Ministry of Higher Education and Scientific Research,
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Department

Academic Program and Course Description Guide

2026

Introduction:

The educational program is a well—planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staP together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra—curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name: University of Mosul

College/Institute: College of Engineering

Academic or Professional Program Name: Bachelor of Architecture

Certificate Name: Bachelor of Architecture

Academic System: Bologna/Semester/Course-Based

Date of Description Preparation: September 7, 2025

Date of File Completion: September 7, 2025

Signature:

Head of Department:

Dr. Omar Hazem Kharofa

20/4/2026

Signature:

Assistant Dean for Scientific Affairs:

Dr. Ayman Talib Hamed

20-4-2026

File Reviewed by the Quality Assurance and Performance Evaluation Division Asst. Prof. Rana Ibrahim Abdulhaq

Date: 21/4/2026

Signature:

Dean's Approval

Asst Prof Dr Omar M

4/27

University of Mosul College of Engineering Dean Office

جامعة الموصل
كلية الهندسة
قسم هندسة العمارة

1. Program Vision
Program vision is written here as stated in the university's catalogue and website.
The vision of the academic program is aligned with the vision of the Department of Architecture, which is for the department, through its academic program, to be a pioneer in the process of education and scientific research in architecture and its arts, thus contributing to sustainable national development.
2. Program Mission
Program mission is written here as stated in the university's catalogue and website.
• Quality and excellence in achieving comprehensive and sustainable development by preparing creative architects capable of competition, leadership, and sustaining scientific research to serve the community. • Preparing creative architects for the architectural design profession in the labor market. • Preparing graduates with distinguished capabilities to optimally meet current and future challenges related to architectural design. • Preparing distinguished graduates in achieving comprehensive development and sustainable design within the scope of urban design and building architectural design. • Providing the country and society with experts with advanced degrees in architectural engineering specializations to benefit from their scientific expertise. • Developing student performance and strategies for dealing with real-world problems through constructive and advanced scientific thinking. • Adopting students' distinctive and creative ideas and encouraging them to work collectively in diverse teams or as a single team. • Achieving quality education and scientific research to serve the community. • Maintaining communication with the department's graduates by inviting them to attend seminars, scientific conferences, and continuing education programs.
3. Program Objectives
General statements describing what the program or institution intends to achieve.
- Preparing scientifically, professionally, and educationally qualified personnel in various fields of knowledge, in accordance with high quality standards. - Promoting scientific research in theoretical and applied sciences, while encouraging initiatives linked to development programs, and ensuring that they keep pace with global scientific developments and future planning.

- Continuously developing curricula at the undergraduate and graduate levels, keeping pace with modern scientific, methodological, and technical developments. - Participating in community service through continuous interaction with state institutions, providing scientific consultations, and promoting continuing education programs. - Linking architecture to other engineering disciplines and developing relationships with them, as it is an essential part of societal renaissance. - Emphasizing the role of architecture in building society and improving the living environment. - Preparing architectural graduates according to scientific principles that enable them to practice the profession efficiently in architectural and urban design, city planning, and interior and exterior space planning, in addition to preserving heritage and antiquities according to scientific methods. - Implementing clear practical programs that focus on sustainability technology and architectural aesthetic standards, while keeping pace with developments in developed countries by providing an architectural education program based on modern technologies in engineering and technical fields. - Focusing on the quality of the educational process in architecture by continuously selecting specialized and modern curricula and completing self-assessment reports with the aim of obtaining academic accreditation. - Empowering the teaching staff in the Department of Architecture by increasing the percentage of PhD holders compared to master's degree holders. - Focusing on applied scientific research and designing applied projects to strengthen partnerships and relationships with prestigious institutions and universities. - Developing the skills of graduates by providing specialized continuing education courses and maintaining communication with them to enhance the achievement of the department's mission.
4. Program Accreditation
Does the program have program accreditation? And from which agency?
Work is underway to prepare the program requirements according to the approved standards, but it has not been submitted for review to the National Council for Accreditation of Engineering Education (ICAEE) due to the lack of a graduate course within the approved study system (course system) during the last academic year. Submission will be made when the requirements are fully met.
5. Other external influences
Is there a sponsor for the program?
Deanship of the College of Engineering

6. Program Structure				
Program Structure	Number of Courses	Credit hours	Percentage	Reviews•
Institution Requirements	6	12		
College Requirements	5	11		
Department Requirements	85	185		
Summer Training				A mandatory requirement in the summer semester for students who have passed the courses at all levels.
Other				

7. Program Description

First Level

Second Level

Third Level

Fourth Level

Semester 2					Semester I				Fourth Level	
Credit Hours	Practical Hours	Theoretical Hours	Course Title	Course Code	Credit Hours	Practical Hours	Theoretical Hours	Course Title	Course Code	#
7	**10**	**2**	**Architectural Design (4)**	**ARC411**	**7**	**10**	**2**	**Architectural Design (4)**	**ARC411**	**1**
2		**2**	**Physics (7)**	**ARC4 22**	**2**		**2**	**Theory of Architecture (1)**	**ARC414**	2
2		**2**	**Theory of Architecture (2)**	**ARC4 24**	**3**	**4**	**1**	**Interior Design**	**ARC415**	3
2		**2**	**Contemporary Regional Architecture**	**ARC4 25**	**2**		**2**	**Theories of Urban Design**	**ARC416**	4
3	**4**	**1**	**Landscape Architecture**	**ARC4 26**	**2**		**2**	**Architectural Spaces Programming**	**ARC417**	5
2		**2**	**Safety of Architectural Structural**	**ARC4 27**	**2**		**2**	**Physics (6)**	**ARC418**	6
2		**2**	**Advanced Construction Techniques**	**ARC4 28**	**2**		**2**	**Steel Structures**	**STR 417**	7
20	**27**				**20**	**27**				

Fifth Level

المستوى الدراسي الخامس (الفصل الاول)										
اسم المتطلب	اسم المقرر		نوع المتطلب	عدد الساعات النظرية	عدد الساعات العملية	عدد الوحدات	المتطلبات السابقة	رمز المقرر	الملاحظات
	باللغة العربية	باللغة الانكليزية							
متطلبات الكلية	الادارة الهندسية	Engineering Management	اجباري	2		2		ENGC525	
	الاقتصاد الهندسي	Engineering Economy	اجباري	2		2		ENGC526	
متطلبات القسم	مشروع التخرج(1)	Graduation Project (1)	اجباري	2	6	5	التصميم المعماري(7)	ARC 541	
	التصميم الحضري	Urban Design	اجباري	2	6	5	نظريات التصميم الحضري	ARC 542	
	التقمين والمواصفات	Estimation and Specifications	اجباري	2		2		ARC 543	
	التصميم بمساعدة الحاسوب	Computer Aided Design	اجباري	1	2	2		ARC 544	
	متطلبات السلامة في المباني	Building Safety Requirements	اختياري	2		2		ARC 561	يختار الطالب مقرر واحد عدد الوحدات النظرية = 2 وحدة
	تطبيقات حاسوبية	Computer Applications		1	2	2		ARC 562	
	التفاصيل المعمارية	Architectural Details		1	2	2		ARC 563	
	نظريات النقد المعماري	Theories of Architecture Criticism		2		2		ARC 564	
مجموع ساعات و وحدات الفصل الأول للمستوى الخامس				11	18	20			

المستوى الدراسي الخامس (الفصل الثاني)									
اسم المتطلب	اسم المقرر		نوع المتطلب	عدد الساعات النظرية	عدد الساعات العملية	عدد الوحدات	المتطلبات السابقة	رمز المقرر	الملاحظات
	باللغة العربية	باللغة الانكليزية							
متطلبات الكلية	هندسة البيئة و الاستدامة	Environmental Engineering and Sustainability	اختياري	3		3		ENGE536	اجباري لطلبة القسم
	انظمة المبنى الذكي	Smart Building Systems	اختياري	3		3		ENGE539	اجباري لطلبة القسم
متطلبات القسم	مشروع التخرج(2)	Graduation project (2)	اجباري	1	14	8	مشروع التخرج(1)	ARC 545	
	السلوك وممارسة المهنة	Professional Practice	اجباري	2		2		ARC 546	
مجموع ساعات و وحدات الفصل الثاني للمستوى الخامس				9	14	16			

8. Expected learning outcomes of the program	
Knowledge (Cognition)	
Cognitive objectives (A)	A1. Provides the ability to identify and classify problems related to the engineering aspects necessary for the specialty of architectural engineering, through the principles of mathematics, geometric geometry, physics, and the arts. A2. It provides the ability to produce various aspects of specialized architectural and engineering designs through planning, analysis, and installation processes, leading to the required design results. A3. Provides skills that support the development of the program's theoretical frameworks through research, arrangement, evaluation, and application.
Skills	
Skill objectives (B)	B1. Provides the ability to create innovative and sustainable architectural designs using appropriate engineering methods and tools. B2. Provides the opportunity to develop research skills and the ability to manage communication with different applied levels. B3. Provides the ability to work in a team while enhancing effective communication skills with specialists in various fields.
Value	
Value objectives (C)	C1. Provides sufficient awareness of ethical and professional responsibilities within the field of engineering specialization, while promoting the values of creativity and innovation in various fields. C2. Provides the possibility of organizing joint work socially and environmentally, while ensuring the application of sustainable development principles in design and construction projects within specific and fixed deadlines.

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in implementing the program in general.
• Theoretical lectures using PowerPoint • Discussion sessions • Practical designs in the ceremonies • Computer labs • Video lectures • Group assignments • Case studies

10. Evaluation methods

- Midterm and final exams
- Short exams
- Reports
- Practical exams
- Projects
- Research

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements /Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	**Lecturer**
Assistant Professor	Architectural Engineering	Islamic Architecture			1	
Assistant Professor	Architectural Engineering	Sustainable Architecture			1	
Assistant Professor	Architectural Engineering	Architectural Design Methods			1	
Assistant Professor	Architectural Engineering	Housing			1	
Assistant Professor	Architectural Engineering	Architectural Theory			2	
Assistant Professor	Architectural Engineering	Interior Design			1	
Assistant Professor	Architectural Engineering	Architectural Technology			1	
Assistant Professor	Architectural Engineering	Urban Design			2	
Assistant Professor	Architectural Engineering	Architectural Design			4	
Assistant Professor	Architectural Engineering	Outdoor Space Design			1	
Lecturer	Civil Engineering	Construction			1	
Lecturer	Architectural Engineering	Sustainable Architecture			1	
Lecturer	Architectural Engineering	Architecture and Environment			2	
Lecturer	Architectural Engineering	Architectural Theory and History			2	

Lecturer	Architectural Engineering	Urban Planning			1	
Lecturer	Architectural Engineering	Urban Design			4	
Lecturer	Architectural Engineering	Architectural Technology			3	
Lecturer	Architectural Engineering	Architectural Design			5	
Lecturer	Architectural Engineering	Materials Engineering			1	
Lecturer	Architectural Engineering	Architectural Theory			5	
Lecturer	Architectural Engineering	Building Performance			1	
Assistant Lecturer	Civil Engineering	Construction			1	
Assistant Lecturer	Architectural Engineering	Urban Design			2	
Assistant Lecturer	Architectural Engineering	Architectural Technology			3	
Assistant Lecturer	Architectural Engineering	Interior Design			2	
Assistant Lecturer	Architectural Engineering	Architectural Theory			4	
Assistant Lecturer	Architectural Engineering	Architectural Design			3	

Professional development

Orientation of new faculty members

The academic program of the Department of Architecture is designed to enhance the comprehensive knowledge and skills of new faculty members in various educational fields. The program begins with a focus on equipping faculty members with the basic skills to manage their duties effectively. It then progresses to include the processes and procedures necessary to ensure the successful achievement of targeted learning outcomes in various programs.

To achieve these goals, the program includes the following main components:

• Instructional Courses: New faculty members participate in instructional courses aimed at improving the quality of the teaching process. These courses cover a range of topics, including: Teaching Methods Training: Teaching effective strategies for engaging students and delivering course content.

• Modern Trends in University Teaching: Exploring innovative approaches to teaching and learning in higher education.

• Student Assessment: Courses and workshops for new faculty members on the process of assessing student performance and understanding.

• Exam Preparation: Strategies for preparing fair exams.

• University Policies: Familiarize yourself with relevant laws, regulations, instructions, and e-learning platforms.

• Continuous Assessment: Faculty members, both full-time and part-time, undergo continuous assessment to identify areas for development throughout their teaching careers. This process helps ensure that faculty members are continually improving and adapting to meet the evolving needs of students and the university.

• Professional Development Opportunities: Faculty members are encouraged to participate in faculty development courses offered by the department or the university's Continuing Education Unit. These courses provide faculty members with opportunities to enhance their skills, stay abreast of trends in teaching and learning, and collaborate with colleagues.

Professional Development for Faculty Members

The faculty in the Department of Architecture maintains contact with a number of official government institutions within the department's specialization. The department has organized numerous seminars and training courses over the past few years. The topics of the seminars and courses were directly related to solving societal problems, and this contact with official institutions provides faculty members with practical experience.

In this context, the Continuing Education Committee in the Department of Architecture has organized lectures and workshops for faculty members in various fields over the past few academic years. These workshops focused on developing the capabilities of university faculty members, as well as developing and keeping up with global teaching methods.

12. Acceptance Criterion

Teaching and learning strategies and methods adopted in implementing the program in general.

