

Study Plan 2023

Courses Descriptions

ARC110 Introduction to Design (1, 4, 0, 0: 3)

pre-requisite: none

This course aims to introduce students to the basic elements of design, its principles, and the perception and understanding of abstract composition within an analytical method. It aims also to bring an insight into concepts of architecture: space, form, enclosure and quality of space, principles of design like harmony, symmetry etc. and their application.

ARC115 Sketching & Perspective (1, 6, 0, 0: 4)

pre-requisite: none

This course aims to introduce students to principles of one point and two point's exterior and interior perspectives. This course would then enable students to become creative and imaginative through using different medias. It leads to visualization which will improve their sketching skills. whilst improving their sketching. The course also examines the language of architectural form and deals with the techniques of analyzing and representing it by different means of rendering. 3D drawings will be introduced digitally to make students aware with the latest technological software in sketching field. Students learn how to form architectural 3D forms manipulating the shade and shadow of several architectural drawings.

ARC117 Architectural & Interior Graphics (1, 4, 0, 0: 3)

pre-requisite: none

This course introduces students to technical drawing as means of professional engineering communication. It will cover the basic elements of drafting: line drawing, shape description, projections, drawing standards, sections, and dimensioning by applying both: Manual and Computer -aided drawings.

ARC120 Architectural Design I (1, 6, 0, 0: 4)

pre-requisite: ARC110 & ARC117

This course aims to introduce students to basic elements and principles of architectural design. Through a series of step-by-step exercises, students are invited to work on Theories of Proportion, Form and Space definition, spatial and functional relationships. Students, through the design of a small-scale project, will draw upon how to develop their architectural thinking and problem-solving skills. Beside understanding basic requirements of site, environmental, structural and social aspects.

ARC121 History of Architecture (3, 0, 0: 3: 3)

pre-requisite: none

This course introduces students to the development of Architecture from Ancient Civilizations till, and including, the Islamic period. The course involves a brief review of Early Historic, Classical Architecture; from Early Christian through Gothic architecture till the historic architecture of the Islamic world. Students will be taught about major features and design concepts that helped shape historic buildings of these ancient, classical and medieval periods. A major concern of the course is the discussion of various themes, principles, theories, and terms needed to develop such architectural heritage. Students are given the knowledge and skills to analyze and assess building forms, design concepts/ elements, materials and techniques employed in those historic eras.

ARC152 Computer Aided Architectural Design (1, 0, 4, 0: 3)

pre-requisites: ARC117

This course aims to introduce students to Computer 3d modelling programs such as 3DMax or Sketch up, and how to use them to model an architectural project. The course introduces students to virtual three-dimensional space and modelling through the use of 3d modelling software. The course set up students to use Computer Aided Architectural Design applications in their respective design studios to visualize concepts and proposed designs.

ARC170 Introduction to Architectural Science (3, 0, 0, 0: 3)

pre-requisite: none

This course aims to familiarize students with the various factors that affect building design; understanding the basic of design parameters, programming, site analysis, technical aspect of building design and circulation, basic building materials, structure, thermal comfort, acoustic, lighting, and life safety.

ARC210 Architectural Design II (1, 6, 0, 0: 4)

pre-requisite: ARC120

This is a studio course that introduces the strategies of architectural design. Students develop an architectural project based on a building program and site. Issues concerning building assemblies, structural systems, building envelope systems, and environmental systems are covered.

ARC220 Architectural Design III (1, 8, 0, 0: 5)

pre-requisite: ARC210

This second-year studio course focuses upon the understanding of architectural convention in relation to cultural, sociological and general human related aspects. Based on a socio-cultural understanding of design approach students are encouraged to develop their analytical problem-solving skills. Furthermore, this studio course introduces the strategies of architectural design. Students develop an architectural project based on a building program and site. Issues concerning building assemblies, structural systems, building envelope systems, and environmental systems are covered.

ARC234 Building Construction (2, 2, 0, 0: 3)

pre-requisite: ARC117

This course aims to introduce students to the basic concepts and properties of the building's construction components and their materials (Foundations, Walls and columns, Slabs and Beams and Roofs). It also aims to familiarize students with thermal insulation, water and damp proofing and the enclosure system (windows and doors), and types and usage of vertical circulations. Moreover, in this course students will be acquainted with various internal finishing types and materials (partitions, flooring, ceiling), their properties, and means of application.

