

Program Curriculum (Architectural Engineering) before 2016

٢٠٢٣-٠٩-٢٠

المعهد التكنولوجي العالي
العاشر من رمضان
الأقسام الهندسية

لائحة ٢٠٠٨

اللائحة الخاصة بقسم دبلوم الهندسة المعمارية

المواد الإجبارية الوحدات المطلوبة : ٧٥,٥

نوع المقرر: أساسية ٣

كود	إسم	وحدات م	ت	ع	م. سابق
MTH 101	رياضه (ج)	٣	٢	٠	MTH 002

نوع المقرر: هندسية ٣٨

كود	إسم	وحدات م	ت	ع	م. سابق
ARE 100	أساسيات التصميم المعماري	٤	٢	٠	
ARE 101	نظريات التصميم	٢	١	٠	
ARE 102	نظرية الإنشاءات (أ)	٣	٢	٠	
ARE 103	تاريخ العمارة	٢	٢	٠	
ARE 104	تاريخ ونظريات تخطيط المدن	٣	٢	٠	ARE 103
ARE 105	نظريات العمارة (أ)	٣	٣	٠	
ARE 106	ت.م. للوحدات البسيطة (١)	٤	٢	٠	ARE 101
ARE 107	ت.م. للوحدات المركبة	٤	٢	٠	ARE 106
ARE 110	عناصر التصميم المعماري	٤	٢	٠	ARE 100
ARE 112	المناخ وعمارة الصحراء	٢	١	٠	
ARE 114	التصميم العمراني في المدن الجديدة	٣	٢	٠	ARE 104
ARE 116	مواد وخواص المواد	٢	١	٠	
ARE 118	المساحة	٢	١	٠	

نوع المقرر: إنسانية ٤,٥

كود	إسم	وحدات م	ت	ع	م. سابق
ENG 151	اقتصاد هندي (أ)	١	٢	٠	
LNG 101	لغة انجليزية (ج)	١	٠	٠	LNG 002
MNG 101	مبادئ ادارة	١	٠	٢	
PHE 101	تربيه رياضيه و انشطه(ج)	٠,٥	٠	٢	
PHE 102	تربيه رياضيه و انشطه(د)	٠,٥	٠	٢	
PHE 103	تربيه رياضيه و انشطه(هـ)	٠,٥	٠	٢	

نوع المقرر: التدريب الصناعي ١٠

كود	إسم	وحدات م	ت	ع	م. سابق
FTR 101	تدريب ميداني (أ)	٥	٠	٠	ITR 001
FTR 102	تدريب ميداني (ب)	٥	٠	٠	FTR 101

نوع المقرر: تكنولوجية ٢٠

كود	إسم	وحدات م	ت	ع	م. سابق
ARE 111	مشروع الدبلوم	٣	١	٠	ARE 126
ARE 117	الظل والمنظور	٢	١	٠	

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اللائحة الخاصة بقسم دبلوم الهندسة المعمارية

المواد الإجبارية

نوع المقرر: ٢٠ تكنولوجيا

كود	إسم	وحدات م	ت	ع	م. سابق
ARE 119	التدريب البصري (أ)	١	٠	٣	
ARE 121	التحكم البيئي	٢	٠	٠	ARE 112
ARE 122	الإنشاء المعماري	٢	١	٠	
ARE 124	تطبيقات الحاسب في العمارة (أ)	٣	٠	٦	CS 002
ARE 126	إنشاء معماري ومواد البناء	٤	٢	٠	ARE 116
ARE 128	التركيبات الفنية للمباني (A)	٢	٠	٣	
ARE 129	التدريب البصري (ب)	١	٠	٣	ARE 119

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اللائحة الخاصة بقسم دبلوم الهندسة المعمارية

