



قسم العمارة الإسلامية

Umm Al-Qura University  
COLLEGE OF ENGINEERING & ISLAMIC ARCHITECTURE  
Department of Islamic Architecture

# Curriculum overview



**(1436/1437)**  
**(2015/2016)**

جامعة أم القرى  
كلية الهندسة والعمارة الإسلامية  
قسم العمارة الإسلامية

# 1- Curriculum

The standard duration of the Islamic Architecture program is 5 academic years (10 levels). The sequence of courses is organized so as to ensure that it is possible to commence the program in every semester when admissions take place. According to the requirement of UQU, there are series of courses concern Islamic culture. Furthermore, internationalization is the dominant direction for undergraduate education in KSA, so there is a compulsory English language course in the first level. In this respect, UQU believes that strengthening the English skills is a fundamental precondition for entering into new cooperation respectively expanding those in the future.

According to the requirement of the college, the first year should focus on Basic and Applied Science Fundamental knowledge such as mathematics and physics. Therefore, some courses offered in the degree program are imported from department of the Preparatory Year. Furthermore, some other courses are imported from department of Civil Engineering.

The program structure provides great flexibility in course selection and offers a broad scientific and architectural base by containing a sequence of specialized courses like Architectural Studios, Building Technology and construction, Theories of Architecture, Theories of Planning, Complementary Courses, etc. The 10th level contains graduation project. Students are supervised by a group of distinct professors to complete the project properly. These courses are accompanied by two architectural elective courses. Furthermore, there are two summer training courses. The two summers between 7th and 10th level are arranged as practices on professional skills. That means all students are required to take part in the practices for 8 weeks before the graduation project. The student acquires a job for practical training in an architectural firm and at the university.

University Requirements	College Requirements	Department Requirements					
		Architectural Design Studios	Building Tech. & Construction	Theories of Planning	Theories of Architecture	Complementary Courses	Electives
English Language 4800170-6 The Holy Quraan 1 605101-2 Islamic Culture 1 601101-2 Arabic Language 501101-2 The Holy Quraan 2 605201-2 Islamic Culture 2 601201-2 The Holy Quraan 3 605301-2 Islamic Culture 3 601301-2 The Holy Quraan 4 605401-2 Islamic Culture 4 601401-2 The Biography of Prophet Mohammad (pbuh) 102101-2	Introduction to Mathematics 1 4800140-4 Computer Skills 1 4800152-2 General Physics 1 4800130-4 Technical English 4800171-4 Introduction to Mathematics 2 4800141-4 Computer Programming Skills 4800153-3 Learning and study Skills 4800104-3 Structure in Architecture 1 803327-2 Structure in Architecture 2 803327-2 Surveying 803312-2 Structure in Architecture 3 803327-2	Architectural Design 1 801171-5 Architectural Design 2 801172-5 Architectural Design 3 801271-5 Architectural Design 4 801272-5 Architectural Design 5 801371-5 Architectural Design 6 801372-5 Architectural Design 7 801471-5 Architectural Design 8 801472-5	Building Construction 1 801128-2 Building Construction 2 801222-2 Building Science 1 801223-3 Building Construction 3 801224-2 Building Science 2 801225-2 Building Construction 4 801327-2 Properties of Materials 801326-2 Working Drawings 801357-2	Urban Planning 1 801332-2 Housing 801231-2 Urban Planning 2 801333-2 Outdoor Space Design 801334-2 Landscape Architecture 801335-2	History of Architecture 801115-2 Design Process and Methods 801112-2 Theories of Architecture 1 801117-2 Islamic Architecture 801116-2 Theories of Architecture 2 801316-2 Islamic Science for Architecture 801216-2 Theories of Architecture 3 801317-2 Graduation Research Project 801418-2	Shadow & perspective computer Applications 1 801103-2 computer Applications 2 801141-2 Summer training 1 801244-2 Summer training 2 801256-2 Interior Space Design 801361-2 Islamic Sciences: Application in Environment Construction Management 801443-2 Construction Management 801454-2 Summer training 2 801352-2 Contemporary Human Ecology 801444-2 Building Economy 801458-2	Urban Heritage and Experience of KSA 801801-2 Modern Technologies in Construction Buildings 801802-2 Mega Structure Buildings 801803-2 Sustainability and Green Architecture 801804-2

Requirements of UQU, College and Department of Islamic Architecture.