The Department of Architecture's admissions capacity is determined within the admissions plan and based on the department's admissions capacity. The Academic Committee determines the number of new students required and then sends it to the Deanship, then the University, and finally the Ministry for official approval. To be eligible for admission to the Department of Architecture at the undergraduate level, applicants must meet certain requirements. The admissions process is overseen by the Ministry of Higher Education and Scientific Research, which automatically allocates students' admissions to government institutions and colleges based on their high school grades. The following are some of the main admission requirements:

A. Iraqi Nationality and Year of Birth: Applicants must be Iraqi nationals.

B. Iraqi High School Certificate: Applicants must have a certificate issued by an Iraqi high school accredited by the Ministry of Education.

C. Medical Certificate: Applicants must submit a medical certificate to ensure they meet the necessary health requirements.

D. Full-Time Enrollment: Applicants must commit to being full-time students, devoting

their time and efforts to their studies in the department.

E. Not accepting continuation studies at another college. F- Non-Iraqi students (incoming) who have obtained a certificate from an Iraqi high school are admitted according to the central admissions system.

C- Admission of 10% of the best graduates of technical institutes.

H- Admission of gifted students.

13. The most important sources of information about the program

- University Guide
- College Website:

14. Program development plan

To enhance the quality of education, raise graduate outcomes, and meet the required competencies, the Department Council has decided to adopt the "Bologna Process for Education." This system incorporates the European Credit Transfer and Accumulation System (ECTS) instead of the current system, in line with the department's commitment to continuous improvement. The new system will be implemented starting from the 2024-2025 academic year. Adopting the Bologna Process is expected to provide several benefits:

- Student-Centered Learning: The system places students at the center of the learning process, enhancing the overall educational system.
- Increased Classroom Interaction: Continuous interaction between faculty and students fosters a more dynamic learning environment.
- Focus on Professional and Practical Skills: Emphasis is placed on acquiring practical skills relevant to professional development.
- Opportunities for Continuous Learning: Students will have the opportunity for continuous learning, assessment, and feedback.
- Semi-Annual Performance Evaluation: The system allows students to be evaluated twice a year, providing more comprehensive feedback.
- Deepening Subject Understanding: The system is expected to contribute to deepening students' understanding of subjects.

Program Skills Outline

Program Skills Outline												
Required program				Learning outcomes								
Year/ Level	Course Code	Course Name	Basic or optional	Knowledge			Skills			Ethics		
				A1	A2	A3	B1	B2	B3	C1	C2	
First Level	ARC 111	Architecture Design and Graphic (1)	Basic	✓	✓		✓	✓	✓	✓	✓	
	ARC 112	Descriptive geometry & Engineering Drawing	Basic	✓	✓		✓					
	ARC 113	Art & Architecture	Basic		✓							
	ARC 114	Mathematics (1)	Basic	✓								
	UOM 1011	Arabic Language (1)	Basic			✓						
	UOM 1040	Democracy & Human Rights	Basic			✓						
		Second Semester										
	ARC 121	Architecture Design and Graphic (2)	Basic	✓	✓		✓	✓	✓	✓	✓	
	ARC 122	Free Hand Drawing (1)	Basic		✓		✓					
	ARC 123	Construction and Building Materials	Basic			✓						
	ARC 124	Mathematics (2)	Basic	✓								
	UOM 1031	Computer (1)	Basic	✓	✓							
	UOM 1021	English Language (1)	Basic			✓						
Second Level	ARC 211	Architecture Design (1)	Basic	✓	✓		✓	✓	✓	✓	✓	
	ARC 212	History of Ancient Architecture	Basic		✓	✓						
	ARC 213	Building Construction	Basic		✓	✓				✓	✓	
	ARC 214	Graphic and Architectural Presentation	Basic	✓	✓		✓					
	ARC 215	Computer Architectural Drawing 2D	Basic	✓	✓	✓	✓					
	UOM 2050	Crimes of Ba'ath Regime in Iraq	Basic			✓						
	UOM2022	English Language (2)	Basic			✓						

		Second Semester									
	ARC 221	**Architecture Design (2)**	**Basic**	✓	✓		✓	✓	✓	✓	✓
	ARC 222	**Free Hand Drawing (2)**	**Basic**		✓		✓				
	ARC 223	**Physics (1)**	**Basic**	✓							
	ARC 224	**Computer Architectural Drawing 3D**	**Basic**	✓	✓		✓				
	ARC 225	**Science of Mechanics**	**Basic**	✓							
	UOM 2032	**Computer (2)**	**Basic**	✓							
	UOM 2012	**Arabic Language (2)**	**Basic**	✓							
Third Level	**ARC 311**	**Architectural Design (3)**	**Basic**	✓	✓		✓	✓	✓	✓	✓
	ARC 312	**Working Drawings (1)**	**Basic**	✓	✓		✓				
	ARC 313	**Computer Rendering Techniques**	**Basic**	✓	✓		✓				
	ARC 314	**Principles of Housing**	**Basic**		✓	✓					
	ARC 315	**Reinforced Concrete Structures**	**Basic**			✓					
	ARC 316	**Physics (2)**	**Basic**	✓							
	ARC 317	**History of European Architecture**	**Basic**		✓						
		Second Semester									
	ARC 321	**Architectural Design (4)**	**Basic**	✓	✓		✓	✓	✓	✓	✓
	ARC 322	**Survey and Architectural Documentation**	**Basic**		✓	✓	✓				✓
	ARC 323	**Physics Laboratory**	**Basic**		✓						
	ARC 324	**Physics (3)**	**Basic**	✓	✓						
	ARC 325	**Working Drawings (2)**	**Basic**	✓	✓		✓				
	ARC 326	**Principles of Planning**	**Basic**		✓	✓					
Fourth Level	**ARC** 411	**Architectural Design (4)**	**Basic**	✓	✓		✓	✓	✓	✓	✓
	ARC 414	**Theory of Architecture (1)**	**Basic**		✓						
	ARC 415	**Interior Design**	**Basic**	✓	✓		✓	✓	✓		
	ARC 416	**Theories of Urban Design**	**Basic**		✓						✓
	ARC 417	**Architectural Spaces Programming**	**Basic**		✓						

	ARC 418	Physics (6)	Basic		✓	✓					✓
	STR 417	Steel Structures	Basic	✓		✓					
		Second Semester									
	ARC 411	Architectural Design (4)	Basic	✓	✓		✓	✓	✓	✓	✓
	ARC 422	Physics (7)	Basic		✓	✓					✓
	ARC 424	Theory of Architecture (2)	Basic		✓						
	ARC 425	Contemporary Regional Architecture	Basic		✓						
	ARC 426	Landscape Architecture	Basic	✓	✓		✓	✓	✓	✓	✓
	ARC 427	Architectural Structural Safety	Basic			✓					
	ARC 428	Advanced Construction Techniques	Basic		✓	✓					✓
Fifth Level	ENGE525	Engineering Management	Basic			✓					
	ENGE526	Engineering Economy	Basic			✓					
	ARC541	Graduation Project (1)	Basic	✓	✓	✓	✓	✓	✓	✓	✓
	ARC542	Urban Design	Basic	✓	✓			✓	✓	✓	✓
	ARC543	Estimation and Specifications	Basic			✓					
	ARC544	Computer Aided Design	Basic	✓	✓		✓				
	ARC561	Building Safety Requirements	Optional		✓	✓				✓	✓
	ARC562	Computer Applications	Optional	✓	✓						
	ARC563	Architectural Details	Optional		✓		✓				
	ARC564	Theories of Architecture Criticism	Optional		✓						
		Second Semester									
	ENGE536	Environmental Engineering and Sustainability	Basic		✓	✓					✓
	ENGE539	Smart Building Systems	Basic		✓	✓				✓	✓
	ARC545	Graduation project (2)	Basic	✓	✓		✓	✓	✓	✓	✓
	ARC546	Professional Practice	Basic			✓					

- **Please tick the boxes corresponding to the individual program learning outcomes under evaluatio**

MODULE DESCRIPTION FORM

Bologna track

First Level

Republic of Iraq - Ministry of Higher Education and Scientific Research

University of Mosul

Bachelor's degree in Architectural Engineering (First cycle)

Five years (Ten semesters) - 300 ECTS - Each 1 ECTS = 25 hr.

Program Curriculum (2025 - 2026)

جمهورية العراق - وزارة التعليم العالي والبحث العلمي

جامعة الموصل

بكالوريوس في هندسة العمارة (الدورة الأولى)

خمس سنوات (عشرة فصول دراسية) - 300 وحدة دورية - كل وحدة دورية = 25 ساعة

المنهاج الدراسي لعام 2025-2026

Level	Semester	No.	Module Code	Module Name in English	اسم المادة بالعربية	Language	SSWL (hr/wk) CL (hr/wk)	Lect (hr/wk)	Lab (hr/wk)	Pr (hr/wk)	Tut (hr/wk)	Semin (hr/wk)	Exam (hr/sem)	SSWL h/sem	USSWL h/sem	SWL h/sem	ECTS	Module Type	Prerequisite Module(s) Code
1ST	One	1	ARC 111	Architecture Design and Graphic (1)	التصميم والرسم المعماري (1)	English	2			5			3	125	175	300	12.00	C	
		2	ARC 112	Descriptive geometry & Engineering Drawin	الهندسة الوصفية والرسم الهندسي	English	1			3			3	85	65	150	6.00	B	
		3	ARC 113	Art & Architecture	الفن والعمارة	English	2						3	25	75	100	4.00	C	
		4	ARC 114	Mathematics (1)	الرياضيات (1)	English	2	2			1		3	75	25	100	4.00	B	
		5	UOM 1011	Arabic Language (1)	اللغة العربية (1)	Arabic	2						3	25	75	50	2.00	B	
		6	UOM 1040	Democracy & Human Rights	الديمقراطية وحقوق الانسان	Arabic	2						3	25	75	50	2.00	B	
						Total	11	2	0	8	1	0	18	360	390	750	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة بالعربية	Language	SSWL (hr/wk) CL (hr/wk)	Lect (hr/wk)	Lab (hr/wk)	Pr (hr/wk)	Tut (hr/wk)	Semin (hr/wk)	Exam (hr/sem)	SSWL h/sem	USSWL h/sem	SWL h/sem	ECTS	Module Type	Prerequisite Module(s) Code
1ST	Two	1	ARC 121	Architecture Design and Graphic (2)	التصميم والرسم المعماري (2)	English	2			5			3	125	175	300	12.00	C	
		2	ARC 122	Free Hand Drawing (1)	الرسم الحر (1)	English	1			3			3	85	65	150	6.00	B	
		3	ARC 123	Construction and Building Materials	الانشاء ومواد البناء	English	2			1			3	40	60	100	4.00	C	
		4	ARC 124	Mathematics (2)	الرياضيات (2)	English	2	2			1		3	75	25	100	4.00	B	
		5	UOM 1031	computer (1)	حاسوب (1)	English	2		2				3	50	50	75	3.00	B	
		6	UOM 1021	English Language (1)	اللغة الانكليزية (1)	English	2						3	25	75	50	2.00	B	
						Total	11	2	2	10	1	0	18	400	350	775	31.00		

ARC 111 Architecture Design and Graphic (1)

University of Mosul College of Engineering Architectural Engineering Department

Module Information
معلومات المادة الدراسية

Module Title	**Architecture Design and Graphic (1)**		**Module Delivery**	
Module Type	**C**		☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ARC 111**			
ECTS Credits	**12**			
SWL (hr/sem)	**300**			
Module Level	UG1	**Semester of Delivery**	Fall	
Administering Department	Department of architecture	**College**	College of Engineering	
Module Leader	Ahmed A. Alfakhry	**e-mail**	ahmed.alfakhry@uomosul.edu.iq	
Module Leader's Acad. Title	Assistant Prof.	**Module Leader's Qualification**	Msc.	
Module Tutor	Nasma M. Thabet / Maha A. Sadella / Luma M. Yahya / Russul S. Aloabidi / Marwa Isam / Farah Jalo / Surour N. Thamer / Ghofran Mohammad / Sara Mohammed	**e-mail**		
Peer Reviewer Name		**e-mail**		
Scientific Committee Approval Date		**Version Number**	1.0	