المواد الاختيارية : الوحدات المطلوبة : ٦ هندسية ٠ نشاط ٢ أساسية ٤ تكنولوجيا ٠

نوع المقرر: ٤ أساسية

كود	إسم	وحدات م	ت	ع	م. سابق
ENG 122	ميكانيكا تطبيقية	٢	١	٠	ENG 022
MTH 102	رياضه (د)	٣	٢	٠	MTH 101
MTH 103	طرق عدديه	٣	٢	٠	MTH 101
MTH 104	تحليل رياضي	٢	٢	٠	MTH 002

نوع المقرر: ٢ إنسانية

كود	إسم	وحدات م	ت	ع	م. سابق
HUM 102	تاريخ مصر الحديث	١	٢	٠	
HUM 103	حضاره إسلامية (أ)	١	٢	٠	
HUM 104	أدب عربي	١	٢	٠	
LNG 103	لغه المانيه (أ)	١	٠	٣	
LNG 104	لغه فرنسيه (أ)	١	٠	٣	

اللائحة الخاصة بقسم بكالوريوس الهندسة المعمارية

المواد الإجبارية الوحدات المطلوبة : ٧٣,٥

نوع المقرر: أساسية ٤

كود	إسم	وحدات م	ت	ع	م. سابق
ME 142	مبادئ بحوث عمليات	٢	٢	٠	
MTH 105	طرق إحصائية	٢	٢	٠	MTH 101

نوع المقرر: هندسية ٤٠

كود	إسم	وحدات م	ت	ع	م. سابق
ARE 202	نظرية الإنشاءات (ب)	٣	٢	٠	ARE 102
ARE 203	تصميم معمارى (أ)	٤	٢	٠	ARE 107
ARE 204	تخطيط المدن (أ)	٣	٢	٠	ARE 104
ARE 205	نظريات العمارة (ب)	٤	٢	٠	ARE 105
ARE 206	تصميم معمارى (ب)	٤	٢	٠	ARE 203
ARE 207	ت.م. للمباني المركبة (٢)	٤	٢	٠	ARE 206
ARE 208	ميكانيكا التربة وأساسات	٣	٣	٠	ARE 116
ARE 212	خرسانة مسلحة	٢	١	٢	ARE 202
ARE 214	تخطيط المدن (ب)	٤	٢	٠	ARE 204
ARE 217	التصميم البيئى	٤	٢	٠	ARE 207
ARE 222	الإنشاءات المعدنية	٢	١	٢	ARE 202
DDP 100	البيئة الصحراوية	٣	٢	٠	ARE 112

نوع المقرر: إنسانية ٤,٥

كود	إسم	وحدات م	ت	ع	م. سابق
HUM 201	تاريخ مصر	١	٢	٠	
LNG 201	لغة إنجليزية (د)	١	٠	٣	LNG 101
MNG 201	إدارة مشروعات	١	٢	٠	
PHE 201	تربيته رياضيه وأنشطه (I)	١,٥	٠	٣	
PHE 202	تربيته رياضيه وأنشطه (II)	١,٥	٠	٣	
PHE 203	تربية رياضية وأنشطة (III)	١,٥	٠	٣	

نوع المقرر: التدريب الصناعى ١٠

كود	إسم	وحدات م	ت	ع	م. سابق
FTR 201	تدريب ميداني (III)	٥	٠	٣٠	FTR 102
FTR 202	تدريب ميداني (IV)	٥	٠	٣٠	FTR 201

نوع المقرر: تكنولوجية ١٥

كود	إسم	وحدات م	ت	ع	م. سابق
ARE 211	مشروع البكالوريوس	٤	١	٠	ARE 207
ARE 218	التركيبات والهندسة الصحية	٣	٢	٠	

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اللائحة الخاصة بقسم بكالوريوس الهندسة المعمارية

المواد الإجبارية

نوع المقرر: ١٥ تكنولوجية

كود	إسم	وحدات م	ت	ع	م. سابق
ARE 219	تصميمات تنفيذية	٣	٢	٠	ARE 111 ARE 128
ARE 220	مستندات التنفيذ والمواصفات	٣	٢	٠	ARE 111 ARE 128
ARE 224	تطبيقات الحاسب في العمارة (ب)	٢	١	٠	ARE 124

