Teaching Aids

A. Required Textbook

Lauer, David, *Design Basics*, Wadsworth Publishing; 9th edition, 2015. ISBN: 1285858220

B. Alternative Textbooks

Wong, Wucius, *Principles of Form and Design*. John Wiley & Sons; 1993. ISBN: 0-471-28552-8

Itten, Johannes, *The Elements of Color*, John Wiley & Sons; 1970. ISBN: 978-0471289296

C. Supplemental Print Materials

Instructors provide reference handouts for programming techniques applicable to the selected project.

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Web sites that are appropriate for the topics they teach.

XIV. Art Materials

Bring a sketchbook and assigned drawing media to each class.

- Art-bin/tackle or toolbox for tools
- 9" x 12" sketchbook: spiral bound or hardbound
- Set of 6 drawing pencils (3B, 2B, B, HB, H, 2H) or similar
- Large kneaded erasers
- Pencil sharpener
- Additional supplies as needed throughout the semester

XV. Faculty Requirements

The faculty should have a Master of Fine Arts degree with a significant record of exhibitions and other related professional activities. He/she should be able to teach traditional drawing materials and techniques with knowledge of contemporary critical and theoretical drawing issues practices that employ other mediums and non-traditional formats relevant to the discipline.

Course Title: GDES 1322: Three-Dimensional Design**Semester Credit Hours: 3 (1,2)****I. Course Overview**

This study of the elements and concepts of three-dimensional (3D) design introduces students to the fundamentals and technical principles of working three dimensionally. Students will experiment with a number of construction methods and materials used to create, represent, respond to and reflect on form in space. Students will read, watch and discuss perspectives on 3D art and design written/created by artists, curators, art historians and critics. Using this information as a springboard, they will create their own 3D works.

II. PMU Competencies

Communication through the visual means of three-dimensional graphics is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through understanding graphic composition. Students demonstrate this understanding through an active, analytical approach to creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work.

III. Detailed Course Description

Design is the process of selection of all visual elements used by artists to express themselves. These elements are shape, value, texture, color, line, space and mass. Visual sensitivity and a working knowledge of the design elements is developed by solving a series of 3D problems, employing a variety of media and materials. The studio experience is different from most classes and is interactive by nature. As concepts are presented, projects will be assigned to provide an opportunity to express a visual understanding of the design principles.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 1321: Two-Dimensional Design

VI. Learning Outcomes

Students in this course acquire the knowledge and skills to:

- Describe the basic principles of 3D design
- Demonstrate a variety of art making techniques as well as technical and craftsmanship skills through hands-on work with materials in the construction of 3D art
- Choose, identify and use appropriate construction materials used and tools required in creating 3D art
- Conceptualize ideas and, through artistic process and procedure, produce 3D art
- Compose a vocabulary of art terms for discussing 3D art
- Evaluate and critically discuss (critique) their own artwork as well as the artwork of others

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments and evaluation of student sketchbooks. Specific assessment includes the following:

- a. Class attendance and participation
- b. Craftsmanship and proficiency in the use of tools and materials
- c. Satisfactory completion of studio exercises and assignments
- d. Presentation of art works

VIII. Course Format

This studio course will consist of a series of face-to-face classroom lectures, software demonstrations and assignments. Students will work on a variety of art and design presentations demonstrating different concepts covered by the course. Online video resources and multimedia hyperlinks will be provided throughout the semester to enhance the learning process.

Classroom Hours (5 hours per week)

Class: 1, Studio: 4

IX. Topics to Be Covered

- a. Bristol board: scoring, cutting, joining, etc.
- b. Relief designs in mat board and foamcore board
- c. The Platonic solids
- d. Archimedian solids
- e. Stellated solids
- f. Serial planes
- g. Large triangulated structures using newspaper struts
- h. Curvilinear/hyperparabolic forms

i.

X. Studio Exercises

- a. Complete creative assignments applying design principles and creative process
- b. Complete short awareness and exploratory exercises of specific design concepts
- c. Develop, implement and present solutions to complex/extended problems
- d. Create preparatory sketches, notes and research in the course of design development
- e. Present finished designs — verbal presentation

XI. Technology Component

Students enhance skills in the making of 3D objects by utilizing computer technology to make 3D art.

XII. Special Projects/Activities

- a. Individual written or verbal critiques of personal designs
- b. Class critiques — verbal or written
- c. Small group critique discussions — verbal or written
- d. Diagrams/charts/notations and written analysis of professional designs — written, online and/or tests

XIII. Textbooks and Teaching Aids

A. Required Textbook

None

B. Alternative Textbooks

Students will receive digital required materials for the course. All students are expected to retain all materials for the duration of the course.

C. Supplemental Print Materials

Instructors provide reference handouts applicable to the selected project.

Sources include the following:

To be added.

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Web sites that are appropriate for the topics they teach.

XIV. Art Materials

Designated by instructor.

XV. Faculty Requirements

The faculty should have a Master of Fine Arts degree with a significant record of exhibitions and other related professional activities. He/she should be able to teach traditional 3D making techniques and be comfortable working with a variety of materials, including wood, metal and other non-traditional media relevant to the discipline.

Course Title: GDES 1331: Art Appreciation

Semester Credit Hours: 3 (3,0)

I. Course Overview

This course is a general introduction to art and aesthetics and their role in human life and culture. The course includes discussion and analysis of architecture, sculpture, painting, ceramics, drawing, printmaking, photography, design, and other art forms from various historical periods and world cultures.

II. PMU Competencies and Learning Outcomes

The study of history requires *analytical thinking*. The course provides a logical framework for *critical thinking and problem solving* by introducing students to the historical concepts and understanding needed to develop global awareness. Students will learn to recognize the importance of specific concepts and how they fit together. Through *critical reading and listening*, students will be able to extrapolate from history those interrelated concepts that will allow them to comprehend the causes and consequences of change. Course exercises will require students to *work as a team* to analyze a problem, and then write and orally present a report. Students will work in groups on projects and assignments and use the Internet to retrieve relevant information and data needed to address the projects and assignments.

III. Detailed Course Description

This course introduces students to art, its history, key themes, and issues in a variety of Western and non-Western cultures. It considers drawing, painting, sculpture, visual communication design, architecture, printmaking, photography, and more. For each, this consideration covers media, techniques, styles, meanings, viewer reception, and cultural and historical contexts of production. Given the widespread dissemination of images in contemporary culture, studying the appreciation and history of art can increase visual literacy and comprehension for students pursuing graphic design.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

There are no prerequisites for GDES 1331: Art Appreciation.

VI. Learning Outcomes

In this course, students will learn to:

- Demonstrate an appreciation and understanding of art.
- Define art, artist, and art history and specialized vocabulary used in art history.
- Identify, define, and classify key works of art, their artists, styles, materials, and working methods as well as their link to historical and religious events.
- Recognize the art of diverse periods, regions, and cultures by comparing and contrasting elements of style.
- Recognize the relevance of art history today through an examination of current issues in the art world.

VII. Assessment Strategy

Assessment for this course will be based on the following weighted evaluations:

- Exams (3): 30%
- Virtual exhibition project: 20%
- Assignments: 20%
- Quizzes: 20%
- Discussions & participation: 10%

VIII. Course Format

In this course, students will be challenged to develop visual literacy, interpretive skills, and knowledge of art history. In doing this, students will also be expected to follow University and class decorum, respect everyone in the classroom, attend class regularly, complete assignments on time, study complex visual and textual materials for exams, and broaden understanding of concepts, practices, and issues relating to the history of art.

The class consists of group assignments, exams, quizzes, projects, and discussions.

A list of the number of hours for each type of instruction follows, as below:

Classroom Hours (3 hours per week) Class: 3

IX. Topics to Be Covered

Topics covered may be:

- Art History Old and New: Criticism, connoisseurship, formalism and contextualism
- Global Perspectives: Appreciation, collection, and display
- Looking at Art I: Formal Elements;
- Looking at Art II: Composition and principles of design
- Art Forms, Media and Process I: Two-dimensional art—drawing and painting
- Art Forms, Media and Process II: Printmaking, photography, collage, and film
- Art Forms, Media and Process III: Three-dimensional art—architecture, sculpture, and assemblage
- Art themes, functions, and media in Prehistoric cultures
- Art themes, functions, and media in ancient civilizations: The Fertile Crescent and Egypt
- Western art, its themes, functions, and media in Classical Greece and Rome
- Art themes, functions, and media in ancient cultures: Asia
- Byzantine and Gothic art

- Renaissance and Baroque art
- Art and colonialism Art in Africa and Oceania
- Art and colonialism in the Americas
- Art in the 19th century
- Art in the 20th century

X. Laboratory Exercises

This course does not require a separate lab.

XI. Technology Component

Students are expected to have a computer account on the University's BLACKBOARD system to communicate via e-mail. Students should immediately sign up for the online discussion group for the class. Students are also expected to become familiar with the use of the Internet.

All assignments and projects are submitted, and examinations are taken, online. Assignments focus on guided collaborative learning, media-assisted instruction, research projects, and laboratory and computer exercises. Students should check with their instructor in order to obtain the specific methods to be used in the course.

XII. Special Projects/Activities

Researching artists, images, and art history builds students' knowledge and helps them synthesize the information, ideas, and imagery discussed in class, through readings, and through BLACKBOARD resources. In this way, students produce well-researched, well-organized, and well-written virtual exhibition project via Google Art consisting of online images and captions describing the art's significance in relation to its artistic and socio-historical context of production. Instructions for this online assignment will be provided in class and on BLACKBOARD.

XIII. Textbooks and Teaching Aids

A. Required Textbook

Fischer, Julia, *How to Speak Art: Understanding Its Language, Issues, and Themes* by Julia Fischer (First Edition), Cognella Academic Publishing, 2015. ISBN-10: 1631897810

B. Alternative Textbooks

None

C. Supplemental Print Materials

Instructors provide reference handouts for design research and portfolio applicable to the selected project.

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Web sites that are appropriate for the topics they

teach. These may include:

- SmartHistory: <http://smarthistory.khanacademy.org>
- Glossaries: <http://smarthistory.org/glossary.html> or <http://www.artlex.com>
- Directory of online art history resources: <http://arthistoryresources.net/ARTHLinks.html>
- Google Art Project: <http://www.googleartproject.com>
- Helbrun Timeline of Art History: <http://www.metmuseum.org/toah>

XIV. Faculty Requirements

The faculty should have a terminal degree (Ph.D.) in Art History, and a significant record of research and scholarly accomplishments. She/he should demonstrate expertise in different periods of art, from Western and non-Western history to contemporary issues.

Course Title: GDES 1332: Art History

Semester Credit Hours: 3 (3,0)

I. Course Overview

This course surveys the arts of the Western and non-Western world from prehistoric eras through the 14th century. The course will consider both the formal development of art and its cultural/historical context.