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	• **Theoretical part: Introduction, Primary Elements, Visual proportion of form, Primary shapes, Platonic solid, Regular and irregular forms, Transformation of form, Additive forms, Formal collisions of geometry, Articulation of form, Defining space with horizontal & vertical elements, Closure, Qualities of Architectural Space, Openings in space / Lighting, Spatial Relationships, Spatial Organizations, Circulation, Proportion and Scale, Practice/ Preliminary Presentation Ordering Principles, Practice/ Development Introduce students to the concept of Architecture Design and Graphic in its general and applied context, highlighting its role in the field of architecture.** • **Achieve a comprehensive understanding of Architecture Design and Graphic as an idea and its application in the context of architecture.** • **Understand the relationship between Architecture Design and Graphic and the art of architecture, with a focus on ways to develop Architecture Design and Graphic through architectural work.** • **Familiarize students with Architecture Design and Graphic, including their fundamentals, additionally, students become acquainted with the details related to Architecture Design and Graphic, especially modern systems used in contemporary architectural buildings.** • **Explore a range of Architecture Design and Graphic** • **Open new horizons for students to explore architectural ideas.** • **Enhance the role of students and activate their participation by presenting reports on Architecture Design and Graphic, and buildings. These reports are discussed Architecture Design and Graphic** • **Bridging the Gap between academic theories and practical applications and explore the details of Architecture Design and Graphic in architectural buildings and understanding, helping students enhance their practical and theoretical skills in this field.** • **Inform students – by practice – about:** • **Architectural elements (point, line, plane, & volume) and elements of design (line,** • **direction, shape, size, texture, value, & color) to achieve Unity in design according to** • **design principles.** • **The concepts of mass & space in architectural design** • **Influence of structural principles on architectural composition** • **Influence of human scale and functions on architectural design** • **Local identity in architecture**
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• **Identify the concept of Design and Graphic and its role in Architecture.** • **Understanding the relationship between Architecture Design, Graphic and art in architecture and ways to develop it.** • **Familiarizing students with Architecture Design and Graphic form.** • **Studying architectural projects and their use of Architecture Design and Graphic.** • **Encouraging exploration of architectural ideas and Architecture Design and Graphic development.** • **Enhancing student roles through report presentations and discussions.** • **Linking academic theories with practical applications and providing hands-on exercises.** • **Encouraging active learning and collaborative work among students.** • **Effective communication with Architecture Design and Graphic.** • **Functioning effectively as a team member, providing leadership, collaboration, and goal achievement.** • **Encouraging active learning Architecture Design and Graphic and collaboration through group presentations showcasing students' skills and**

	collective work. • Acquiring and applying new knowledge using Architecture Design and Graphic learning strategies. • Program skill goals: • Practicing exercises and small projects in design studios, Design work in the design studio occupies the main part in the course with a significant role of high-quality. • architectural rendering in presenting results
Indicative Contents المحتويات الإرشادية	• Graphic and the concept of advanced Architecture Design and its relationship to architecture. • The most important elements and principles of advanced Architecture Design and Graphic and their applications in contemporary global projects. • The important elements and principles of advanced Architecture Design and Graphic and its significant classifications. • Important elements and principles of advanced Architecture Design and Graphic materials and their applications in global projects. • Elements and principles of advanced Architecture Design and Graphic, with international examples.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	• Encouraging students' active participation through pre-lecture readings and class discussions about the important elements and principles of advanced Architecture Design and Graphic. • Promoting an interactive learning important elements and principles of advanced Architecture Design and Graphic by implementing reverse learning, where students explore and research the Architecture Design and Graphic, contemporary building elements, and new architectural design principles, leading to discussions and a deeper understanding of the subject matter.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**123**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	**8**
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**177**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	**11.8**
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	300		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative	Quizzes	2	8%	2 ,5	
	Assignments	1	4%	6	
	Projects / Lab.	6	24%	1,2,4, 7,8,9	

assessment	Report	1	4%	3	
Summative assessment	Midterm Exam	1	10%	12	
	Final Exam	1	50%	15	
Total assessment			100%		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Line (free hand drawing)
Week 2	Line (geometrical drawing)
Week 3	Texture
Week 4	Basic geometrical shapes
Week 5	Collage
Week 6	Collage representation exercise by drawing
Week 7	3D form design and composition
Week 8	3D form design and composition
Week 9	3D form design and composition
Week 10	3D form design and composition
Week 11	3D form design and composition
Week 12	3D form design and composition
Week 13	3D form design and composition
Week 14	3D form design and composition
Week 15	

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	• Architecture, Form, Space and Order, Franic Ching, Van Nostrand Reinhold Company, New York, 1996 • Time saver standard • Neufert	
Recommended Texts		
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

اسم وتوقيع صاحب المادة

أ.م. احمد عبد الوهاب الفخري

ARC 112 Descriptive geometry & Engineering Drawing

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Descriptive geometry & Engineering Drawing**			Module Delivery	
Module Type	**S**			☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	**ARC112**				
ECTS Credits	6				
SWL (hr/sem)	**150**				
Module Level	UGI		Semester of Delivery	1	
Administering Department	ARC		College	COE	
Module Leader	Reem Ali Talib Alothman		e-mail	reemalothman@uomosul.edu.iq	
Module Leader's Acad. Title	Teacher		Module Leader's Qualification	Ph.D.	
Module Tutor	Maha Akram		e-mail	E-mail	
Peer Reviewer Name	Name		e-mail	E-mail	
Scientific Committee Approval Date			Version Number	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	• Descriptive Geometry provides training of the students' intellectual capability of space perception and spatial reasoning. • Training the student's mind to visualize imaginary objects and represent them. • The subject aims at developing the skills needed for documenting designs using drawings and for performing graphical analysis of two dimensional and three-dimensional problems. This course develops the ability of the students to understand geometric projection and learn the types of geometric projection. Students will learn how to use deferent drawing scales. The course develops the basic engineering drawing skills in one plane of the students and use drawing tools.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Remember and understand the most ways to draw different shapes. • Comparing the different methods of drawing. • Describe different ways that are used for drawing the same object. • Naming and describing the different scales. • Carrying out the final 2d and 3d drawing of any project. • The use of different architectural drawing tools. Benefit from the ways of drawing in engineering and architectural work after graduation.
Indicative Contents المحتويات الإرشادية	• Indicative content includes the following. • Introducing the engineering drawing subject. • How to draw different shapes. • How to draw 3d models. How to draw projection.

rning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through practical sessions and homework.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**93**	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**57**	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation
تقييم المادة الدراسية

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (10)	5	
	Projects / Lab. Class work	**12**	15% (10)	1,3,7,10,12, 14	
	Projects / Homework	**12**	15% (10)	2,4,6,9,11,13,15	
Summative assessment	Midterm Exam	2 hr	20% (20)	8	
	Final Exam	3 hr	40% (40)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Monge's Orthographic Projection. Defining points for Monge's descriptive geometry analysis
Week 2	Defining lines for Monge's descriptive geometry analysis
Week 3	Solve for various projections (1) such as: True size and shape projections, True angles, Distances between points and lines.
Week 4	Solve for various projections (2) such as: True size and shape projections, True angles, Distances between points and lines.
Week 5	Midterm exam
Week 6	Auxiliary Views. Defining principal views relative to spatial analysis and expanding the principles of basic views to auxiliary view application
Week 7	Introduction and definition of engineering drawing for students, including the following: Learn about engineering tools and how to use them. * Types of pens used in drawing geometric shapes. * Billboard layout and addresses field numbers. * How to deal with the engineering board and the engineering board and how to install it on the board. Types of lines in engineering drawing: visible lines, hidden lines, center lines, dimension lines, cutting lines.
Week 8	Various engineering operations:

	* Introducing the drawing scale and its types: civil, mechanical, zoom-in and zoom-out scale. Teach students how to apply and draw the following engineering operations: * Drawing a straight line parallel to a known straight line from a point outside it. * Drawing a perpendicular bisector of a known straight line Draw tangents and learn about tangent points and how to locate them
Week 9	Various engineering operations * Draw a known arc so that it touches two known lines between which there are angles: right, acute and obtuse. * Finding the center of a known arc tangent to a known straight line and a known circle arc, inner circle arcs, and outer circle arcs. * Finding the center of a known arc that touches the arc of a known circle and passes through a point outside it. Draw the inverted shape
Week 10	Quiz
Week 11	Perpendicular projection theory of objects * Types of projection in drawing and its practical importance * Projections with vertical rays * Types of projections resulting from vertical projection and approved in the projection of various engineering objects The front, vertical, right side and left side view * How to arrange and draw the projections required for any object on the drawing board
Week 12	Drawing three-dimensional figures * Types of three-dimensional figures and their practical benefits * Isometric
Week 13	Linking the given projections with the process of imagining and drawing the analogous body Drawing axes of measurement and how to put dimensions on them
Week 14	Drawing the deleted third position of the body * How to deduce the omitted location from two known locations of the body Draw the omitted location of objects with inclined surfaces
Week 15	Geometric Sections * Rules for cutting objects * Marking the cut areas and leaving blanks and uncut parts Abnormal areas during cutting that were not marked: the oblique and vertical supports and appendages in the body
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	Material Covered
Week 1	Using the engineering board and install the sheet on the board and use engineering drawings tools.
Week 2	Drawing: visible lines, hidden lines, center lines, dimension lines, cutting lines.
Week 3	Drawing a straight line parallel to a known straight line from a point outside it. Drawing a perpendicular bisector of a known straight line
Week 4	Drawing tangents
Week 5	Quiz
Week 6	Section drawing
Week 7	Arrange and draw the projections required for any object on the drawing board
Week 8	Mid Term Exam
Week 9	Drawing three-dimensional figures
Week 10	Drawing axes of measurement and put dimensions on them
Week 11	Linking the given projections with the process of imagining and drawing the analogous body
Week 12	Drawing the deleted third position of the body
Week 13	Draw the omitted location of objects with inclined surfaces
Week 14	Marking the cut areas and leaving blanks and uncut parts
Week 15	Abnormal areas during cutting that were not marked: the oblique and vertical supports and appendages in the body
Week 16	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	-	No
Recommended Texts	Engineering Drawing and Graphic Technology, By French & Vierk, Twelve tion.	No
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 – 100	Outstanding Performance
	B - Very Good	جيد جدا	80 – 89	Above average with some errors
	C - Good	جيد	70 – 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 – 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 – 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC 113 Art & Architecture

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Art & Architecture**			Module Delivery	
Module Type	C			☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐Practical ☒ Seminar	
Module Code	ARC 113				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	UGI	Semester of Delivery	1		
Administering Department	ARC	College	COE		
Module Leader	Khawola faith mahmoud	e-mail	Khawola.mahmoud@uomosul.edu.iq		
Module Leader's Acad. Title	Assist. prof	Module Leader's Qualification	Ph.D.		
Module Tutor		e-mail			
Peer Reviewer Name		e-mail			
Scientific Committee Approval Date		Version Number	1.0		
Relation with other Modules العلاقة مع المواد الدراسية الأخرى					
Prerequisite module	None	Semester			
Co-requisites module	None	Semester			
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية					
Module Aims أهداف المادة الدراسية	• Introduction to Art and Architecture: The aim of this module is to provide students with a broad understanding of the relationship between art and architecture, and the relations between architecture and other sciences, introducing key concepts and terminology in the field. • Elements of Design: The aim of this module is to introduce students to the fundamental elements of design and how they apply it to both art and architecture. Students will develop an understanding of how these elements contribute to the aesthetics and functionality of architectural design. • Principles of design: : The aim of this module is to introduce students to the Principles of design and Identify and distinguish how the principles of design apply in architecture . Students will develop an understanding of how these Principles contribute to the aesthetics and functionality of architectural design. • Drawing and Visualization: This module aims to develop students' drawing skills specifically for architectural representation. The goal is to enable students to effectively communicate their design ideas through drawings and visualizations. • Space and Scale: This module aims to provide students with an understanding of space and scale in architectural design. Students will learn how to create a sense of space and manipulate the scale in their designs to achieve desired effects. • Architectural composition, types of geometric forms' connections, articulation of forms and corners and their application in art and architecture • Architectural trends and movements in art and architecture, (art nouveau, cubism). • Historical Architectural Styles: This module aims to familiarize students with the major				

	architectural styles throughout history, from ancient to contemporary, enabling them to recognize and analyze different architectural styles and their characteristics. • Materials and Construction: The aim of this module is to introduce students to different construction materials and their applications in architecture. Students will gain knowledge about the properties and characteristics of materials, enabling them to make informed material choices in their designs. • into how technology is shaping the future of architecture and Interior Design: This module aims to introduce students to the principles of interior design within architectural spaces. Students will learn how to create functional and aesthetically pleasing interiors, considering lighting, furniture, and material choices. • Landscape Design and Site Planning: The aim of this module is to provide students with an understanding of landscape design principles and their role in architectural projects. Students will learn how to integrate buildings with the surrounding landscape to create harmonious and sustainable designs. • Architectural Representation: This module aims to develop students' skills in architectural representation, including models, renderings, and digital visualization techniques. The goal is to equip students with effective communication tools to present their design ideas. • Emerging Technologies and Future Trends: This module aims to explore the impact of emerging technologies on architecture and to discuss future trends in the field. Students will gain insights into challenges and opportunities it presents.
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	• Introduction to Art and Architecture: • Understand the relationship between art and architecture. • Use key concepts and terminology related to art and architecture. • Historical Architectural Styles: • Differentiate between major architectural styles throughout history. • Analyze the characteristics and influences of various architectural styles. • Elements of Design: • Apply design principles to create aesthetically pleasing and functional architectural designs. • Drawing and Visualization: • Communicate design ideas effectively through drawings and visualizations. • Space and Scale: • Manipulate spatial qualities and scale in architectural design. • Materials and Construction: • Evaluate construction materials used in architecture. • Make informed material choices for architectural applications. • Sustainable Design and Green Architecture: • Incorporate sustainable design principles and practices in architectural design. • Apply environmentally friendly materials and energy-efficient strategies. • Interior Design: • Apply principles of interior design within architectural spaces. • Landscape Design and Site Planning: • Integrate buildings with the surrounding environment through landscape design. • Architectural Representation: • Present architectural designs effectively using appropriate representation methods. • Emerging Technologies and Future Trends: • Understand the impact of emerging technologies on architecture. • Evaluate and discuss future trends in architecture.