ARC235 Advanced Building Technology (2, 2, 0, 0: 3)

pre-requisites: ARC234

This course aims to introduce students to advanced building construction systems & technologies and the means of deploying them in buildings. The first part of the course deals with long-span structures, building envelopes, modular construction, advanced building construction technology, advanced façades construction, sustainable materials, mechanization, and robotics. While the second part of the course discusses the use of Virtual Reality (VR) & Building Information Modeling (BIM) in construction visualization. The practical part of the course will assist students in using BIM &VR tools to produce and visualize a building construction System.

ARC241 Surveying for Architects (1, 0, 2, 0: 2)

pre-requisite: MTH112

The aim of this course is to introduce and teach the basic rules and techniques of land surveying. Horizontal and vertical distance measurements, errors in measurements. Areas calculation. Leveling and terrain elevations changes, topographic surveys. Angle measurements. Implement the basic principles of setting out engineering projects. Use different surveying instruments.

ARC253 Building Information Modeling (BIM) (1, 0, 4, 0: 3)

Pre-requisite: ARC152

This is a digital-oriented and practical course that aims to familiarize students with the concept of Building Information Modelling (BIM), mainly the students will be introduced to the concept of BIM, and how the architectural components are different from other previously learned platforms like CAD. Students will learn how to model both conceptual and detailed architectural models, and how they can generate the required documentation out of their designs. By the end of this course, students will be able to model different architectural families and make presentations with colored plans and elevations placed into well-designed architectural sheets. They should also be able to analyze their final building design performance and see how it can respond to light and energy, estimate their building material requirements and make the required BOQ.

ARC271 Behavior & Built Environment (3, 0, 0, 0:3)

Pre-requisite: None

The aim of this course is to teach students how to apply the psychological and aesthetic factors in their design projects, as well as to improve the students' creativity and thinking ability. Students will gain knowledge about basic human behavior factors. They will study the concept of human special behavior and its characteristics, how built environment influences our feelings, space experiences and perception.

ARC310 Architectural Design IV (1, 8, 0, 0: 5)

pre-requisite: ARC220

This course aims to develop students' expertise in synthesizing a single-use building complex's architectural design problem(s). The course deals with applying design strategies for a complex building that has a multifunction approach. Students will create a site-specific program space analysis and design scenarios addressing project requirements while considering environmental, topographical, and other relevant design factors.

ARC320 Architectural Design V (1, 8, 0, 0: 5)

pre-requisite: ARC310

The Architectural Design Studio course is intended for third year students and focuses on designing a mixed-use building within an existing urban context. Students will analyze the interrelationship of form and function in urban design and learn to recognize the role of the design process in developing a final design that meets the functional and aesthetic requirements of the site and program. The course covers a range of design approaches, including form-making, circulation, and the use of light and materials, as well as sustainability, accessibility, and building codes and regulations. By the end of the course, students will have developed a final design proposal that responds to the unique challenges of an existing urban context and will be able to communicate their design ideas effectively through presentations, models, and drawings.

ARC321 Modern and Contemporary Architecture (3, 0, 0, 0: 3)

pre-requisite: None

This course explores the theoretical underpinnings of modern and contemporary architecture. Students will examine the historical and cultural context of modern and contemporary architecture movements, and critically analyze modern and contemporary architectural theories and methods. Through a combination of lectures, discussions, and research assignments, students will develop their critical thinking skills and learn to evaluate the role of modern and contemporary architecture in shaping the built environment. By the end of the course, students will have gained a solid understanding of the theoretical foundations of modern and contemporary architecture, which they can apply to their own design practice.

ARC334 Working Drawings & Construction Details (1, 4, 0, 0: 3)

pre-requisite: ARC235

Introduce students to basic skills and concepts of architectural working drawings and construction details. Students will learn the basic language of architectural drafting and understand the process of producing a set of architectural drawings. They will be taught how to produce detailed drawings for their architectural design projects according to the existing official local building codes and international standards and regulations.