II. PMU Competencies and Learning Outcomes

The study of history requires *analytical thinking*. The course provides a logical framework for *critical thinking and problem solving* by introducing students to the historical concepts and understanding needed to develop global awareness. Students will learn to recognize the importance of specific concepts and how they fit together. Through *critical reading and listening* students will be able to extrapolate from history those interrelated concepts that will allow them to comprehend the causes and consequences of change.

III. Detailed Course Description

The course surveys the arts of the Western and non-Western world from the prehistoric eras through the 14th century, the time of the introduction of the printing press, which ushered in dramatic change in art and communication. In the Graphic Design curriculum, this course is preceded by the more general, introductory course, GDES 1331: Art Appreciation and is followed by the discipline-specific GDES 2331: History of Visual Communication.

GDES 1332: Art History considers media, techniques, styles, meanings, viewer reception, and cultural and historical contexts of production. The course considers both the formal development of art and its cultural/historical context. The format of the course is lecture with discussion.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 1331: Art Appreciation

VI. Learning Outcomes

Upon successful completion of this course, students will:

- Recognize the visual characteristics of period and individual styles through a study of major monuments from the prehistoric era to 1400.
- Utilize works of art to better understand the social, cultural, and economic realities of the historical eras.
- Use critical thinking skills in order to interpret, analyze, and assess works of art based upon formal concerns, iconography, and historical context
- Demonstrate visual literacy and to employ art historical terms.
- Discuss the relevance of art history today through an examination of current issues in the art world.

VII. Assessment Strategy

Assessment for this course will be based on the following weighted evaluations:

- Midterm exam: 10%
- Final exam: 20%
- Exhibition review: 15%
- Assignments: 20%
- Quizzes: 25%
- Discussions and participation: 10%

VIII. Course Format

In this course, students will be challenged to develop visual literacy, interpretive skills, and knowledge of art history. In order to do so, students will also be expected to follow university and class decorum, respect everyone in the classroom, attend class regularly, complete assignments on time, study complex visual and textual materials for exams, and broaden understanding of concepts, practices, and issues relating to the history of art. The class consists of assignments, exams, quizzes, projects, and online discussions.

A list of the number of hours for each type of instruction follows, as below:

Classroom Hours (3 hours per week) Class: 3

IX. Topics to Be Covered

Material covered in the course will be:

- Art in the Prehistoric Period
- Art in ancient Near East
- Art of ancient Egypt
- Aegean art
- Art of ancient Greece
- Etruscan and Roman Art
- Byzantine art and its influences
- Islamic art
- The art of India before 1200
- The art of China and Japan before 1200-1400
- Early medieval art
- Romanesque art in Europe
- Gothic art in Europe
- Pre-Columbian Americas Art
- Art of ancient Africa

X. Laboratory Exercises

This course does not require a separate lab.

XI. Technology Component

Students are expected to have a computer account on the University's BLACKBOARD system to communicate via e-mail. Students should immediately sign up for the online discussion group for the class. Students are also expected to become familiar with the use of the Internet.

All assignments and projects are submitted, and examinations are taken, online. Assignments focus on guided collaborative learning, media-assisted instruction, research projects, and laboratory and computer exercises. Students should check with their instructor in order to obtain the specific methods to be used in the course.

An online discussion group is set up to discuss the topics of the course outside of the classroom. Students are required to actively participate in this online discussion forum, obtain information about interesting new ideas, discuss current policy issues, and elaborate on materials presented in class. The instructor contributes regularly to the discussion and replies to questions asked and comments offered.

XII. Special Projects/Activities

None

XIII. Textbooks and Teaching Aids**A. Required Textbook**

Stockstad, Marilyn and Michael W. Cothren, *Art History* Volume 1, 6th edition, Pearson, 2017.
ISBN: 9780134475882

B. Alternative Textbooks

None

C. Supplemental Print Materials

Instructors provide reference handouts for design research and portfolio applicable to the selected project.

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Web sites that are appropriate for the topics they teach. These may include:

- SmartHistory: <http://smarthistory.khanacademy.org>
- Glossaries: <http://smarthistory.org/glossary.html> or <http://www.artlex.com>
- Directory of online art history resources: <http://arthistoryresources.net/ARTHLinks.html>
- Google Art Project: <http://www.googleartproject.com>
- Helbrun Timeline of Art History: <http://www.metmuseum.org/toah>

XIV. Faculty Requirements

The faculty should have a terminal degree (Ph.D.) in Art History, and a significant record of research and scholarly accomplishments. S/he should demonstrate expertise in different periods of Art, from Western and non-Western history to contemporary issues.

Course Title: GDES 2311: Typography I

Semester Credit Hours: 3 (1,2)

I. Course Overview

This course provides an introduction to the study of the letterform as a cornerstone of graphic design. It focuses on how typography can be used as a communicative device as well as a graphic, compositional and expressive element. Areas explored include letterform anatomy, letterform analysis, measuring systems, typographic identification and practical issues of setting and using type effectively.

II. PMU Competencies and Learning Outcomes

Visual *communication* is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through the production of communication graphics. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. *Technology skills* are developed as students use technical programs for designing effective compositions utilizing computer technology. Students are expected to acquire *professional development* skills through the development of disciplined work habits and demonstrated understanding of the language, concepts and practice of graphic design.

III. Detailed Course Description

Typography focuses on learning the fundamentals of typography and typographic syntax. The course aims to increase the awareness of how typography is designed and used, and how it should be appreciated in reference to historical and current cultural influences. Using a studio format, the course will employ lectures, demonstrations, discussions, projects and critiques to explore the basic components of typography. Topics covered will include letterform anatomy, letterform analysis, measuring systems, typographic identification, practical issues of setting and using type effectively, hierarchy, legibility, type as conduit for meaning and visual problem solving through typographic form. Studio procedures will incorporate hand work as well as computer-generated explorations. Course work includes: studio exercises, projects, reading, writing and research. The course will prepare students to meet basic standards of communication with professionals in related fields. It will provide an overview of type and typesetting, printing technology, paper, professional hand tools and products. Students will be introduced to the appropriate technology: the computer will be explored as a sketching, comping and production tool. Precision, craft skills and computer skills are to be emphasized in this course.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 1321: 2D Design

VI. Learning Outcomes

As a result of this course, students will be able to:

- Describe typography's role in design and understand its potential for effective communication
- Identify digital technology as related to the design process
- Understand the potential of typography and how it can be used to develop new ways of communicating, thinking and problem solving
- Apply the principles of hierarchy and dominance of typographic elements
- Organize words and images in design layouts using typographic structural systems, alignments and grids
- Demonstrate an understanding of the language of typography, including critical theory, critique, history, technology and craftsmanship

VII. Assessment Strategy

Course assessment will emphasize typographic hierarchy and clarity, such as problem solving, composition and techniques while using various tools to execute the artwork. Performance will be evaluated based on the following criteria:

- a. Class attendance and participation
- b. Craftsmanship and proficiency in the use of tools and materials
- c. Satisfactory completion of studio exercises and assignments
- d. Presentation of art works

VIII. Course Format

This studio course will consist of a series of face-to-face classroom lectures, software demonstrations and assignments. Students will work on a variety of art and design presentations demonstrating different concepts covered by the course. Online video resources and multimedia hyperlinks will be provided throughout the semester to enhance the learning process.

Classroom Hours (5 hours per week)

Class: 1, Studio: 4

IX. Topics to Be Covered

- a. History of Roman type
- b. Typographic identification and vocabulary
- c. Visual hierarchy, grid structures and layout design
- d. System design and color theory
- e. Type identification and vocabulary

X. Studio Exercises

- a. Creative problem solving using basic elements of graphic communication with an introduction to typography, composition and the relationship between type and images
- b. Understanding the creative process; developing techniques and methods of creative problem solving
- c. Applications of typographic theory to type setting and using established norms of graphic design

XI. Technology Component

Students will learn Adobe Photoshop, Illustrator and InDesign to develop typographic skills, image editing, exercise tool and palette knowledge while exploring a variety of different drawing and digital techniques through a series of creative assignments.

XII. Special Projects and Activities

- a. Art gallery and graphic design company field trips
- b. Resource speaker classroom visits
- c. Industry software demonstrations
- d. Group discussion and critiques

XIII. Textbooks and Teaching Aids

A. Required Textbook

Lupton, Ellen. *Thinking with Type*. Princeton Architectural Press; Expanded Edition, 2010. ISBN-10: 1568989695

B. Alternative Textbooks

Carter, Robb. *Typographic Design: Form and Communication*. Wiley; 7th Edition, 2018. ISBN-10: 1119312566

C. Supplemental Print Materials

Meggs, Philip. *History of Graphic Design*. Wiley; 6th Edition, 2016. ISBN-10: 1118772059

D. Supplemental Online Resources

<http://www.tdc.org>

<http://www.edex.adobe.com>

XIV. Faculty Requirements

The faculty should have a Master of Fine Arts degree in Visual Communications or Graphic Design with a specialization in typography and a significant record of research and design accomplishments. He/she should demonstrate expertise in print production, typography, graphic design and knowledge of industry software applications relevant to the discipline.

Course Title: GDES 2312: Arabic Typography

Semester Credit Hours: 3 (1,2)

I. Course Overview

This is an intermediate level course devoted to the study of the marriage of Latin and Arabic typography. This course develops the student's ability to create typographic designs by visually and aesthetically merging Arabic and Latin fonts. This multi-script combination targets the needs of the Arab market. Students will learn how to dissect fonts, create modules, experiment with type, generate Arabic adaptations and construct typographical patterns that evolve into 3D objects. The student further learns the rules of the typographic grid system in order to be able to experiment with breaking the grid while designing layouts, spreads and posters.

II. PMU Competencies

Visual *communication* is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through the production of communication graphics, especially focusing on *Arabic Language*, understanding the trends in Arabic typography and its evolution through history. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. *Technology skills* are developed as students use technical programs for designing effective compositions utilizing computer technology. Students are expected to acquire *professional development* skills through the development of disciplined work habits and demonstrated understanding of the language, concepts, and practice of graphic design.

III. Detailed Course Description

This course explores Arabic typography from a theoretical and practical perspective, focusing on its evolution through history, typographical adaptations and their importance in a bilingual society. Using a studio format, the course will employ studio lectures, demonstrations, discussions, projects and critiques. Topics covered will include experimentation, the legibility of type, the difference between Arabic and Latin grids and the importance of research, experimentations and variations to achieve a successful typographic final outcome. The course explores issues beyond the purely formal and aesthetic, delving into how typography communicates messages by exploring untraditional ways of representation such as how to transform typographical patterns to 3D objects (jewelry and furniture) from 2D Arabic letterforms.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 2311: Typography I

VI. Learning Outcomes

As a result of successfully completing this course, students will be able to:

- Design Latin letterforms out of Arabic letters (hybrid name)
- Create Arabic adaptations for Latin fonts and logos
- Generate the appropriate grids for both the Arabic and Latin alphabets
- Construct creative modules to design innovative Arabic letterforms
- Design an effective bilingual poster using typographic hierarchy and an innovative grid
- Create aesthetically balanced patterns out of Arabic letterforms

VII. Assessment Strategy

Course assessment will emphasize typographic hierarchy and clarity, such as problem solving, composition and techniques while using various tools to execute the artwork. Performance will be evaluated along the following criteria:

- a. Class attendance and participation
- b. Craftsmanship and proficiency in the use of tools and materials
- c. Satisfactory completion of studio exercises and assignments
- d. Presentation of art works

VIII. Course Format

This studio course will consist of a series of face-to-face classroom lectures, software demonstrations and assignments. Students will work on a variety of art and design presentations demonstrating different concepts covered under the course. Online video resources and multimedia hyperlinks will be provided throughout the semester to enhance the learning process.