Indicative Contents **المحتويات الإرشادية**	the relationship between art and architecture, major historical architectural styles, elements of design in architecture, drawing and visualization skills, space and scale in architectural design, materials and construction, urban design and planning, sustainable design and green architecture, architectural history, building structures, interior design principles, landscape design and site planning, architectural representation techniques, and emerging technologies and future trends in architecture. These condensed indicative contents provide an overview of the essential topics and concepts that will be covered in the curriculum on art and architecture

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا

Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	33	Structured SWL (h/w) **الحمل الدراسي المنتظم للطالب أسبوعيا**	2
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**67**	Unstructured SWL (h/w) **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	4.7
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**100**		

Module Evaluation
تقييم المادة الدراسية

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4, 13	LO #3, 4, 5, and 6
	Assignments	4	10% (10)	4, 13	LO #3, 4, 5, and 6
	Projects / Lab.	**1**	10% (10)		
	Exam		10%(10)		
Summative assessment	Midterm Exam	1 hr	10% (10)	8	1,2,3,4,6,14
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	• Introduction to Art and Architecture • Overview of the course and its objectives • Understanding the basic principles of art and architecture • Exploring the relationship between art and architecture • Exploring the relationship between architecture and other sciences
Week 2	• Elements of Design • Introduction to the elements of design (line, shape, form, color, texture, etc.) • Understanding how these elements apply to both art and architecture. • Examples of how artists and architects utilize these elements in their work.
Week 3	• Principles of design • Introduction to the Principles of design (identical , similarity, contrast, Gradation, dominance, Balance, unity, etc.). • Understanding how these Principles apply to architecture. • Identify and distinguish how the principles of design apply in architecture
Week 4	• Drawing Fundamentals for Architects

	• Importance of drawing skills in architecture • Basic drawing techniques and exercises for architectural representation • Introduction to architectural drafting tools and conventions
Week 5	• Understanding Space and Scale, proportion • Exploring the concepts of space and scale in art and architecture • Techniques for creating a sense of space in architectural design. • Examining how artists play with scale in their works
Week 6	• Architectural composition • types of geometric forms' connections • articulation of forms and corners and their application in art and architecture
Week 7	• Architectural trends and movements in art and architecture, (art nouveau, cubism).
Week 8	• Mid Term Exam
Week 9	• Color Theory and Application • Basics of color theory and its significance in art and architecture • Exploring color palettes and their emotional impact on architectural spaces • Case studies of buildings that effectively use color in their design.
Week 10	• Architectural Styles: From Classical to Contemporary • Introduction to various architectural styles throughout history • Overview of classical architecture (Greek and Roman) • Exploration of modern and contemporary architectural styles
Week 11	• Introduction to Interior Design • Exploring the principles of interior design in architectural spaces • Understanding the role of lighting, furniture, and materials in interior design • Case studies of well-designed interiors
Week 12	• Landscape Design and Site Planning • Introduction to landscape design principles • Understanding the relationship between buildings and their surroundings • Case studies of landscape architecture projects
Week 13	• Architectural Representation: Models and Visualization • Introduction to architectural models and their role in design • Exploring different visualization techniques (renderings, digital modeling, etc.) • Understanding the importance of effective communication in architectural representation
Week 14	• Sustainable Design and Green Architecture • Introduction to sustainable design practices in architecture • Exploring environmentally friendly materials and energy-efficient strategies • Case studies of green buildings and their sustainable features
Week 15	• Future Trends in Architecture • Exploring emerging technologies and their impact on architecture • Trends in sustainable design, smart cities, and adaptive reuse • Discussion on the future challenges and opportunities in the field of architecture
Week 16	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	• Architecture, Form, Space and Order / Francis Ching/1996 • The Art of Color and Design / Maitland Graves/1951 • Launching Imagination / Mary Stewart/2006	Yes

	• مباديء في الفن والعمارة /شيرين احسان شيرزاد/1985	
Recommended Texts	• "A Global History of Architecture" by Francis D. K. Ching, Mark M. Jarzombek, and Vikramaditya Prakash • "The Story of Art" by E.H. Gombrich • "Architecture: Form, Space, and Order" by Francis D. K. Ching • "Architecture: A World History" by Daniel Borden, Jerzy Elzanowski, and Joni Taylor • The Metropolitan Museum of Art's website (www.metmuseum.org) for online exhibits and resources on art and architectural history. (www.getty.edu/education) for educational resources on art and architecture. • The National Gallery of Art's website (www.nga.gov) for virtual tours and educational materials on art history. • Architectural Review (www.architectural-review.com) • Architectural Digest (www.architecturaldigest.com) • Journal of Architectural Education (www.tandfonline.com/toc/uarc20/current)	No
Wbsites	• The Artstor Digital Library (www.artstor.org) for high-quality images of artworks, architectural drawing • s, and historical photographs. • Google Arts & Culture (artsandculture.google.com) for virtual tours, high-resolution images, and educational resources on art and architecture. • Coursera (www.coursera.org) and edX (www.edx.org) offer online courses on art history, architectural design, and related topics. • The Architectural Association School of Architecture (www.aaschool.ac.uk) offers online courses and lectures on architecture and design.	

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 – 100	Outstanding Performance
	B - Very Good	جيد جدا	80 – 89	Above average with some errors
	C – Good	جيد	70 – 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 – 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 – 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

UOM 1011 Arabic Language

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Arabic Language**			Module Delivery	
Module Type	B			☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐Practical ☒ Seminar	
Module Code	UOM 1011				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	UGI		Semester of Delivery	1	
Administering Department	ARC		College	COE	
Module Leader	Khalid Altai		e-mail		
Module Leader's Acad. Title	Lecturer		Module Leader's Qualification	**Ph.D.**	
Module Tutor			e-mail		
Peer Reviewer Name			e-mail		
Scientific Committee Approval Date			Version Number	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	• **This course aims to introduce students to the importance of the Arabic language in university education by discussing a range of vocabulary and concepts used in undergraduate teaching. It also seeks to raise awareness of the importance of using correct grammatical rules in writing reports and lectures.**
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• **Introducing students to the importance of language** • **A general theoretical and review-based introduction to the divisions of the Arabic language** • **Introducing the components of the sentence and the classification of speech** • **Presenting the types of sentences in Arabic and highlighting rhetorical (insha'i) styles** • **An introduction to the structure of Arabic grammar and how texts are formed, with discussion of the relationship between form and meaning** • **Exploring form and content based on binary oppositions derived from the philosophy of reality** • **An introduction to the study of poetry and an overview of some of its techniques**
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**			
Student Workload (SWL) **الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا**			
Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	33	Structured SWL (h/w) **الحمل الدراسي المنتظم للطالب أسبوعيا**	2
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**67**	Unstructured SWL (h/w) **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	4.7
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**50**		

Module Evaluation **تقييم المادة الدراسية**					
As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4, 13	LO #3, 4, 5, and 6
	Assignments	4	10% (10)	4, 13	LO #3, 4, 5, and 6
	Projects / Lab.				
	Exam				
Summative assessment	Midterm Exam	1 hr	10% (10)	8	1,2,3,4,6,14
	Final Exam	3 hr	70% (70)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) **المنهاج الاسبوعي النظري**	
Week	Material Covered
Week 1	Introducing literary terms such as rhythm, prosody, the unity of the poetic verse, the unity of the Arabic poem, and its vertical system
Week 2	Introducing literary terms such as rhythm, prosody, the unity of the poetic verse, the unity of the Arabic poem, and its vertical system
Week 3	Literary samples
Week 4	Literary samples
Week 5	Moving beyond the vertical poetic system to free verse, presenting the idea of transformation, and linking it with traditional and modern structural systems through the terms classical and modernist
Week 6	Moving beyond the vertical poetic system to free verse, presenting the idea of transformation, and linking it with traditional and modern structural systems through the terms classical and modernist
Week 7	The semiotics of the title as an important entry point in the critique of architectural designs
Week 8	Midterm Exam
Week 9	Presenting repetition as a mechanism in the construction of the literary text
Week 10	Presenting repetition as a mechanism in the construction of the literary text
Week 11	Distinguishing between repetition and parallelism and explaining the role of parallelism in text construction
Week 12	Distinguishing between repetition and parallelism and explaining the role of parallelism in text construction
Week 13	Irony and sarcasm as literary concepts and how they enter into architectural art in terms of

	critique and reception
Week 14	Irony and sarcasm as literary concepts and how they enter into architectural art in terms of critique and reception
Week 15	The concept of the receiver in Reception Theory by Jakobson
Week 16	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts		
Recommended Texts		
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 – 100	Outstanding Performance
	B - Very Good	جيد جدا	80 – 89	Above average with some errors
	C – Good	جيد	70 – 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 – 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 – 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC 114 Mathematics (1)

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Mathematics (1)**			**Module Delivery**	
Module Type	**B**			☒ ☒ **Theory** ☐ ☒ **Lecture** ☐ ☐ **Lab** ☐ ☒ **Tutorial** ☐ ☐ **Practical** ☐ ☐ **Seminar**	
Module Code	**ARC 114**				
ECTS Credits	**4.0**				
SWL (hr/sem)	**100**				
Module Level	**UGI**	**Semester of Delivery**	**1**		
Administering Department	**ARC**	**College**	**COE**		
Module Leader	**Tuqa Waleed**	**e-mail**	**new.matrix242@uomosul.edu.iq**		
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**M.Sc.**		
Module Tutor		**e-mail**			
Peer Reviewer Name		**e-mail**			
Scientific Committee Approval Date		**Version Number**	**1.0**		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**None**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	**1. Provide the fundamental concepts for elementary mathematics.** **2. Use the mathematical functions like trigonometric functions and application of derivatives to solve some Engineering problems.**
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**At the end of this course, students will have:** **1. Recognizing different types of matrices and their properties.** **2. Applying matrix operations to solve system of linear equations.** **3. Gaining knowledge of the Basic 2D Curves drawing using shifting properties.** **4. Understanding the concepts of limits and continuity.**

	5. **Learning how to use the power, product, quotient and chain rule to differentiate functions and algebraic trigonometric functions.** 6. **Being able to apply the differentiation to solve engineering problems.**
Indicative Contents المحتويات الإرشادية	**Indicative content includes the following:** **Types of Matrices, operations, sum, multiplication by scalar, multiplication between two matrices. Determinants, the adjoint of matrix, inverse of matrix and solving systems of linear equation using matrices. [15 hrs].** **Prerequisites for calculus, coordinates and graphs in the plane. Slope and equations for lines, functions and their graphs. Shifts, circles and parabolas and a review of trigonometric functions. [15 hrs].** **Limits and continuity, introduction to limit, The sandwich theorem and $\frac{\sin\theta}{\theta}$, limits involving infinity and continuous functions. [15 hrs]** **Derivatives, slopes, tangent lines and derivatives. Differentiations rules, derivatives of trigonometric functions. The chain rule, implicit differentiation and fractional powers. [15 hrs]** **Applications of derivatives, related rates of change. Maxima, minima, curve sketching with y' and y''. Graphing of rational functions, asymptotes and optimization. [15 hrs].**
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	**The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.**

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**78**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	**5**
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**22**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	**1.46**
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**100**		

Module Evaluation تقييم المادة الدراسية					
As		**Time/ Number**	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	**3**	**30% (30)**	**3,6 and 9**	**LO #(1, 2),(3) and (5,6).**
	Assignments	**5**	**5% (5)**	**3,6 ,9,11,13**	**LO # 1-6**
	Projects / Lab.				
	Report	**1**	**5% (5)**		
Summative assessment	**Midterm Exam**	**1 hr**	**10% (10)**	**8**	**LO # 1-4**
	Final Exam	**3 hr**	**50% (50)**	**16**	**All**
Total assessment			**100% (100 marks)**		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	• **Matrices types (square, diagonal, symmetric) and operations (addition, scalar multiplication, matrix multiplication).**
Week 2	• **Determinants (2×2, 3×3), the adjoint and the inverse of matrix.**
Week 3	• **Solving linear systems (Cramer's Rule, Gaussian elimination).**
Week 4	• **Coordinates, graphs, line equations (slope-intercept, point-slope).**
Week 5	• **Functions (polynomial, piecewise, trigonometric) and their graphs.**
Week 6	• **(Shifts, scaling and symmetry), circles and parabolas.**
Week 7	• **Introduction to limits (tables/graphs), GeoGebra: Interactive limit explorations.**
Week 8	**The sandwich theorem and $\frac{\sin\theta}{\theta}$.**
Week 9	• **Limits at infinity, continuity (Intermediate Value Theorem).**
Week 10	• **Definition of derivatives (slope, tangent lines).**
Week 11	• **Differentiation rules and Trigonometric derivatives.**
Week 12	**The chain rule, implicit differentiation.**
Week 13	**Applications of derivatives and related rates of change.**
Week 14	• **Extrema (first/second derivative tests), Rational functions graphing and Asymptotes.**
Week 15	**Optimization and Antiderivatives.**
Week 16	**Preparatory week before the final exam.**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	**Material Covered**
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	**Thomas__Calculus_Addison-Wesley; 11th edition (January 1, 2004)**	**No**
Recommended Texts	**Calculus and Analytic Geometry 1 by Purcell,1972.**	**No**
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A - Excellent**	امتياز	**90 - 100**	**Outstanding Performance**
	B - Very Good	جيد جدا	**80 - 89**	**Above average with some errors**
	C - Good	جيد	**70 - 79**	**Sound work with notable errors**
	D - Satisfactory	متوسط	**60 - 69**	**Fair but with major shortcomings**
	E - Sufficient	مقبول	**50 - 59**	**Work meets minimum criteria**
Fail Group (0 – 49)	**FX – Fail**	راسب (قيد المعالجة)	**(45-49)**	**More work required but credit awarded**
	F – Fail	راسب	**(0-44)**	**Considerable amount of work required**

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

UOM 1040 Democracy & Human Rights

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Democracy and Human Rights**			Module Delivery	
Module Type	B			☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOM 1040				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	UGI	Semester of Delivery	1		
Administering Department	ARC	College	COE		
Module Leader	Abdullah Fathi	e-mail			
Module Leader's Acad. Title	Assistant lecturer	Module Leader's Qualification	MSc		
Module Tutor		e-mail			
Peer Reviewer Name		e-mail			
Scientific Committee Approval Date		Version Number	1.0		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	None
Co-requisites module	None	Semester	None

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	• The aim of studying the democracy and human rights topics is to: • Understand the concept of human rights and explore their sources, including international, regional, national, and religious sources. • Define administrative corruption, explore its types, and understand its detrimental effects on society. Study methods to combat administrative corruption and promote transparency, accountability, and good governance. • Trace the historical development and evolution of human rights, examining key milestones and movements that have shaped the modern understanding of human rights. • Differentiate between different categories of human rights, including civil and political rights, economic and social rights, and environmental, cultural, and developmental rights. • Explore legal, institutional, and societal guarantees to prevent human rights violations, including guarantees of human rights in Islam, national-level protections, and international safeguards. • Comprehend the concept of democracy, including its principles, values, and various forms of democratic governance such as direct, semi-direct, indirect, and digital democracy. • Overall, studying these topics aims to develop a comprehensive understanding of human rights, democracy, and combating corruption, empowering individuals to actively promote and protect human rights and democratic values in society.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• After these module aims, students should be able to: • Demonstrate a comprehensive understanding of the concept of human rights and their sources, including international, regional, national, and religious sources. • Identify and explain the fundamental characteristics of human rights, such as universality, indivisibility, interdependence, and inalienability.

