



دليل
كلية الهندسة
2020

قسم هندسة العمارة والتخطيط العمراني
**Department of Architectural Engineering &
Urban Planning**

The 1st: List of General courses

أولاً:- قوائم مسميات المقررات الدراسية للمرحلة العامة :-

Humanities courses

العلوم الإنسانية

Course No.	Course name	Prerequisite	Credits	اسم المقرر	رقم المقرر
		متطلب تمهيدي	الوحدات		
GH141	English I	Nil	3	اللغة الإنجليزية 1	ع 141
GH142	English II	GH141	3	اللغة الإنجليزية 2	ع 142
GH150	Arabic I	Nil	2	اللغة العربية 1	ع 150
GH151	Arabic II	GH150	1	اللغة العربية 2	ع 151
GH152	Technical Writing in Arabic	GH151	1	كتابة التقارير الفنية	ع 152
Total Credits			10	إجمالي عدد الوحدات	

General Science Courses

العلوم الأساسية العامة

Course No.	Course name	Pre request	Credits	اسم المقرر	رقم المقرر
		المتطلبات	الوحدات		
GS101	Mathematics I	Nil	3	الرياضيات 1	ع 101
GS102	Mathematics II	GS101	4	الرياضيات 2	ع 102
GS111	Physics I	Nil	3	الفيزياء 1	ع 111
GS112	Physics II	GS111	3	الفيزياء 2	ع 112
GS112L	Physics Lab	GS111	1	فيزياء معمل	ع 112 م
Total Credits			14	إجمالي عدد الوحدات	
ويشترط للقبول والدراسة بالقسم انجاز المقررات GE125, GE121, GS112, GS102 و اجتياز اختبار القدرات					

General Engineering Courses

العلوم المقررات الهندسية العامة

Course No.	Course name	Pre request	Credits	اسم المقرر	رقم المقرر
		المتطلبات	الوحدات		
GE121	Engineering Mechanics I	Nil	3	ميكانيكا هندسية 1	ع 121
GE125	Engineering Graphics	Nil	2	الهندسة الوصفية	ع 125
Total Credits			5	إجمالي عدد الوحدات	
ويشترط للقبول والدراسة بالقسم انجاز المقررات GE125, GE121, GS112, GS102 و اجتياز اختبار القدرات					



العلوم الهندسية التخصصية

Course No.	Course name	Pre request	Credits	اسم المقرر	رقم المقرر
		المتطلبات	الوحدات		
ARCH133	PROPERTIES OF MATERIALS	Nil	3	خواص مواد	هد عم 133
CE203AR	MECHANICS OF STRUCTURE	GE121	2	ميكانيكا انشاءات	هد مد 203 عم
CE301AR	MECHANICS OF SOLIDS	CE203AR	2	ميكانيكا جوامد	هد مد 301 عم
CE305AR	REINFORCED CONCRETE DESIGN	CE301AR	2	تصميم خرسانة مسلحة	هد مد 305 عم
CE307AR	STEEL DESIGN	CE301AR	2	تصميم منشآت معدنية	هد مد 307 عم
CE233AR	SURVEING	Nil	2	مساحة	هد مد 233 عم
Total Credits			13	إجمالي عدد الوحدات	

ثانياً :- قائمة مسميات المقررات الدراسية الملزمة لجميع طلبة القسم.