Classroom Hours (5 hours per week)

Class: 1, Studio: 4

IX. Topics to Be Covered

- a. Typographic identification and vocabulary
- b. Type visual hierarchy, grid structures and layout design
- c. Latin font experiment
- d. Arabic hybrid
- e. Logo adaptation
- f. Font adaptation
- g. Bilingual poster

X. Studio Exercises

- a. Creative problem solving using basic elements of graphic communication with an introduction to typography, composition, interaction design and three-dimensional type
- b. Assignments geared to generate typographic concepts and research ideas in the use of alternative language letterforms to communicate a message
- c. Applications of typographic theory to type setting

XI. Technology Component

Students will learn Adobe Photoshop, InDesign and Illustrator in developing typographic skills while exploring a variety of different drawing and digital techniques through a series of creative assignments.

XII. Special Projects and Activities

- a. Advertising and Web design company field trips
- b. Resource speaker classroom visits
- c. Industry software demonstrations
- d. Group discussion and critiques

XIII. Textbooks and Teaching Aids

A. Required Textbook

McCormick, Lara. *Playing with Type: 50 graphic experiments for exploring typographic design principles*. Rockford, 2013. ISBN-13: 9781592538171

B. Alternative Textbooks

Ruder, Emil. *Typographie: A Manual of Design*. Verlag Niggli AG; 2001. ISBN-13: 9783721200430

C. Supplemental Print Materials

Samara, Timothy. *Making and Breaking the Grid: A Graphic Design Layout Workshop*. Rockport Publishers; 2005. ISBN-13: 9781592531257

D. Supplemental Online Resources

www.arabictypography.com

www.theplacedesign.wordpress.com

www.redsun.com/type

<http://www.arabictype.com/blog/>

<http://www.atrissi.com/category/type-design/>

XIV. Faculty Requirements

The faculty should have a Master of Fine Arts degree in Communication or Graphic Design with a specialization in Arabic Typography and a significant record of experience working for the Arab market. He/she will demonstrate expertise in typography, communication design, UI interface and possess knowledge of industry software applications relevant to the discipline.

Course Title: GDES 2321: Illustration

Semester Credit Hours: 3 (1,2)

I. Course Overview

This is an introductory course to explore the professional field of illustration. Students will acquire fundamental illustration skills and become familiar with principal areas within the field, such as editorial, advertising and scientific-technical. Students will explore a variety of techniques, while developing critical thinking and problem-solving skills. Students will use their knowledge of drawing, design and style to communicate ideas graphically and start building a professional portfolio.

II. PMU Competencies

Communication through the visual means of two-dimensional graphics is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through understanding graphic composition. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. Information *technology skills* are developed as students use technical programs for image editing, page layout, etc., to complete assignments.

III. Detailed Course Description

This course will focus on various ways to generate imagery for visual communication. The course introduces students to illustration techniques for the design process in print and media: from initial concept development to sketches through presentation drawings and visualizations. Students will learn how messages are produced and why, and what effects they have on society. This course will also emphasize disciplined craftsmanship using traditional artistic tools as well as technological tools. This course is constructed to develop confidence in creativity, aesthetic judgment, self-expression and critical-thinking skills, which, combined, expand creative solutions in the varied facets of the visual communication discipline. Topics include general layouts and dimensional drawings providing essential preparation for Illustrator classes for design. Topics also include a history of designers' drawings, drawing skills, step-by-step processes, tools and materials, the design process and concept sketches and presentations.

IV. Requirements Filled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 1322: Three-Dimensional Design

VI. Learning Outcomes

- Identify principal areas within the field of illustration, its history and current trends
- Demonstrate knowledge of combining word and image into meaningful compositions
- Assemble online and/or library research into assignments by looking for copyright-free photographic resources, art historical references, narratives and other content that can be incorporated into assignments
- Solve illustration problems effectively and creatively by developing concepts with sketches, working with visual references and creating a finished work
- Evaluate and revise one's own work in response to critique
- Analyze works of peers during class critiques using acquired knowledge of the principal processes of illustration
- Compose vocabulary and presentation skills for effective communication

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments and the evaluation of student sketchbooks. Specific assessment includes the following:

- a. Studio Exercises
- b. Projects

VIII. Course Format

The course is primarily a studio that incorporates a series of lectures and demonstrations.

Attendance is mandatory. Student output is mostly produced in the studio class periods.

Students present their work visually and verbally throughout the semester for peer critique.

Web supplement: The course home page (using the university's BLACKBOARD) includes the following:

- a. Course syllabus
- b. Course assignments
- c. Course e-mail utility
- d. Course discussion list
- e. Student course grades

Classroom Hours (5 hours per week)

Class: 1, Studio: 4

IX. Topics to Be Covered

- a. History of illustration
- b. Advertising and institutional illustration
- c. Cultural illustration
- d. Product and packaging illustration
- e. Children's illustration, sequential narrative, graphic novel
- f. Editorial illustration/infographics
- g. Portraits/caricatures, digital, narrative, etc.

X. Studio Exercises

- a. Complete creative assignments applying design principles and the creative process
- b. Complete short awareness and exploratory exercises of specific design concepts
- c. Develop, implement and present solutions to complex/extended problems
- d. Create preparatory sketches, notes and research in the course of design development
- e. Present finished designs — verbal presentation

XI. Technology Component

Students enhance skills in the use visual communication using Adobe Photoshop, Illustrator and InDesign.

XII. Special Projects/Activities

- a. Individual written or verbal critiques of personal designs
- b. Class critiques — verbal or written
- c. Small group critique discussions — verbal or written
- d. Diagrams/charts/notations and written analysis of professional designs — written, online and/or tests

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

Harthan, John. *The History of The Illustrated Book: The Western Tradition*. London: Thames and

Hudson Ltd.; 1981. ISBN-13: 9780500233160

B. Alternative Textbook(s)

Heller, Steven and Chwast, Seymour. *Graphic Style: From Victorian to Digital*. New York: Harry N. Abrams Inc.; 2000. ISBN-13: 978-0810929845

C. Supplemental Print Materials

Heller, Steven and Chwast, Seymour. *Illustration: A Visual History*. Abrams, Harry N., Inc.; 2008. ISBN-13:9780810972841

D. Supplemental Online Materials

TBA

XIV. Faculty Requirements

The faculty should have a Master of Fine Arts degree in Visual Communication or Graphic Design with a preferred specialization in illustration, branding, typography, interaction design and have a significant record of research and design accomplishments. He/she should demonstrate expertise in print production, typography, graphic design and possess knowledge of industry software applications relevant to the discipline.

Course Title: GDES 2322: Digital Photography

Semester Credit Hours: 3 (1,2)

I. Course Overview

This course will introduce students to how to see and communicate using the medium of photography, focusing on digital single-lens reflex (D-SLR) cameras and computer/editing software as creative tools. Students will learn to understand the principles of light, exposure and frame composition.

II. PMU Competencies

Visual *communication* is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through the production and analysis of digital images. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. *Technology skills* are developed as students use technical programs for making expressive visual statements utilizing computer technology. Students are expected to acquire *professional development* skills through the development of disciplined work habits and demonstrated understanding of the language, concepts and practice of photographic issues.

III. Detailed Course Description

This course will focus on the D-SLR camera and computer/editing software as creative tools. It is geared toward expanding students' technical abilities and aesthetic awareness within the medium of digital imaging. Emphasis will be placed on the creation of meaning within the digital arena, along with gaining all the necessary technical skills. Goals include theoretical and practical introduction to electronic imaging as a creative medium within the broad history of photography. Topics explored include scanning, global and local photographic adjustments and the use of Adobe Bridge, Photoshop and Lightroom.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 1312: Digital Imaging

VI. Learning Outcomes

As a result of this course, students will be able to:

- Recognize and apply intermediate photographic manipulation
- Demonstrate entry-level skills in digital workflow, including applications such as Adobe Photoshop, Raw and Lightroom for image editing
- Examine advanced ways of seeing and creating a photograph
- Describe the advanced technical and conceptual skills of making a photograph (and body of work) to communicate ideas clearly to an audience
- Employ the vocabulary related to photography and its processes
- Use photography as a means for artistic communication

VII. Assessment Strategy

Course assessment will emphasize problem solving, composition and techniques while using various tools to execute the artwork. Performance will be evaluated along the following criteria:

- a. Class attendance and participation
- b. Craftsmanship and proficiency in the use of tools and materials
- c. Satisfactory completion of studio exercises and assignments
- d. Presentation of art works

VIII. Course Format

This studio course will consist of a series of face-to-face classroom lectures, software demonstrations and assignments. Students will work on a variety of art and design presentations demonstrating different concepts covered by the course. Online video resources and multimedia hyperlinks will be provided throughout the semester to enhance the learning process.

Classroom Hours (5 hours per week)

Class: 1, Studio: 4

IX. Topics to Be Covered

- a. Introduction to basic Camera operations
- b. Metering, seeing light and intermediate camera operations
- c. Exploring various composition techniques
- d. Fine-tuning developing and printing in the darkroom
- e. Exploring pre-visualization and enhancing the final print
- f. Integrating all lessons and applying to practice

X. Studio Exercises

- a. Assignments will cover basic principles of digitally capturing, processing, and printing photographs.
- b. Software topics will include resolution, color space, bit depth, layer masks, blending, and composites.

XI. Learning Technology Component

Students will learn Adobe Photoshop, Illustrator and Lightroom Creative Cloud in developing photographic skills, image editing, exercise tool and palette knowledge while exploring a variety of different drawing and digital techniques through a series of creative assignments.

XII. Special Projects and Activities

- a. Photography and graphic design company field trips
- b. Resource speaker classroom visits
- c. Industry software demonstrations
- d. Group discussion and critiques

XIII. Textbooks and Teaching Aids

A. Required Textbook

London, Barbara, Jim Stone and John Upton, *Photography*, 11th edition. Pearson, 2013. ISBN 13: 9780205933808.

B. Alternative Textbooks

Since design technology evolves quickly, updated books may be available at the time of course introduction.

C. Supplemental Print Materials

Instructors provide reference handouts applicable to the selected project. Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

<http://www.photographycourse.net>
<http://www.pixabay.com/>

XIV. Art Materials

Students will be required to have use of a camera. Also, students will be required to purchase some form of removal media that is relatively reliable and inexpensive (USB drive).