	• Analyze the historical emergence and evolution of human rights, including key milestones and movements that have shaped their development. • Differentiate between different categories of human rights, including civil and political rights, economic and social rights, and environmental, cultural, and developmental rights. • Evaluate and apply legal, institutional, and societal guarantees to prevent human rights violations, considering guarantees in Islam, at the national level, and within the international framework. • Understand and discuss the concept of democracy, including its principles, values, and different forms of democratic governance. • Evaluate the Islamic stance on democracy and engage in critical analysis of the strengths and weaknesses of the democratic system. • Recognize and assess the impact of administrative corruption on society and propose methods to combat and prevent corruption in administrative systems. • Demonstrate critical thinking skills by analyzing and evaluating different perspectives on human rights, democracy, and corruption. • Apply acquired knowledge and skills to promote and protect human rights, democracy, and good governance in personal, professional, and civic contexts. • Overall, students should have a solid understanding of democracy and human rights, democracy, and corruption issues, and be able to apply this knowledge to contribute to the advancement of human rights and democratic values in society.
Indicative Contents **المحتويات الإرشادية**	The indicative content includes: 1. Definition and sources of democracy and human rights (international, regional, national, religious). [3h] 2. Characteristics of democracy and human rights: universality, indivisibility, interdependence, inalienability. [3h] 3. Emergence and evolution of human rights: historical development, key milestones, influential movements. [3h] 4. Types of human rights: civil and political, economic and social, environmental, cultural, and developmental. [3h] 5. Guarantees to prevent human rights violations: legal, institutional, societal safeguards, Islamic guarantees, national and international levels. [3h] 6. Concept of democracy: principles, values, forms of governance (direct, semi-direct, indirect) [3h] 7. Islamic stance on democracy: compatibility, strengths, weaknesses. [3h] 8. Critique of the democratic system: analysis of strengths and weaknesses. [3h] 9. Administrative corruption: definition, types, societal impact. [3h] 10. Methods to combat administrative corruption. [3h]
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	• When it comes to learning and teaching strategies for a human rights module, there are several approaches can be taken to enhance understanding and engagement. Here are some effective strategies: • Interactive Discussions: Encourage students to actively participate in discussions, debates, and group activities. This promotes critical thinking, allows for different perspectives to be shared, and fosters a deeper understanding of human rights issues. • Case Studies: Present real-life case studies that highlight human rights violations or achievements. Analyzing these cases helps students apply theoretical concepts to practical situations and develops their problem-solving skills. • Research Projects: Assign research projects on specific human rights topics or issues. This encourages independent learning, critical analysis, and the development of research skills. • Collaborative Learning: Foster collaboration among students through group projects or assignments. This encourages teamwork, peer learning, and the exchange of diverse

	perspectives. • Assessment Variety: Use a variety of assessment methods, including essays, presentations, debates, and quizzes, to assess students' understanding of human rights concepts and their ability to apply them to real-world situations.

Student Workload (SWL) **الحمل الدراسي للطالب**			
Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**32**	Structured SWL (h/w) **الحمل الدراسي المنتظم للطالب أسبوعيا**	2.3
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**18**	Unstructured SWL (h/w) **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	1.2
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**			

odule Evaluation
تقييم المادة الدراسية

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #2, 4, 6 and 8
	Assignments	2	10% (10)	3, 5, 8, 11, 13	LO # 1, 3, 7, 6, 9 and 10
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 2,4,5,7,9and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Definition of human rights and sources of rights (international sources / regional sources / national sources / religious sources).
Week 2	Characteristics of human rights.
Week 3	The emergence and evolution of human rights.
Week 4	Types of human rights / civil and political rights. Economic and social rights. Environmental, cultural, and developmental rights.
Week 5	Guarantees to prevent human rights violations / guarantees of human rights in Islam.
Week 6	Guarantees for the protection of human rights at the national level.
Week 7	Guarantees of human rights at the international level.
Week 8	The concept of democracy.
Week 9	Characteristics of a democratic system.
Week 10	Forms of democratic governance (direct democracy / semi-direct democracy / indirect democracy).
Week 11	Digital democracy / definition and advantages and disadvantages of digital democracy / manifestations of digital democracy.
Week 12	The Islamic stance on democracy.
Week 13	Critique of the democratic system.
Week 14	Administrative corruption / definition and types.
Week 15	Methods to combat administrative corruption.
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر		
Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	ضمانات حقوق الانسان وحمايتها وفقا للقانون الدولي والتشريع الوطني / نبيل عبد الرحمن ناصر الدين	No
Recommended Texts	الديمقراطية وحقوق الانسان / د. امير عبد العزيز	No
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC 121 Architecture Design and Graphic (2)

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Architecture Design and Graphic (2)**			**Module Delivery**	
Module Type	**C**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ARC 121**				
ECTS Credits	**12**				
SWL (hr/sem)	**300**				
Module Level	UGI	**Semester of Delivery**	spring		
Administering Department	Department of architecture	**College**	College of Engineering		
Module Leader	Ahmed A. Alfakhry	**e-mail**	ahmed.alfakhry@uomosul.edu.iq		
Module Leader's Acad. Title	Assistant Prof.	**Module Leader's Qualification**	Msc.		
Module Tutor	Nasma M. Thabet / Maha A. Sadella / Luma M. Yahya / Russul S. Aloabidi / Marwa Isam / Farah Jalo / Surour N. Thamer / Ghofran Mohammad / Sara Mohammed	**e-mail**			
Peer Reviewer Name		**e-mail**			
Scientific Committee Approval Date		**Version Number**	1.0		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	• **This course aims to teach students the basic principles of architectural design and presentation through introduces the student to methods of graphic representation essential to design professionals in the built environment. Design representation is taught both as a craft and as a method of thinking.** • **Types of representation include freehand drawing (drawing from observation and from the imagination); analytic diagramming (the two-dimensional representation of an idea or process);** • **illustration graphics (symbolic representation), and technical drafting (conventions of plan, section, elevation and axonometric). Students will be exposed to analog (pencil-and-paper) and digital tools.** • **The method of instruction will emphasize application of representation skills in response to project assignments**
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• **The purpose of this course also is to provide students with the necessary scientific and logical justification for the studied architectural as well as the exercises on which they depend.** • **General skills and other skills related to portability (Personal employment and development).** • **Teamwork within the group. Personal development through ethical values in dealing with, and respect for the other opinion.** • **Personal development through building the general and professional cultural background of the profession. Interaction with teaching staff as a guide educational and administrative educational process.**
Indicative Contents المحتويات الإرشادية	• **Determine Creative thinking to apply design principles of composition and to deal with the level of mass and architectural space. Introduce opinions and deduce the nature of the application of design principles and the use of design elements in the studied architectural practice that achieve a collective agreement.** • **Self-learning skill through self-reliance in the conclusion of solutions to design problems and knowledge. Based on the students' criticism and follow-up by the teaching staff to ensure that the talents and abilities of the students are exploited and utilized to achieve the objectives of the educational program.**

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	**The main strategy that will be adopted in delivering this module is to encourage students‟ participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.**

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**123**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	**8**
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**177**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	**11.8**
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	300		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	8%	2 ,5	
	Assignments	1	4%	6	
	Projects / Lab.	6	24%	1,2,4, 7,8,9	
	Report	1	4%	3	
Summative assessment	Midterm Exam	1	10%	12	
	Final Exam	1	50%	15	
Total assessment			100%		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Human scale
Week 2	Architectural scale
Week 3	Residential furniture standards
Week 4	Residential furniture standards
Week 5	Residential furniture standards
Week 6	Residential unit design
Week 7	Residential unit design
Week 8	Residential unit design
Week 9	Residential unit design
Week 10	Residential unit design
Week 11	Residential unit design
Week 12	Residential unit design
Week 13	Residential unit design
Week 14	Residential unit design
Week 15	Residential unit design

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	• Architecture, Form, Space and Order, Franic Ching, Van Nostrand Reinhold Company, New York, 1996 • Time saver standard • Neufert	
Recommended Texts		
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

اسم وتوقيع صاحب المادة

أ.م. احمد عبد الوهاب الفخري

ARC 122 Free Hand Drawing (1)

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Free Hand Drawing (1)**			Module Delivery	
Module Type	S			☐Theory ☒ Lecture ☐ Lab ☐Tutorial ☒Practical ☐ Seminar	
Module Code	ARC 122				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	UGI		Semester of Delivery	2	
Administering Department	ARC		College	COE	
Module Leader	Ahmed Yaroub Ghanem Tohala		e-mail	ahmadtohala@uomosul.edu.iq	
Module Leader's Acad. Title	Lecturer		Module Leader's Qualification	PhD.	
Module Tutor	Rawia Dabdoob		e-mail	rawia.dabdoob@uomosul.edu.iq	
Peer Reviewer Name	Name		e-mail	E-mail	
Scientific Committee Approval Date			Version Number	1.0	
Relation with other Modules العلاقة مع المواد الدراسية الأخرى					
Prerequisite module	None		Semester		
Co-requisites module	None		Semester		
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية					
Module Aims أهداف المادة الدراسية	The free hand drawing curriculum for the architecture student aims at several important goals for the formation of the architect during his academic years, which go beyond learning the means and techniques of free hand drawing to develop visual perception and a mature architectural engineering vision of the world, which is very important for the architect, including: • The balance of vision and the development of artistic taste for objects and formations • Exercising the sense of sight on the vision and linking it to previous information about the theory of perspective to form thought, perception and visualization of that form. • Exercising the hand on expression by creating a harmonious relationship between the vision, the brain and the hand to express the visual perception of the world. • Learn the method of measurement of proportions and proportions using hand, pen and sight • Recognize the differences between the values of light, shade and shadows in the theory of perspective and learn to express them. • Learn the methods and techniques of drawing with different materials such as pencils and colors • Developing the ability to see the elements of artistic formation, such as lines, shapes, sizes, textures and directions, and analyze them in the model. • Developing self-reliance in the process of vision and expression through a series of drawing exercises that range in difficulty from simple shapes to more complex ones. • Obtaining a musical visual vision that will be important and useful for future architecture students				

Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	• Aesthetic artistic taste through a musical vision of different shapes and configurations. • Learn the theory of perspective, which is the basis for visual perception of the world. • Create a harmonious relationship between vision, brain and hand for expression and the ability to express architectural ideas through free hand drawing. • Using the measurement method for proportions and proportions by hand, pen, and sight • Realizing the differences in light values in the theory of perspective and being able to express them. • Acquire the skills of using different drawing methods and techniques. • The artistic vision of the elements of the artistic composition, such as lines, shapes, sizes, textures, directions, and their analysis in the model.
Indicative Contents **المحتويات الإرشادية**	• Visual perception of different shapes from the perspective of the concept of perspective and its concepts. • Proportions in dimensions and shapes and measuring them by hand, pen, and vision. • Estimating light values, colors, tones, and the differences between them • Derivations of various shapes from the basic cube shape. • The relationship between vision, hand, visual perception, acquisition of vision skill and the ability to express. • Gaining the musical vision of an architecture student through practice and bringing concepts into practice.
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	1 . Giving the student the basic concepts and previous information about the reality that he draws through a model, and then criticizing the drawing so that the student acquires the skill of correct vision and the ability to express. 2 . Diversifying the shapes and configurations of the model and the gradation in the degree of complexity from simple to complex

Student Workload (SWL) **الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا**			
Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**63**	Structured SWL (h/w) **الحمل الدراسي المنتظم للطالب أسبوعيا**	4.2
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**62**	Unstructured SWL (h/w) **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**4.13**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**125**		