The 2nd : List of Departmental Compulsory Courses

Course No.	Course name	Pre request	Credits	اسم المقرر	رقم المقرر
		المتطلبات	الوحدات		
ARCH121	ARCHITECTURAL DRAWINGS & MODELING	Nil	2	رسم معماري ومجسمات	هد عم 121
ARCH241	FREE HAND DRAWINGS	Nil	2	رسم حر	هد عم 241
ARCH243	SHADE & PERSPECTIVE	GE125	3	ظل و منظور	هد عم 243
ARCH244	COMPUTER AIDED – ARCH. DESIGN	ARCH121	3	اتوكاد 1	هد عم 244
ARCH200	BASIC DESIGN	Nil	3	اسس تصميم	هد عم 200
ARCH201	DESIGN STUDIO I	ARCH121-200	5	تصميم معماري 1	هد عم 201
ARCH302	DESIGN STUDIO II	ARCH201-243	5	تصميم معماري 2	هد عم 302
ARCH403	DESIGN STUDIO III	ARCH302	5	تصميم معماري 3	هد عم 403
ARCH221	BUILDING CONSTRUCTION I	ARCH121	3	انشاء مباني 1	هد عم 221



ARCH222	BUILDING CONSTRUCTION II	ARCH221	3	انشاء مباني 2	222 عم هـ
ARCH324	ARCHITECTURAL DETAILS	ARCH344	3	تفاصيل معمارية	324 عم هـ
ARCH344	ARCHITECTURAL STRUCTURAL SYSTEMS	ARCH222	3	نظم إنشاء	344 عم هـ
ARCH424	WORKING DRAWINGS	ARCH324	3	رسومات تنفيذية	424 عم هـ
ARCH361	LANDSCAPE ARCHITECTURE	ARCH302	2	تنسيق مواقع	361 عم هـ
ARCH391	ENVIRONMENTAL CONTROL	ARCH221	3	تحكم بيئي	391 عم هـ
ARCH233	HISTORY OF ARCHITECTURE I	Nil	3	تاريخ عمارة 1	233 عم هـ
ARCH333	ISLAMIC ARCHITECTURE	Nil	3	تاريخ عمارة اسلامية	333 عم هـ
ARCH433	MODERN ARCHITECTURE	ARCH233	3	تاريخ عمارة حديث	433 عم هـ
ARCH399	ARCHITECTURAL PROGRAMMING	ARCH302	3	برمجة مشاريع	399 عم هـ
ARCH371	HISTORY & THEORY OF PLANNING	ARCH233	3	تاريخ ونظريات تخطيط	371 عم هـ
ARCH462	CITY & REGIONAL PLANNING	ARCH371	3	تخطيط حضري و اقليمي	462 عم هـ
ARCH474	HOUSING	ARCH462	3	اسكان	474 عم هـ
ARCH584	PROFESSIONAL PRACTICE I	ARCH324-424	2	ممارسة مهنة 1	584 عم هـ
ARCH595	PROFESSIONAL PRACTICE II	ARCH324-424	2	ممارسة مهنة 2	595 عم هـ
ARCH599	B.Sc. PROJECT	All Courses	8	مشروع التخرج	599 عم هـ
Total Credits			81	إجمالي عدد الوحدات	

* قائمة مسميات المقررات الدراسية الاختيارية الخاصة بطلبة القسم .

يجب للطالب إختيار عدد مقرر اختياري من القائمة التالية بإجمالي عدد وحدات 2

The student has to select one course from the List below which about 2 Credits

Course No.	Course name	Pre request	Credits	اسم المقرر	رقم المقرر
		المتطلبات	الوحدات		
ARCH242	ARCHITECTURAL RENDERING	ARCH241	2	اظهار معماري	242 عم هـ



ARCH245	COMPUTER AIDED - ARCHITECTURAL DESIGN II	ARCH244	2	2	اتوكاد 2	245 عم هـ
ARCH246	BASIC PHOTOGRAPHY	ARCH 241	2	2	تصوير فوتوغرافي	246 عم هـ