ARC343 Structural Analysis (3, 0, 0, 0: 3)

pre-requisites: ARC170 & MTH112

The course aims to present the fundamental analysis methods for statically determinate structures in preparation for other courses dealing with design of structures. It contributes to the knowledge and skills required by architects in the following topics of engineering science and design: Planar models of structures, loads, and supports; static equilibrium and support reactions; analysis of internal design forces for statically determinate structures subjected to dead loads.

ARC344 Structural Design (3, 0, 0, 0: 3)

pre-requisite: ARC343

The aim of this course is to integrate theories and knowledge from basic structural analysis course into practical design solutions for contemporary building structures; develop the capacity to explain and interpret information related to the fundamental principles and structural behavior of modern buildings in withstanding dead load, live load, wind, and other environmental force; introduce the application of design code to design simple reinforced concrete elements such as beams, columns, and footings.

ARC351 Generative/Parametric Design (1, 0, 4, 0: 3)

pre-requisite: ARC152

The main objective of the course is to help students gain the intellectual skills that are necessary within the realm of digital design practice in architecture. The ways of computational thinking will be introduced and experienced through exercises which focus on computational problem solving, cognitive models, generative systems, shape grammars, spatial configurations and design tool development. "Learning by doing" is a crucial approach for the course. Therefore, the course content will be performed through workshops and design assignments which will be worked by using and developing several types of design tools from manual to digital. By the end of this course students should be able to digitally fabricate their design and assemble them into physical models.

ARC363 Landscape Architecture (2, 2, 0, 0: 3)

pre-requisite: ARC210

This course aims to introduce students to basic developments and concepts of landscape architecture. Students will draw upon both deductive and inductive thinking skills to develop their capabilities to simultaneously solve design problems while giving expression to landscape phenomena. Students will work on landscape architectural projects taking in consideration basic sustainable issues.

ARC364 Housing Design & Theory (2, 2, 0, 0: 3)

pre-requisite: ARC220

The course initiates with understanding of housing developments, policies, and their design in context of regional and cultural aspects, besides understanding the parameters of design quality in housing. At halfway point the course focuses on techniques to analyze the existing housing layouts and master plans in context of density, layouts, environment, and size criteria. The last section of course comprising of housing issues, surveying and data acquisition through surveying tools and case studies. In addition, the last section of course also imparts a teamwork skill to handle small to moderate size of land parcels in context of developing housing master plan.

ARC375 Active Thermal & Environmental Control (3, 0, 0, 0: 3)

pre-requisite: ARC170

This course aims to introduce students to basic concepts of active thermal systems, their design and applications, and how to design buildings which need less of them. The UAE uses up to 80% of its electricity consumption on air conditioning. The student is guided towards how to design buildings that can reduce this figure.

ARC410 Architectural Design VI (1, 8, 0, 0: 5)

pre-requisite: ARC320

This design course focuses on developing a master plan housing project with building codes, cultural traditional contemporary bases, and sustainable considerations for livable communities and environments. Students will engage in various design projects that challenge them to apply their knowledge of housing design principles, building codes, zoning regulations, and environmental sustainability. The course emphasizes the importance of designing livable communities and environments that meet the needs of diverse populations, including accessibility, safety, and sustainability.

ARC420 Urban Design (1, 8, 0, 0: 5)

pre-requisite: ARC410

The Urban Design Studio is a course that equips students with the skills and knowledge necessary to analyze and design urban environments. Students will learn to evaluate and assess the existing urban context, design public spaces, organize spatial elements, and

formulate graphic and written urban development proposals. Through lectures, case studies, and design projects, students will develop a comprehensive understanding of urban design, enabling them to create innovative, sustainable, and responsive urban designs. The course emphasizes the importance of promoting livability, sustainability, and community in urban environments, and prepares students for professional work in urban design.