Module Evaluation **تقييم المادة الدراسية**					
As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4, 13	LO #1, 2, and 3
	Assignments	1	30% 30)	6	LO #3
	Projects / Lab.	4 hr	30%(30)	12	LO #3 and 4
	Report				
Summative assessment	Midterm Exam	4 hr	15% (15)	15	LO #1-4
	Final Exam	3 hr	15%(15)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	Material Covered
Week 1	Introductory test for know the student aptitude
Week 2	Training for draw lines in different directions
Week 3	Simple model consist of cubes – stage 1
Week 4	Advance model consist of cubes – stage 1
Week 5	General discussion with the student about the drawing and paint
Week 6	Simple model consist of circle shapes & cylinders – Stage 1
Week 7	Simple model consist of circle shapes & cylinders – Stage 2
Week 8	Simple model consist of circle shapes & cylinders – Stage 3
Week 9	Simple model consist of oblique cubes – stage 1
Week 10	Simple model consist of oblique cubes – stage 2
Week 11	Simple models consist of potteries
Week 12	simple models consist of irregular forms1
Week 13	Advance model consist of irregular forms2
Week 14	General discussion with the student about the drawing and paint
Week 15	Final submission
Week 16	Final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Drawing – a creative process, Francis d. k. Ching , john Wiley & sons , inc. , 1990 Drawing outdoor , henry c. pits , Watson- Guptill publications , 1965 , new York How to paint and draw , Bodo w. Jax Heimer , Thames and Hudson , 1962 , London Watercolor technique , rex Brandt , sixth edition , Reinhold publishing corporation , 1963	No
Recommended Texts		No
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	قيد المعالجة(راسب)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC 123 Construction and Building Materials

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Construction and Building Materials**			Module Delivery	
Module Type	**Core**			☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**ARC 123**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	UGI		Semester of Delivery	10	
Administering Department	Architectural Engineering		College	College of Engineering	
Module Leader	Roaa suhail				
Module Leader's Acad. Title	teacher		Module Leader's Qualification	MSc.	
Module Tutor	Adil Khalil Qasim		e-mail	adil.khalil@uomosul.edu.iq	
Peer Reviewer Name			e-mail		
Scientific Committee Approval Date			Version Number	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	Building Construction	Semester	Three

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	• Learning the fundamentals of construction materials, their architectural properties, and methods of their application • Understanding the basic principles of construction • Application of construction methods for load-bearing walls
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of the course, the student will be able to: • Explain the stages of building construction and its main components. • Identify the properties, types, and uses of construction materials. • Distinguish between different structural systems and architectural elements. • Analyze the relationship between building materials and appropriate construction applications. • Read and interpret basic construction symbols and details. • Apply construction principles in simplified architectural drawings and details. • Prepare brief technical reports on field visits.
Indicative Contents المحتويات الإرشادية	The course provides an introduction to building materials and the stages of building construction, along with an overview of the main building components, including foundations, walls, roofs, and floors. It covers traditional building materials such as brick, stone, and gypsum, in addition to the study of cement and concrete in terms of their components, types, and properties. The course also

	addresses special types of concrete, such as lightweight concrete, hollow concrete, and Thorsten concrete. Furthermore, it introduces metallic and industrial materials such as steel, aluminum, and plastics, alongside a detailed study of structural and architectural elements. It also includes vertical circulation elements such as stairs, ramps, elevators, and escalators, as well as the study of building openings such as doors and windows. The course covers finishing materials and thermal and waterproofing insulation, while training students to read basic construction symbols and details. It also strengthens the practical aspect through field visits to laboratories and construction sites, with the preparation of technical reports based on these visits.

Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	• **Analytical thinking** • **Brainstorming** • **Video-based observations (visual learning method)** • **Problem-solving** • **Critical thinking**

Student Workload (SWL) **الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا**			
Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	48	Structured SWL (h/w) **الحمل الدراسي المنتظم للطالب أسبوعيا**	3.2
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	52	Unstructured SWL (h/w) **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	3.46
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	100		

Module Evaluation **تقييم المادة الدراسية**					
As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	15% (10)	4,13	LO #1,2, and 3
	Assignments	1	15% (10)	6	LO #3
	Projects / Lab.				
	Report	1	10% (10)	5 and 15	
Summative assessment	Midterm Exam	2 hr	20% (20)	15	LO # 1-4
	Final Exam	3 hr	40% (40)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	Material Covered
Week 1	An Introduction about building materials The Stages of the construction of the building, and the components of the building (foundations- Walls- roofs- floors)
Week 2	Construction materials (Brick), building by Brick, constructional Symbols, (Homework)
Week 3	Stone, Types of stones, building by stone, Gypsum. (H.W.)
Week 4	Types of cement and Its properties. Concrete, Types of Concrete and Its Properties, Concrete Components. (Quiz1)
Week 5	A visit to laboratories and sites under construction, (Report)
Week 6	Light and hollow Concrete and Thurstone, industry, components, properties, uses. (H.W.)
Week 7	Steel, Aluminum, Plastic materials
Week 8	Term Exam 1st
Week 9	Foundations, and walls (H.W.)
Week 10	Roofs and Floors (H.W.)
Week 11	Vertical circulation elements (Stairs, Ramps, Escalators, Lifts) (H.W.)
Week 12	Vertical circulation elements (Stairs, Ramps, Escalators, Lifts) (H.W.)
Week 13	Openings (Doors and windows) (Quiz 2)
Week 14	Finishing and Insulation Materials
Week 15	A visit to sites under construction, (Report)
Week 16	Term Exam 2nd

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	• Building Constructions- By Zuhair M. Saco • Building Constructions, Walls and It's Details – By Anees Juaad • Civil Engineering for Architects (Poland)	Yes
Recommended Texts		
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

UOM 1031 Computer (1)

University of Mosul College of Engineering Architectural Engineering Department

Module Information
معلومات المادة الدراسية

Module Title	**Computer 1**	**Module Delivery**	
Module Type	**B**	☒**Theory** ☐**Lecture** ☒**Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	**UOM 1031**		
ECTS Credits	**3**		
SWL (hr/sem)	**75**		

Module Level	1	**Semester of Delivery**	2
Administering Department	Architectural Engineering	**College**	College of Engineering
Module Leader	**Ebtisam Sameer Al Sawaf**	**e-mail**	ebtisamalsawaf@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	Ph.D.
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date		**Version Number**	

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The Module aim is to prepare student to deal with computers. In addition to, teach them on the principles of computers and the Internet's underlying technologies and skills. The course introduces students to the fundamentals of computing, including the use of a variety of different hardware and

	software. Compo merits, and Creating documents using a word processor and creating presentations, Conducting research on the Internet.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	It is expected from the student who passes this module learn the following topics: 1. Introduction to Computer 2. Computer Components: 3. Operating System and Graphical User Interface GUI 4. Word Processing 5. Spread Sheet 6. Presentation Software 7. Introduction to Internet and Web Browsers 8. Communications and Emails 9. Introduction to Cloud Computing and Services
Indicative Contents المحتويات الإرشادية	Introduction to Computer[3 hr] Computer Components[6 hr] Operating System and Graphical User Interface GUI [6 hr] Word Processing [6 hr] Spread Sheet[6 hr] Presentation Software [6 hr] Introduction to Internet and Web Browsers [6 hr] Communications and Emails [3 hr] Introduction to Cloud Computing and Services [3 hr]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the Lab activities, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, laboratory and by considering type of external search involving some of computer technology that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	27	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	1	20% (20)	5	
	Assignments	1	5% (5)	3, 10	
	Lab.	5	10% (10)	Continuous	
	Report	1	5% (5)	12	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	10	
	Final Exam	3hr	50% (50)		
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Computer
Week 2	Computer Components
Week 3	Computer Components (Cont.)
Week 4	Operating System and Graphical User Interface GUI
Week 5	Operating System and Graphical User Interface GUI (Cont.)
Week 6	Word Processing
Week 7	Word Processing (Cont.)
Week 8	Spread Sheet
Week 9	Spread Sheet (Cont.)
Week 10	Presentation Software
Week 11	Presentation Software (Cont.)
Week 12	Monthly Exam
Week 13	Introduction to Internet and Web Browsers

Week 14	Introduction to Internet and Web Browsers (Cont.)
Week 15	Communications and Emails , Introduction to Cloud Computing and Services

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction to Computer
Week 2,3	Computer Components
Week 4,5	Operating System and Graphical User Interface GUI
Week 6,7	Word Processing
Week 8, 9	Spread Sheet
Week 10,11	Presentation Software
Week 12,13	Introduction to Internet and Web Browsers
Week 14	Introduction to Cloud Computing and Services
Week 15	Monthly Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	1.Graham Brown, David Watson, "Cambridge IGCSE Information and Communication Technology", 3rd Edition (2020) 2. Microsoft Office 2019 Step by Step Ist Edition by Curtis Frye & Joan Lambert 3. الخضر على الخضر بحاث " أساسيات الحاسوب" 2016	Available as PDF
Recommended Texts		
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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اسم وتوقيع صاحب المادة
م.د ابتسام سمير ادريس

ARC 124 Mathematics (2)

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Mathematics (2)**			**Module Delivery**	
Module Type	**B**			☒ ☒ **Theory** ☐ ☒ **Lecture** ☐ ☐ **Lab** ☐ ☒ **Tutorial** ☐ ☐ **Practical** ☐ ☐ **Seminar**	
Module Code	**ARC 124**				
ECTS Credits	**4.0**				
SWL (hr/sem)	**100**				
Module Level		**UGI**	**Semester of Delivery**		**2**
Administering Department		**ARC**	**College**	**COE**	
Module Leader	**Tuqa Waleed**		**e-mail**	**new.matrix242@uomosul.edu.iq**	
Module Leader's Acad. Title		**Lecturer**	**Module Leader's Qualification**		**M.Sc.**
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**	**1.0**	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	**None**	**Semester**	**1**
Co-requisites module	**None**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	**3. Provide the fundamental concepts of elementary mathematics for integration.** **2. Use the mathematical integration to find the areas, volumes and the length of the curves.**
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**At the end of this course, students will have:** **7. Understanding and applying the fundamental concepts of integration.** **8. Finding the indefinite integral of a function using substitution techniques.** **9. Being able to solve problems involving applications of integration, such as area between curves, volume of revolutions and length of curves.** **10. Understanding the concept of inverse functions and how they relate the original functions.** **11. Recognizing the relationship between inverse trigonometric functions and their application in solving the problems.**

	12. Applying the techniques of integration to solve integral problems.
Indicative Contents المحتويات الإرشادية	**Indicative content includes the following.** **Integrating and finding the area with respect to x and y axes, definite integrals and indefinite integrals [10 hrs].** **Applications of definite integrals, areas between curves, volumes of solids of revolution, disks and washers, cylindrical shells, length of curves in the plane and areas of surfaces of revolution.** **[20 hrs]** **The calculus of transcendental functions, inverse functions, $\ln x, e^x$ and logarithmic differentiation, general exponential and logarithmic function and the inverse of trigonometric functions.** **[20 hrs]** **Techniques of integration, basic integration formulas, integration by parts, trigonometric integrals, trigonometric substitution, rational functions and partial fractions.** **[25 hrs]**

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	**Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.**

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**78**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	**5**
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**22**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	**1.46**
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**100**		

Module Evaluation
تقييم المادة الدراسية

As		**Time/ Number**	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	**3**	**30% (31)**	**3,6, 10**	**LO #(1, 2),(3) and (6).**
	Assignments	**4**	**4% (4)**	**3,7,9 and 11**	**LO # 1-6**
	Projects / Lab.				