يحق للطالب إختيار عدد مقررین اختياريين من القائمة التالية بإجمالي عدد وحدات 6

The student has to select 2 courses from the List below which about 6 Credits

Course No.	Course name	Pre request	Credits	اسم المقرر	رقم المقرر
		المتطلبات	الوحدات		
ARCH382	THEORIES OF URBAN DESIGN	Nil	3	نظريات تصميم حضري	382 عم هـ
ARCH383	THEORIES OF ARCHITECTURE	Nil	3	نظريات عمارة	383 عم هـ
ARCH384	THEORIES OF FORM	Nil	3	نظريات شكل	384 عم هـ
ARCH385	LOCAL ARCHITECTURE	Nil	3	عمارة محلية	385 عم هـ
ARCH386	ART IN ARCHITECTURE	Nil	3	الفن في العمارة	386 عم هـ
ARCH387	DESIGN & ENERGY	Nil	3	التصميم والطاقة	387 عم هـ
ARCH 388	ILLUMINATION & ACOUSTICS	GS112	3	اضاءة وصوتيات	388 عم هـ
ARCH389	ENVIRONMENTAL PSYCHOLOGY	Nil	3	سيكولوجيا بيئية	389 عم هـ

يحق للطالب إختيار عدد 3 مقررات اختيارية من القائمة التالية بإجمالي عدد وحدات 9

The student has to select 3 courses from the List below which about 9 Credits

Course No.	Course name	Pre request	Credits	اسم المقرر	رقم المقرر
		المتطلبات	الوحدات		
ARCH451	INTERIOR DESIGN	Nil	3	تصميم داخلي	451 عم هـ
ARCH452	ARCHITECTURAL RESTORATION	Nil	3	ترميم	452 عم هـ
ARCH453	TECHNOLOGY & ARCHITECTURE	Nil	3	العمارة والتكنولوجيا	453 عم هـ
ARCH454	DESIGN METHODOLOGIES	Nil	3	طرق تصميم	454 عم هـ
ARCH455	ADVANCED STRUCTURAL SYSTEM	Nil	3	نظم انشاء معمارية متقدمة	455 عم هـ



ARCH456	HISTORY OF CONTEMPORARY ARCH.	Nil	3	تاريخ عمارة معاصر	هد عم 456
ARCH457	GIS	Nil	3	نظم معلومات جغرافية	هد عم 457
ARCH458	ECON DETERMINANTS IN ARCH	Nil	3	دراسات اقتصادية في العمارة	هد عم 458
ARCH459	INDEPENDED STUDIES	Nil	3	دراسات مستقلة	هد عم 459

يحق للطالب اختيار عدد مقررين اختياريين من القائمة التالية بإجمالي عدد وحدات 10

The student has to select 2 courses from the List below which about 10Credits

Course No.	Course name	Pre request	Credits	اسم المقرر	رقم المقرر
		المتطلبات	الوحدات		
ARCH404	DESIGN STUDIO IV	ARCH403	5	تصميم معماري 4	هد عم 404
ARCH405	DESIGN STUDIO V	ARCH403	5	تصميم معماري 5	هد عم 405
ARCH406	DESIGN STUDIO VI	ARCH403	5	تصميم معماري 6	هد عم 406
ARCH407	DESIGN STUDIO VII	ARCH403	5	تصميم معماري 7	هد عم 407
ARCH408	DESIGN STUDIO VIII	ARCH403	5	تصميم معماري 8	هد عم 408
ARCH409	DESIGN STUDIO IX	ARCH403	5	تصميم معماري 9	هد عم 409

ملخص عدد الوحدات المطلوبة للتخرج لجميع طلبة القسم

الإجمالي	العلوم التخصصية الاختيارية		المقررات التخصصية الملائمة لجميع طلبة القسم		العلوم الهندسية المشتركة المكتملة للتخصص		العلوم الهندسية العامة		العلوم الأساسية العامة		العلوم الإنسانية		الشعبة	القسم
	النسبة المئوية من إجمالي عدد الوحدات الكلية	عدد الوحدات	النسبة المئوية من إجمالي عدد الوحدات الكلية	عدد الوحدات	النسبة المئوية من إجمالي عدد الوحدات الكلية	عدد الوحدات	النسبة المئوية من إجمالي عدد الوحدات الكلية	عدد الوحدات	النسبة المئوية من إجمالي عدد الوحدات الكلية	عدد الوحدات	النسبة المئوية من إجمالي عدد الوحدات الكلية	عدد الوحدات		
150	18.0%	27	54.0%	81	8.7%	13	3.3%	5	9.3%	14	6.7%	10	القسم شعبة واحدة	هندسة العمارة والتخطيط العمراني

