5.6 ARCHITECTURAL ENGINEERING DEPARTMENT

The Department of Architectural Engineering offers a range of basic architectural engineering courses relating to the major architectural engineering disciplines, to prepare the students to all educational programs of the department.

A student in the architectural department must successfully pass courses totalling at maximum of 180 credit hours, through at least five academic years of study (or 10 academic semesters). Table 3.85/Chapter 3 summarizes the distribution of the total credit hours for the architectural specialty.

5.6.1 DESCRIPTION OF ARCHITECTURAL DEPARTMENT FIRST SEMESTER COURSES

5.6.1.1 "EB143" ENGINEERING DRAWING FOR ARCHITECTS (1): 3Cr [2-3-0]

Pre-requisites: none

Course Catalogue Description:

This studio course is an introduction to the free hand representation of nature, manufactured objects and the built environment, through introducing students to the basic concepts of two and three dimensional studio practice and visual communication. Materials will range from traditional drawing materials such as charcoal and pencil to digital photography. The course will encourage students to explore the use of diverse visual languages. Emphasis will be on both formal and conceptual issues, such as developing meaning through imagery, narrative, metaphor, and other visual modes in architecture. Projects and sheets will be structured to deal with basic concepts and principles of Architecture design. Students learn to use essential media while practicing descriptive methods. They get sufficient skills and confidence required to illustrate sceneries or abstract designs.

5.6.1.2 "EA111"FUNDAMENTAL BUILDING CONSTRUCTION (1): 2Cr [1-3-0]

Pre-requisites: none

Course Catalogue Description:

The course aims to increase the students' ability to comprehend various building components and behavior, where the student must demonstrate adeptness in acquiring the necessary theoretical background in building technology and developing the ability to identify basic building requirements in order to achieve better construction efficiency. The course covers the following topics: Building systems- wall bearing and skeleton systems; basic concept, main components, loads and structural behavior. Foundations- concept, types of foundations: isolated and continuous footings/ raft/ piles. Walls and partitions- types of bricks, stones, masonry and ashlars/ wall details: coping, lintels, skirting, etc.

5.6.1.3 "EB121"ENGINEERING PHYSICS (1): 3Cr [2-1-2]

Pre-requisites: none

Course Catalogue Description

This course covers the basic physical knowledge needed for engineering programs. This course addresses the well recognized elements of classical engineering physics which universally underpin the formation of the professional engineer. It involves the study of: Units and Dimensions, Rotational Motion of Rigid Bodies, Moment of Inertia, Torque; Rotational Energy, Work and Power; Angular and Linear velocity and accelerations, Elasticity: Stress; Strain; Modulus of Elasticity; stored Energy in Strained Solids. Fluid mechanics: Equation of Continuity; Bernoulli's Equation. Viscosity, Poiseuille's Law. Wave motion: types of waves, Sound waves: Doppler Effect. Thermal properties and heat transfer techniques: thermal expansion, heat and internal energy, heat capacity and specific heat. Thermal energy transfer mechanisms. Work and heat in thermodynamic processes. The first law of thermo dynamics.

5.6.1.4 "EB145" DESCRIPTIVE GEOMETRY: 3Cr [2-3-0]
Pre-requisites: none

Course Catalogue Description:

The course tends to teach the students the basics of the architectural language using different methods and techniques as a way of architectural communication, introducing them to the orthographic projection, isometrics, and axonometric drawings of basic forms. The aim of the course is to teach the students a simplified definition of architecture and the development of students' capabilities for visualization and presentation of architectural ideas by scientific methods. The course also introduces the principles of shade and shadow and systems and methods of perspective drawing.

5.6.1.5 "EB111" ENGINEERING MECHANICS (1): 3Cr [2-3-0]
Pre-requisites: none

Course Catalogue Description

This course tends to covers the basics of Engineering Statics. Emphasis is given to topics that will be useful in other disciplines, including Statics of Particles, Friction, and Statics of Rigid Body, Centers of Gravity, and Introduction to Analysis of Structures.

5.6.1.6 "UEC01" COMPUTER SKILLS AND PROGRAMMING CONCEPTS (I): 2Cr [1-2-0]
Pre-requisites: none

Course Catalogue Description:

This course tends to provide Year 1 students of all university's faculties with a brief introduction to the world of computers including: numbering systems and digital data representation, computer system architecture, storage and input/output systems, Operating systems and Utility Systems, software applications, problem solving techniques and their applications using Flow Charts.

5.6.1.7 "UGE01" ENGLISH LANGUAGE (1): 2Cr [2-0-0]
Pre-requisites: none

Course Catalogue Description:

This course aims to consolidate the English language skills the students acquired during their primary and secondary education. The course focuses on honing the students' Speaking, Writing, Reading and Listening abilities. These objectives are realized by providing the students with a curriculum that is commensurate with the scientific studies they have chosen to pursue. The curriculum is taught by qualified and experienced lecturers and/or instructors supported by texts, access to computers, and a library, all delivered in state of the art facilities, and a first class learning environment.