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لائحة ٢٠٠٨

اللائحة الخاصة بقسم بكالوريوس الهندسة المعمارية

المواد الاختيارية : ١٠ الوحدات المطلوبة : ١٠

هندسية ٠
نشاط ٢
أساسية ٠
تكنولوجية ٨

نوع المقرر: ٢ إنسانية

كود	إسم	وحدات م	ت	ع	م. سابق
HUM 202	ادب انجليزي	١	٠	٠	
HUM 203	قانون تجارى	١	٢	٠	
HUM 204	علم نفس صناعى	١	٢	٠	
HUM 205	حضارة إسلامية (ب)	١	٢	٠	
HUM 206	دراسات إسلامية	١	٢	٠	
LNG 203	لغة ألمانية (ب)	١	٠	٣	
LNG 204	لغة فرنسية (ب)	١	٠	٣	
MNG 221	اقتصاد هندسي (II)	١	٢	٠	
MNG 222	سلوك تنظيمي	١	٢	٠	

نوع المقرر: ٨ تكنولوجية

كود	إسم	وحدات م	ت	ع	م. سابق
ARE 221	العمارة الشمسية	٢	١	٠	
ARE 223	التكييف والتدفئة السلبية	٢	١	٠	
ARE 225	التصميم بالحاسب	٢	١	٠	ARE 224
ARE 226	التكنولوجيا الحديثة والعمارة الصحراوية	٢	١	٠	
ARE 230	مقررات خاصة	٢	١	٠	
DDP 110	إستخدامات الطاقة الشمسية	٢	١	٠	

A brief description of the courses in the Department of Architecture

ARE100: Fundamental of Architectural design, 4(2, 0, 6)

- Study of architectural programs & development of design for simple buildings & different uses such as: dwellings, services, cultural & recreational buildings. The course envisages the emphasis on the study of various spaces in architectural design.

- The course introduces the students to the fundamental of architectural design, design principles, improving graphic communication, and initiating the design process. Conceptual thinking in design is emphasized. Introduction to “form & space” and their organization. Study of various spaces according to anthropometric dimensions, and activities taking place in those spaces. Examples of simple building design of different uses such as: bus stop, summer vacation chalet, weekend retreat, and picnic shelters.

ARE101: Theories of Design, 2(1, 0, 3)

-Types and principles of design of public building, profitable buildings: residential, commercial (offices & commercial centers) & recreational. Non-profitable buildings: educational, cultural, medical, sport facilities, public services & religious.

-This course is a Preparatory course deals with some issues related to the idea of design in general, where as it deals with the basics of architectural design in particular.

ARE 102:Theory of Structure (A) , 2(1, 0, 3)

- Reactions internal actions in statically determinable beams & cantilever beam, internal action in statically determinable frames & statically determinable trusses. Properties of plane areas, members under axial forces, normal stresses, shear stresses & combined stresses.

- This course introduces the students the first principles of the theory of structures, the different types of structures and the methods of analysis of each type. Also, It introduces the students the different types of stresses.

ARE103: History Of Architecture, 2(2 , 0 , 0)

- Prehistoric, Egyptian, Greek & Roman architecture. Early Christian architecture.

Byzantine Architecture. Islamic architecture.

ARE 104:History and Theories of Urban Planning. 3(2, 2, 0)

- A Study for the urban and city evolution through history (starting from ancient Egypt, Mesopotamia, Greek, Roman, Middle ages, Renaissance). The industrial revolution and its effect on the pattern of the city. Trends & theory of city planning.

- Students will be required to participate in collecting and analyzing data concerning one of the Utopians and presenting their final report.

ARE 105: Theories of Architecture (A), 3(3, 0, 0)

Theories of architecture : roots of contemporary architecture Revivalism : romantic , classicism, revolutionary architects in France , development in France , England , U.S.A, & Germany. Gothic Revival; England, Germany & U.S.A. picturesque , Renaissance , revival , Eclecticism , philosophy , 2 Empire France, U.S.A, higher victorian . Structural logic ; development of iron & reinforced concrete, writing of violet le Due & Chicago school. Functional logic : biological analogy , wright, Mechanical Analogy , Le corbusier, bauhaus School , Formal development: Effect of Art, Cubism, purism, Stijl & picturesque tendencies.