The general structure of the curricular content of the Bachelor's Degree Program is illustrated in the following figure.

## 2- Islamic Architecture Curriculum

Year (1)	Level (1)	4800130-4 General Physics 1 Pr. None 4800104-3 Learning and study Skills Pr. None	4800140-4 Introduction to Mathematics 1 Pr. None 4800141-4 Introduction to Mathematics 2 Pr. None	4800170-6 English Language Pr. None 4800171-4 Technical English Pr. None	4800152-2 Computer Skills1 Pr. None 4800153-3 Computer Programming Skills Pr. None				
Year (2)	Level (3)	801171-5 Architectural Design 1 Pr. None	801112-2 Design Process and Methods Pr. None	801110-2 Arabic Language Pr. None	605101-2 The Holy Quraan1 Pr. None	801103-2 Shadow & perspective Pr. None			
		801172-5 Architectural Design 2 Pr. None	801128-2 Building Construction 1 Pr. None	601201-2 Islamic Culture 1 Pr. None	605201-2 The Holy Quraan 2 Pr. None	801141-2 computer Applications 1 Pr. None			
Year (3)	Level (4)	801171-5 Architectural Design 3 Pr. None	801115-2 Islamic Architecture Pr. None	801216-2 Islamic Science for Architecture Pr. None	601301-2 The Holy Quraan 3 Pr. None	801244-2 computer Applications 2 Pr. None			
		801271-5 Architectural Design 4 Pr. None	801222-2 Building Construction 2 Pr. None	801232-2 Urban Planning 1 Pr. None	605101-2 605301-2 The Holy Quraan 3 Pr. None	801171-5 801244-2 computer Applications 2 Pr. None			
Year (4)	Level (5)	801172-5 Architectural Design 5 Pr. None	801128-2 Building Construction 3 Pr. None	801233-2 Urban Planning 2 Pr. None	605201-2 601401-2 The Holy Quraan 4 Pr. None	803227-2 Structure in Architecture 1 Pr. None			
		801271-5 Architectural Design 6 Pr. None	801224-2 Working Drawings Pr. None	801333-2 Urban Planning 2 Pr. None	601301-3 Islamic Culture 3 Pr. None	803227-2 803227-2 Structure in Architecture 2 Pr. None	801256-2 Summer training 1 Pr. None		
Year (5)	Level (6)	801371-5 Architectural Design 7 Pr. None	801222-2 Building Construction 4 Pr. None	801334-2 Outdoor Space Design Pr. None	803312-2 Surveying Pr. None	803427-2 Structure in Architecture 3 Pr. None			
		801471-5 Architectural Design 8 Pr. None	801454-2 Construction Management Pr. None	801443-2 Islamic Sciences: Application in Environment Pr. None	* Elective (1) Pr. None	801352-2 Summer training 2 Pr. None			
Year (5)	Level (7)	801372-5 Architectural Design 8 Pr. None	801455-2 Building Economy Pr. None	801444-2 Contemporary Human Ecology Pr. None	* Elective (2) Pr. None				
		801471-5 Architectural Design 8 Pr. None	801372-5 Pr. None	801471-5 Pr. None					

\* Electives

801801-2 Urban Heritage and Experience of KSA

801802-2 Modern Technologies in Construction Buildings

801803-2 Mega Structure Buildings

801804-2 Sustainability and Green Architecture

Architectural Studios  
Building Tech. & Construction  
Theories of Planning

Theories of Architecture  
Complementary Cour:  
Electives

### **3- Courses summary**

#### **Architectural Studios**

##### **801171-5 Architectural Design (1) (pr. None)**

. The course introduces the student to basic drawing skills and techniques. Fundamentals of architectural drawing are presented, and conventions of graphic representation are highlighted. A study of architectural orders, architectural composition through abstract shapes and forms, and orthographic projections are focused on. Students also learn presentation techniques including line drawings and tone drawings, as well as adding human effects such as furniture and plants to the drawings.

