

ARCH COURSES :ARCHITECTURAL ENGINEERING

ARCH111 Basic Design I

Credits: 3 (1,0,5)

Prerequisite: None

The course introduces the basic principles of order using 2D and 3D compositions of basic design elements. Space explorations through movement and circulation are established. Additional emphases are given to color theory, textures and tones. Class assignments are based on abstract concepts while acquainting student with using different media and presentation techniques.

ARCH112 Basic Design II

Credits: 3 (1,0,5)

Prerequisite: ARCH 111

The course Develops the conceptualization of aesthetics and principles of composition. With this background in place, students apply the same with mixed media to create objects that have a utilitarian purpose. As they create, students develop their higher-level thinking and art-related technical skills.

ARCH122 History and Theory of Architecture

Credits: 3 (3,0,0)

Prerequisite: None

The course offers a historical and analytical review of the art of architecture and design in relation to the physical, religious, social, economic, and political factors which shaped them from prehistory through the Middle Ages, the Renaissance, and the 17th century and on to the present.

ARCH131 Technical Drawing I

Credits: 2 (1,0,3)

Prerequisite: None

This course focuses on the use of instruments and equipment necessary for accurate manual drafting of simple geometric constructions. The fundamentals of two dimensional architectural drawing skills and the analytical processes using a variety of drawings media are also taught.

ARCH132 Technical Drawing II

Credits: 2 (1,0,3)

Prerequisite: ARCH 131

This course concentrates on drawing perspective projections. one-point and two-point projections, exterior and interior; casting shades and shadows on horizontal and vertical planes; and axonometric isometrics made using different rendering techniques in pencils, colored pencils, markers, pens, and ink.

ARCH140 Human Factors and the Built Environment

Credits: 2 (2,0,0)

Prerequisite: None

This course examines theoretical foundations and concepts drawn from human and environmental behaviors as applied to design and the design process. Items covered include the concepts of anthropometrics and ergonomic in design, analysis of space, and behavior within a cultural context.

ARCH211 Architecture Design I

Credits: 4 (1,0,7)

Prerequisite: ARCH 112, ARCH 140, ID 131

This course covers architectural design for residential interiors and exteriors as a synthetic discipline that considers material/spatial experience, contextual analysis, formal concepts, and social/cultural relationships. Material/graphic representations are explored in models, drawings, collages and renderings.

ARCH212 Architecture Design II

Credits: 4 (1,0,7)

Prerequisite: ARCH 211

This design class cultivates the ability to respond to natural and built site conditions in the development of a program as well as religious or cultural design projects. Design compositions employ analysis of precedent.

ARCH223 History and Theory of Islamic Architecture

Credits: 2 (2,0,0)

Prerequisite: Arch 122

This course examines the history of Islamic architecture, its theoretical bases, and its flowering in the past through to the present.

ARCH224 History and Theory of Modern and Contemporary Architecture

Credits: 3 (3,0,0)

Prerequisite: Arch 223

This course surveys the concepts and theories of architecture and urban design relating to the modern and contemporary movements. These two periods are analyzed in typological,

formal, technological and philosophical terms.

ARCH251 Construction Technology I

Credits: 3 (2,0,4)

Prerequisite: ARCH 131, Sophomore Standing

Via an investigation of building technologies, this course lays the foundation for understanding the systems that make a building and influence the form, texture and character of the construction environment.

ARCH252 Construction Technology II

Credits: 3 (2,0,4)

Prerequisite: ARCH 251

This course looks at behavior cued to the construction of buildings. The basic principles, appropriate applications, performance and environmental impact of construction materials, products, components, and assemblies are covered.

ARCH260 Buildings Surveying

Credits: 2 (2,0,2)

Prerequisite: ARCH 132

The course introduces surveying principles and techniques. Items examined include: measurement of distances, triangulation, taping errors, corrections, differential and cross sectional leveling, compass use, measuring heights, elevations, computing angles (amplitude, azimuth), construction and topographic surveys, using traditional and advanced techniques.

ARCH261 Structures for Architects I

Credits: 2 (2,2,0)

Prerequisite: MATH 103, PHYS 105, Sophomore Standing

This course surveys the concepts and elemental nature of structural materials. Topics examined are statics, strength of materials and overviews of simple structural systems together with discussions on design and economics of simple building structures.