ARE 106: Architecture design of simple units. 4(2, 0,6)

- Program analysis, functional studies, & design of simple building elements, site planning analysis. Introduction to constructional expression in architecture.

- To provide an introduction to architecture design of simple designs, projects would include: Primary school, motel, exhibition hall, office building, residential building, small museum, bank branch, local post office, and community library. Study of site context and analysis of site planning elements. Study of structural coordination and constructional technology. Relationship between indoor & outdoor spaces. Study of pedestrian and vehicular circulation.

ARE 107: Design of Complex Units, 4(2, 0,6)

- Data gathering & analysis, study of different elements & components of residential units, separately & compound together, Study of housing types, design of complex residential units. Sketch designs of special nature will be used.

- To study the design process of mid-rise residential buildings composed of several units per floor, with regard to the Building Law No. 106 of 1976 and its modifications or any latest version of the building law which govern the building process in Egypt. In addition, the course introduces to the students how to deal with mixed-use residential/commercial apartment blocks. Examples of projects would include: mid-rise residential/commercial buildings, small residential community, resort compound of villas, or a cluster of housing units of different types.

ARE110: Elements of Architectural Design, 4(2, 0,6)

- Functional logic: manipulation of human environment, functional elements, public, private, service elements, circulation elements, horizontal & vertical. Structural logic: development, material & geometric continuity, linear elements & surface elements.

- Design elements, space and form, functional elements; public, private, service elements, horizontal & vertical circulation elements, Structural and arch. module, material & geometric continuity. Design developed through study model technique. Examples of projects in this course include: Fire station,

kindergarten, car showroom, community clinic, and restaurant or coffee shop. Two projects are recommended in this course.

ARE 111: Diploma project, 3(1, 0,6)

The student selects one of the available projects in the department with the help of academic staff. The fulfillment of the project should prove that the student has enough experience in modeling & architectural design.

ARE 112: Climate and Desert Architecture, 2(1, 0,3)

Man and environment , desert sun heat , heat transfer, wind, wind control, pollution, Humidity, natural lighting & comfort zone. Desert architectural components& design Considerations in desert regions.

ARE 114:Urban Design In New Towns, 3(2, 0,3)

The course introduces three main aspects of urban design: the elements of urban design: the elements of urban design (nodes, paths, public spaces, etc.); the level of perception (user, analyzer, critic & designer perceptions); the element of analysis & design of urban spaces (components, activates, forms, materials, colors, characteristics, style). Applications on new communities.

ARE116: Properties of Materials, 2(1, 2,0)

- Engineering materials: classification, sources of raw materials, selection properties, testing & inspection, specification, standardization & standard specification. Concrete ingredients: aggregates, general classifications, properties, requirements & testing. Ferrous & non ferrous materials: types properties, alloys scope of use & effect of heat treatment on mechanical properties. Lab tests to study the behavior of engineering materials under static loads.

- The structure behavior depends upon the material and its engineering properties that used in this structure. The designer should select the suitable materials to use. The executive engineer will be required to study the engineering properties and limitation of the use.

ARE 117:Perspective & Sciagraphy, 2(1, 0,3)

- A Study of shades & shadows of points, parallel or one vanishing point, line, circle, & mass (cylinder & sphere) & their architectural applications. A study of picture planes: the vanishing point, parallel or one vanishing point perspective, the cone of vision, the inverse perspective, & shades & shadows in perspective.

- This under-graduate educational program aims to develop the students skills to understanding the Shade, Shadows and Perspective Drawings for simple and complex shapes and mass and then , the under- graduate students will be trained on drawing the Shade, Shadows and Perspective for architectural models.