ARC422 Heritage Conservation (3, 0, 0, 0: 3)

pre-requisite: ARC121

This course examines the term "heritage" and the ideals that are embodied in heritage structures. It will teach students to well-known approaches and techniques in heritage i.e. conservation, rehabilitation and restoration. Students will learn the theoretical and practical skills needed to deal with various building types. They will first determine whether or not the buildings have historical and heritage qualities, and then they will design the necessary techniques to deal with the particular structure they have chosen. Students must match each approach they learn with the legal and legislative requirements of the nation in which it is used, as well as determine the degree of improvements needed to handle each instance. As one of the key case studies covered in this course. Students should be able to make the necessary decisions involving the local heritage of the United Arab Emirates and how to preserve the priceless values housed within UAE heritage structures in a way that aligns with national policies and visions.

ARC433 Building Services (3, 0, 0, 0: 3)

pre-requisite: ARC310

This course prepares the students to deal with the various aspects concerning installations of various services in buildings including electrical components, plumbing, fire protection, building security and mechanical vertical transportation according to design. It allows students to participate in the development of building designs within a multidisciplinary team.

ARC461 Urban Planning (3, 0, 0, 0: 3)

pre-requisite: ARC364

This urban planning course provides students with a comprehensive understanding of the history and context of public planning. They will learn how to recognize the components of the planning process, and gain skills in data collection, analysis, and GIS application. The course also emphasizes the role of government in urban planning and how it impacts the built environment.

ARC472 Lighting & Acoustics in Architecture (2, 0, 2, 0: 3)

pre-requisite: ARC170

Students get an overview on the Application of light and acoustic elements to enhance the quality of the architectural Project to be designed. The course investigates the fields

of natural and artificial light as well as the field of acoustics and how to manipulate space, form and sound by design. The course also includes a detailed study of sun movement and shading to allow the graduates to comply with new UAE green building codes. The course starts with a general overview on light and acoustic solutions in Architecture by built examples and introduces students then to the characteristics of seeing behaviors of humans, starting with the anatomy of the human eye, its relationship to the viewer's brain and the emotional feeling as a result of this process. Furthermore, the course will look into the Application of acoustic systems related to the function of space and its users.

ARC373 Sustainable Architecture (3, 0, 0, 0, 3)

Pre-requisite: ARC170

This course aims to introduce students to basic concepts of sustainable design and its application in architecture considering environment and quality of space. The course provides students with a thorough understanding of the nature and scope and components of sustainable architectural design, passive design solutions and water consumption, and recycling beside renewable and nonrenewable energy. Students will be able to select best forms and smart construction materials for design in different regions to produce sustainable buildings and reduce energy use. Students also will be get acquainted with relevant computer applications used in sustainable design, analysis and calculations of energy use in buildings.

ARC510 Graduation Project 1 (3, 4, 0, 0: 5)

Pre-requisite: ARC410

This is an objectively oriented course aims to familiarize students to the methods of architectural programming and particularly for the preparation of their graduation design project's report. The student, as individual component as element of a group work, will select a title graduation project and prepare all the related research information as a detailed report (thesis). After the Mid-term Review the student will develop the conceptual design process and design strategies which will include conceptual, space analysis, site analysis and architectural design alternatives as architectural document for graduation project II.

ARC520 Graduation Project II (1, 8, 0, 0: 5)

Pre-requisite: ARC510

This course aims to finalize the students' design education achieving excellence and mastering all parts of the architectural design process. The student applies the knowledge and skills that he obtained in a comprehensive graduation project covering the conceptual stage, stages of development, site related issues, structural and construction needs, social and cultural relationship, and computer application in design development and presentation.

ARC530 Arch. Practice & Cost Estimation (3, 0, 0, 0: 3)

Pre-requisite: ARC334

This course introduces students to the fundamental knowledge and skills of professional practice and cost estimating in construction. It encourages students to explore a range of legal, ethical, and professional questions they will face in their practice careers. Topics include the Architect's role in the design and construction process in real life, the Code of professional conduct; ethics and professional judgment; cost estimating techniques; communication and human resources management; and office management.

ARC532 Project Management (3, 0, 0, 0, 3)

Pre-requisite: ARC334

This course provides students with a comprehensive understanding of project management principles and techniques. The in-depth study prepares students to apply various aspects of project management for construction projects such as project stakeholders, planning and scheduling, resources management, Contracting & delivery methods, Risk Management, and internet impact on project management.