5.6.2 DESCRIPTION OF ARCHITECTURAL DEPARTMENT SECOND SEMESTER COURSES

5.6.2.1 "EB144" ENGINEERING DRAWING FOR ARCHITECTS (2): 3Cr [2-3-0]
Pre-requisites: EB143

Course Catalogue Description:

The Course is to teach the students the basics of the architectural language using different methods and techniques as a way of architectural communication, introducing them to the orthographic projection, isometrics, and axonometric drawings of basic forms. The aim of the course is to teach the students a simplified definition of architecture and the development of students' capabilities for visualization and presentation of architectural ideas by scientific methods. The course also introduces the principles of shade and shadow and systems and methods of perspective drawing.

5.6.2.2 "EA112" BUILDING CONSTRUCTION LEVEL (2): 3Cr [2-2-0]
Pre-requisites: EA111

Course Catalogue Description:

This course is a continuation to develop the students' ability to comprehend building components, loads and behavior: ceilings and roofs: basic concepts, construction systems. / damp proofing: concept, wooden and steel materials and details./ stairs: basic concepts / construction requirements / finishing materials and details.

5.6.2.3 "HU175" HISTORY OF ARCHITECTURE (1)): 2Cr [2-0-0]
Pre-requisites: none

Course Catalogue Description:

This course introduces students to the history of different engineering disciplines. The Course is to teach the students all about the history of architecture of the Ancient Civilizations. It introduces the student to the history of the major civilizations, architecture found in the valley of the Nile (Egyptian civilization).

5.6.2.4 "EM172" MANUFACTURING PROCESSES AND MODELING: 3Cr [2-0-3]
Pre-requisites: none

Course Catalogue Description:

Students will learn to prepare a massing model of many projects. A series of practical workshops during which the different modeling techniques will be practiced.

Students' design and three-dimensional (3D) scale models are produced, usually working in one of the following areas:

- Prototype models of new products prior to sale.
- Scale models such as construction developments (architectural model making).
- Visual special effects for exhibitions, museums, film, TV and theatre.

Depending on their designated area, they use a variety of techniques including laser cut, wood machining, metal working and sculpting with clay, finishing processes such as hand coloring and spray painting.

5.6.2.5 "EB122" ENGINEERING PHYSICS (2): 3Cr [2-1-2]
Pre-requisites: EB121

Course Catalogue Description:
This course is to introduce electricity and further develop fundamental ideas of Electricity and Optics. Lecture topics include: electrical current and resistance, EMF, D.C. circuits and electrical measurements, electric charge, electric field and potential, magnetic fields and their origin, electromagnetic induction. Geometric optics, curved surfaces and Lenses.

5.6.2.5 "UEC02" COMPUTER SKILLS AND PROGRAMMING CONCEPTS (2): 2Cr [1-2-0]
Pre-requisites: UEC01

Course Catalogue Description:
This course tends to introduce Year 1 students of all university's faculties to the concepts and terminologies of Computer Programming using HLL (Basic or C).The course gives an overview of Databases and Database Management Systems: What are the databases and the advantages for using them? Database concepts, key characteristics about the data in a database, Database classifications and models, practicing on database. The course also introduces students to the internet and the internet services, e.g. Visual Basic.Net.

5.6.2.6 "UGE02" ENGLISH LANGUAGE (2) : 2Cr [2-0-0]
Pre-requisites: UGE01

Course Catalogue Description:
This course aims to consolidate the English language skills the students acquired during their freshmen tertiary education. The course focuses on perfecting the skills acquired during their English 101 studies. These objectives are realized by providing the students with a curriculum that is commensurate with the scientific studies they have chosen to pursue. Again, the curriculum is taught by qualified and experienced lecturers and/or instructors supported by texts, access to computers, and a library, all delivered in state of the art facilities, and a first class learning environment.

5.6.3 DESCRIPTION OF ARCHITECTURAL DEPARTMENT THIRD SEMESTER COURSES

5.6.3.1 "EA211" ARCHITECTURAL DESIGN LEVEL 1: 4Cr [2-4-0]
Pre-requisites: EB144

Course Catalogue Description:

Introducing the student to a viable understanding of the factors and issues that underlie the translation of human needs and purposes into specific architectural form – Familiarizing students with images of architecture and designs selected from various cultural and historic backgrounds - Specific topics include basic elements, attributes and organizational principles of architectural form and their relationship to design objectives. In addition, the students can be introduced to simple design tasks of indoor and outdoor Architectural spaces.