ARE 118:Surveying, 2(1, 0,3)

- Plane & geodesic surveying, triangulation points kinds of maps, longitudinal & diagonal scales & enlarging maps. Pantograph & Areas.

- To provide an introduction to engineering surveying includes units and scale, mapping, linear measurements, closed traverse computations and adjustment, leveling, contouring maps, calculation of area, types of bearings, and the use of theodolite in measuring horizontal and vertical angles.

ARE 119: Visual training (A), 1(0, 0,3)

pencil points & line techniques, proportions & blocking in proportions, values & value scale, different planes, foreground, middle ground & background, depth, representation of buildings, building details & interiors, study of nature & tree representation study of factors leading to the artistic of sketches, sketching objects: & different architectural elements & nature. This is both in & out the studio by means of the pencil, charcoal, pen & ink, for training student's eyes & hands, & to let him achieve good proportions & beauty.

ARE 121: : environmental control, 2(2, 0,0)

Sun: Geographical relations between sun & earth; & methods of knowing sun angles indifferent points on earth at different days & hours of the year. Architectural control of sun rays on buildings. Air: Study of movements of wind: & architectural control of air movements in & between buildings.

- Course objectives:

This work aims to emphasize the important role of solar radiation, natural ventilation as of major climate elements affecting architecture & urban design

ARE 122: Building construction, 2(1, 2,0)

Introduction to two ways of construction: bearing & skeleton types; & sequence of constructing the various structural & nonstructural elements of simple structures. Stone & brick work, lintels, arches & centering. wood, steel, reinforced concrete (flat roofs), exterior & interior stairways.

ARE 124 : app. Of computer in architecture (A), 3(1, 0,6)

A general introduction to computer graphics & its application in architectural design & the graphic arts. Practical assignments are included this course introduces the student to AUTOCAD which is the most powerful 2D design and drafting platform.

ARE 126: Building construction & materials, 4(2, 4,0)

Concrete: mixing water, types of mix design, & properties of wet & hardened Concrete. Special types, quality control, influencing factors, & effects of varying mix proportions. Prefabricated units, fiber glass reinforcement. Insulation materials, joints, & details of constructional element. Analysis of building construction methods.

ARE 128: Technical Installation For Buildings, 2(1, 0,3)

Sanitary engineering; Plumbing and building equipment sanitation, public health education, and sewage disposal system. Water supply; public intakes, sedimentation and clarifies, filtration, chlorinating, disinfecting, storing and distribution. Plumbing system, plumbing fixtures, and distribution system. The main and branches, connections, and piping materials. Building mechanical equipments: lifts, escalators, kitchens and laundries.

ARE 129: Visual training (B), 1(0, 0,3)

Study of colors, chromatic & achromatic sensations, color theory & color circle, plates & worlds, color intensity, & color harmony. Applications on theory of colors. Interiors of buildings, painting objects.

ARE 202: Theory of Structure (B) , 3(2, 2,0)

Elastic deformation of statically determinate structures. Method of continuous beams, method of virtual work, statically indeterminate beams and frames. Consistent deformation method, equation of 3- moments, moment distribution method, live loads on continuous beams and internal normal stresses. Oblique bending, eccentric compression or tension and buckling of columns.

ARE 203: Architecture Design, 4(2, 0,6)

- Design of architectural compounds made up of several units (study of functional and formal relationships). Special importance is attached to functions and forms of spaces between units. The course also includes development of structure sense through models, trials of special types of advanced structures, & applications on creating architectural spaces for different functions.

- The building types explored in this studio have a greater complexity of function. Emphasis is placed on building form, massing, articulation, and fenestration. Studying and examining sufficient data on various architectural projects with unique character such as: Multi-storey office buildings, art and museum complex, shopping mall, educational park, and medical center. Considerations of urban context, structural coordination, and the environmental aspects will be studied and analyzed. Computer use is essential in this course.

ARE 204: Town planning (A) , 3(2, 0,3)

General definition for physical planning at different levels. Comprehensive studies (goals, objectives, stages & tools). Studies cover planning criteria, programming & stages of implementation, principles of land uses, neighborhood theory, slum clearance & replanning of slum area. Study of housing problems, housing prototypes & solutions. Factors & planning methodology influencing housing areas. Combined project on housing & planning.