XV. Faculty Requirements

The faculty should have master's degree in Communication Design or Photography and possess a broad understanding of a wide range of photographic approaches with strengths in technical, conceptual and physical object making. He/she should demonstrate expertise in the different uses of digital imaging and knowledge of industry software applications relevant to the discipline.

Course Title: GDES 2331: History of Visual Communication

Semester Credit Hours: 3 (3,0)

I. Course Overview

This course provides a historical analysis of visual communication with emphasis on the development of the profession of graphic design and the relationship of commerce and technology to the history of graphic design.

II. PMU Competencies and Learning Outcomes

The study of history requires *analytical thinking*. The course provides a logical framework for *critical thinking and problem solving* by introducing students to the historical concepts and understanding needed to develop global awareness. Students will learn to recognize the importance of specific concepts and how they fit together. Through *critical reading and listening* students will be able to extrapolate from history those interrelated concepts that will allow them to comprehend the causes and consequences of change. Course exercises will require students to work as a *team* to analyze a problem, and then write and orally present a report. Students will work in groups on projects and assignments and use the Internet to retrieve relevant information and data needed to address the projects and assignments.

III. Detailed Course Description

This course will examine the historical, social and cultural impact of graphic design in the visual culture of the world. The course will follow a chronological progression based on the main adopted book (Meggs and Purvis) that will proceed from the invention of writing in Mesopotamia around 3100 BCE, to the digital present of the discipline of Graphic Design.

GDES 2331: History of Visual Communication is a combination of a survey course covering a large number of relevant topics within the history of the discipline. It also is an in-depth analysis of important social and communicative and stylistic developments during this large period.

The course is designed to connect the works of representative artists and relevant styles with the appearance and development of new printing and displaying technologies and their social and historical impact. It focuses on historical developments in graphic design used for the dissemination of knowledge and information and its evolution as an ever-more-efficient form of communication.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES1332: Art History

VI. Learning Outcomes

Upon successful completion of this course, students will:

- Show an understanding of the role that graphic communication plays in material culture as part of the designed human environment.
- Identify essays and projects that explore issues in design history.
- Demonstrate awareness of the historical, economic, and professional contexts of graphic design.
- Evaluate the influences (i.e. technology, capitalism, and aesthetics) on visual communication and graphic design.
- Describe the development of the profession of graphic design.
- Recognize the canonical pieces of visual communication and graphic design.
- Define important terms, concepts, and ideas, and recall information about designers and their work.

VII. Assessment Strategy

Assessment for this course will be based on the following weighted evaluations:

- Written research paper: 30%
- Assignments: 20%
- Quizzes: 10%
- Class discussions: 10%
- Visual design presentation: 20%
- Final exam: 10%

VIII. Course Format

-
- The format of this course includes lectures, class discussions, activities, videos, and course readings. There will be three formal writing assignments, quizzes, one visual design project, and an end-term exam. The course has a Blackboard unit where all documentation, including syllabus, schedules, assignments, and some further specific readings will be available to students. Students should attend class regularly, complete assignments on time, study complex visual and textual materials for exams, and broaden their understanding of concepts, practices, and issues relating to the history of graphic communication.

Classroom Hours (3 hours per week)

Class: 3

IX. Topics to Be Covered

What is graphic design?

- The prehistory of graphic design and the invention of writing
- From early to modern alphabets
- The Asian contribution: Presentation and techniques
- The history of illuminated manuscripts

Graphic design at the beginning of modernity

- The arrival of printing in Europe
- The printed illustrated book after Guttenberg; The Nuremberg school of printing
- Graphic design in the Renaissance
- The invention of new typography in the 18th century

Graphic design and the industrial revolution

- The invention of photograph and the beginning of modern mass printing
- The Arts and Crafts Movement
- Art Nouveau
- Graphic design in the early 20th century
- The influence of early Modern Art on graphic design
- Pictorialism and Art Deco
- Constructivism
- The Bauhaus and the New Typography
- Modern graphic design in the United States

Graphic design in the digital age

- The international typographic style
- The New York School
- Corporate identity and visual systems
- The conceptual image
- Graphic design in the age of globalization
- Graphic design and Post Modernity

X. Laboratory Exercises

This course does not require a separate lab.

XI. Technology Component

Students are expected to have a computer account on the University's BLACKBOARD system to communicate via e-mail. Students should immediately sign up for the online discussion group for the class. Students are also expected to become familiar with the use of the Internet.

All assignments and projects are submitted, and examinations are taken, online. Assignments focus on guided collaborative learning, media-assisted instruction, research projects, and laboratory and computer exercises. Students should check with their instructor in order to obtain the specific methods to be used in the course.

XII. Special Projects/Activities

A major part of each student's final grade is based on a research paper along with its interpretation into a 5–7-minute class presentation. Each student proposes, in writing, two different subjects (a person, style, movement or period of time relating to graphic design) for review and approval by the instructor.

XIII. Textbooks and Teaching Aids

A. Required Textbook

Meggs, Philip B., and Alston W. Purvis, *Meggs' History of Graphic Design*, 6th Edition, John Wiley & Sons, Inc., 2016. ISBN-10: 1118772059

Ballance, Georgette and Steven Heller, *Graphic Design History*, 1st Edition, Allworth Press, 2001. ISBN-10: 1581150946

B. Alternative Textbooks

Vitg, Armin, and Bryony Gomez-Palacio, *Graphic Design, Referenced: A Visual Guide to the Language, Applications, and History of Graphic Design*, Rockport Publishers, 2009. ISBN-10: 1592534473

Drucker, Johanna and Emily McVarish, *Graphic Design History: A Critical Guide*. Pearson, 2008. ISBN-10: 0132410753

C. Supplemental Print Materials

Instructors provide reference handouts for design research and portfolio applicable to the selected project.

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Web sites that are appropriate for the topics they teach.

XIV. Faculty Requirements

The faculty should have a Master of Fine Arts degree in Visual Communication or Graphic Design (preferably a Ph.D. in Art History with a specialization in Design) and a significant record of research and scholarly accomplishments. She/he should demonstrate expertise in print production, typography, graphic design and visual culture, with interest in Western and non-Western history to contemporary issues.

Course Title: GDES 2332: Design Thinking

Semester Credit Hours: 3 (3,0)

I. Course Overview

Design thinking refers to a creative and strategic process for problem finding and solving. In this course, students learn how to understand a problem and deliver a design concept to their project stakeholders from a systemic perspective with data and empathy. Students also learn prototyping and testing methods.

II. PMU Competencies and Learning Outcomes

Communication through the visual means of two-dimensional graphics is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through understanding graphic composition. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. Information *technology skills* are developed as students use technical programs for image editing, page layout, etc., to complete assignments.

This course supports the new PMU competency “Globally Connected” by helping students understand the thought process of designers and how this relates to the thought processes of non-designer colleagues and clients.

III. Detailed Course Description

Students explore various brainstorming and mapping methods for innovative concept development using design thinking. Students are required to practice how to deliver their design concept to their project stakeholders quickly and how to visualize their thinking process. Students also develop their team working skills.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 2331: History of Visual Communication

UNIV 1212: Critical Thinking and Problem Solving

VI. Learning Outcomes

Students in this course acquire knowledge and skills to:

- Recognize a problem and its stakeholders from a systemic perspective
- Identify a problem and its stakeholders using data and empathy
- Brainstorm and plan with team members
- Diagram or map their thinking process
- Build rapid prototype of graphic design
- Visualize and show their thinking process

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments and evaluation of student sketchbooks. Specific assessments include the following:

- A. Classroom Exercises
- B. Projects

VIII. Course Format

The course is primarily classroom-based and incorporates a series of lectures and demonstrations. Depending on the topic being addressed, some of these demonstration may require access to a studio setting.

Attendance is mandatory. Much of the student output is produced during the class periods.

Students present their work visually and verbally throughout the semester for peer critique.

Web supplement: The course home page (using the university's BLACKBOARD) includes the following:

- a. Course syllabus
- b. Course assignments
- c. Course e-mail utility
- d. Course discussion list
- e. Student course grades

Classroom Hours (3 hours per week)

Class: 3, Studio: 0

IX. Topics to Be Covered

- a. Design thinking user research
- b. Systems thinking
- c. Brainstorming
- d. Mapping
- e. Rapid prototyping
- f. Evaluating design
- g. Introduction to infographics

X. Laboratory Exercises

This course does not require a separate lab.

XII. Technology Component

Students enhance skills in visual communication through Photoshop, PowerPoint and the Internet.

XIII. Special Projects/Activities

- a. Complete creative assignments applying design principles and creative process.
- b. Complete short awareness and exploratory exercises of specific design concepts.
- c. Develop, implement and present solutions to complex/extended problems.
- d. Prepare sketches, notes and research in the course of design development.
- e. Present finished designs — verbal presentation.
- f. Individual written or verbal critiques of personal designs.
- g. Class critiques — verbal or written.
- h. Small group critique discussions — verbal or written.
- i. Diagrams/charts/notations and written analysis of professional designs — written, online and/or tests.

XIII. Textbooks and Teaching Aids

A. Required Textbook

Lupton, Ellen and Cole Phillips, Jennifer. *Graphic Design Thinking: beyond brainstorming*. Princeton Architectural Press, 2014. ISBN-13: 978-1568989792

B. Alternative Textbooks

Brown, Tim. *Change by Design: how design thinking transforms organizations and inspires innovation*. HarperBusiness, 2009. ISBN-13: 978-0061766084

Due to the evolving nature of the design industry, updated books may become available by the time of course introduction.

C. Supplemental Print Materials

Instructors will provide reference handouts for design research and student portfolios, applicable to the selected project.

Additional Arabic books, journals and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Materials available from the Hasso Plattner Institute of Design, Stanford University (<https://dschool.stanford.edu>)

Instructors will provide a list of suitable, contemporary Web sites that are appropriate for the topics covered in this course.

XIV. Faculty Requirements

The faculty should have a Master of Fine Arts degree in Visual Communications or Graphic Design with a preferred specialization in typography, interaction design or experience design, and a significant record of research and design accomplishments. He/she should demonstrate expertise in print production, typography, graphic design and possess knowledge of industry software applications relevant to the discipline.

Course Title: GDES 3311: Typography II

Semester Credit Hours: 3 (1,2)

I. Course Overview

This course is an advanced course that explores diverse typographic issues related to digital or screen-based communication. It expands on typographic principles and design elements for screen-based media while providing the groundwork for innovative and effective typographic and UI design practices.

II. PMU Competencies

Visual *communication* is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through the production of communication graphics. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. *Technology skills* are developed as students use technical programs for designing effective compositions utilizing computer technology. Students are expected to acquire *professional development* skills through the development of disciplined work habits and demonstrated understanding of the language, concepts and practice of graphic design.