5.6.3.2 "EA221" BUILDING TECHNOLOGY LEVEL (3): 3Cr [1-4-0]
Pre-requisites: EA112

Course Catalogue Description:

This course introduces the students to the working drawings, and its way of presentation. By the end of this course the student should be able to identify the different structure systems and to understand and detail all the architectural and structural elements of a building; starting from the different types of footings, walls, R.C elements, different types of insulation, and openings of a concrete structure and staircases

5.6.3.3 "EA252" COLORS IN BUILT ENVIRONMENT: 2Cr [1-2-0]
Pre-requisites: none

Course Catalogue Description:

The course introduces the basic principles, properties and stimulus of color and physiological aspects of vision. Topics include the nature, source, and perception of color sensation, color dimensions and optic system. The course will also investigate various color theories such as Munsell and Ostwald, color relations and schemes. Variety of studio exercises are used for applications using gauche and water colors through already given 3D, and 2D drawings.

5.6.3.4 "EA256" COMPUTER AIDED DRAFTING 1 (CAD1) : 2Cr [1-0-2]
Pre-requisites: none

Course Catalog Description:

This course introduces the student to the CAD conception in the 2D architectural drawings. In addition, the course introduces the three dimensional design, using programs like CAD as an important means in architectural presentation that enable students to present advanced designs by adding materials. The course helps the student to monitor the building systems, and details, also manage the integration of CAD programs and the design process.

5.6.3.5 "EA231" THEORIES OF ARCHITECTURE (1): 2Cr [2-0-0]
Pre-requisites: none

Course Catalogue Description:
In this course, the student is to learn the basics and principles of Architecture, space design, and architectural compatibility._Design Principles: Drawing systems and Architectural expressions, physical and functional components of the building.

5.6.3.6 "EB101" ENGINEERING MATHEMATICS (1) : 3Cr [2-2-1]
Pre-requisites: none

Course Catalogue Description:
This course covers the basic mathematics needed for engineering degree programs. This course contains the well recognized elements of classical engineering mathematics which universally underpin the formation of the professional engineer. The main sections are Algebra (Functions, partial fractions, binomial theorem); Differential Calculus (limits, continuity, differentiation); Applications (Taylor and Maclaurin's series).

5.6.4 DESCRIPTION OF ARCHITECTURAL DEPARTMENT FOURTH SEMESTER COURSES

5.6.4.1 "EA212" ARCHITECTURAL DESIGN LEVEL (2): 4Cr [2-4-0]
Pre-requisites: EA211

Course Catalogue Description:
Continuation of development of skills required to investigate and communicate the design process. Student by the end of the course should also understand the architectural drawings and be able to design a small size projects of simple type (ex.: residential unit) using the module and the scale, presenting their work with pencil or pen and ink. Issues of form and space, circulation patterns, geometry, space requirements, and structure systems, are explored through studio design exercises, projects and discussions.

5.6.4.2 "EA222" BUILDING TECHNOLOGY (4): 3Cr [1-4-0]
Pre-requisites: EA221

Course Catalogue Description:
This course aims at increasing students' knowledge of various finishing materials, their requirements and their methods of application. These include materials used on floors, walls and ceiling (criteria for application and maintenance). The course also covers building openings: doors and windows (basic concepts, materials and construction details).

5.6.4.3 "EA242" HISTORY OF ARCHITECTURE (2): 2Cr [2-0-0]
Pre-requisites: HU121

Course Catalogue Description:
The Course aim is to teach the students all about the architecture of Greece, and Greek Art, Hellenistic Period and the architecture and art of the Roman Empire.

5.6.4.4 "EA257" COMPUTER AIDED DRAFTING 2 (CAD2): 3Cr [1-0-4]
Pre-requisites:EA256

Course Catalogue Description:
The course introduces the fundamentals of three-dimensional geometric modeling and associated computer aided design. Students are introduced to courses of graphics such as Photoshop, Rivet and 3D Max.

5.6.4.5 "ES254" SURVEYING : 2Cr [1-0-2]
Pre-requisites: none

Course Catalogue Description:
This course introduces student to the understanding and need for the surveying, recent developments in surveying instrumentation and computing techniques, also the student should be able to understand slope analysis, radial positioning and mapping systems.

5.6.4.6 "EB132" CHEMISTRY AND MATERIALS: 2Cr [1-1-2]
Pre-requisites: none

Course Catalogue Description:
General introduction, electronic configuration and general trends in chemical properties of elements. Material chemistry. Environment chemistry. Chemical analysis of materials components. Chemical reactions in materials. Chemical deterioration of materials.
This course introduces the architecture student to the understanding of building materials, its components, and loads bearing. The student should make a research about any architectural material.

5.6.5 DESCRIPTION OF ARCHITECTURAL DEPARTMENT FIFTH SEMESTER COURSES

5.6.5.1 "EA311" ARCHITECTURAL DESIGN LEVEL (3): 6Cr [2-8-0]
Pre-requisites:EA212

Course Catalogue Description:
The Course aim is to teach the students a simplified definition of architectural Design; to improve the student's sense of relationship between the human scale and the architectural space, the module, and the relationship between the different spaces of a building. By the end of this course the student should be able to design a small public building with all the needed drawings. The suggested way of presentation techniques is pen and ink. The students can also use computer in their final presented projects.