ARE 205: architecture theories (B) , 4(4, 0,0)

- Principles & directions of contemporary architecture: pre-international architecture, international style; expressionism architecture between the World Wars, technical advances of the late 20 century, & new trends in 21st century.

- To provide sufficient knowledge about the latest theories and architectural trends for the period of middle of 20th century till 21st century.

- To practice modeling and sketching of different architectural trends and styles.

ARE 206: Architectural Design (B) , 4(2, 0,6)

- Design of a housing project, including the design of related community facilities. Emphasis will be on local environmental conditions, urban context, and building regulations.

- The emphasis in this studio will be on the comprehensive nature of architectural design. Assigned projects programs related to multi-function use in urban context.

Development of the architectural conceptual design in 3-D form, taking into consideration: space organization, structural system, architectural aesthetics, urban context and zoning restrictions. Knowledge of theories and contemporary concepts of design would be applied. This course is carried out with a special emphasis on 3D modeling. Consideration of large span structural systems will be applied in complex projects such as: Auditoriums, convention centers, sport arenas, railway stations, etc.

ARE 207: Architectural Design of Complex Buildings , 4(2, 0,6)

- Data gathering & analysis of different programs for buildings of complex nature or groups of buildings. Development of the architectural design of these buildings taking into consideration spacing and visual aspects. This course is carried out with special emphasis on modeling.

- Provide sufficient knowledge on dealing with different programs for

buildings of complex nature or group of buildings. Comprehensive design

projects addressing all design issues and higher levels of detail. Consideration

will be given to the knowledge pertaining to other design disciplines such as:

urban design, landscape design, and construction detailing. The course will enhance skills on critical and analytical thinking as well as creative problem solving. A list of many advanced projects will be shown to select the term project from: Cultural centers, airports, olympic village, sport stadiums, residential complex, hospitals and health compounds, university campus, and cyber center or intelligent village.

ARE208: Soil Mechanics and Foundations, 3(3, 0,0)

Physical and mechanical properties of soil and soil testing: formation of the soil, physical and mechanical properties of soils and soil testing. Theory of consolidation: choice of the type of foundations. Design of the shallow foundations: isolated footings, combined footings and strap footings.

To provide an introduction to soil mechanics engineering this includes soil types under foundations, the physical properties of soil ,its behavior under load and uses of soil as a construction material and the essential items to evaluate the shear strength of soil and its practical application for bearing capacity and design of footings.

ARE 211:B.SC Project,4(1, 0,9)

The students should achieve the following assignments on two consecutive semesters:

The first semester will be reserved for project selection and research; that includes an independent investigation on the topic of the project, (data gathering, analysis, programming, site information etc.). A comprehensive report containing all collected data should be presented for evaluation at the end of the semester. The second semester will be reserved for the architectural design: Application of all accumulated knowledge from previous courses should be demonstrated. The students are allowed to choose their own projects, subject to the approval of the final project committee.

ARE 212: Reinforced Concrete, 2(1, 2,0)

- Properties of reinforced concrete as a building material & factors affecting concrete strength. Design of R.C. sections subject to simple beams loads, & loads distribution. Design of R.C. slabs: one& two way slabs (crash off, Marcus & Egyptian solutions), hollow block, paneled beams, & flat slabs details.

- The aim of this course is to Implement the student the reinforced concrete different elements design. This course notified the student to make a rational expectation of complete concrete dimensions as well as reinforcement details.

ARE 214: Town planning (B) , 4(2, 6,0)

A comprehensive planning project on a certain part of the city: including field & office studies, stages of implementation, & reports.

ARE 217: Environmental design. 4(2, 0,6)

- Urban context, environmental factors in design, perception of the urban environment, the visual form of traditional neighborhoods, major principles of urban design, analysis & design of existing spaces. Landscape elements, construction and analysis. Movement system details and projects.