ARCH262 Structures for Architects II

Credits: 2 (2,2,0)

Prerequisite: ARCH 261

The course targets the behavior and planning of structural systems. The principals of structural behavior in withstanding the gravity and lateral forces and the evolution are studied, as are the range of and appropriate application of contemporary structural systems.

ARCH311 ARCH 311 Architecture Design III

Credits: 4 (1,0,7)

Prerequisite: ARCH 212, ARCH 262

Design sustainable projects that explore basic environmental issues-e.g. clients' needs, site planning, masonry, construction material, health, and safety are the matter of this course. The basic principles of life-safety systems with an emphasis on egress are also discussed.

ARCH341 **Theories of Housing Design**

Credits: 2 **(2,0,0)**

Prerequisite: ARCH 122, ARCH 212

The course provides an understanding of residential architecture, while investigating behavioral, socio-cultural, planning, environmental, construction, legal, and financing issues that impact its design and production. It includes reviewing behavioral, social, and cultural factors in housing design.

ARCH343 **Landscape Architecture**

Credits: 2 **(2,0,2)**

Prerequisite: ARCH 252, ARCH 260

This course examines the theories and surveys the history of landscape architecture. It also looks at the relationship of contemporary landscape architecture to contemporary architecture.

ARCH344 **Theories of Urban Design**

Credits: 2 **(2,0,0)**

Prerequisite: ARCH 341

This course surveys the theories of urban design. Topics covered include the study of precedents, recent philosophy, design vocabulary, behavioral responses, and implementation strategies.

ARCH346 **Saudi Heritage and Conservation**

Credits: 2 **(2,0,0)**

Prerequisite: ARCH 260

Traditional as well as modern architectural styles are examined in this course. Buildings and settlement patterns are analyzed within the Saudi cultural context. Research, discussion and case-studies are used to explore socio-political, social/historical, economic and historical issues related to the restoration, preservation and adaptive use of buildings. Field measuring and recording techniques are practiced and then used to produce drawings.

ARCH353 **Construction Technology III**

Credits: 3 **(2,0,4)**

Prerequisite: ARCH 252

This course focuses on construction drawings and integrated systems. Students learn how to make technically precise drawings for a proposed design.

ARCH354 **Specifications and Quantities**

Credits: 2 **(2,0,2)**

Prerequisite: ARCH 353

This course covers the fundamentals of quantity surveying, building costs, life-cycle costs, and construction estimating. Practice in writing outline specifications for a proposed designs is an integral part of this course.

ARCH364 **Environmental Control I**

Credits: 2 **(2,2,0)**

Prerequisite: ARCH 251, Junior Standing

This course covers a vast array of energy-related issues as they apply to site planning and architectural design. Topics include: thermal design comfort, site climate analysis, building thermal response, and solar system design; air treatment, distribution systems, and related energy systems; water resources supplies and treatment, distribution and disposal systems; together with electrical, vertical transportation, communication, security, and fire protections systems.

ARCH365 **Environmental Control II – Building System Integration / Acoustics**

Credits: 2 **(2,2,0)**

Prerequisite: ARCH 364

This course discusses the development and application of visual/auditory comfort criteria, lighting and acoustical design, and their respective design implications.

ARCH401 **Special Topics in Architecture**

Credits: 3 **(3,0,0)**

Prerequisite: Junior Standing

This course allows specialized or in-depth studies of subjects supplementing architecture. It explores new topics on an experimental basis, appropriate for testing interest and ability in architecture.

ARCH411 **Architecture Design V**

Credits: 4 **(1,0,7)**

Prerequisite (Coop option): ARCH 311

Prerequisite (Internship option): ARCH 312

The object of this course is for students to design comprehensive architectural project for institutional buildings. Areas dealt with include development of programmed spaces demonstrating an understanding of structural and environmental systems, building envelope

systems, life-safety provisions, wall sections, building assemblies and the principles of sustainability.