5.6.5.2 "EA321" EXECUTION DESIGN 1: 4Cr [2-4-0]
Pre-requisites: EA222

Course Catalogue Description:
This course is explores the various principles of execution design, the preparation of working drawings and schedules for openings and finishing materials through an application involving a small scale architectural project. This course also addresses the fundamentals of the Technical Installations and spatial considerations in the fields of:

- Lighting: Artificial Illumination, types and requirements.
- Acoustics: Means of Sound Control and Noise Reduction.

5.6.5.3 "EA331" THEORIES OF ARCHITECTURE 2: 2Cr [2-0-0]
Pre-requisites: EA231

Course Catalogue Description:

Theory of Architecture: Design Process and constrains

Design Principals: Building Typology and location in the urban pattern of the city, residential and educational building types. Design Principals of cultural buildings, like museums, libraries, theatres, etc in addition to hospitals and health-centers.

5.6.5.4 "UGE03" ENGLISH LANGUAGE (3) : 2Cr [2-0-0]
Pre-requisites: UGE02

Course Catalogue Description:

The curriculum framework for English 3 builds on and extends the academic skills taught and practiced in English 1 and 2. The students are required to apply the target skills using materials relevant to the different disciplines at the university. Language continues to develop through the course as the students are engaged in activities which integrate the four language skills.

5.6.5.5 "ES252" THEORY OF STRUCTURE: 2Cr [1-2-0]
Pre-requisites: EB111

Course Catalogue Description:

This course introduces the architecture student to the understanding of structures, and the forces affecting them, through structural analysis for different types of structures, internal forces for beams, frames and trusses.

By the end of the course the student should be able to understand the difference between tension and compression structural elements, and be able to estimate approximately the dimensions of the structural elements in buildings.

5.6.6 DESCRIPTION OF ARCHITECTURAL DEPARTMENT SIXTH SEMESTER COURSES

5.6.6.1 "EA312" ARCHITECTURAL DESIGN LEVEL 4: 6Cr [2-8-0]
Pre-requisites: EA311

Course catalogue Description:

The Course is to teach the students the importance of the hierarchal design process throughout the programming, data collection, analysis, searching for ideas, the evaluation and the development for the chosen idea. Analytical studies are the important aim of this course through:

i) Functional relationships between the building components
ii) The relation between the building masses and the given layout
iii) Circulation routes, their hierarchy and their relation to the building entrances, exits and the vertical circulation.

5.6.6.2 "EA322" EXECUTION DESIGN LEVEL 2: 4Cr [2-4-0]
Pre-requisites: EA321

Course catalogue Description:

This course introduces the student to principles of preparing a complete portfolio of working drawings. Application on a building or project initially designed by the student. Principles of producing integrated and detailed working drawings. Analysis and applications of standards, material review and selection, execution detailing and documentation.

The course also addresses the fundamentals and design considerations associated with the technical installations such as:

- Sanitary Installations: Networks and Systems of Water Supply and Sewage.
- Mechanical Installations: Means of controlling interior Air Quality and HVAC systems.

5.6.6.3 "EA342" HISTORY OF ARCHITECTURE 3: 2Cr [2-0-0]
Pre-requisites: EA242

Course Catalogue Description:

Islamic Architecture: introduction to the philosophy and the life style of people in this era and its effect on architecture, the course is to study the urban planning, and the architecture of this era, in both the residential and religious buildings in several periods from the Abbasid period to the Ottoman Turks, with emphasis on the architecture of Islam in Egypt.

5.6.6.4 "HU113" TECHNICAL REPORTS WRITING AND PRESENTATION SKILLS: 2Cr [1-0-2]
Pre-requisites: none

Course Catalog Description:

This course introduces students to: The importance of project management. Project success factors. Strategic management of projects. Estimating project costs and duration. Network Scheduling techniques: Graphical evaluation and review techniques (GERT), and total PERT/CPM planning. Project graphics. Reducing Project duration. Managing quality on projects.

5.6.6.5 "ES253" REINFORCED CONCRETE AND STEEL STRUCTURES: 2Cr [1-2-0]
Pre-requisites: ES252

Course Catalogue Description:

This course is an introduction to the principles, and methods of designing reinforced and pre stressed concrete structures.

The second part of the course is about steel structures, by the end of this course the student should be able to design small steel structures, identify steel sections used in his/her design, connections, and roughly calculate forces affecting this structure.

5.6.7 DESCRIPTION OF ARCHITECTURAL DEPARTMENT SEVENTH SEMESTER COURSES

5.6.7.1 "EA411" ARCHITECTURAL DESIGN LEVEL (5): 6Cr [2-8-0]
Pre-requisites: EA312

Course Catalogue Description:

The Course aims at teaching the student the architectural and structural grids and the relation between them, in function building, also the universal spaces design. Then students should start thinking of the relationship between his built environment and the natural one, and the methods of environmental control.