- This course is designed to equip students with the knowledge accumulated from all other courses. Emphasis will be given to overall perception of the urban environment: urban context, environmental and social factors in design, analysis of visual form and design concepts of traditional settlements. The course will also introduce the concept of green architecture in desert environment applying passive cooling, local materials and desert landscaping. Examples of projects would include: urban design project (tourist & health resorts), urban renovation schemes, and modern buildings in historical contexts.

ARE218 : Technical Installation for Buildings (B) .3(2,0,3)

Illumination : Eye and vision ,light characteristics and measurements , light sources , introduction to lighting design . Acoustics : the characteristics , absorption , distribution of sound absorbents , building materials , insulation of sound , and hints on acoustic design . Air conditioning : Psychometric charts , physical and physiological principles , fundamentals of heat transfer , duct design , heating and cooling cycles.

ARE 219: Execution Desing.3(2 ,0,3)

Detailed studies of wide-span & span structures, cladding and facing for skeleton structures, design and application of metal section for openings and partitions, detailed studies of stair cases with different details and materials, preparations of working drawings completely detailed and ready for execution including architectural drawings, details, structural sections plumbing and sanitary drawings, Electrical drawing, miscellaneous drawings (I.e. elevators..., etc.)

ARE 220: Execution documents & Specification .3(2 ,2,0)

the preparation of a complete set of execution documents of a given project; containing large span elements designed by the student.

To provide an introduction to the adjudication's procedures the specification's writing rules of the building work and items and the rules of surveying quantities of the building work and items.

ARE 221: Solar Architecture.2(1 ,0,3)

Solar movement, Solar reclamation, fundamentals of solar heating and cooling ,active solar design for space heating, cooling and domestic hot water, passive solar design for space heating and cooling, performance , economic analysis, and the integration of solar concepts into building .

ARE 222 Steel Structures.2(1 ,2,0)

- Properties of steel, specifications, loads, allowable stresses, members subject to centric and eccentric tension compression, roof trusses, riveted connections, bracing, columns and their bases, beams, frames consisting of columns and trusses, frames extending over several halls, brackets, cranes, joints and connections.

- This course introduces the students the basic aspects of Steel Structures, The different structural elements required for constructing steel structure building, calculating the loads and the Design of different Steel structural elements._

ARE 223 : Passive heating & cooling,2(1 ,0,3)

Characteristics of solar radiation, transparent surfaces and glasses, characteristics of building materials, effect of wind directions, passive designs, thermal storage walls, thermal storage roofs, direct gain and passive architectural design.

ARE 224: Computer Architectural Applications (B), 2(1 ,0,3)

Main thrust is enhancement of human / machine communication at computer graphics interface. Formulation of individual project using 3D and modeling software _

ARE 225: Computer Aided Design, 2(1 ,0,3)

Overview of the techniques of computer image synthesis including both the hardware & software, color raster graphics, homogeneous coordinates, hidden surfaces & smooth shading algorithms.

ARE 226: Solar Architecture, 2(1 ,0,3)

This course is designed to give the students the properties & characteristics of new building materials suitable for desert architecture. It also gives the students the applications of new technology in desert architecture such as solar , ventilation , lightingetc

ARE 230: Special Topics Housing, 2(1 ,0,3)

This course is designed to enable the students to understand the fundamental issues related to housing theory, housing problems in developing countries, housing market and housing economy, the physical and non-physical aspects that affect the design of housing projects for the urban poor, and alternative approaches to housing policies. The course explores the current issues affecting the formulation and implementation of housing programs in developing countries. It covers classification of housing types, analysis of housing design, and design procedure of housing projects.

DDP 100 Desert Environment ,3(2 ,2,0)

- To equip the student with an understanding of the basic characteristics of the desert environment. Theories of desert formation. Desert climate & metology,geological & hydra-geological resources of the desert. Bedouins & desert environment, ecology, Eco-system, & socio-cultural factors affecting in the desert.