ARC536 Architectural Training-I (1, 0, 0, 0:1)

pre-requisite: (Year 3) & ARC320

This course aims to introduce students with architectural practice in professional office and construction site. The Internship experience duration is a minimum of 30 hours per week, for at least 8 weeks full time on site, exclusive of preparatory and reporting periods.

ARC537 Architectural Training-II (1,0, 0, 0:1)

pre-requisite: Senior Status & ARC536

This course aims to provide advanced knowledge of architectural professional practice, architectural office work and construction site. The Internship experience duration is a minimum of 30 hours per week, for at least 8 weeks full time on site, exclusive of preparatory and reporting periods.

ARC580 Selected Topics in Architecture (3, 0, 0, 0: 3)

Pre-requisite: Senior Status

This course introduces students to how to discuss and trigger the most important issues vital to their academic and professional development. It helps them organize their thoughts and interests in a systematic way in relation to their architecture education. The course also enables students to express various progress in architectural education of a special field both orally, by writing and graphically.

ARC582 Real Estate Development (3, 0, 0, 0: 3)

pre-requisite: Senior Status & ARC364

The course introduces students to basic concepts and theories of Real Estate Development and Management, including property valuation and identifying opportunities in real estate projects. Specific topics cover different aspects of residential, office, and retail real estate types and the main stages in the process, including idea conception, feasibility, planning, financing, market analysis, contract negotiation, construction, marketing, and asset management.

ARC583 Photography (1, 0, 4, 0: 3)

pre-requisite: Senior Status

This course aims to introduce students to the basic skills and technology of digital photography. In addition, the students will be given information on photography hardware and equipment. The course will enhance the student's skill in photographic techniques necessary to document their work, and create quality photographic work

ARC585 Research and Design Methods (3, 0, 0, 0: 3)

Pre-requisite: Senior Status

This course aims to introduce students to basic theories, concepts and methods of scientific research and their relevance to architectural design and programming. In this course students will learn, in brief, how to conduct scientific architectural research, starting with how to employ methods of data collection and analysis to inform all aspects of the programming and design process, and ending with making a comprehensive analysis and evaluation of a building, building complex, or urban space.

ARC587 Contemporary Arab Architecture (3, 0, 0, 0: 3)

pre-requisite: Senior Status & ARC321

This course aims at providing students with recent architectural trends and developments in the Arab World during the 20th century and the present time. In this course students will be taught about the general circumstances underlying architectural development and transformation periods in the Arab World during the 20th century. They will be able to understand the identity concept in architecture and various issues connected with it, particularly those connected with regionalism and globalization in architecture and the different approaches employed. Students will also be familiar with theories and conceptual approaches of most of the pioneers of contemporary Arab Architects.

ARC590 Digital Architecture Visualization (1, 0, 4, 0: 3)

pre-requisite: Senior Status & ARC253

This course develops students' abilities to create photo-realistic images by introducing advanced knowledge and techniques in coloring, photo editing, lighting, materials, post-production, and rendering. Digital visualization can be achieved in different computer

applications via 2D photo editing and illustrating software or specialized rendering engines that empower the 3D applications to reach photo-realistic images. This course will allow students to use their computer to create sophisticated digital presentations for their designs and provide a new updated skill that makes them critically required in any design team.

ARC591 Working Drawings II (1, 4, 0, 0: 3)

pre-requisite: Senior Status & ARC334

The purpose of this course is to utilize drafting skills in architectural drafting procedures, practices, and symbols including the preparation of detailed working drawings for a large building, with emphasis on commercial construction methods.

ARC592 Interior Design and Coloring (1, 4, 0, 0: 3)

Pre-requisite: Senior Status

This course aims to enhance students' skills in interior space drawing and coloring. This course primarily highlights Color as the key aspect of successful work in Interior Design and Architecture. In this course students develop a complete understanding of what color is, why it happens and how to control it thereby contributing to the visual and aesthetic experience of color as an important determinant of the experience. They will also acquire a technical expertise in the use of color specifically in project presentations. Introduce the digital skills in rendering will be part of this course. They will be equipped with essential knowledge to reach an optimum Mode Board for their projects.