The student in this course should be able to completely express his/her thoughts and ideas, the instructor should help the student to form new concepts in the design of large spans and open spatial layout taking in consideration previous learned theories, function requirements and environmental control issues. The site constraints are also investigated and analyzed.

5.6.7.2 "EA421" EXECUTION DESIGN LEVEL (3): 4Cr [2-4-0]
Pre-requisites: EA322

Course catalogue Description:

This course introduces the student to the technical systems in buildings; the student should understand the schematic methods of design, and drawing techniques of Electrical systems, Plumbing, Water Supply, Mechanical Vertical Circulation, and HVAC systems.

5.6.7.3 "EA441" THEORIES OF ARCHITECTURE 3: 2Cr [2-0-0]
Pre-requisites: EA331

Course Catalogue Description:

This course is divided into two parts, the first is to trace the evolution of architectural theories through modernism and post-modernism; the evolution of architecture through the pre-modernism, modernism, and late modernism till the age of cyberspaces and digital architecture, the technological evolution in the post-renaissance era till the new millennium; and the futuristic expectations in technology and their effect on the evolution of architecture.

5.6.7.4 "ES256" SOIL MECHANICS: 2Cr [1-0-2]
Pre-requisites: ES253

Course Catalogue Description:

This course introduces the students to the types of buildings foundation, different types of soil, soil tests, measurements, and capacities. Shallow foundations and Piles should be studied in details

5.6.7.5 "EA361" BUILDING LAWS, CODES, REGULATIONS AND PROFESSIONAL PRACTICE : 2Cr [2-0-0]

Pre-requisites: none

Course Catalogue Description:

In this course the student should know all about architectural legislations (building laws- urban organization and planning acts). The student should also understand to respect building laws in Egypt, build own general knowledge about different types of buildings regulations, with practice and exercises about building dimensions, heights, setbacks and projections. In this course the student should also know all about the Professional practice either in construction contract, different members of the construction project and the relationships between them, different types of contracts, competitions, and ethics of practicing architecture.

5.6.8 DESCRIPTION OF ARCHITECTURAL DEPARTMENT EIGHTH SEMESTER COURSES

5.6.8.1 "EA412" ARCHITECTURAL DESIGN LEVEL 6 : 6Cr [2-8-0]

Pre-requisites: EA411

Course Catalogue Description:

In this course the students should design new types of buildings, and be able to respect new trends and contemporary concerns, learn how to work in groups in certain stage of the architectural design process, and then get separated in another stage. A group of 4 to 6 students should start developing an already existing site, and then each one of the team must start designing only one block from the suggested development.

This course aims at teaching the student the respect of existing local context and methods of site planning and development.

5.6.8.2 "EA422" EXECUTION DESIGN LEVEL 4: 4Cr [2-4-0]

Pre-requisites: EA421

Course catalogue Description:

Development and preparation of complete sets of working drawings for a complex building initially designed by the student, study of various architectural details, both internal and external. Advanced study, analysis and interpretation of composite processes, techniques and treatments. Special emphasis on composite drawings illustrating particular execution details, special treatments, materiality, and spatial design related to a design project by the student within the same study level. Complementary written documents for construction work.

5.6.8.3 "EA442" THEORIES OF ARCHITECTURE 4 : 2Cr [2-0-0]

Pre-requisites: EA441

Course Catalogue Description:

Roots, influences and evolution of contemporary architectural movements- study of architectural philosophy of modern architecture pioneers- principles of criticism for art and architecture and evaluation of architecture projects. Current trends in the 21st century and future prospects.

5.6.8.4 "EA451" URBAN DESIGN: 2Cr [1-2-0]
Pre-requisites: none

Course Catalogue Description:

In this course, the student is to study the urban space as a very important element to form the city image; it is divided into several parts:

1. Urban design terminology, historical background, and urban spaces typology
2. Theories of urban spatial design
3. Urban space features (spaces, buildings, pathways, edges, approaches and values).
4. Peoples and urban space (human needs, human scale, culture and traditions).

In addition to the examination of the nature of the traditional urban spaces, this course then discusses the relation between the environmental features and urban spaces. Development of urban spaces in the late 20th century. In addition to learning the strategies of solving local problems of spatial structure in the Egyptian cities.

5.6.8.5 "EA362" SPECIFICATIONS AND QUANTITIES: 2Cr [1-3-0]
Pre-requisites: EA222

Course Catalogue Description:

Methods of measurement and counting quantities for construction works- keeping track on site- preparation and analysis of inventories and tabulation of cost- writing specifications documents for materials- Preparation of bids.

DESCRIPTION OF ARCHITECTURAL DEPARTMENT NINETH SEMESTER COURSES

5.6.9.1 "EA511" ARCHITECTURE DESIGN LEVEL 7: 7Cr [2-10-0]
Pre-requisites: EA412

Course Catalogue Description:

This course is divided in two parts. The first part is about a design project of a complex or large scale project (ex.: airport, terminal, university, touristic village,..). The second part is related to the graduation project. In this course the student with the help of his/her teacher should choose the type, name and site of the graduation project. By the end of this course the student should complete a written research about the chosen project, with a complete finalized program, site analysis, and some of the latest examples of similar projects.