##### **801172-5 Architectural Design (2) (pr. Architectural Design (1))**

This course is an introduction to the fundamentals of architectural design through the design process, definition, analysis, concepts, development and presentation. Students begin by studying different building forms and their relation to human activity, scale and furniture as a means of creating space. Next, they learn to conduct spatial analysis. Training includes simple projects focusing on the functional relationships and the use of space. The student should be able to present his different design concepts based on his acquired presentation skills.

##### **801271-5 Architectural Design (3) (pr. Architectural Design (2))**

The architectural design studio (3) is the course in which students express themselves visually and show their creativity. Instructions will be given in the following areas: elements of design, module, technical drafting using grids, and computer skills.

##### **801272-5 Architectural Design (4) (pr. Architectural Design (3))**

This course targets designing projects at an intermediate level, focusing on the ways in which the nature of structural systems and building materials affect and influence architectural design. Students begin by studying basic structural systems. After this, the students should be able to select building materials as well as design projects with sound structural systems, to satisfy the requirements of building programs as an integral part of the design.

##### **801371-5 Architectural Design (5) (pr. Architectural Design (4))**

This course is an introduction to the field of urban design. Students begin by studying urban design and its different levels, concepts and related physical, social and economic phases. Subsequently, students learn about the role of the urban designer in creating sustainable environments for social, economic and cultural requisites of the society. Students are asked to present an urban design of a small neighborhood.

##### **801372-5 Architectural Design (6) (pr. Architectural Design (5))**

This course provides an introduction to the field of slums and informal areas. It aims to raise mental and intellectual ability of the student to know how to deal with slums in urban areas, and studying the rehabilitation methods. This course encourages cooperation as a team work in the field survey.



### **801471-5 Architectural Design (7)** *(pr. Architectural Design (6))*

The course comprises the followings: Form strong basics of profession practice to the students. Train to deal with the owner to develop and fulfilling his requirements. Interactive with the main stages of the exercise of the Profession Practice of architecture process and different technology. Take advantage of what was student learned in the previous courses: design process, materials and construction methods, the architectural heritage, Presentation & delineation Methods. Emphasis on the application of Islamic law in of the design and application of the concepts of the Islamic basics. Taking sustainability into account in all stages of design. Training on Team Work by simulating the architectural offices environment.

### **801472-5 Architectural Design (8)** *(pr. Architectural Design (7))*

The course aims to take advantage of all the previous courses that have been studied and try to apply and take advantage of them in the graduation project. It aims to review the graduation research, to devise design elements, and right relations between its components. Furthermore, it aims to identify the choosing possibility for the appropriate location of the proposed project, and to overcome the difficulties of the site-in case of existence. Moreover, it aims to identify the possibility of determining the Architectural program of projects, as well as determine the different spaces& its relationships. Furthermore, it focuses on the concept of sustainability in architecture and how to achieve it in the project.

## **Building Tech. & Construction**

### **801128-2 Building Construction (1)** *(pr. Architectural Design (1))*

Define the requirements and needs of the building, and factors influencing, the analysis of the architectural and structural components of the building, the definition of different construction methods and building materials used, local bearing walls and its building materials and construction methods, construction of skeleton buildings of reinforced concrete and its different types skeleton buildings of steel structures, study types of foundations in buildings.

### **801222-2 Building Construction (2)** *(pr. Building Construction (1))*

Study and analysis of the vertical movement elements in buildings such as stairs escalators and travellators different styles of slopes ,methods of design , implementation , architectural details and its finishing materials, whether internal or external ,study the design elevators and its places in the building , study of types partitioning walls and its multiple styles whether of interior considering its construction methods and materials, study the methods of thermal , water and sound insulation study expansion dividers settlement joints in buildings.

### **801222-2 Building Construction (3)** *(pr. Architectural Design (2))*

Study doors and windows, the various types and sections, study architectural details, and methods of design, implementation and assembling, specifications and the materials used. Study windows, methods of manufacture,

implementation and assembling ,materials used and studying architectural details, and construction, various models, study indoor and outdoor floor types and finishes, types of suspended ceiling and finishing, types of external wall claddings and finishes.