III. Detailed Course Description

This course explores the use of the letterform from a theoretical and practical perspective. Using a studio format, it will employ studio lectures, demonstrations, discussions, projects and critiques. Topics covered will include experimentation, the legibility of type on screen, modular type scales, hierarchy and structure for responsive layouts. Students will learn modes for amplifying meaning and intent through typographic experience, sequence and flow of reading on digital devices, visual systems for interactive design projects, and design of interactive wayfinding screens. The course explores issues beyond the purely formal and aesthetic, delving into how typography communicates messages by exploring untraditional ways of representation. The projects aim to inspire students to explore the intersections of legibility and readability, and the association of type with images.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 2311: Typography I

VI. Learning Outcomes

- Describe shared, unique attributes and principles of typography for print and screen-based media
- Create typographic design solutions that can evoke emotional responses
- Design type and graphical user interfaces for an effective concept presentation in wayfinding screens
- Predict what end users might need or want
- Describe and demonstrate how type interface must be easy to access and understand
- Recognize and apply interaction design and information architecture ideas

VII. Assessment Strategy

Course assessment will emphasize typographic hierarchy and clarity, such as problem solving, composition and techniques while using various tools to execute the artwork. Performance will be evaluated based on based on the following criteria:

- a. Class attendance and participation
- b. Craftsmanship and proficiency in the use of tools and materials
- c. Satisfactory completion of studio exercises and assignments
- d. Presentation of art works

VIII. Course Format

This studio course will consist of a series of face-to-face classroom lectures, software demonstrations and assignments. Students will work on a variety of art and design presentations demonstrating different concepts covered under the course. Online video resources and multimedia hyperlinks will be provided throughout the semester to enhance the learning process.

Classroom Hours (5 hours per week)

Class: 1, Studio: 4

IX. Topics to Be Covered

- a. Typographic identification and vocabulary
- b. Type visual hierarchy, grid structures and layout design
- c. Navigable type-dominant UI graphics and text
- d. Persuasive typography for end-user mobile/tablet experience

X. Studio Exercises

- a. Creative problem solving using basic elements of graphic communication with an introduction to typography, composition, interaction design and information architecture
- b. Assignments geared to generate typographic concepts and research ideas in prototyping, wire-framing, and storyboarding
- c. Applications of typographic theory to type setting and use of established norms of interface design

XI. Technology Component

Students will learn Adobe Photoshop, Illustrator and XD in developing typographic skills with prototyping, wire-framing and storyboarding ideas, while exploring a variety of different drawing and digital techniques through a series of creative assignments.

XII. Special Projects and Activities

- a. Advertising and Web design company field trips
- b. Resource speaker classroom visits
- c. Industry software demonstrations
- d. Group discussion and critiques

XIII. Textbooks and Teaching Aids

A. Required Textbook

Lupton, Ellen. *Type on Screen: A Critical Guide for Designers, Writers, Developers, and Students*. Princeton Architectural Press, 2014. ISBN-13: 9781616891701

B. Alternative Textbook(s)

Rabinowitz, Tova. *Exploring Typography*. Course Technology; 2nd Edition, 2015. ISBN-10: 1285176812

C. Supplemental Print Materials

Norman, Donald. *The Design of Everyday Things*. Basic Books; Expanded Edition, 2013. ISBN-10: 0465050654

Krug, Steve. *Don't Make Me Think*. New Riders; 3rd Edition, 2014. ISBN-10: 0321965515

D. Supplemental Online Resources

<http://www.awwwards.com>

<http://www.creativebloq.com>

XIV. Faculty Requirements

The faculty should have a Master of Fine Arts degree in Interaction, Communication or Graphic Design with a specialization in information architecture and a significant record of research and design accomplishments. He/she will demonstrate expertise in typography, communication design, UI interface, computer programming skills and knowledge of industry software applications relevant to the discipline.

Course Title: GDES 3312: Information Design

Semester Credit Hours: 3 (1,2)

I. Course Overview

This course is an intermediate-level course in information visualization. The purpose of this class is to help students develop the skills necessary to research, analyze and present both quantitative and qualitative information in ways that promote greater understanding of a subject. The final deliverables in the course may be either print and/or Web-based infographic narratives.

II. PMU Competencies

Communication through the visual means of two-dimensional graphics is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through understanding graphic composition. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. Information *technology skills* are developed as students use technical programs for image editing, page layout, etc., to complete assignments.

III. Detailed Course Description

This course focuses on communicating information through visualizations. Students learn how to choose the most effective means to visualize the data they have for (a) their intended audiences and (b) for the message they intend to communicate. Students practice creating visualizations using a variety of tools and methods. Additionally, students will learn how to evaluate visualizations based on best practices and design principles.

IV. Requirements Filled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

- GDES 3311: Typography II
- GDES 3321: Brand Identity
- GDES 3331: Interaction Design 1

VI. Learning Outcomes

- Research and assemble a comprehensive set of data/information
- Reformulate the research into useful data graphics/information visualizations
- Organize data graphics, information visualizations and text into an appropriate format
- Discuss, analyze and evaluate effective and ineffective information design

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments and evaluation of student sketchbooks. Specific assessment includes the following:

- a. Studio Exercises
- b. Projects

VIII. Course Format

The course is primarily a studio that incorporates a series of lectures and demonstrations.

Attendance is mandatory. Student output is mostly produced in the studio class periods.

Students present their work visually and verbally throughout the semester for peer critique.

Web supplement: The course home page (using the university's BLACKBOARD) includes the following:

- a. Course syllabus
- b. Course assignments
- c. Course e-mail utility
- d. Course discussion list
- e. Student course grades\

Classroom Hours (5 hours per week)

Class: 1, Studio: 4

IX. Topics to Be Covered

- a. History of information design
- b. Statistics and visualization
- c. Scientific information
- d. Numbers and charts
- e. Data-driven aesthetics
- f. How information visualization shapes society
- g. Making maps

X. Studio Exercises

- a. Complete creative assignments applying design principles and the creative process
- b. Complete short awareness and exploratory exercises of specific design concepts
- c. Develop, implement and present solutions to complex/extended problems
- d. Create preparatory sketches, notes and research in the course of design development
- e. Present finished designs — verbal presentation

XI. Technology Component

Students enhance skills in the use visual communication through Adobe Photoshop, Illustrator and InDesign.

XII. Special Projects/Activities

- a. Individual written or verbal critiques of personal designs
- b. Class critiques — verbal or written
- c. Small group critique discussions — verbal or written
- d. Diagrams/charts/notations and written analysis of professional designs — written, online and/or tests

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

Lipton, Ronnie. *The Practical Guide to Information Design*. Wiley; 2007. ISBN: 978-0-471-66295-2

B. Alternative Textbook(s)

Visocky O'Grady, Jennifer, Visocky O'Grady, Kenneth. *The Information Design Handbook*. HOW Books; 2008. ISBN-13: 9781600610486

C. Supplemental Print Materials

Tufte, Edward R. *Envisioning Information*. Graphic Press; 1990. ISBN-13: 9781930824140

Tufte, Edward R. *The Visual Display of Quantitative Information*. Graphics Press; 2006 (first published 1983). ISBN-13: 9780961392109

Drucker, Johanna. *Graphesis: Visual Forms of Knowledge Production*. Harvard UP; 2014. ISBN: 9780674724938

D. Supplemental Online Materials

McCandless, David. *Information is Beautiful*, HarperCollins publishers; UK edition, 2012. ISBN-10: 0007492898 www.informationisbeautifulawards.co

XIV. Faculty Requirements

The faculty should have a Master of Fine Arts degree in Visual Communication or Graphic Design with a preferred specialization in illustration, branding, typography, interaction design and have a significant record of research and design accomplishments. He/she should demonstrate expertise in print production, typography, graphic design and possess knowledge of industry software applications relevant to the discipline.

Course Title: GDES 3321: Brand Identity

Semester Credit Hours: 3 (1,2)

I. Course Overview

This course covers the theory and practice of creating brand identity designs for products. Students will learn to combine typography, color theory and layout to form a cohesive brand identity and apply that identity across multiple platforms. Brand identity process and best practices will be explored.

II. PMU Competencies

Communication through the visual means of two-dimensional graphics is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through understanding graphic composition. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. Information *technology skills* are developed as students use technical programs for image editing, page layout, etc., to complete assignments.

III. Detailed Course Description

This course explores the system of tangible and intangible items that fuel the recognition of a brand. These items will typically have a strong identity that separates them or makes them stand out from the crowd of brands in the market. Students will learn brand strategy and what it takes to be different through the creation of design projects that support and enhance a brand with the aid of various graphic applications such as logos, print ads, stationery and business cards.

IV. Requirements Filled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 2311: Typography I

GDES 2321: Illustration

VI. Learning Outcomes

- Demonstrate a thorough understanding working within a design brief
- Demonstrate ability to relate one's own creative ideas and intentions to the wider contemporary and historical context
- Analyze successful brand identity applications
- Recognize the difference between brand, identity and logo design
- Demonstrate professional-level work, presentation skills, understanding of time management and working within deadlines
- Create a cohesive brand identity across multiple platforms

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments and the evaluation of student sketchbooks. Specific assessment includes the following:

- a. Studio Exercises
- b. Projects

VIII. Course Format

The course is primarily a studio that incorporates a series of lectures and demonstrations. Attendance is mandatory. Student output is mostly produced in the studio class periods.

Students present their work visually and verbally throughout the semester for peer critique.

Web supplement: The course home page (using the university's BLACKBOARD) includes the following:

- a. Course syllabus
- b. Course assignments
- c. Course e-mail utility
- d. Course discussion list
- e. Student course grades

Classroom Hours (5 hours per week)

Class: 1, Studio: 4

IX. Topics to Be Covered

- a. Brand, identity and logo design
- b. Brand ethos
- c. Systems thinking
- d. Design brief
- e. Designing systems to scale
- f. Branding tangibles
- g. Branding intangibles
- h. Identity guide and presentation

X. Studio Exercises

- a. Complete creative assignments applying design principles and the creative process
- b. Complete short awareness and exploratory exercises of specific design concepts
- c. Develop, implement and present solutions to complex/extended problems
- d. Create preparatory sketches, notes and research in the course of design development
- e. Present finished designs — verbal presentation

XI. Technology Component

Students enhance skills in the use visual communication through Adobe Photoshop, Illustrator and InDesign.

XII. Special Projects/Activities

- a. Individual written or verbal critiques of personal designs
- b. Class critiques — verbal or written
- c. Small group critique discussions — verbal or written
- d. Diagrams/charts/notations and written analysis of professional designs — written, online and/or tests

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

Wheeler, Alina. *Designing Brand Identity: An Essential Guide for the Whole Branding Team*. John Wiley and Sons; 4th Edition, 2012. ISBN-10: 1118099206

B. Alternative Textbook(s)

Shaughnessy, Adrian. *How to Be a Graphic Designer without Losing Your Soul* (New Expanded Edition). Princeton Architectural Press; 2010. ISBN: 9781568989839

C. Supplemental Print Materials

Hannam, Ben. *A Graphic Design Student's Guide to Freelance*. Wiley; 2012. ISBN-10: 1118341961

D. Supplemental Online Materials

<https://designobserver.com>
thedieline.com

XIV. Faculty Requirements

The faculty should have a Master of Fine Arts degree in Visual Communication or Graphic Design with a preferred specialization in branding, typography, interaction design or experience design, and have a significant record of research and design accomplishments. He/she should demonstrate expertise in print production, typography, graphic design and possess a knowledge of industry software applications relevant to the discipline.