The integrated design studio concept is adopted through including the study and presentation of architectural and structural details into the graduation project.

5.6.9.2 "EA553" INTERIOR DESIGN): 3Cr [1-4-0]
Pre-requisites: EA411

Course Catalogue Description:

This course is to teach the student the interior design process and the relationship between the different internal planes of an architectural space including materials, lights and new technologies affecting the internal space design. Principles of interior space design and formation and influential factors such as visual perception, color, functional requirements and physical determinants are examined through practical exercises. Aspects involved in the execution of interior design including finishing materials, technical installations, furniture design are also incorporated in practical exercises.

5.6.9.3 "EA554" LANDSCAPE DESIGN: 2Cr [1-2-0]
Pre-requisites: none

Course Catalogue Description:

The course covers a wide range of topics that offer a good understanding of the basic principles and elements of landscape design. It introduces the classification and identification of plants, water and other elements of landscape design to create a site that is pleasing to the senses and that visually, functionally and aesthetically improves the appearance of the landscape at an affordable cost. The course also calls upon solving complex problems with long-term impacts, landscape preservation and resource development and conservation.

5.6.9.4 "UC01" COMMUNICATIONS SKILLS: 2Cr [2-0-0]
Pre-requisites: none

Course Catalog Description:

The definition of effective communication and its importance, and to recognize the elements of the communication models and its barriers and filters. In addition to the elements of the message starting from choosing the idea and formulating it and using verbal and nonverbal expression. Also, the course exposure the effective communication skills listening, speaking questioning, writing and reading. The course review the persuading theories which is related to the communication and advertising skills, in addition to demonstrating how to prepare effective presentations in front of the target audience and how to deal with him.

5.6.9.5 "HU141" ETHICS AND HUMAN RIGHTS: 2Cr [2-0-0]
Pre-requisites: none

Course Description

Familiarize students with the basic principles of ethics, its theoretical foundation, professional implications and human rights.

5.6.9 DESCRIPTION OF ARCHITECTURAL DEPARTMENT TENTH SEMESTER COURSES

5.6.10.1 "EA512"ARCHITECTURAL DESIGN LEVEL 8 (GRADUATION PROJECT): 10Cr [2-16-0]
Pre-requisites: EA511

Course Catalogue Description:

In this course the student is to apply most of what was learnt in the previous years of architectural studies, the graduation project should reflect deep studies of the effect of architecture on society, culture, and economy. The project should also be of great importance to Alexandria. The project should be an application to the latest trends, materials, and technologies.

The integrated design studio concept is adopted through including the study and presentation of architectural and structural details into the graduation project.

5.6.10.2 "EA563" PROJECT MANAGEMENT IN ARCHITECTURE: 2Cr [2-0-0]
Pre-requisites: none

Course Catalogue Description:
This course is about understanding all about modern methods of executive process for compatible project- sharing elements in this process- introduction to analyze duration of operating project cycle- how to make schedule for project- supervising process- cash flow analysis and its relation to project stages.

5.6.10.3 ARABIC LANGUAGE SKILLS: 2Cr [2-0-0]
Pre-requisites: none

(1) وصف عام للمقرر : Course Description :
يُعنى المقرر بمهارات اللغة العربية الأساسية الضرورية لاستخدام اللغة وسيلةً للتواصل والتوظيف داخل مجالات التخصص المختلفة، مع التركيز على المهارات التنظيمية والفكرية والأسلوبية واللغوية اللازمة في استعمال اللغة وظيفيًا ، خاصةً ما تعرض منها لأخطاء شائعة في استخدامها ، ويحتاج إلى تصويب من مستخدم اللغة .

5.6.10 DESCRIPTION OF ARCHITECTURAL DEPARTMENT ELECTIVE COURSES

List of Elective Courses				
	Technical Spine	**Environmental Spine**	**Media Spine**	**Urban Spine**
Preliminary Level	Building Science and technology	Environmental Studies	History of Arts	Site Planning
	Systems in buildings	Sustainability in Architecture	Sketching	Theory of city planning
Advanced Level	Building Economics	EIA	Painting	Theories of Housing
	Construction site management	Heritage Conservation	Photography	Urban Landscape
	Intelligent systems in buildings	Architecture Criticism	Media Art	GIS

1) Students are required to study 2 courses from the Preliminary Level with consultation from their academic advisor at a rate of 4 courses throughout the 3rd-6th semesters.

2) Students are required to study 2 courses from the Advanced Level with consultation from their academic advisor at a rate of 4 courses throughout the 7th-10th semesters.