#### **801327-2 Building construction (4) (Building construction (3))**

The course comprises the followings: Study groups related to the process of building, construction and Identification of temporary works associated to the process of construction, such as primary works, site plan, study of scaffolding and wrenches, its types and materials used, identify mechanisms and equipment used in the different construction processes. And hence, study ways of production of the building. Furthermore, the course comprises trends in the development of the construction industry, and automated methods used in building construction, study pre-casting, processing and manufacturing building of various types.

#### **801223-2 Building science (1) (pr. Building and Construction (1))**

The course comprises the followings: The Various climate regions of the world and its characteristics. Environmental factors affecting the design, the sun (the factors that determine the intensities of sun rays, methods of protection from the sun), Temperature and its impact on the building (the influential factor in temperature, heat transfer) Ventilation and its impact on the Temperature of the internal and external surfaces, building direction and its impact on the Temperature, consideration for direction process, building direction in the tropical regions) traditional ways to control climate for buildings in dry warm and humid areas, passive and positive energy treatment (double walls, double roof, wind catcher, sun breakers, the buildings under the ground) Natural lighting features( various forms of natural lighting the distribution of natural lighting within the space, important consideration in the design of natural lighting, the influential factors in the amount of natural light in space, the lighting changes during the day, special considerations for the use of natural lighting in warm places, general recommendations for the warm dry places in terms (physical planning, forms of buildings, guidance, building materials).

#### **801225-2 Building science (2) (pr. Building science (1))**

The course comprises the followings: Sanitation equipment, sanitary wares, pipes extensions of water and sanitation, sewerage in multi-story buildings, drainage systems, Air conditioning (different between ventilation and air conditioning , reasons for use of air conditioning, air conditioning equipment, air conditioning component of the system, a map of a central air conditioning system, different air conditioning systems, the principles of air conditioning, the properties of mixture of air and water vapor, "Secrometry" and the map, boundaries for the a desirable comfortable environment, air conditioning requirements in the planning and for design of the buildings, the influential factors in reducing the thermal need) , Acoustics( sound insulation, distance law for the reduction of sound, reflection and absorption of sound, noise control, acoustics isolation of the cover of the building and interior walls and floors, the method of calculating the reduction of the acoustics wall of mixed construction, requirements of reducing noise in the planning and design of the building), Acoustic treatment( factors affecting treatment, the calculation of frequency time, sound absorption and absorbent surfaces, reduce the sound inside the space and

calculating method) , safety procedures and fire- fighting (fire prevention, safety procedures and outlets to escape, firefighting equipment)

#### **801326-2 Properties of Materials** *(pr. Building and Construction (1))*

The course comprises the followings: Summary of the main learning outcomes for students enrolled in the course. Building and construction materials: (Physical properties, chemical and mechanical properties of building materials and construction), Strength of Materials: (properties and performance under dynamic loads). Properties of construction materials such as metal (steel) and non-metal materials (concrete, wood, insulation, interior finishing materials, exterior main finishing materials). Controlling and treatment methods of construction materials which have direct impact on Architecture. Importance of material lab and its components.

#### **801357-2 Working Drawings** *(pr. Building construction (4))*

Establishing a strong foundation to know the basic shop drawings for one of the projects which had already been designed by the student .Mastering the basic shop drawings of an architectural project. Ability to prepare and draw the architectural details of the project. Being familiar with the preparation of quantities and project items. Writing technical project specifications. Mastering the production of shop drawings for the project using appropriate computer applications. Provision of linkage and dealing methods with other engineering disciplines (structural, electrical, mechanical, health, civil, landscape, ...) and their respective roles in the shop drawings preparation for the project

### **Theories of Planning**

#### **801232-2 Urban planning (1)** *(pr. Architectural Design (3))*

The course covers the historical study of the city, including its origins and evolution since the dawn of history until the present day. The course contents have been organized into two parts. The first deals with the history of the city and its planning since the ancient civilizations (Egypt, Mesopotamia, the Indus Valley), and the civilizations of the ancient Greeks and Romans, Middle age cities of Europe, the Arab Islamic Cities, the Baroque and Renaissance until the industrial revolution. The second part deals with history of the emergence of contemporary theories of urban planning and impulses that accompanied since its inception at the beginning of the industrial revolution, until the basic principles of planning in the mid-twentieth century.