المحتوى العلمي للمقررات الدراسية بقسم الهندسة المعمارية والتخطيط العمراني



DESIGN STUDIOS & WORKSHOPS

ARCH121	ARCHITECTURAL DRAWINGS AND MODELING Contact Hours: 3	2 Credits
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Pre-requisite: Nil

Introduces the student to basic techniques of architectural drawings, drafting, and use of various media, also learning meaning and techniques of modelling.

ARCH200	BASIC DESIGN Contact Hours: 5	3 Credits
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Pre-requisite: Nil

Learning the theory and principles of architectural design; order, unity, composition, collage, texture, rhythm and variation, colour, form, space, mass, simplicity, aesthetic, axis, significance of number, geometry, ratio, proportion, scale, positive and negative.

ARCH201	DESIGN STUDIO I Contact Hours: 10	5 Credits
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Pre-requisite ARCH121-200

Introduction to the processes of architectural design with emphasis on the design of different types of housing units with analysis of existing residential prototypes.

ARCH241	FREE HAND DRAWINGS Contact Hours: 3	2 Credits
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Pre-requisite: Nil

The course aims to enhance the creative work within the sphere of visual communication, Utilizing different freehand techniques as methods of expressing architecture. Drawing various compositions and hanging the coordination between intent, concept of presentation and means of presentation.

ARCH242	ARCHITECTURAL RENDERING Contact Hours: 3	2 Credits
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Pre-requisite: ARCH241

Learning the techniques of architectural delineation for the best way to present and Architectural project, so it will be easy to see how the building will look to people in the best possible manner, using the pencil renderings, water-colour renderings, ink and airbrush.

ARCH243	SHADE & PERSPECTIVE Contact Hours: 5	3 Credits
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Pre-requisite: GE125

Learning the casting of shade and shadows in architectural drawings; plane, solid, applications on elevation and layout of buildings. Also, the course studies the theory of perspective; one, two and three vanishing points.

ARCH244	COMPUTER AIDED - ARCHITECTURAL DESIGN (CAAD I) Contact Hours: 5	3 Credits
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Pre-requisite: ARCH121

Learning computer techniques in architectural practice. Students are required to submit a project in the form of 2D and 3D Architectural drawings.

ARCH245	COMPUTER AIDED - ARCHITECTURAL DESIGN (CAAD II) *Contact Hours:3	2 Credits Elective Courses
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Pre-requisite: ARCH244

Learning selected computer software and their applications as tools for architectural presentations.

ARCH246	BASIC PHOTOGRAPHY* Contact Hours: 3	2 Credits Elective Courses
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Pre-requisite: ARCH241

Introduction to the techniques of the art of photography with emphasis on the role of craft decisions in photography as a productive visual communication in architecture.

ARCH302	DESIGN STUDIO II Contact Hours: 10	5 Credits
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Pre-requisite: ARCH201-243

Design of buildings that have architectural programs which consist of well-defined functional requirements, with emphasis on structure, a human and aesthetic requirements. Buildings such as; kindergartens, elementary as well as Secondary Schools and specialized institutions.

ARCH403	DESIGN STUDIO III Contact Hours: 10	5 Credits
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Pre-requisite: ARCH302

Design of Leisure buildings with emphasis on the built environment, economical, considerations, functional requirements, structure, technological aspects and aesthetic attitudes. Buildings such as: Restaurants, Motels, Rest Areas, Amusement Parks, Public Parks, Piazzas and Beach Clubs.