Course Title: GDES 3322: Motion Design

Semester Credit Hours: 3 (1,2)

I. Course Overview

This course will introduce students to effective communication using motion graphics, including its application in the areas of film titles, broadcast and commercial design, interactive media and gaming. The combination of music, visuals and typography will be explored following the basic theories of kinetic composition and aesthetics. Students will study the history of the field, including the work of pioneers in motion design.

II. PMU Competencies

Communication through the visual means of two-dimensional graphics is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through understanding graphic composition. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. Information *technology skills* are developed as students use technical programs for image editing, page layout, etc., to complete assignments.

III. Detailed Course Description

Motion Design introduces the basic principles of animation and motion graphics through the creation of time-based works of art. Building upon a foundation of skills in digital art and graphic design, students go through the full creative process of planning, designing and animating motion graphics that integrate image, text and audio. This course offers an introduction to time-based computer arts and design. Through an investigation of narrative structures, spatial composition and sound, students will explore the fundamental techniques and aesthetics of the moving image utilizing storyboarding, two-dimensional animation and motion design as means of communication. Research, critical analysis and concept development will be emphasized.

IV. Requirements Filled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 3311: Typography II
 GDES 3321: Brand Identity
 GDES 3331: Interaction Design I

VI. Learning Outcomes

- Apply principles of narrative structure to the creation of time-based media
- Show knowledge of the developmental process of narrative sequencing and storytelling
- Recognize the technical and conceptual aspects of animated graphics
- Employ motion literacy in an informed manner, rather than adding motion for motion's sake
- Utilize the elements and principles of storyboard development
- Critically analyze kinetic forms

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments and evaluation of student sketchbooks. Specific assessment includes the following:

- a. Studio Exercises
- b. Projects

VIII. Course Format

The course is primarily a studio that incorporates a series of lectures and demonstrations.

Attendance is mandatory. Student output is mostly produced in the studio class periods.

Students present their work visually and verbally throughout the semester for peer critique.

Web supplement: The course home page (using the university's BLACKBOARD) includes the following:

- a. Course syllabus
- b. Course assignments
- c. Course e-mail utility
- d. Course discussion list
- e. Student course grades

Classroom Hours (5 hours per week)

Class: 1, Studio: 4

IX. Topics to Be Covered

- a. History of motion graphics
- b. Conceptualization and animation processes
- c. Style frames and design boards
- d. Principles of animation for motion design
- e. Cinematic conventions and typographic principles
- f. Motion graphics production

X. Studio Exercises

- a. Complete creative assignments applying design principles and creative process
- b. Create short awareness and exploratory exercises of specific design concepts
- c. Develop, implement and present solutions to complex/extended problems.
- d. Create preparatory sketches, notes and research in the course of design development
- e. Present finished designs — verbal presentation

XI. Technology Component

Students enhance skills in the use visual communication through, FinalCut, Adobe After Effects, Premiere, Photoshop, Illustrator and InDesign or any other program that is standard of the industry.

XII. Special Projects/Activities

- a. Individual written or verbal critiques of personal designs
- b. Class critiques — verbal or written
- c. Small group critique discussions — verbal or written
- d. Diagrams/charts/notations and written analysis of professional designs — written, online and/or tests

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

Shaw, Austin. *Design for Motion: Fundamentals and Techniques for Motion Design*. Focal Press; 2015. ISBN-13: 9781138812093

B. Alternative Textbook(s)

Meyer, Trish and Meyer, Chris. *Graphics with After Effects: Essential and Advanced Techniques*. Focal Press; 2010. ISBN-13: 9780240814155

C. Supplemental Print Materials

Meyer, Trish. *After Effects Apprentice*. Focal Press; 2007. ISBN-13: 9780240809380

D. Supplemental Online Materials

www.watchthetitles.com

XIV. Faculty Requirements

The faculty should have a Master of Fine Arts degree in Visual Communication or Graphic Design with a preferred specialization in motion graphics, branding, typography, interaction design or experience design, and have a significant record of research and design accomplishments. He/she should demonstrate expertise in print production, typography, graphic design and possess knowledge of industry software applications relevant to the discipline.

Course Title: GDES 3331: Interaction Design I

Semester Credit Hours: 3 (1,2)

I. Course Overview

This course introduces the fundamental knowledge of website design. The Internet has been one of the essential tools in many people's everyday lives from shopping to socializing. This course explores how to design well-organized and practical user interface and user experience (UI/UX) for various websites.

II. PMU Competencies

Communication through the visual means of two-dimensional graphics is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through understanding graphic composition. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. *Information technology skills* are developed as students use technical programs for image editing, page layout, etc., to complete assignments.

III. Detailed Course Description

Designing for website requires a wide-range of considerations including Web typography, responsive design, universal design and proper image preparations. Students will learn the fundamental knowledge of HTML and CSS through this course. Students will also practice extensive user and market research as well as user testing techniques. The studio experience is different from most classes and is interactive by nature. As concepts are presented, projects will be assigned to provide an opportunity to express an understanding of the design principles visually.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 2312: Arabic Typography
 GDES 2322: Digital Photography
 GDES 2332: Design Thinking

VI. Learning Outcomes

Students in this course acquire knowledge and skills to:

- Recognize and apply the fundamentals of HTML and CSS, including responsive design
- Assemble files properly and utilize image-making techniques for screen
- Apply Web fonts and typography into a website design
- Use universal access techniques for users with visual/hearing impairment
- Design websites that address the targeted users' specific needs
- Evaluate the effectiveness of the Web design through user testing

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments and evaluation of student sketchbooks. Specific assessments include the following:

- A. Studio Exercises
- B. Projects

VIII. Course Format

The course is primarily a studio that incorporates a series of lectures and demonstrations.

Attendance is mandatory. Student work is mostly produced in the studio class periods.

Students present their work visually and verbally throughout the semester for peer critique.

Web supplement: The course home page (using the university's BLACKBOARD) includes the following:

- a. Course syllabus
- b. Course assignments
- c. Course e-mail utility
- d. Course discussion list
- e. Student course grades

Classroom Hours (5 hours per week)

Class: 1, Studio: 4

IX. Topics to Be Covered

- a. Grid system for website design
- b. HTML and CSS
- c. Responsive design
- d. Websites and patterns survey
- e. File-handing and image making techniques for screen
- f. Web font and typography for websites
- g. Universal access techniques for users with visual/hearing impairments

- h. User research
- i. User test for website design

X. Studio Exercises

- a. Analyze well-designed, relevant websites and patterns
- b. Research end user goals and how to meet them
- c. Complete creative assignments applying design principles and the creative process.
- d. Complete short awareness and exploratory exercises of specific design concepts.
- e. Develop, implement and present solutions to complex/extended problems.
- f. Make preparatory sketches, notes and research in the course of design development.
- g. Present finished designs — verbal presentation.

XI. Technology Component

Students gain enhanced skills in the use of visual communication through Photoshop, PowerPoint and the Internet.

XII. Special Projects/Activities

- a. Individual written or verbal critiques of personal designs
- b. Class critiques — verbal or written
- c. Small group critique discussions — verbal or written
- d. Diagrams/charts/notations and written analysis of professional designs — written, online and/or tests

XIII. Textbooks and Teaching Aids

A. Required Textbook

Duckett, Jon. *HTML and CSS: Design and Build Websites*. Design Basics, Wiley, 2011. ISBN-10: 1118008189

B. Alternative Textbooks

Since design technology evolves quickly, updated books may become available by the time of course introduction.

C. Supplemental Print Materials

Instructors provide reference handouts for programming techniques applicable to the selected project.

Additional Arabic books, journals and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Web sites that are appropriate for the topics they teach.

XIV. Faculty Requirements

The faculty should have a Master of Fine Arts degree in Visual Communication or Graphic Design with a preferred specialization in typography, interaction design, or experience design, and a significant record of research and design accomplishments. He/she should demonstrate expertise in print production, typography, graphic design and possess knowledge of industry software applications relevant to the discipline.

Course Title: GDES 3332: Interaction Design II

Semester Credit Hours: 3 (1,2)

I. Course Overview

Interaction Design 2 continues to explore user interface and user experience (UI/UX) design for screen. The course introduces designing for mobile applications and the Internet of Things (IoT). The chosen device for this course will be iOS-based mobile devices such as the iPhone and iPad tablet. Students will also learn how their design concepts can be transferred to other, Android-based platforms.

II. PMU Competencies

Communication through the visual means of two-dimensional graphics is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through understanding graphic composition. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. *Information technology skills* are developed as students use technical programs for image editing, page layout, etc., to complete assignments.

III. Detailed Course Description

Designing for mobile application and IoT requires a wide range of considerations, including typography, responsive design, universal design and proper image preparation. Students will learn the advanced knowledge of design research from a human-centered approach. The studio experience is different from most classes and is interactive by nature. As concepts are presented, projects will be assigned to provide an opportunity to express an understanding of the design principles visually.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 3331: Interaction Design I

VI. Learning Outcomes

Students in this course acquire the knowledge and skills to:

- Recognize and apply fundamental knowledge of mobile application design
- Utilize the current design standards for iOS-based devices
- Assemble files properly and utilize image-making techniques for mobile applications
- Apply Web font and typography into application design
- Use universal access techniques for users with visual/hearing impairments
- Design applications that address the targeted users' specific needs
- Evaluate the effectiveness of the application design through user testing

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments and evaluation of student sketchbooks. Specific assessment includes the following:

- A. Studio Exercises
- B. Projects

VIII. Course Format

The course is primarily a studio that incorporates a series of lectures and demonstrations.

Attendance is mandatory. Student work is mostly produced in the studio class periods.

Students present their work visually and verbally throughout the semester for peer critique.

Web supplement: The course home page (using the university's BLACKBOARD) includes the following:

- a. Course syllabus
- b. Course assignments
- c. Course e-mail utility
- d. Course discussion list
- e. Student course grades

Classroom Hours (5 hours per week)

Class: 1, Studio: 4

IX. Topics to Be Covered

- a. User interface/user experience/user interaction
- b. Designing for Web vs. mobile application
- c. Learning different types of mobile application
- d. Current features of smartphones
- e. Current range of IoT
- f. Information design
- g. Pictogram design
- h. Wireframes for mobile application design
- i. User flow and navigation
- j. Rapid prototyping for mobile applications
- k. Qualitative and quantitative user research and testing
- l. Human centered design and usability
- m. How to work with app developers

X. Studio Exercises

- a. Survey of well-designed relevant mobile applications and patterns
- b. Survey of the most current movements on IoT
- c. Complete creative assignments applying design principles and the creative process.
- d. Complete short awareness and exploratory exercises of specific design concepts.
- e. Develop, implement and present solutions to complex/extended problems.
- f. Make preparatory sketches, notes and research in the course of design development.
- g. Present finished designs — verbal presentation.