#### **801232-2 Urban planning (2)** *(pr. Urban Planning (1))*

The main objective of this course is to give the student an introduction to urban planning. The course comprises the followings: various processes of urban planning and land use (residential, commercial, industrial). The difference between contemporary trends for the neighborhood planning , (planning neighboring residential), Stages of urban planning in the KSA. Building regulations mentioning some examples to the planning study in Saudi Riyadh , Jeddah , Mecca , urban -scale system in the Kingdom. Elements analysis and components of the city in general .

#### **801231-2 Housing** *(pr. Architectural Design (3))*

The main aim of the course is that the student understands the basic concepts and issues related to housing. The student should be able to define the main

definitions like: housing- shelter-house-dwelling, the population, area density ...etc.

The student discusses the types of housing problems and solutions, the factors that affect the design of the housing unit and the neighborhood residential areas. The course presents housing Requirements (Social – Urban-Economical-environmental), Criteria & Design Considerations .This course illustrates types of housing projects (Land subdivisions Projects & Integrated Projects) and housing site analysis. It focuses on the concept of the Neighborhood, NBHD Services & its road Network.

### **801334-2 Outdoor Space Design** *(pr. Architectural Design (5))*

Outdoor space is an important component of any urban fabric; it is the complementary part of the built up area containing various human activities such as social, recreational and economical activities. It also reflects the overall image of the city. The main objective of this course is to study the Outdoor spaces (their forms and elements) inside the city. The course is based on the historical, analytical and descriptive study, in addition to research tools such as observation and field survey.

### **801335-2 Landscape Architecture** *(pr. Architectural Design (5))*

Eight types of urban open space are discussed during this course: urban plazas, neighborhood parks, mini-parks and vest-pocket parks, campus outdoor spaces, outdoor spaces in housing for the elderly, child-care outdoor spaces, streetscape, and hospital outdoor spaces. People Places contains a chapter-by-chapter review of the literature, illustrative case studies, and design guidelines specific to each type of space. People Places has a number of features that can be easily incorporated into the design process: The first part of the course will provide you with a background on planting design principles. In addition to that, you will study definitions and terminologies related to landscape. This will help you to comprehend the main elements of environmental planning approaches. In the second part of this course you will study the two basic approaches to design and planning people places.

## **Theories of Architecture**

### **801115-2 History of Architecture** *(Pr. None)*

The course comprises the followings: Definition of primitive architecture (the old stone ages), Egyptian architecture (old – middle- modern Pharaonic), Mesopotamian architecture (Sumerian-Assyrian-Babylonian –modern Babylonian-Sasanian Empire), Greek architecture (ancient Greek), Roman architecture, Byzantine architecture and the dawn of Christianity and medieval architecture (Romancek-Gothic), in addition to medieval architecture in Europe.

### **801418-2 Graduation Research Project** *(Pr. Architectural Design (6))*

The course aims to define the graduation research and the importance of using research methods through selection of the graduation project theme for each student. Furthermore, this course aims to identify the problems and the objectives, hypotheses, and search content by (specify sections, and chapters that covering the search ...etc), down to choose references and methods of preparation.



### **801117-2 Theories of Architecture (1)** *(Pr. History of Architecture)*

The course comprises the followings: Architectural concepts and terminology (scale and human scale, proportion of the human and the golden section), module and the modulator, the terms of architecture (utility, durability, beauty and economy), aesthetics for architecture, principles of architectural composition (Unity, variety, percentages, measurement, character, expression ...Etc.), also analysis of the buildings to its elements (utility, communication, circulation, service, protection, ventilation, construction and beauty), as well as the factors that affect architectural design (materialism and physical, humanitarian and civil, scientific, economic, industrial and technological, ...Etc.), design considerations for buildings (residential, religious, administrative, sporty, cultural, Entertainment, service, ...Etc), in addition to the most important pioneers of twentieth-century architecture and some of their distinctive work, such as: (Frank Lloyd Wright, Le Corbusier, Walter Gropius, Mies van der Rohe, and Oscar Niemeyer).