5.6.11.1 ENVIRONMENTAL SPINE

(1) *"EA001" ENVIRONMENTAL STUDIES IN ARCHITECTURE: 2Cr [2-0-0]*
Pre-requisites: none

Course Catalogue Description:
This course is about understanding all about the basics of the environment.
The relationship between the built and the natural environment; methods and techniques of human comfort indoor, studying the passive techniques of solar design, ventilation and wind effect on the built environment

(2) *"EA002" SUSTAINABILITY IN ARCHITECTURE: 2Cr [2-0-0]*
Pre-requisites: none

Course Catalogue Description:
This course introduces the students to relationship between the concept of Sustainability and contemporary approaches to architectural design, energy efficiency, resource management, building to site correlation, environmental technologies and building management systems, construction materials, and environmentally-conscious design, guidelines and considerations.
Introduction to LEED and similar systems. Sustainable design principles and its applications. Sustainable design project.

(3) *"EA003" ENVIRONMENTAL IMPACT ASSESSEMENT: 2Cr [2-0-0]*
Pre-requisites: none

Course Catalogue Description:
Environmental Impact Assessment (EIA) now forms an integral part of the planning process for many types of projects. It is therefore important to understand the nature of the EIA process and to be able to select, and use, suitable techniques. The aim of the unit is to provide training in policies, methods and applications of EIA and Strategic Environmental Assessment (SEA) in environment related courses. The module uses a case study to encourage participative learning related to objective and subjective components of the EIA.

(4) *"EA004" HERITAGE CONSERVATION: 2Cr [2-0-0]*
Pre-requisites: none

Course Catalogue Description:
The course introduces the discourse concerning the viability and sustainability of the built heritage. The main emphasis will be on the theories, processes, and policies of the management of building change and decay. The course also explores the various schools of conservation thoughts, their philosophy and ethics of intervention.

(5) *"EA005" ARCHITECTURAL CRITICISM : 2Cr [2-0-0]*
Pre-requisites: none

Course Catalogue Description:
Issues that influence the way modern buildings and their architects are perceived by critics, scholars, and the public. The careers of famous architects provide a framework for the examination of how patronage, fashion, social change, theory, finance, and politics affect the place of prominent architects and their work in the historical record. Responding to lectures by the instructor, students develop criteria for judging architectural quality (program, site, “message,” details, etc.), and then apply those criteria in analytical papers investigating the elements that contributed to the “success,” “failure,” or “reevaluation” of an individual building, an architect’s career, or a body of architectural work. All written assignments are reviewed in individual discussions with the instructor.

5.6.11.2 MEDIA SPINE

(6) *"EA006" HISTORY OF ARTS: 2Cr [2-0-0]*
Pre-requisites: none

Course Catalogue Description:
Tracing the evolution of arts through historical periods. Review of different movements and schools. Contexts, values, and cultural influences. Principal features, designs and characteristics. Analysis and comparative studies.

(7) *"EA007" SKETCHING : 2Cr [1-2-0]*
Pre-requisites: none

Course Catalogue Description:
Free hand sketching, coloring and rendering, line sketching, shades and shadows, lettering and printing forms important components of Architecture discipline. This course aims at imparting desired skills in the above areas. Teachers are expected to lay considerable emphasis on practical work so that students attain desired skills in sketching, lettering and printing. Submission programme will consist of sketching Building Elements, Street Furniture, Landscape Elements, and other relevant elements related with Urban Design and Planning.

(8) *"EA008" INTRODUCTION TO PAINTING: 2Cr [1-2-0]*
Pre-requisites: none

Course Catalogue Description:
Study of painting language through color, form, materials, and techniques. Aspects of traditional and modern pictorial composition including proportion, space, and color theory through the representation of a variety of subjects.

(9) *"EA009" PHOTOGRAPHY: 2Cr [1-2-0]*
Pre-requisites: none

Course Catalogue Description:
The course will cover topics such as film vs. digital, shutter speed and aperture, automatic vs. manual control, depth of field, light resources, principles of composition and the basics of image editing using Photoshop.
Participants will be given regular assignments through which they will get hands on experience in applying new skills and techniques.

(10) *"EA010" MEDIA ARTS: 2Cr [2-0-0]*
Pre-requisites: none

Course Catalogue Description:
This course examines the dynamic and complex relationship between media and architecture. We will look at architecture as media, symbols and embodiments of particular ideas and values—and at the impact that communication media have had on the practice of architecture and the way we experience our built environments.
Media Arts offers a comprehensive, multidisciplinary approach to media creation that promotes individual exploration and innovative thinking. The course provide each student with a creative and intellectual foundation for constructing a unique contribution to culture. Cutting-edge technology keeps the innovation of the design.