ARCH404	DESIGN STUDIO IV* (RECREATION & CULTURE) Contact Hours: 10	5 Credits Elective Courses
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Pre-requisite: ARCH403

Design of different projects involving forms generated by different structural systems and method of construction. Application of this method through building types such as; Sport Centers, Theatres...etc. Principles and methods of site analysis should be introduced at the beginning of the semester .

ARCH405	DESIGN STUDIO V* (URBAN DESIGN) Contact Hours: 10(5 Credits Elective Courses
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Pre-requisite: ARCH403

Design of different projects that involve topical problems in architecture and urban design. Advanced investigation into problems of analysis and evaluation of the design of urban areas, spaces and complexes with emphasis on physical and social considerations, Principles and methods of site analysis should be introduced at the beginning of the semester.

ARCH406	DESIGN STUDIO VI* (MEDICAL FACILITIES) Contact Hours: 10	5 Credits Elective Courses
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Pre-requisite: ARCH403

Design of medical buildings that involving analytical and systematic approach to design process which enables designer to a achieve; functional requirement, building processes and materials, basic structural systems and productive Architectural forms. Principles and methods of site analysis should be introduced at the beginning of the semester.

ARCH407	DESIGN STUDIO VII* (TRANSPORTATION &INDUSTRIAL Contact Hours: 10	5 Credits Elective Courses
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Pre-requisite: ARCH403

Design transportation projects such as airport terminals, seaport terminals, railway stations and bus terminals that involving the elements of physical and social considerations, urban development issues, public policies, environmental control, different types of structural systems, transportation and economic considerations. Principles and methods of site analysis should be introduced at the beginning of the semester.

ARCH408	DESIGN STUDIO VIII* (LOW ENERGY BUILDING DESIGN) Contact Hours: 10	5 Credits Elective Courses
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Pre-requisite: ARCH403



Study and design of various building types that furnish methods of utilizing solar energy to provide heating, cooling, hot water and electricity for buildings and related techniques for reducing energy consumption. Principles and methods of site analysis that seeks should be introduced at the beginning of the semester.

ARCH409	DESIGN STUDIO IX *Contact Hours: 10	5 Credits Elective Courses
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Pre-requisite: ARCH403

Design of various buildings that reflect and involve special topics in architecture. Permission of Department is required.

ARCH599	B.Sc. PROJECT Contact Hours: 15	8 Credits
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Pre-requisite: All COURSES

Students who finished all architectural compulsory courses satisfactory are eligible to present their architectural design of a thesis project in the form of architectural drawings. (Students who have one or two courses incomplete can't enroll in thesis project unless permission from department is obtained).

BUILDING TECHNOLOGY

ARCH221	BUILDING CONSTRUCTION I Contact Hours: 5	3Credits
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Pre-requisite: ARCH121

Study of load bearing wall construction. This includes all types of walls, typical roofs such as; vault, some and one-way slab. All types of floor construction, staircases, bricks, stone, etc.

ARCH222	BUILDING CONSTRUCTION II Contact Hours: 5	3 Credits
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Pre-requisite: ARCH221

Study of skeleton construction. This includes; grid of columns, bracing, different types of foundations. All types of normal span roofs such as; one and two-way slab, waffle and frames. Study of-cast concrete and steel construction.

ARCH324	ARCHITECTURAL DETAILS Contact Hours: 5	3 Credits
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Pre-requisite: ARCH344



Study of all types of partitions and curtain wall, finishing materials, shading devices, joinery, metal works, and suspended ceilings.

ARCH344	ARCHITECTURAL STRUCTURAL SYSTEMS Contact Hours: 5	3 Credits
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Pre-requisite: ARCH222

Study of theoretical understanding of different structure systems that cover large span buildings as part of an integrated design philosophy. The ability to relate architectural design decision to a well-founded base of structural information. This include study of: Trusses, Girders, Folded Plates, Frames, Arches, Waffle, Shell, Space Frame, Geodesic, Suspension and Pneumatic.