	Report	**1**	**5% (5)**		
Summative assessment	**Midterm Exam**	**1 hr**	**10% (10)**	**9**	**LO # 1-4**
	Final Exam	**3hr**	**50% (50)**	**16**	**All**
Total assessment			**100% (100 Marks)**		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	**Definite integrals and indefinite integrals.**
Week 2	**Integrating and finding the area with respect to x and y axes.**
Week 3	**Application of definite integrals and areas between curves.**
Week 4	**Volumes of solids of revolution: disks and washers methods.**
Week 5	**Cylindrical shells method.**
Week 6	**Length of curves in the plane.**
Week 7	**Areas of surfaces of Revolution.**
Week 8	**The calculus of transcendental functions and inverse functions.**
Week 9	**ln x, e^x and logarithmic differentiation and mid term exam.**
Week 10	**General exponential and logarithmic functions.**
Week 11	**The inverse trigonometric functions and L'Hopital rules.**
Week 12	**Techniques of integration and basic integration formulas.**
Week 13	**Integration by parts.**
Week 14	**Trigonometric integrals, Rational functions and partial fractions.**
Week 15	**Trigonometric substitution.**
Week 16	**Preparatory week before the final exam.**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	**Material Covered**
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	**Thomas__Calculus_Addison-Wesley; 11th edition (January 1, 2004)**	**NO**

Recommended Texts	**Calculus and Analytic Geometry 1 by Purcell,1972.**	**NO**
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A - Excellent**	امتياز	**90 - 100**	**Outstanding Performance**
	B - Very Good	جيد جدا	**80 - 89**	**Above average with some errors**
	C - Good	جيد	**70 - 79**	**Sound work with notable errors**
	D - Satisfactory	متوسط	**60 - 69**	**Fair but with major shortcomings**
	E - Sufficient	مقبول	**50 - 59**	**Work meets minimum criteria**
Fail Group (0 – 49)	**FX – Fail**	راسب (قيد المعالجة)	**(45-49)**	**More work required but credit awarded**
	F – Fail	راسب	**(0-44)**	**Considerable amount of work required**

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

UOM 1021 English language (1)

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**English language (1)**			**Module Delivery**	
Module Type	**B**			☒ ☒ **Theory** □ ☒ **Lecture** □ ☐ **Lab** □ ☐ **Tutorial** □ ☐ **Practical** □ ☐ **Seminar**	
Module Code	**UOM 1021**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level			**Semester of Delivery**		**1.0**
Administering Department	**Architectural Engineering**		**College**	**College of Engineering**	
Module Leader	**Tuqa Waleed**		**e-mail**	**new.matrix242@uomosul.edu.iq**	
Module Leader's Acad. Title	**Lecturer**		**Module Leader's Qualification**		**M.SC.**
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**	**1.0**	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**None**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims **أهداف المادة الدراسية**	**The main Learning Outcomes of English language Beginner module for the first stage is: 1. Developing student´s skills in English language includes the four skills: - Listening objectives: Understand the main points of clear speech. - Reading Objectives: Understand basic language to read any topic on architecture. - Writing Objectives: write simply about familiar and architectural topics. - Speaking Objectives: extended communication skills in education contexts. Reflection on own learning and development and ability to work with, and relate to others. 2. upgrading the quality of architectural educational aiming to obtain academic accreditation.**

Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	**The Module Learning Outcomes aligned with this aim include:** **1. Studying the English language enables students to communicate more effectively with peers from around the world.** **2. Learning English facilitates access to a wide range of architectural information and resources available in English.** **3. Acquiring English language skills enhances employment prospects and boosts students' confidence.** **These outcomes can be achieved through the cognitive domain of Bloom's Taxonomy as follows:** **1. Remembering Vocabulary:** • **Identifying words and understanding their meanings** • **Describing objects or situations** **2. Understanding "Everyday English":** • **Interpreting sentences** • **Explaining the meanings of words** **3. Applying "Spoken Grammar":** • **Comparing grammatical structures** • **Using vocabulary and grammar accurately in sentence formation** • **Applying grammatical rules effectively in writing.**
Indicative Contents **المحتويات الإرشادية**	**Throughout the course, students are expected to develop their speaking skills in both interaction and production, enabling them to handle most everyday situations using basic English. The course is based on the Headway Student's Book, a communicative English program developed by Oxford University. It is further enriched with a range of communicative and business-oriented projects to support the achievement of learning outcomes. The course is designed to enhance students' abilities in reading, writing, listening, and speaking, allowing them to work with longer and more complex texts and tasks. This progression helps build confidence and prepares students to advance to the intermediate level. The syllabus consists of twelve units, each carefully structured to develop the four core language skills, while also giving strong emphasis to grammar, vocabulary, and pronunciation.**

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Learning and teaching strategies are the techniques and approaches instructors use to support student learning and help them achieve the module's intended outcomes. These strategies are designed to engage learners, deepen understanding, and develop their knowledge and skills in an advanced English course. The adopted strategies include: - Lectures and presentations: Core content and instructor explanations are delivered through presentations that introduce essential concepts of English grammar and language skills. - Interactive discussions: Encourage active learning by involving students in class discussions. Instructors lead conversations on specific topics, motivating students to share ideas, ask questions, and consider different viewpoints. - Formative assessment and feedback: Ongoing assessments, such as quizzes and assignments, are used to monitor students' understanding and progress. Timely feedback helps learners recognize areas for improvement and strengthens their learning.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**33**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	**2**
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**17**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	**2**
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**100**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	25% (25)	3,5,10	1,2
	Assignments	2	10% (10)	(3-11)	1,2
	Projects / Lab.				
	Report	1	5% (5)		1,2,3
Summative assessment	Midterm Exam	1 hr	10% (10)	(9)	1,2,3
	Final Exam	3 hr	50% (50)		
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	**Unit 1:** **Getting to know you** **Present, past, future tenses** **Right word, wrong word** **Social expression**
Week 2	**Unite 2:** **Whatever makes** **Present tenses** **Things I like doing** **Making conversation**
Week 3	**Unit 3:** **What´s in the news?** **Past tenses** **Regular and irregular verbs**
Week 4	**Unit 4:** **Eat, drink, and be merry!** **Quantity** **Food ,** **Can you come for dinner?**
Week 5	**Unit 5:** **Looking forward** **Verb patterns, Phrasal verbs,** **Expressing doubt and certainty**
Week 6	**Unit 6:** **The way I see it** **What …. Like?,** **Synonyms, What´s on?**
Week 7	**Unit 7:** **Living history** **Present perfect**

	Word ending, **Word stress, Agree with me**
Week 8	**Unit 8:** **Girls and boys** **have to – should – must** **Things to wear** **At the doctor´s**
Week 9	**Midterm Exam**
Week 10	**Unit 9:** **Time of a story** **Past perfect,** **Narrative tenses** **Joining sentences- conjunctions** **Feelings** **Exclamations with so and such**
Week 11	**Unit 10:** **Our interactive world** **Passives** **Words that go together**
Week 12	**Unit 11:** **Life´s what you make it!** **Present perfect continuous, verbs patterns, used to** **Good news, bad news**
Week 13	**Unit 12:** **First conditional if + will, Might, Second conditional if + will** **Prepositions** **Thank you and goodbye!**
Week 14	**Unit 12:** **Questions & short answers** **Just wondering** **Form: might & might not** **Do you think**
Week 15	**Writing report**
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) **المنهاج الاسبوعي للمختبر**	
Week	**Material Covered**
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources **مصادر التعلم والتدريس**		
	Text	**Available in the Library?**
Required Texts	**John and Liz Soars (2016) New Headway Pre-Intermediate Student's Book Fourth Edition. OXFORD University Press. ISBN : 978-0-19-476966-2**	**No**
Recommended Texts		
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	**التقدير**	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A - Excellent**	**امتياز**	**90 - 100**	**Outstanding Performance**
	B - Very Good	**جيد جدا**	**80 - 89**	**Above average with some errors**
	C - Good	**جيد**	**70 - 79**	**Sound work with notable errors**
	D - Satisfactory	**متوسط**	**60 - 69**	**Fair but with major shortcomings**
	E - Sufficient	**مقبول**	**50 - 59**	**Work meets minimum criteria**
Fail Group (0 – 49)	**FX – Fail**	**راسب (قيد المعالجة)**	**(45-49)**	**More work required but credit awarded**
	F – Fail	**راسب**	**(0-44)**	**Considerable amount of work required**

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MODULE DESCRIPTION FORM

Bologna track

Second Level

Level	Semester	No.	Module Code	Module Name in English	اسم المقرر بالعربية	Language	ESWL (hr/wk)						Exam hr/sem.	ESWL hr/sem	USWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
							CL (hr/wk)	Lect (hr/wk)	Lab (hr/wk)	PI (hr/wk)	Tut (hr/wk)	Semin (hr/wk)							
	Three	1	ARC 211	Architecture Design (1)	التصميم المعماري (1)	English	2			8		1	3	150	147	300	12.00	C	
		2	ARC 212	History of Ancient Architecture	تاريخ العمارة القديمة	English	2						3	25	50	75	3.00	C	
		3	ARC 213	Building Construction	تقنيات البناء	English	2		2				3	50	37	100	4.00	B	
		4	ARC 214	Graphic and Architectural Presentation	الرسم والعرض المعماري	English	1			3			3	50	25	75	3.00	B	
		5	ARC 215	Computer Architectural Drawing (2)	الرسم المعماري بالحاسوب (2)	English	1		3				3	50	37	100	4.00	C	
		6	UOM 2000	Crimes of Baath Regime in Iraq	جرائم حزب البعث في العراق	Arabic	2						3	25	50	75	2.00	B	
		7	UOMD222	English Language (2)	اللغة الانكليزية (2)	Arabic	2						3	25	50	75	2.00	B	
					Total		12	0	5	11	0	1	21	447	303	750	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المقرر بالعربية	Language	ESWL (hr/wk)						Exam hr/sem.	ESWL hr/sem	USWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
							CL (hr/wk)	Lect (hr/wk)	Lab (hr/wk)	PI (hr/wk)	Tut (hr/wk)	Semin (hr/wk)							
	Four	1	ARC 221	Architecture Design (2)	التصميم المعماري (2)	English	2			8		1	3	153	147	300	12.00	C	
		2	ARC 222	Free Hand Drawing (2)	الرسم الحر (2)	English				4			3	50	50	75	3.00	B	
		3	ARC 223	Physics (1)	الفيزياء (1)	English	2		2				3	50	37	100	4.00	C	
		4	ARC 224	Computer Architectural Drawing (3)	الرسم المعماري بالحاسوب (3)	English	1		3				3	50	25	75	3.00	B	ARC 215 Computer Architectural Drawing (2)
		5	ARC 225	Science of Mechanics	علم الستاتيكا	English	2						3	25	50	75	3.00	C	
		6	UOM 2012	computer(2)	الحاسوب (2)	English	2		2				3	50	25	75	3.00	B	
		7	UOM 2013	Arabic Language (2)	اللغة العربية (2)	Arabic	2						3	50	50	100	3.00	B	
					Total		11	0	7	12	0	1	21	471	279	750	30.00		

ARC 211 Architecture Design (1)

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Architecture Design (1)**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ ☒**Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** **Seminar**	
Module Code	**ARC 211**				
ECTS Credits	**12**				
SWL (hr/sem)	**300**				
Module Level	UGII		**Semester of Delivery**	1	
Administering Department	ARC		**College**	COE	
Module Leader	Lect. Dr. Muzahim Muhammed Mustafa		**e-mail**	Mozahim.hadidi@uomosul.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	PhD	
Module Tutor	Lect. Dr. Omar Adil Lect. Dr. Iqbal Salim Younis Lect. Dr. Ibtisam Sameer Idris Asst. Lect. Mohammed Mahfouz Asst. Lect.Marwah Isam Asst. Lect. obay		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. Initiating the students into the basic principles of the design process (collecting information, analysis, synthesis), enabling them to start a design project, to resolve architectural functions and to manipulate architectural form and space within a given context using architectural vocabulary and respecting local architectural identity
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. At the end of the course, the student will be able to acquire the necessary knowledge to design buildings with limited spaces (Villa). 2. The student can make reports related to the analysis of similar examples, standards, and site analysis, in addition to other information about the project. 3. The ability to solve design problems and choose the best alternative in design

Indicative Contents المحتويات الإرشادية	Introduction, Primary Elements, Visual proportion of form, Primary shapes, Platonic solid, Regular and irregular forms, Transformation of form, Additive forms, Formal collisions of geometry, Articulation of form, Defining space with horizontal & vertical elements, Closure, Qualities of Architectural Space, Openings in space / Lighting, Spatial Relationships, Spatial Organizations, Circulation, Proportion and Scale, Practice/ Preliminary Presentation Ordering Principles, Practice/ Development.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	**The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.**

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**143**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	**9**
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**107**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	**7**
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**100**		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	**9hr(3day)**	**30%**	**1-13**	**LO #**
	Assignments	**13**	**10% (10)**	**1-13**	**LO #**
	Projects / Lab.	**3**	**30%**	**5-9-13**	**LO #**
	Report	**3**	**10% (10)**	**2, 3,4**	**LO #1,2,3, 4, 5, and 6**
Summative assessment	**Midterm Exam**	**6 hr(2 Day Sketch every one 3hr)**	**10% (10)**	**6,10**	**LO # 1-7**
	Final Exam	**4 hr**	**20% (20)**	**16**	**All**
Total assessment			**100% (100 Marks)**		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**General Introduction**
Week 2	**Definition and characteristics of the design process**
Week 3	**The design problematic and how to define it using architectural graphics and drawings**
Week 4	**Analysis as an interpreting tool clarifying the problem in relation to the composition**
Week 5	**Analysis using matrices**
Week 6	**architectural spaces adjacency criteria**
Week 7	**Day sketch**
Week 8	**Synthesis – representing matrices using geometrical shapes (the bubble diagram)**
Week 9	**Synthesis – representing matrices using geometrical shapes (the bubble diagram)**
Week 10	**Synthesis - Zoning**
Week 11	**Architectural form and its types**
Week 12	**Interlocking architectural forms**
Week 13	**Treatment of architectural form**
Week 14	**Solid and void**
Week 15	**Horizontal elements defining space**
Week 16	**Vertical elements defining spaces**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	**Architecture, form space & order by Francis D. K. Ching Methods of systematic analysis of design in architecture, By D. Mohamed A. Shihab**	**yes**
Recommended Texts		**No**
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A - Excellent**	امتياز	**90 - 100**	**Outstanding Performance**
	B - Very Good	جيد جدا	**80 - 89**	**Above average with some errors**
	C - Good	جيد	**70 - 79**	**Sound work with notable errors**
	D - Satisfactory	متوسط	**60 - 69**	**Fair but with major shortcomings**
	E - Sufficient	مقبول	**50 - 59**	**Work meets minimum criteria**
Fail Group (0 – 49)	**FX – Fail**	قيد المعالجة(راسب)	**(45-49)**	**More work required but credit awarded**
	F – Fail	راسب	**(0-44)**	**Considerable amount of work required**