5.6.11.3 TECHNICAL SPINE

(11) *"EA011" BUILDING SCIENCE AND TECHNOLOGY: 2Cr [2-0-0]*
Pre-requisites: none

Course Catalogue Description:
This course introduces the students to definitions and key issues relevant to building technology. Review of recent developments in the field of construction and buildings execution is also exposed. Review of building materials (concrete, highway materials and metals). recent advancements, components, properties and specifications. Examples are concrete admixtures, light weight aggregates, polymers, prestressed concrete, soil stabilizers, bituminous materials and high strength low alloy steels. Advanced mechanics of components incorporating innovative materials. Environmental-friendly use of materials and recycling of solid waste. Applications, processes, and assembly techniques.

(12) *"EA012" SYSTEMS IN BUILDINGS: 2Cr [2-0-0]*
Pre-requisites: none

Course Catalogue Description:
Operation and management of various functions within buildings. Building management systems. Interrelationships between operating systems. Role of communication, automation and coordination. Integrated systems of control. Developed approaches, technology and applications.
The course aims at equipping students with a working knowledge of building services and aesthetic consideration that goes towards making the building function as one unit. Building services include water supply and sanitation, drainage and sewage disposal, electrical and communication installations, ventilation, heating and cooling, mechanical circulation systems, fire protection and control, and revue collection amongst others. At the end of the course the student should demonstrate knowledge of the practice of incorporating services into building design, show understanding of the principles that underlay the proper functioning of building services installation and be able to draw conclusions that can be applied in new situations in building design.

(13) *"EA013" BUILDING ECONOMICS: 2Cr [2-0-0]*
Pre-requisites: none

Course Catalogue Description:
Advanced issues and contemporary trends in the field of economics and management in architecture. Concerns and shifts in principles of economy, processes, patterns of organization and considerations. Delivery process and factors involved in design and building economics. Economic analysis, feasibility and decision making. Management and cost control.

(14) *"EA014" CONSTRUCTION SITE MANAGEMENT: 2Cr [2-0-0]*
Pre-requisites: none

Course Catalogue Description:
Progressive scope of management of site in different projects. Current issues and concerns. Management and administration approaches. Practices, organization and phasing. Control, monitoring and feedback. Relevant issues: Preparation, Supervision, Resources, Scheduling, Cost analysis, Surveying and inventories, as well as Support software and applications.

(15) *"EA015" INTELLIGENT SYSTEMS IN BUILDINGS: 2Cr [2-0-0]*
Pre-requisites: none

Course Catalogue Description:
Framework and strategic approach for facility and energy management, due diligence auditing, project management tools and processes, assessing performance requirements over the facility lifecycle, energy efficiency, life safety systems, IT infrastructure and information systems, workplace automation. Intelligent Building System automation, communication and security; mechanical, electrical, electronic subsystems and their integration with the building envelope; environment, energy and sustainability; configuration and operational characteristics; performance specifications; analytical models; design methods; case studies.

5.6.11.4 URBAN SPINE

(16) *"EA016" SITE PLANNING : 2Cr [2-0-0]*
Pre-requisites: none

Course Catalogue Description:
This course includes introduction, background, general definitions, requirements for site planning design layout, site planning process, site analysis, visual analysis, interaction between nature and human environment- architectural site planning according to environmental needs, the design criteria for site planning in detail: (vehicular circulation and parking)- (pedestrian circulation)- (landscape)- (water)- (lighting)- (Pattern of ground)- (signs)- (Kiosks)- (shelters)- (barriers),

(17) *"EA017" THEORIES OF CITY PLANNING : 2Cr [1-2-0]*
Pre-requisites: none

Course Catalogue Description:
This course discusses the definitions and terminology of urban pattern and the typology of planning (physical planning, social planning, and economical planning).
Also:

1. Historical background (historical cities and their planning concepts).
2. Types of city forms.
3. Land use zoning and planning.
4. Circulation and transportation.
5. General planning and neighborhoods organization.
6. Master plan project.
7. Site planning considerations.
8. City, community and neighborhood facilities & City planning in the digital era.

(18) *"EA018" THEORIES OF HOUSING: 2Cr [2-0-0]*
Pre-requisites: none

Course Catalogue Description:
This course introduces housing and its guided theories by analyzing housing issues and the challenges facing it highlighting factors affecting it locally and universally. The course also introduces to the students economic theories which control housing projects and their variety- feasibility study and its elements- Project development cycle - financial features, investment and human resources.

(19) *"EA019" URBAN LANDSCAPE. : 2Cr [2-0-0]*
Pre-requisites: none

Course Catalogue Description:
Various theories of urban landscape. Principal urban landscape concepts and processes. Scope, components and elements. Built environments, contexts and landscape preferences, urban landscape considerations, skills, and scales, alternative approaches and professional practices, critique of recent local and international cases of urban landscape.

(20) *"EA020" GEOGRAPHICAL INFORMATION SYSTEM : 2Cr [1-2-0]*
Pre-requisites: none

Course Catalogue Description:
Principles of Geographical Information Systems and their application in urban studies- Methods of establishing statistical databases- Geographical data collection- Computer applications linking statistical and geographical databases- use of software in studying the change in built environment- Applied software.