ARCH387	DESIGN & ENERGY *Contact Hours: 3	3 Credits Elective Courses
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Pre-requisite: Nil

Study of energy strategies in buildings related to the broader context of architectural problem-solving case study method.

ARCH388	ILLUMINATION AND ACOUSTICS* Contact Hours: 3	3 Credits Elective Courses
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Pre-requisite: GS112

1. **Lighting:** Introduction – light – sight – light flux – light intensity candle brightness – factors influences upon sight – calculation of lighting – square inverse law – requirements of light. Day lighting: calculations coefficient of day light – calculations of light coefficient with respect to upper and side windows, influenced factors upon day light – minimum day lighting in buildings. Industrial lighting: sources of industrial lighting – calculation of industrial lighting – minimum of lighting required for different work.

2. **Acoustics:** Acoustic range – sound pressure and speed – intensity of sound – level of sound intensity – sound in internal spaces (rooms, theater, lecturing, music, offices) sound absorption, reverberation, time, echo, isolating and reducing of sound.

ARCH391	ENVIRONMENTAL CONTROL Contact Hours: 3	3 Credits
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Pre-requisites: ARCH221



Introduction to conceptual, perceptual, behavioural, and technical aspects of environmental design. Study of global climate with special emphasis on hot arid zone. Methods of analysis, problem-solving, and project implementation. Orientation; shading devices, ventilation, building materials, vegetation, etc. also the application of Air conditioning in buildings.

ARCH424	WORKING DRAWINGS Contact Hours: 5	3 Credits
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Pre-requisite: ARCH324

Preparation of working drawing for a public building which includes: Architectural, structural, mechanical, sanitary, and electrical.

ARCH453	TECHNOLOGY & ARCHITECTURE* Contact Hours: 3	3 Credits Elective Courses
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Pre-requisites: Nil

Study of philosophy as well as the faces of technology. Historical review of the relationship between technology and architecture and how change in technology creates new possibilities and creativity in architectural design.

ARCH455	ADVANCED STRUCTURAL SYSTEMS * Contact Hours: 3	3 Credits Elective Courses
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Pre-requisite: Nil

Study of advanced architectural structures, this include pre-stressed, structures of high rise monuments such as towers and skyscrapers.

ARCH458	ECONOMIC DETERMINANTS IN ARCHITECTURE* Contact Hours: 3	3 Credits Elective Courses
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Pre-requisites: Nil

Introduction to economic factors influencing architectural form and design, including land economics, financing, project development, financial planning, construction, and cost control.

ARCH459	INDEPENDENT STUDIES* Contact Hours: 3	3 Credits Elective Courses
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Pre-requisites: Nil



All 400 level students are eligible to enrol in an independent study with one of staff member of the department of architecture. The topic should be approved by the advisor and by permission of Department. Also study of related subjects to the thesis project is acceptable.

ARCH584	PROFESSIONAL PRACTICE Contact Hours: 2	2 Credits
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Pre-requisite ARCH324-424

Review of building laws and specifications in Libya, with emphasis on the role of the architect as a responsible consultant for quality control and preparation of quantities of materials. Its ethical aspects of architecture.

ARCH595	PROFESSIONAL PRACTICE II Contact Hours: 2	2 Credits
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Pre-requisite: ARCH324-424

Study of different planning of building construction and cost analysis of building technology as well as building contracts and bill of quantities.

HISTORY, THEORY & CRITICAL ANALYSIS		
ARCH233	HISTORY OF ARCHITECTURE I Contact Hours: 3	3 Credits

Pre-requisites: Nil

Survey of architectural history which includes study of architectural styles of the following: Egyptian, Babylonian, Assyrian, Persian, Greek, Roman, Chinese, Early Christian, Byzantine, Romanesque, Gothic and Renaissance.