XI. Technology Component

Students enhance skills in the use visual communication through various design software, which may include Adobe Illustrator, Photoshop, XD, Sketch and InVision App.

XII. Special Projects/Activities

- a. Individual written or verbal critiques of personal designs
- b. Class critiques — verbal or written
- c. Small group critique discussions — verbal or written
- d. Diagrams/charts/notations and written analysis of professional designs — written, online and/or tests

XIII. Textbooks and Teaching Aids

A. Required Textbook

Clark, Josh. *Tapworthy: Designing Great iPhone App*. O'Reilly Media, 2010. ISBN-13: 978-1449381653

Krug, Steve. *Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability*. New Riders, 2014. ISBN-13: 978-0321965516

B. Required Digital Device

Smartphone (preferably iPhone)

C. Supplemental Print Materials

Instructors provide reference handouts for programming techniques applicable to the selected project.

Additional Arabic books, journals and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Web sites that are appropriate for the topics they teach.

XIV. Faculty Requirements

The faculty should have a Master of Fine Arts degree in Visual Communication or Graphic Design with a preferred specialization in typography, interaction design or experience design, and a significant record of research and design accomplishments. He/she should demonstrate expertise in print production, typography, graphic design and possess knowledge of industry software applications relevant to the discipline.

Course Title: GDES 3338: Internship

Semester Credit Hours: 3 (1,320)

I. Course Overview

The goal of this internship is to provide students with a valuable opportunity to advance their professional development by applying learned concepts and skills to real-world settings. It will combine classroom learning with related practical job experience. More specifically, the internship will enable students to obtain practical knowledge of the graphic design profession by working for a business, agency or institution while enrolled in classes. An internship may lead to other positions within the host firm or increase a student's likelihood of finding employment with other similar organizations. The internship will be arranged jointly by the student, faculty member and a cooperating organization.

II. PMU Competencies and Learning Outcomes

The nature of the internship experience requires that student participants exhibit effective *communication skills* through reading, writing, listening and speaking. *Critical thinking* and *problem solving* are inherent in the practice of graphic design and will be enhanced through this experience. *Teamwork* is reinforced through everyday work activities to complete assigned tasks. It is anticipated that students will be called upon to use their *technology skills* toward successful completion of daily and project tasks. *Leadership skills* are reinforced through interaction with design professionals and clients. Students will acquire *professional development* through the application of graphic design and problem-solving methods by creating, analyzing and evaluating solutions in relation to specific consumer needs.

This course supports the new PMU competency “Globally Connected” by placing students in work environments that most likely will be diverse and multi-cultural.

It supports the new PMU competency for “Conflict Resolution” by placing students in real-world offices and design studios where employees must work together and reach agreeable solutions despite conflicts of opinion regarding design solutions.

III. Detailed	Course	Description
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The internship program provides students with a valuable opportunity to advance their professional development by applying learned concepts and skills to real-world settings. It will combine prior classroom learning with related practical job experience. A student can work as an employee of a business, agency or institution during the summer. Course content is individualized, with the student setting objectives in consultation with their internship advisor and their workplace supervisor. Internship enrollment must be pre-approved by the area coordinator and department internship advisor.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design. It is taken in the summer between junior and senior years.

V. Required Prerequisites

Completion of 80 credit hours

VI. Learning Outcomes

At the end of the internship, students will be able to:

- Apply academic skills in a practical professional setting
- Examine how classroom experience applies to industry work environments
- Formulate and maintain professional relationships with co-workers, supervisors and clients
- Recognize and refine personal career interests relative to internship experiences
- Further assess career opportunities in the graphic design field
- Prepare a final intern report

VII. Assessment Strategy

The internship program provides students with the opportunity to advance their professional development by applying learned concepts and skills to real-world settings. Achievement of this goal will depend on the degree of commitment and effort that students choose to invest in this program. Performance will be evaluated along the following criteria:

XIII. Textbooks and Teaching Aids

A. Required Textbook

Heller, Steven. *Becoming a Graphic Designer: A Guide to Careers in Design*. Wiley; 5th Edition, 2015. ISBN-10: 1118771982

B. Alternative Textbooks

Shaughnessy, Adrian. *How to Be a Graphic Designer without Losing Your Soul*. Princeton Architectural Press; New Edition, 2010. ISBN-10: 1568989830

C. Supplemental Print Materials

Bierut, Michael. *How to Use Graphic Design to Sell Things, Explain Things, Make Things Look Better, Make People Laugh, Make People Cry, and Change the World*. Harper Design, 2015. ISBN-10: 0062413902

D. Supplemental Online Materials

<http://www.aiga.org>

XIV. Faculty Requirements

The faculty advisor should have a Master of Fine Arts degree in Visual Communication or Graphic Design and a significant record of research and design accomplishments. He/she should demonstrate expertise of industry software applications relevant to the discipline while maintaining an active professional practice, which includes business, community engagement and collaboration.

Course Title: GDES 4112: Graphic Design Capstone Project Research

Semester Credit Hours: 1 (1,0)

I. Course Overview

In this course, students conduct a self-directed graphic design writing project, applying their cumulative knowledge of graphic design. Students demonstrate in-depth design research skill and comprehensive understanding of graphic design. Upon the completion of the course, students will present their projects through written components and an oral presentation.

II. PMU Competencies

Communication through the visual means of two-dimensional graphics is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through understanding graphic composition. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. *Information technology skills* are developed as students use technical programs for image editing, page layout, etc., to complete assignments.

III. Detailed Course Description

Utilizing their cumulative knowledge of graphic design, students will develop their projects for GDES 4413 Graphic Design Capstone Project. Students will research their targeted users and market in the beginning phase of the project. Students will be required to document their design process in a professional manner. The entire process of their research and the intent of project should be documented in a written format. Each student will have one-on-one as well as group critique sessions to receive feedback from the instructor and classmates.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 3312: Information Design

GDES 3322: Motion Design

GDES 3332: Interaction Design II

VI. Learning Outcomes

Students in this course acquire the knowledge and skills to:

- Compose a self-initiated graphic design project proposal using the collective knowledge that they have been learned.
- Plan, research, draft, revise, and submit an informative and persuasive research paper using proper style and citations of research used.
- Identify intended project parameters through literature review
- Assess users' needs through research, surveys and other means of investigation
- Show support for design direction through persuasive analysis of research and end user surveys
- Prepare research proposal covering all aspects of intended project including estimated time and budget.

VII. Assessment Strategy

Students will proceed by steps to build a research paper through the process of topic formulation, research, drafting of a thesis and introduction, and final submission of a paper. Active listening and appropriate participation are central to any communication course, and these skills will be evaluated.

- Listening and participation 10%
- Notes and annotated source list 10%
- Final research/ proposal paper 50%
- Critique 30%

The research paper will direct the design result of GDES 4413: Graphic Design Graduation Project and be included in the cumulative portfolio that will be part of the Capstone Series.

VIII. Course Format

The course is primarily a lecture that incorporates a series of lectures and demonstrations.

Attendance is mandatory.

Students present their work visually and verbally throughout the semester for peer critique.

Web supplement: The course home page (using the university's BLACKBOARD) includes the following:

- a. Course syllabus
- b. Course assignments
- c. Course e-mail utility
- d. Course discussion list
- e. Student course grades

Classroom Hours (1 hours per week)

Class: 1, Studio: 0

IX. Topics to Be Covered

- a. Proper citation
- b. Systems thinking
- c. Design research (user)
- d. Design research (market)
- e. Literature review
- f. Statement of intent
- g. Oral presentation and preparation of presentation materials

X. Laboratory Exercises

This course does not require a separate lab.

XI. Technology Component

Students enhance skills in visual communication using Photoshop, PowerPoint, and the Internet.

XII. Special Projects/Activities

- a. Individual written or verbal critiques of personal design research outcomes
- b. Class critiques — verbal or written
- c. Small group critique discussions — verbal or written
- d. Diagrams/charts/notations and written analysis of professional designs — written, online, and/or tests

XIII. Textbooks and Teaching Aids

A. Required Textbook

Visocky O'Grady, Jennifer and Visocky O'Grady, Kenneth. *A Designer's Research Manual*. Rockport Publishers, 2nd edition, 2017. ISBN-13: 978-1631592621

B. Alternative Textbooks

Lupton, Ellen and J. Abbott Miller, *Design Writing Research*, Phaidon Press, 1999. ISBN 0714838519

The Chicago Manual of Style: The Essential Guide for Writers, Editors, and Publishers, 17th Edition, The University of Chicago Press, 2017, ISBN-10: 022628705X

C. Supplemental Print Materials

Instructors provide reference handouts for design research and portfolio applicable to the selected project.

Additional Arabic books, journals and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Web sites that are appropriate for the topics they teach.

XIV. Faculty Requirements

The faculty should have a Master of Fine Arts degree in Visual Communication or Graphic Design with a preferred specialization in typography, interaction design or experience design, and a significant record of research and design accomplishments. He/she should demonstrate expertise in print production, typography, graphic design and possess knowledge of industry software applications relevant to the discipline.

Course Title: GDES 4321: Advanced Graphic Design

Semester Credit Hours: 3 (1,2)

I. Course Overview

This course offers students the opportunity to work on assigned problems within specific areas of experience design. Work is done on a contract basis with specific objectives and tangible results.

II. PMU Competencies

Communication through the visual means of two-dimensional graphics is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through understanding graphic composition. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. Information *technology skills* are developed as students use technical programs for image editing, page layout, etc., to complete assignments.

III. Detailed Course Description

The Advanced Graphic Design course is for students to deepen and broaden their graphic communication skills. This course supports students' further professional development by enhancing their conceptual problem-solving skills and technical proficiency through a set of projects. It focuses on fundamentals of user-centered (human-centered) design and issues surrounding digital and physical interfaces (interaction and experience design principles). Students will examine information architecture models, content/design relationships, user personas and testing scenarios. The goal is to develop awareness of the pitfalls of poor design and usability while honing good design habits. Students will discuss how experiences are produced and how to enhance the experiences of users in physical and digital environments. This course will also emphasize disciplined craftsmanship and will develop students' confidence in creativity, aesthetic judgment, self-expression and critical-thinking skills. Research, critical analysis and concept development will be emphasized.