ARCH412 **Urban Design Studio**

Credits: 4 **(1,0,7)**

Prerequisite: ARCH 411

This course discusses design processes featured in existing urban environments and calls on students to critically assess site and program, and creatively integrate the role of service to the public as client.

ARCH431 **Shape Grammar**

Credits: 3 **(3,0,0)**

Prerequisite: Senior Standing

The course goes over the principles underlying computer programming, the emphasis on algorithms, along with the procedures and program structures applicable to architecture.

ARCH432 **Architecture Imaging and Electronic Age**

Credits: 3 **(3,0,0)**

Prerequisite: Senior Standing

This is an interdisciplinary course designed to introduce students in the creative arts, science, engineering, and architecture to the concepts of digital pictorial representation and display. It is a concept and theory course, which concentrates on “why” rather than “how.” Topics include: perspective representations, display technology, how television works, bandwidth and printing concepts, digital photography, computer graphics modeling and rendering, and user interfaces. It demonstrates the next generation of computer software/hardware and input and display devices. Historical precedents from the Renaissance to today modern computer and digital effects are discussed and critiqued.

ARCH441 **Low-income Housing**

Credits: 3 **(3,0,0)**

Prerequisite: Senior Standing

The course provides evaluation and analysis of low-income housing theories and policies impact on technical, functional, socio-behavioral factors, and design.

ARCH442 **Housing for People with Limited Abilities**

Credits: 3 **(3,0,0)**

Prerequisite: Senior Standing

The course examines the implications for policy, planning, and design theories of housing for the elderly and people limited disabilities.

ARCH443	Real Estate Development
Credits: 3	(3,0,0)
Prerequisite: Senior Standing	
<p>The course considers theories, strategies, and methods relating to real-estate prospects. The course looks at the development of sustainable planning based on assessment of real market needs and demands, as well as location analysis for proper marketing devolution.</p>	
ARCH444	GIS for Urban Design
Credits: 3	(3,0,0)
Prerequisite: Senior Standing	
<p>The course covers methods of constructing a Geographical Information System (GIS). Students acquire the necessary skills to prepare intelligent maps with spatial databases for parcel mapping, planning, zoning, facility mapping, creating buffer zones, slope analysis, and neighborhood and zone analysis, using CAD map software packages.</p>	
ARCH445	Space Syntax
Credits: 3	(3,0,0)
Prerequisite: Senior Standing	
<p>The course explores structural properties of spatial representation. By structure we understand a basic scheme, a rule. By spatial representation we understand both the mental images and the possible critical aspects that connect those basic images with specific cultural contexts. The aim is to discover the potentialities of translation from one representational language to another and to produce practical exercises on concrete spatial structures.</p>	
ARCH451	Professional Practice and Design Management
Credits: 2	(3,0,0)
Prerequisite: ARCH 354	
<p>An introduction to architectural practice; content includes office procedures, contract management, legal constraints. Understanding of the ethical issues involved in the formation of professional judgment in architectural design and practice. Understanding of the architect's responsibility as determined by the registration law, building codes and regulations, professional service contracts, zoning and subdivision ordinances, environmental regulation, historic preservation laws, and accessibility laws.</p>	
ARCH455	Architectural Publications
Credits: 3	(3,0,0)
Prerequisite: Senior Standing	
<p>The course integrates conceptual communicative thinking and design as well as principles and practices of publication design and production, with emphasis on magazines, newsletters,</p>	

newspapers and contemporary formats and use of traditional and electronic information services as resources. 20th century and current print architectural and web-based publications, are surveyed and critically assessed.

ARCH456 **Emerging Building Materials and Techniques**

Credits: 3 **(3,0,0)**

Prerequisite: **Senior Standing**

The course focuses on emerging building materials and techniques that have the potential to be applied in architectural design. It looks at exploratory technological advances that have introduced new materials in the market and their impact on global sustainability.