ARCH333	ISLAMIC ARCHITECTURE Contact Hours: 3	3 Credits
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Pre-requisite: Nil

Thermodynamic relations of single component systems, deviations from ideal gas behavior, generalized charts. Mixtures and solutions: properties of component in mixture, ideal gas mixtures, stoichiometry. Chemically reactive systems: stoichiometry, energy and free energy of reaction, generalized availability, equilibrium, Gibbs equation for simple chemical systems, the chemical potential, phase equilibrium, chemical reaction equilibrium. Introduction to irreversible thermodynamics: rate equation, coupling phenomena, application to thermoelasticity. Introduction to statistical thermodynamics: Information theory approach.



ARCH382	THEORIES OF URBAN DESIGN* Contact Hours: 3	3 Credits Elective Courses
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Pre-requisite: : Nil

The basics of urban design and its different theories with an explanation of its functional, aesthetic and environmental foundations which influence design within the city. The course reviews the characteristics of urban tissue and the development of the city as an entity derivative from inter-connected elements and functional satisfaction and the influence of this development on the design process.

ARCH383	THEORIES OF ARCHITECTURE* Contact Hours: 3	3 Credits Elective Courses
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Pre-requisite: Nil

Study of historical and modern theories of architectural design, through analysis of principles of selected treatises on different buildings.

ARCH384	THEORIES OF FORM* Contact Hours: 3	3 Credits Elective Courses
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Pre-requisites: Nil

Visual analysis and visual principles of architectural design through graphic analysis.

ARCH385	LOCAL ARCHITECTURE* Contact Hours: 3	3 Credits Elective Courses
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Pre-requisites: Nil

Study of regional characteristics of Libyan culture, climate, and landscape as determinates of local architecture. It reviews the three main areas; coastal, mountain and desert architecture.

ARCH386	ART IN ARCHITECTURE* Contact Hours: 3	3 Credits Elective Courses
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Pre-requisite: Nil

Study of the elements of art and its relation to architecture as well as in the built environment. It focuses on the three elements-form, space, and surface-which are the essence of architecture. It reviews the role of the artists, architects and sculptors to collaborate and combine their talents and efforts to create a living environment where the arts will play a meaningful role in the life of the individual and the community.



ARCH389	ENVIRONMENTAL PSYCHOLOGY* Contact Hours: 3	3 Credits Elective Courses
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Pre-requisite: Nil

Study of contemporary issues that deal with social and human aspects and their architectural applications. Emphasis on the behaviour of personal as well as group of people and its relation with the surrounding built environment. Topics such as; privacy, public space, sense of intimacy, identity, etc.

ARCH399	ARCHITECTURAL PROGRAMMING Contact Hours: 3	3 Credits
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Pre-requisite: : ARCH302

Study of the means of Architectural programming; that seeks to develop an analytical and systemic process which enables programmer, designer and client to base decisions on factual evidence. It furnishes a wide range of research methodologies through which factual evidence can be obtained as a tool for design and accordingly, project decisions could be made objectively.

ARCH433	MODERN ARCHITECTURE Contact Hours: 3	3 Credits
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Pre-requisite: ARCH233

Presentation of architectural trends from mid eighteenth century to mid twentieth century.

ARCH451	INTERIOR DESIGN* Contact Hours: 3	3 Credits Elective Courses
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Pre-requisite: Nil

Planning and design of interior spaces within different types of private as well as public buildings. Design of elements of furniture is included.

ARCH452	ARCHITECTURAL RESTORATION* Contact Hours: 3	3 Credits Elective Courses
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Pre-requisite: Nil

Study of various meaning of restoration. It reviews the different attitudes and techniques of historical preservation, architectural restoration, and architectural and urban conservation.

ARCH454	DESIGN METHODOLOGIES* Contact Hours: 3	3 Credits Elective Courses
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Pre-requisites: Nil



The course adopt information processing systems (IPS) as an operational model to seek insights into architectural design process through examination of the graphic process.