### **801117-2 Theories of Architecture (2)** *(Pr. Theories of Architecture (1))*

The course comprises the followings: Renaissance beginning from (Bramante) and ends with (Michelangelo), The Baroque and Rococo periods. The industrial revolution and its architectural manifestations, battle of the styles and the 19th century, also modern art and generation of pioneers in the beginning of the twentieth century. In addition to the modern architecture of some architectural schools such as: Bauhaus – Chicago – functionalism – organic, etc.). Finally, the first and second generation of the pioneers.

### **801317-2 Theories of Architecture 3** *(Pr. Theories of Architecture (2))*

This course aims to understand and apply the concept of architectural character within the scope of new trends. The course provides a detailed insight into the classification of different architectural movements and their pioneers, as well as the essential characteristics of "Modernism, Late Modernism & Post Modernism" and its different phases. Students begin by studying the different styles of the 19th century to the end of 20th century up to 21st century. Students also learn about the changing architectural vocabulary and new approaches.

### **801116-2 Islamic Architecture** *(Pr. History of Architecture)*

This course is meant to introduce the students to the history and design of Islamic architecture. Students begin by examining the formation and development of architectural, artistic, and urban traditions of the Islamic World. They are then introduced to the ideas and cultures that shaped the architectural character of the Islamic era. Students learn from selected examples of religious, civic and residential Islamic Architecture in a chronological order. The course covers the genesis of the architecture in the Islamic city such as; Medina, Baghdad, Cairo, as well as religious buildings (mosques and doctrinal schools), buildings of services (Khankawat, Hospice, Kuttab and Bimaristan), and residential buildings. On the other hand, the course reviews pioneers of the contemporary Islamic Arabic architecture, in addition to international organizations and institutions and their role in the maintenance and development of Islamic architecture.

### **801112-2 Design Process and Methods** *(pr. None)*

The course comprises the followings: Identify and define the design problem, the study of logical thinking steps to reach the optimal solution to the problem, the

factors affecting the design, process design in small buildings, technical methods as a means of assisting in the design process, the standard calendar, and decision making. Analysis of the components of the project to be designed, private network design elements relations, environmental factors affecting the design, coordination of the site for the project to be designed, and environmental control for the design process, the decision to choose the concept of the design, the style of presenting the idea of design in architecture.

### **Complementary Courses**

#### **801141-2 computer Applications (1) (pr. Architectural Design (1))**

This course comprises the followings: Definition of software, such as AutoCAD, the required computer needed, learning the skills of drawing, amendment, use of layers, colors, shapes, and drawing dimensions, hatching, learning the three dimensional drawings, drawing perspectives, shading, giving the student at the end of the course and integrated project, to apply all commands.

#### **801244-2 computer Applications (2) (pr. computer Applications (1))**

This course comprises the followings: Drawing systems on computers, the capabilities and the use of drawing by areas (image processing and artistic presentation), (drawing by lines), (charts and modeled drawing with the move through the designed building, from inside or from the outside, and around him, software use.

#### **801443-2 Islamic Sciences: Application in Environment (Pr. Architectural Design (6))**

This course comprises the followings: Various environmental concepts. Technical concept as a tool to shape our environment. The transformation of the agricultural society to an industrial society and its impact on the environment. Post-industrial era and the transition to the information society. The new shape of the built environment. The major threats to the environment of the earth. The concept of Islam for the environment and position them. Themes that can architect of which contribute to the preservation of the environment. The impact of information and communication technology revolution of the architectural profession.

#### **801216-2 Islamic Science for Architecture (Pr. Architectural Design (2))**

This course aims to illustrate the legitimacies that must be observed between the inhabitants and demonstrate how to achieve adequate housing Muslim family.

#### **801444-2 Contemporary Human Ecology (Pr. Architectural Design (7))**

This course comprises the followings: Values and principles of urbanism in contemporary Islamic cities. Elements and forms of urbanism, which was produced by the Islamic civilization in ancient Islamic societies. The effects influenced the Islamic urbanism and the extent of the influence of Islamic law. The appearance and graphic elements for the cities of the Islamic communities, as well as features and distinctive features. The possibility of benefiting from the values and principles of urbanism derived from Islamic values and legislation in contemporary cities. Influences that created the modern urbanism. Some serious attempts and successful that have been applied to get to the provision of urban environment consistent with the values and principles of the Islamic communities

in accordance with the requirements and the requirements of the times and the needs of the contemporary Muslim human solutions.