ARCH465 **Sustainable and Environmental Design**

Credits: 3 **(3,0,0)**

Prerequisite: **Senior Standing**

The course provides an overview of critical developments in sustainable building design strategies by examining environmental problems and possible solutions through design. It explains the principles of sustainability in architecture and urban design decisions that conserve natural and built resources, culturally important buildings and sites, and healthful buildings and communities

ARCH492 **Co-op**

Credits: 10 **(0,0,0)**

Prerequisite: **Completion of 90 credit hours**

The Co-op is a career related professional program available to all Architecture students. It is designed to help students build on skills already learned in the classroom and acquire new ones as well. Co-Op education is available to Architecture students who have accumulated the requisite number or more credits. The Co-op option counts for 10 credit hours (CRs) for practical onsite experience over a 7 month period, i.e. spanning one semester and a summer.

ARCH498 **Senior Project I**

Credits: 2 **(2,0,0)**

Prerequisite: **ENGL 301, Senior Standing**

Co-requisite: **ARCH 411**

The course is oriented towards systematic analysis of senior project dealing with functional and spatial relationships, location and setting, physical and human environments, use of precedents, and provision of synthesis and alternative concepts for design. The outcome will be presented as written and visual presentation.

ARCH499 **Senior Project II**

Credits: 5 **(0,0,10)**

Prerequisite: **ARCH 498**

The course is a continuation of the thesis research outcomes and synthesis; it proceeds to develop preliminary architectural design concepts, assesses alternative design approaches, and develops design through systematic evaluation process of architectural, structural, environmental, and aesthetic entities. The product includes preparation of a full set of working design drawings.

MMGD COURSES: MULTIMEDIA & GRAPHIC

MMGD211 Graphic Design I

Credits: 3 (2,0,2)

Prerequisite: MMGD 231

The course lays the foundation for graphic design studies. It focuses on applications of the basic elements of color, line, and shape to a specific message. The course is designed to enhance students' visual perception and problem solving skills as their projects are critiqued weekly.

MMGD231 Computer Aided Design (Architecture)

Credits: 3 (1,0,5)

Prerequisite: MATH 103, ARCH 131

Introduction to computer aided graphic software for technical application such as Auto CAD or equivalent in 2D and 3D presentations. The course emphasizes the use of computers rendering techniques for simulating models, materials, and textures, and the importance of presenting these simulations in multiple shots.

MMGD232 Computer Visualization and Simulation (Architecture)

Credits: 3 (1,0,5)

Prerequisite: MMGD 231

The course focuses on the use of advanced computer software multi-media design. Students obtain hands-on-experience applying digital methods used in design, modeling, rendering, lighting, etc for visualized drawing. The course covers basic 3D modeling, shading, rendering, animation (3D MAX and Mental Ray), and digital media editing (Adobe Photoshop, Adobe Illustrator and Adobe Premier) or any equivalent modeling software.

MMGD334 Photography

Credits: 3 (2,0,2)

Prerequisite: Junior Standing

This course discusses the significance of medium photography within communications processes and the difference between human perception and photographic image. It covers the fundamentals and principles of photographic image making and aesthetics. The use of

photography as an investigative and presentation tool is also discussed. Emphasis on composition and design elements of view, lighting, black and white technique; as well, digital image manipulation, and input and output strategies using digital cameras and creative camera controls. The course focuses finally on proficiency in working with equipment and software combined with creativity to produce a quality portfolio.

ID COURSES: INTERIOR DESIGN

ID 131 FREE HAND DRAWING

Credits: 2(1,0,3)

Prerequisite: None

The course teaches drawing of humans, spaces, objects, and other figures using freehand in the solution of figure construction with emphases on perceptual, observational, and creative expression. Students practice drawing in pencil, ink, and watercolors and learn the subtleties of textures and tones.

ID 425 DESIGN THEORY AND CRITICISM

Credits: 3(3,0,0)

Prerequisite: Senior Standing

This course is an introduction to the elements and methods of critical thinking in architecture and interior design and their applications through discussion and writing. The course focuses on critical evaluation, problem solving, and decision making.

ID 435 PORTFOLIO DESIGN

Credits: 3(3,0,0)

Prerequisite: Senior Standing

This course is the capstone element in the development and preparation of a design projects portfolio. This course assists students in developing high-level commitment to professional performance, refining both visual presentation and oral Communications skills necessary for success in the interior design industry. It emphasizes creative self-assessment, portfolio preparation, written Communications, presentation, interview, and job search skills. Students' professional portfolios are reviewed and career opportunities explored.