ARCH456	HISTORY OF CONTEMPORARY ARCHITECTURE* Contact Hours: 3	3 Credits Elective Courses
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Pre-requisites: Nil

Reviewing of recent architectural trends: The team X, The gap between Modernism and Postmodernism, Post-Modernism's attitude, Neo-Rationalism, The New York Five, Eclecticism, Contextual Architecture, and Deconstruction.

URBAN & REGIONAL PLANNING

ARCH361	LANDSCAPE ARCHITECTURE Contact Hours: 3	2 Credits
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Pre-requisites: ARCH302

Study of the elements of landscape architecture and their importance in developing and improving urban areas.

ARCH371	HISTORY & THEORY OF PLANNING Contact Hours: 3	3 Credits
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Pre-requisites: ARCH233

Concept and scope of urban and regional planning. History of cities including the physical and cultural forces underlying urban and regional developments from ancient times to the present with particular references to modern times. The concept of regional planning: its processes prospects in developed countries.

ARCH457	GEOGRAPHICAL INFORMATION SYSTEM (GIS)* Contact Hours: 5	3 Credits Elective Courses
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Pre-requisite: Nil

To provide students with a substantial introduction for understanding and making practical use of Geographical Information System (GIS) and their associated technologies. The course reviews the theoretical principles of GIS in part one and its practical module will be covered in part two. Software concerning GIS use are ARC View and MapInfo.

ARCH462	CITY & REGIONAL PLANNING* Contact Hours: 5	3 Credits
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Pre-requisite: ARCH371



The urban and planning studies, objectives and planning stages, plans and required studies, policies in Libya, planning and regional studies, regional planning problems, implementations.

ARCH474	HOUSING Contact Hours: 5	3 Credits
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Pre-requisites: ARCH462

Study of the major Mass Housing in Libya with appropriate solutions to its complex problems.

ENGINEERING COURSES

ARCH133	PROPERTIES OF MATERIALS Contact Hours: 3	3 Credits
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Pre-requisites: Nil

Review of primary building materials, their properties, use and performance of materials as related to environmental forces.

CE203AR	MECHANICS OF STRUCTURE Contact Hours: 2	2 Credits
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Pre-requisites: GE121

Analysis of determinate structures. Plane trusses: methods of joint and sections. Axial force, shear force and bending moment diagram for beam, plane frames and arches. Deflection of plane trusses, beams and frames using virtual work, conjugate beam and double integration methods, influence lines for beams and trusses.

CE233	SURVEYING* Contact Hours: 3	2 Credits Elective Courses
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Pre-requisite: Nil

Introduction: theory of measurements and errors, types of measurements, type of errors, error propagation, survey field notes, linear measurement, taping, EDM, levelling, curvature and refraction, instruments, differential levelling, trigonometric levelling, angles, bearing, azimuths, the compass survey, theodolite instrument, field operations with theodolite, traversing, traverse computations, areas and volumes.



CE301AR	MECHANICS OF SOLIDS Contact Hours: 2	2 Credits
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Pre-requisite: CE203

Stress, strain and their relationship, axial stress for determinate and indeterminate Members. Compound normal stresses. Shear stresses. Torsion of circular hollow and solid shafts for determinate and indeterminate members. Transformation of stresses, shear flow and shear center for thin walled sections Energy method. Elastic stability of columns.

CE305AR	REINFORCED CONCRETE DESIGN Contact Hours: 2	2 Credits
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Pre-requisites: CE301AR

Flexural analysis and design of rectangular and T-section with single and double reinforcement. Design for shear. Design of continuous beams and solid and ribbed one way slabs.

CE307AR	STEEL DESIGN Contact Hours: 2	2 Credits
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Pre-requisites: CE301AR

Types of steel structures, Properties of steel; Load and specification. Design of tension and compression members: Single and built – up sections. Design of Fasteners and connections: Simple riveted, bolted and welded.