-This course is designed to develop the students' awareness on how people

perceive desert environment, and to enable the students to understand the fundamental issues related to desert regions and their societies: locations, natural characteristics, socio-cultural characteristics, and their influence on architectural design and landscaping. The course explores the concept of green architecture, the natural protected areas (sanctuaries), and the design treatments that may contribute to reduce the harsh conditions in desert regions.

DDP110: Solar energy utilization,2(1 ,0,3)

Solar Energy Conversion Technology: Storage systems, collection of solar energy, solar cooling, solar space heating, and solar water heaters. Economic analysis and application.

- To help the students to perceive the motivations of skills and techniques used solar energy in building construction
- To introduce the students to the characteristics of quality solar energy in building construction
- To increases the students' understanding of Planning and Schedule Project.

Eng. 122:Applied Mechanics, 2(1, 2,0)

The main objective of a engineering mechanics course should be to develop in the engineering student the ability to analyze a given problem in a simple and logical manner and to apply to its solution a few fundamental and well understood principles. The Purpose of the study is to predict through calculation the behavior of engineering components and system involving force and motion. Mechanical vibrations of the single degree of freedom system are introduced in this course.

FTR 101:field training (2) , 5(0, 0,30)

The training semester consists of 10 weeks with a total of 30 hours\week. This first training is taken at training centers to be exposed to all different workshops under the supervision of professional trainers. Periodical progress reports have to be submitted, every two weeks, by the student to his training supervisor, along with a final report. Follow up visits by the training supervisors from the department should be scheduled, and their communication with the center's supervisors is essential part of the evaluation process.

FTR 102:field training (3) , 5(0, 0,30)

This second training semester should be taken at a construction site approved by the department. Students are trained on construction stages, starting from site preparation, excavation, foundation works, concrete mix (material proportion & properties), water proofing, and retaining walls. Concrete skeleton, building envelop, walls and partitions will also be included. The training semester consists of 10 weeks with a total of 30 hours\week. Periodical progress reports have to be submitted, every two weeks, by the student to his training supervisor at the department, along with a final report. Follow up site visits by training supervisors from the department should be scheduled, and their communication with site supervisors is essential part of the evaluation process. Site supervisors will keep attendance log, and student's progress evaluation.

FTR 201: field training (3) , 5(0, 0,30)

Training in this semester will be also at a construction site, and will include all the internal technical installations and finishes. The training semester consists of 10 weeks with a total of 30 hours\week. Periodical progress reports have to be submitted, every two weeks, by the student to his training supervisor at the department, along with a final report. Follow up site visits by the training supervisors should be scheduled to monitor training progress. Site supervisor's evaluation is essential part of the assessment process.

FTR 202: field training (4) , 5(0, 0,30)

This training semester will be spent at an architectural office accepted by the department. Concentration will be on the professional practice at the office: client-architect relationship, contracting, liabilities, and fees. Different design stages of the project, construction documents, and scheduling will be also included, as well as the professional code of ethics among colleague architects in the market. The training semester consists of 10 weeks with a total of 30 hours\week. Periodical progress reports have to be submitted, every two weeks, by the student to his training supervisor, along with a final report. Follow up visits by the training supervisors to coordinate with the office supervisors are essential part of the evaluation process.

PHE 201: Physical Educational & Activities (I), 0.5(0,0,3)

Sporting Engineering I : modern physical education equipment , movement analysis , evaluation , modern physiological measurement equipment and its relationship to selection of athletes . Water treatment and swimming pools . Conditions of selecting the right premises for physical activities . Dimensions of playgrounds . Physiological variations during physical activities and their relationship with sports` costumes.

PHE 202: Physical Educational & Activities (II), 0.5(0,0,3)

Sporting Engineering II : electrical circuits of sports equipment . Polymeric resins and manufacturing of sports equipment .Measurement of some physiological variations and their use in evaluation . Proper dimensions of covered sports playgrounds . Analysis of some activities ` movements which are practiced in covered sports halls .Single activities , group activities , and their relationship with costumes` designs .