IV. Requirements Filled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 3332: Interaction Design II

VI. Learning Outcomes

- Demonstrate an understanding of the principles of experience design
- Employ content/design relationships and hierarchies
- Utilize the elements and principles of design as it applies to experience design
- Analyze the usability and practicality of digital and physical experiences
- Demonstrate oral presentation skills, professional demeanor and persuasion techniques in a simulated professional environment

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments and evaluation of student sketchbooks. Specific assessment includes the following:

- a. Studio Exercises
- b. Projects

VIII. Course Format

The course is primarily a studio that incorporates a series of lectures and demonstrations.

Attendance is mandatory. Student output is mostly produced in the studio class periods.

Students present their work visually and verbally throughout the semester for peer critique.

Web supplement: The course home page (using the university's BLACKBOARD) includes the following.

- a. Course syllabus
- b. Course assignments
- c. Course e-mail utility
- d. Course discussion list
- e. Student course grades

Classroom Hours (5 hours per week)

Class: 1, Studio: 4

IX. Topics to Be Covered

- a. Ways of seeing
- b. Universal design principles
- c. Research methods
- d. Conceptualization and storyboarding
- e. Designing for complex interactions
- f. Visual semiotics and rhetoric
- g. Creative techniques for visual exploration
- h. Infographics and time-based storytelling
- i. Design pitch

X. Studio Exercises

- a. Complete creative assignments applying design principles and creative process
- b. Complete short awareness and exploratory exercises of specific design concepts
- c. Develop, implement and present solutions to complex/extended problems
- d. Create preparatory sketches, notes and research in the course of design development
- e. Present finished designs — verbal presentation

XI. Technology Component

Students enhance skills in the use visual communication through, FinalCut, Adobe After Effects, Premiere, Photoshop, Illustrator and InDesign.

XII. Special Projects/Activities

- a. Individual written or verbal critiques of personal designs
- b. Class critiques — verbal or written
- c. Small group critique discussions — verbal or written
- d. Diagrams/charts/notations and written analysis of professional designs — written, online and/or tests

XIII. Textbooks and Teaching Aids

A. Required Textbook(s)

TBA

B. Alternative Textbooks

Since design technology evolves quickly, updated books may be available at the time of course introduction.

C. Supplemental Print Materials

Instructors provide reference handouts for programming techniques applicable to the selected project.

Additional Arabic books, journals, and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Web sites that are appropriate for the topics they teach.

XIV. Faculty Requirements

The faculty should have a Master of Fine Arts degree in Visual Communication or Graphic Design with a preferred specialization in motion graphics, branding, typography, interaction design or experience design, and have a significant record of research and design accomplishments. He/she should demonstrate expertise in print production, typography, graphic design and possess knowledge of industry software applications relevant to the discipline.

Course Title: GDES 4322: Portfolio Development

Semester Credit Hours: 3 (1,2)

I. Course Overview

In this course, students thoroughly organize and refine their previous graphic design works to create a strong portfolio to prepare for their career path after graduation. Students also learn how to develop a job application package, including cover letter, resume, business card and portfolio website.

II. PMU Competencies

Communication through the visual means of two-dimensional graphics is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through understanding graphic composition. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. Information *technology skills* are developed as students use technical programs for image editing, page layout, etc., to complete assignments.

III. Detailed Course Description

Utilizing their collective knowledge of graphic design, students will develop a comprehensive and industry-ready portfolio. Through their portfolio, students are required to present not only their final design works but also the entire process of design in order to demonstrate their critical and systems thinking abilities.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 4321: Advanced Graphic Design

VI. Learning Outcomes

Students in this course acquire the knowledge and skills to:

- Prepare and refine the collected graphic design portfolio
- Describe design ethics
- Apply the ethics and etiquette of professional conduct and communication as well as a professional attitude
- Describe intellectual property law
- Delineate and practice contract writing for designers
- Demonstrate the attitude necessary to flourish in a professional environment.

VII. Assessment Strategy

This course requires the inclusion of 10 design samples showcasing the student's best graphic design work. The centerpiece of the portfolio will be the student's work for GDES 4413: Graphic Design Capstone Project, which is a course taken concurrently with GDES 4322: Portfolio Development.

Because this is the student's portfolio much of the included work will be self-defined. At the start of the semester, students and faculty will review all work to date with the class and identify 10 pieces that are suitable for the portfolio—or that may need additional refinement to be brought up to a professional level. Breadth of work being shown will be considered, as well as desired career path students wish to take, along with the overall order and impression being projected in the design of the portfolio and its content.

VIII. Course Format

The course is primarily a studio which incorporates a series of lectures and demonstrations.

Attendance is mandatory. Much of the student outcome is produced in the studio class periods.

Students present their work visually and verbally throughout the semester for peer critique.

Web supplement: The course homepage (using the university's BLACKBOARD) includes the following.

- a. Course syllabus
- b. Course assignments
- c. Course e-mail utility
- d. Course discussion list
- e. Student course grades

Classroom Hours (5 hours per week)

Class: 1, Studio: 4

IX. Topics to Be Covered

- a. Storytelling portfolio preparation
- b. Resume writing/design
- c. Cover letter writing
- d. Personal branding design
- e. Careers in graphic design
- f. Contract writing
- g. Design ethic
- h. Intellectual property law
- i. Interview preparation
- j. Presentation preparation

k. Online portfolio website

X. Studio Exercises

Students will be working independently on their individual portfolios.

XI. Technology Component

Students enhance their skills in visual communication using Photoshop, PowerPoint and the Internet.

XII. Special Projects/Activities

- a. Individual written or verbal critiques of personal designs
- b. Class critiques — verbal or written
- c. Small group critique discussions — verbal or written
- d. Diagrams/charts/notations and written analysis of professional designs — written, online and/or tests

XIII. Textbooks and Teaching Aids

A. Required Textbook

Gomez-Palacio, Bryony and Vit, Armin. *Flaunt: Designing Effective, Compelling and Memorable Portfolios of Creative Work*. UnderConsideration LLC, 2015. ISBN: 978-0982625392

Janda, Michael. *Burn Your Portfolio: Stuff they don't teach you in design school, but should*. New Riders, 2014. ISBN-13: 978-0321918680

B. Alternative Textbooks

Anderson, Denise. *Stand Out: Design a personal brand. Build a killer portfolio. Find a great design job*. Peachpit Press, 2016. ISBN-13: 978-0134134086

Due to the evolving nature of design industry, updated books may become available at the time of course introduction.

C. Supplemental Print Materials

Instructors provide reference handouts for design research and portfolio applicable to the selected project.

Additional Arabic books, journals and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Web sites that are appropriate for the topics they teach.

XIV. Faculty Requirements

The faculty should have a Master of Fine Arts degree in Visual Communication or Graphic Design with a specialization in typography and a significant record of research and design accomplishments. He/she should demonstrate expertise in print production, typography, graphic design and possess knowledge of industry software applications relevant to the discipline.

Course Title: GDES 4413: Graphic Design Capstone Project

Semester Credit Hours: 4 (0,4)

I. Course Overview

In this course, students continue their self-directed graphic design thesis project based on the written outcomes from GDES 4112: Graphic Design Capstone Project Research. The practicum component of this course allows students to apply the collective knowledge of graphic design to a defended undergraduate senior capstone project.

II. PMU Competencies

Communication through the visual means of two-dimensional graphics is the dominant student competency developed by this course. *Critical thinking* and *problem solving* are developed through understanding graphic composition. Students demonstrate this understanding through an active, analytical approach to the creation of each individual project and the development of a portfolio of work. Although the primary output is by individual students, *teamwork* is sometimes required in small groups through peer critique and learning exercises. *Oral communication* is practiced through peer-evaluation and professional presentations of body of work. *Information technology skills* are developed as students use technical programs for image editing, page layout, etc., to complete assignments.

III. Detailed Course Description

GDES 4413: Graphic Design Capstone Project requires students to work independently to investigate a self-defined design problem utilizing the written outcomes from the previous semester course, GDES 4112: Graphic Design Capstone Project Research. The course includes problem identification, research, creative problem-solving strategies, and the production of a final capstone project, which will serve as the centerpiece in their portfolio. This class is an opportunity for seniors to synthesize what they all have learned with what they may still want to learn, and to create a vehicle to distinguish or promote themselves in a specific niche in the field. The Senior Project should be larger in scope than any set of course projects to date.

In this course, students will complete a summative project that encapsulates all they have learned in their course of study. The result will be to plan and stage the Senior Graphic Design Exhibition. Professional standards and expectations will be emphasized. The course requires students to meet all the university learning objectives.

IV. Requirements Fulfilled

This course is required of all students majoring in Graphic Design.

V. Required Prerequisites

GDES 4112: Graphic Design Capstone Project Research

GDES 4321: Advanced Graphic Design

VI. Learning Outcomes

Students in this course acquire knowledge and skills to:

- Demonstrate a self-initiated graphic design project using the cumulative knowledge that students have learned.
- Demonstrate systems thinking ability.
- Demonstrate the collective knowledge of graphic design and craftsmanship.
- Demonstrate mastery of PowerPoint presentations, use of technology, graphic design, and the Internet.
- Demonstrate presentation skills.
- Prepare and complete a strategically organized, designed and implemented exhibition of their senior design work.

VII. Assessment Strategy

Assessment for this course consists of a series of evaluations of completed project assignments and the evaluation of student sketchbooks. Specific assessment includes the following:

- a. Studio exercises
- b. Projects
- c. Presentation
- d. Final jury critique

VIII. Course Format

The course is primarily a studio that incorporates a series of lectures and demonstrations.

Attendance is mandatory. Student work is produced mostly in studio class periods.

Students present their work visually and verbally throughout the semester for peer and final jury critique.

Web supplement: The course home page (using the university's BLACKBOARD) includes the following.

- a. Course syllabus
- b. Course assignments
- c. Course e-mail utility
- d. Course discussion list
- e. Student course grades

Classroom Hours (8 hours per week)**Class: 0, Studio: 8****IX. Topics to be Covered**

- a. Systems thinking
- b. Elevator pitch
- c. Capstone project timeline development
- d. Presentation preparation

X. Studio Exercises

Students will be working independently on their individual projects.

XI. Technology Component

Students enhance their skills in visual communication using Adobe Photoshop, Illustrator, and InDesign.

XII. Special Projects/Activities

- a. Individual written or verbal critiques of personal designs
- b. Class critiques — verbal or written
- c. Small group critique discussions — verbal or written
- d. Diagrams/charts/notations and written analysis of professional designs — written, online and/or tests

XIII. Textbooks and Teaching Aids**A. Required Textbook**

Lupton, Ellen, *Design Is Storytelling*. Cooper Hewitt, Smithsonian Design Museum, 2017.
ISBN 9781942303190

B. Alternative Textbooks

Due to the evolving nature of design industry, updated books may become available at the time of course introduction.

C. Supplemental Print Materials

Instructors provide reference handouts for design research and portfolio applicable to the selected project.

Additional Arabic books, journals and magazines may be identified and included by the professor-of-record.

D. Supplemental Online Materials

Instructors provide a list of suitable, contemporary Web sites that are appropriate for the topics they teach.