**801454-2 Construction Management** (*Pr. Architectural Design (6)*)

This course aims to prepare and enable the student to identify, understand and develop his capabilities and skills to deal with the field of construction management during the period of the course or after graduation.

**801361-2 Interior Space Design** (*Pr. Architectural Design (5)*)

Space is the essential element in interior design. This space gives life to the architecture which houses it. This course is a visual study of the nature of this interior setting. The course comprises the followings: Fundamental element which make up our interior environments. Characteristics of each element. Emphasis is placed on basic design principals and how design relationships determine the functional, structural, and aesthetic qualities of interior spaces. Study of the design process.

**801458-2 Building Economy** (*Pr. Architectural Design (6)*)

The course comprises the followings: Basic concepts of building economics: initial cost, life cycle cost in use, cost and benefit ratio analysis, and control of cost and depreciation, cost estimating, including determination of materials, labor, equipment, overhead, profit, and other construction costs.

**801103-2 Descriptive Geometry; and Shadow and Perspective** (*pr. None*)

It is a course for senior mathematical science. It develops talent imagination and endorsing mathematical logic, and is mainly based on spatial engineering to theories and rules, where the conversion issue into a issue a descriptive - through the projection. The student gives a sketch describes the shapes and surfaces and fully accurate description of where (areas, lengths, and angles). The course explains the difference between the self and the movable shade, drop shadow in plans and elevations, drop shadow of basic geometric shapes just like cube, cylinder, cone, sphere, drop shadow of point, line, plane, etc. The course explains shade and shadows of the most important elements of architectural Manifesting and the effect of light on the mass of the most important factors that help to design success just like the beauty of proportions and consistency of the various components of the vocabulary of the work as a whole.

**801803-2 Mega Structure Buildings (Elective)** (*pr. None*)

The course comprises the followings: Definition of giant buildings and its history. Build knowledge about process of construction and construction equipment and accompanied mechanisms, effect of natural power (wind & earthquakes) on design of skyscrapers.

**801803-2 Modern Technologies in construction Buildings (Elective)** (*pr. None*)

The course comprises the followings: Definition of the different construction systems (Long Span Structure Systems: Trusses and Frames, Space trusses, Shells and Cables). Definition of the methods and systems of construction and building materials. Construction process of modern buildings (Curtain Walls-

Light Walls (Gypsum Board) - Raised Floors -... etc.). New possibilities to solve the problem of the car Parking in crowded cities.

**801802-2 Urban Heritage and Experiences in KSA (elective) (pr. Architectural Design (6))**

The course comprises the followings: Definition of the concept of preserving the architectural heritage, and the rooting experiences of Architectural Heritage in Saudi Arabia. Introduction study of the physical environment and social/economic of regions of historical value. The concept of architectural heritage of cities and the importance of preserving it. Types and levels of deterioration of historic urban areas. Studying of methods of monitoring and documentation. Analysis of the physical and heritage styles. Analysis of change patterns (urban transformations). Principles of addressing and dealing with important problems of urban areas. Methods of maintaining and upgrading.

**801804-2 Sustainability and Green Architecture (Elective) (Pr. None)**

The objective of this course is to examine how environmentalism has informed architectural discourses, and how discourses on the built environment and urbanism have impacted environmentalism globally. The course will introduce students to the various paradigms of environmentalism, such as: environmental apocalypticism, the limits of resources, environmental health and toxic discourse, environmental justice, sustainability, and urban environmentalism, and how these have impacted architecture and urbanism in the nineteenth and twentieth century.

**801256-2 Summer Training (1) (Pr. None)**

Configure a strong foundation for the student's specific knowledge of traditional and historic areas, so as to include a number of secondary objectives.

**801352-2 Summer Training (2) (Pr. Architectural Design (5))**

The main goal of this course is to configure a strong foundation for the student's knowledge of the different stages of professional work through the summer training.