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

اسم وتوقيع صاحب المادة

د.مزاحم محمد مصطفى

ARC 212 History of Ancient Architecture

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**History of Ancient Architecture**			**Module Delivery**	
Module Type	**C**			**☒ Theory** **☐ Lecture** **☐ Lab** **☐ Tutorial** **☐ Practical** **☐ Seminar**	
Module Code	**ARC212**				
ECTS Credits	**3.00**				
SWL (hr/sem)	**75**				
Module Level	**UGII**		**Semester of Delivery**	**Three**	
Administering Department	**Architectural**		**College**	**Engineering**	
Module Leader	**Ashraf Ibrahim Mahmood**		**e-mail**	**ashraf.ibrahim@uomosul.edu.iq**	
Module Leader's Acad. Title	**Lecturer**		**Module Leader's Qualification**	**M.Sc.**	
Module Tutor	**Marwah Isam Mohammed**		**e-mail**	**marwah.isam@uomosul.edu.iq**	
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**	**1.0**	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	• Increasing the visual knowledge store about the history of architecture, its stages of development, its characteristics, and advantages. • Preparing architectural graduates according to scientific rules that enable them to practice the profession of architecture in architectural and urban design, city planning, internal and external spaces, and the preservation of heritage and antiquities according to scientific rules and methods.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Students who complete this course will be able to: 1. Gain knowledge about architectural history, including different styles and characteristics of buildings throughout history, through lectures, reading materials, and visual aids such as pictures and videos. 2. Understand and appreciate the importance of architectural style and its impact on society. 3. Apply knowledge and skills to real-world situations and problems in the fields of architecture, town planning, urban planning, interior and exterior spaces, and the preservation of cultural heritage and antiquities. 4. Practice the profession of architects according to scientific rules and methods. 5. Draw inspiration from design features of older buildings for future designs. 6. Use knowledge, skills, and creativity to develop new ideas, products, or solutions by incorporating design features from old buildings into future designs.
Indicative Contents المحتويات الإرشادية	• Introduction to the origins of architecture in early human settlements and primitive societies. • Architectural development in Mesopotamian civilizations (Sumerian, Babylonian, and Assyrian) • Ancient Egyptian architecture, with emphasis on religious buildings, temples and pyramids. • Classical Greek architecture, focusing on orders (Doric, Ionic, Corinthian), proportions, and temple design • Influence of environmental, religious, and socio-cultural factors on architectural form and development in ancient civilizations. • Building materials and construction techniques used in ancient architecture.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	• **Knowledge and Understanding:** Identify key concepts and influences in the history of architecture. Comprehensive research into its development and its cultural, environmental, and historical contexts. Understand the interactions between local and global integration. • **Experimental Technical Analysis:** Analysis of new and innovative elements. Apply research methods to the study and documentation of architecture. Evaluate the value of heritage and propose recommendations for its preservation. • **Research and Technical Skills:** Use digital tools for architectural analysis and documentation. Prepare research reports and critical presentations on the history of architecture. Link historical architecture to contemporary practices. Acquire skills in hand-drawing historical buildings through homework assignments.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.9
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	5	%15(15)	3, 5,6,8 and 11	LO # 1-3
	Assignments	1	20%(20)	2 and 12	LO # 5-6
	Projects / Lab.				
	Report	1	5%(5)	7	LO # 4
Summative assessment	**Midterm Exam**	1 h	10% (10)	9	LO # 1-4
	Final Exam	3 h	50% (50)	16	All
Total assessment			100% (100)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Introduction to ancient Iraqi**
Week 2	**Sumerian Architecture**
Week 3	**Sumerian Architecture**
Week 4	**Old Babylonian Architecture**
Week 5	**Assyrian Architecture**
Week 6	**Assyrian Architecture**
Week 7	**Assyrian Architecture**
Week 8	**Modern Babylonian Architecture**
Week 9	**Ancient Egyptian Architecture**
Week 10	**Ancient Egyptian Architecture**
Week 11	**Ancient Egyptian Architecture**
Week 12	**Students Reports Discussion**

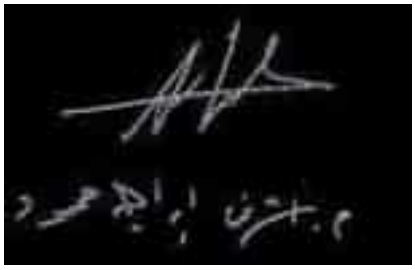
Week 13	**Greek Architecture**
Week 14	**Greek Architecture**
Week 15	**Greek Architecture**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	• **Living in Ancient Mesopotamia**, Bancroft-Hunt, Norman (2009) *Available in the Library?*: No • **Graphic History of Architecture**, John Mansbridge (1967) • **The Art and Architecture of Ancient Egypt**, Smith, William Stevenson (1981) • **Mesopotamia: Ancient Art and Architecture**, Zainab Bahrani (2017) *Available in the Library?*: No • Winter, N. A. (2006). Greek Architectural Terracottas: From the Prehistoric to the End of the Archaic Period. Oxford University Press. • J. J. Coulton. (1977). Ancient Greek Architects at Work. Cornell University Press	No
Recommended Texts	Journal of Ancient Architecture. (n.d.). Ancient Architecture Studies. Retrieved from https://ancientarchitecturejournal.org	No
Websites	Ach net	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	قيد المعالجة(راسب)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.



ARC 213 Building Construction

University of Mosul College of Engineering Architectural Engineering Department

Module Information
معلومات المادة الدراسية

Module Title	**Building Construction**	**Module Delivery**
Module Type	B	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☒ **Practical** ☐ **Seminar**
Module Code	**ARC 213**	
ECTS Credits	**4**	
SWL (hr/sem)	**100**	

Module Level	UGI	**Semester of Delivery**	1
Administering Department	ARC	**College**	COE
Module Leader	Roaa Suhail	**e-mail**	adil.khalil@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	MSc.
Module Tutor	Asst. Lect. Adil Khalil Asst. Lect.Eman Khalid	**e-mail**	adil.khalil@uomosul.edu.iq
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date		**Version Number**	

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	• To familiarize the student with its structural types • To suit the appropriate structural type according to the type and size of the project • To identify the types of simple foundations according to the structural structure and size of the project • To identify the structural structure as load-bearing walls with all its parts • To identify the structural structure (columns and walls) with all its parts
Module Learning Outcomes	• To identify the structural type appropriate for the size of the project • Types of simple foundations according to the structural system of the structural

مخرجات التعلم للمادة الدراسية	system • Detailed dimensions according to the structural structure • The type of roofing appropriate for the dimensions of the space • Method of designing health services sections and their relationship to the structural structure
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	67	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	30% (30)	4,7, 10 and 15	LO #(1, 2),(3),(4) and (5,6).
	Assignments	5	6% (6)	3, ,9,11,13 and 14	LO # 1-6
	Projects / Lab.				
	Report	1	4% (4)	14	LO # 1-6
Summative assessment	**Midterm Exam**	1 hr	10% (10)	9	LO # 1-4
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Determine the project dimensions, type, and function, and design its structural network (a house project with a load-bearing wall system)
Week 2	Draw the foundations in detail with reinforcement
Week 3	Draw the load-bearing walls in the plan
Week 4	Draw the service spaces, including the stairs and bathrooms
Week 5	Draw the ceilings with reinforcement
Week 6	Draw the façade
Week 7	Submit the project

Week 8	Day sketch exam
Week 9	Determine the project dimensions, type, and function, and design its structural network (a shopping mall project with a column and bridge system)
Week 10	Draw the foundations in detail with reinforcement
Week 11	Draw the columns and partitions
Week 12	Draw the service spaces, including the stairs and bathrooms
Week 13	Draw the ceilings and partitions with reinforcement
Week 14	Draw the facade
Week 15	Submit the project
Week 16	Day sketch exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Determine the project dimensions, type, and function, and design its structural network (a house project with a load-bearing wall system)
Week 2	Draw the foundations in detail with reinforcement
Week 3	Draw the load-bearing walls in the plan
Week 4	Draw the service spaces, including the stairs and bathrooms
Week 5	Draw the ceilings with reinforcement
Week 6	Draw the façade
Week 7	Submit the project
Week 8	Day sketch exam
Week 9	Determine the project dimensions, type, and function, and design its structural network (a shopping mall project with a column and bridge system)
Week 10	Draw the foundations in detail with reinforcement
Week 11	Draw the columns and partitions
Week 12	Draw the service spaces, including the stairs and bathrooms
Week 13	Draw the ceilings and partitions with reinforcement
Week 14	Draw the facade
Week 15	Submit the project
Week 16	Day sketch exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts		No
Recommended Texts		No
Websites		

Grading Scheme

مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

UOM 2050 Crimes of Ba'ath Regime in Iraq

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Crimes of Ba'ath Regime in Iraq**			**Module Delivery**	
Module Type	E			☒ ☒ **Theory** ☐ ☐ **Lecture** ☐ ☐ **Lab** ☐ ☒ **Tutorial** ☐ ☐ **Practical** ☐ ☐ **Seminar**	
Module Code	UOM 2050				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	UGII		**Semester of Delivery**	1	
Administering Department	ARC		**College**	COE	
Module Leader	Asst. Lect.Ahmed Khalid		**e-mail**		
Module Leader's Acad. Title			**Module Leader's Qualification**		
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	
Indicative Contents	

المحتويات الإرشادية	

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	32	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	18	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	30% (30)	4,7, 10 and 15	LO #(1, 2),(3),(4) and (5,6).
	Assignments	5	6% (6)	3, ,9,11,13 and 14	LO # 1-6
	Projects / Lab.				
	Report	1	4% (4)	14	LO # 1-6
Summative assessment	**Midterm Exam**	1 hr	10% (10)	9	LO # 1-4
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week 8	
Week 9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	

Week 15	
Week 16	

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		No
Recommended Texts		No
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC 215 Computer Architectural Drawing 2D

University of Mosul College of Engineering Architectural Engineering Department

Module Information
معلومات المادة الدراسية

Module Title	**Computer Architectural Drawing 2D**		**Module Delivery**	
Module Type	**Core**		☒ ☒ **Theory** ☐ ☐ **Lecture** ☐ ☒ **Lab** ☐ ☒ **Tutorial** ☐ ☒ **Practical** ☐ ☐ **Seminar**	
Module Code	**ARC 215**			
ECTS Credits	**4**			
SWL (hr/sem)	**100**			
Module Level	UGII	**Semester of Delivery**	1	
Administering Department	ARC	**College**	COE	
Module Leader	Luma Abdulwahab	**e-mail**		
Module Leader's Acad. Title	Asst. Lect.	**Module Leader's Qualification**		
Module Tutor	**Ebtisam Sameer Al Sawaf**	**e-mail**	ebtisamalsawaf@uomosul.edu.iq	
Peer Reviewer Name		**e-mail**		
Scientific Committee Approval Date		**Version Number**		

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. Develop an understanding of the principles and fundamentals of two-dimensional architectural drawing. 2. Develop practical skills in drawing for exterior and interior architectural design. 3. Teach computer projection using drawing programs. 4. Instilling an understanding of logical thinking using a sequential drawing process.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Basic Concepts: Understanding the basic settings and principles of architectural drawing . • Practical drawing skills as a starting point . • Evaluating drawings . • Communication and discussion among students . • Accuracy and skill in drawing .

	• Collaboration and teamwork . • Evaluating drawings. • Communication and discussion among students • Accuracy and skill in drawing
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	• Learning based on architectural projects and pre-drawn illustrative examples: This strategy encourages students to engage in demonstrating how to draw projects sequentially or by simulating the drawing process. • Follow-up with peers: In this strategy, students form collaborative groups to produce electronic drawings through theoretical conversations among themselves, without direct drawing, to benefit from the close connection between students.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	30% (30)	4,7, 10 and 15	LO #(1, 2),(3),(4) and (5,6).
	Assignments	5	6% (6)	3, ,9,11,13 and 14	LO # 1-6
	Projects / Lab.				
	Report	1	4% (4)	14	LO # 1-6
Summative assessment	**Midterm Exam**	1 hr	10% (10)	9	LO # 1-4
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction, Drawing Settings, Elements, Coordinates, Grid, etc.
Week 2	General Commands for Engineering Drawing (with application)
Week 3	Commands Related to Lines and 2D Shapes (with application)
Week 4	Commands Related to Lines and 2D Shapes (with application)
Week 5	Commands Related to Lines and 2D Shapes 1 (with application)

Week 6	Commands Related to Lines and 2D Shapes 2 First Practical Exam
Week 7	Drawing Commands for Group 2 (with application)
Week 8	Manipulating Ready-Made Shapes and Images (with application)
Week 9	Manipulating Ready-Made Shapes and Images (with application)
Week 10	Layers and 2D Shape Settings 1 (with application)
Week 11	Layers and 2D Shape Settings 2 Semester Theory Exam
Week 12	Dimensions and Measurements (with application)
Week 13	Dimensions and Measurements (with application)
Week 14	Main Tools 2
Week 15	Main Project Printing Final Output (with application) Second Practical Exam
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction, Drawing Settings, Elements, Coordinates, Grid, etc.
Week 2	General Commands for Engineering Drawing (with application)
Week 3	Commands Related to Lines and 2D Shapes (with application)
Week 4	Commands Related to Lines and 2D Shapes (with application)
Week 5	Commands Related to Lines and 2D Shapes 1 (with application)
Week 6	Commands Related to Lines and 2D Shapes 2 First Practical Exam
Week 7	Drawing Commands for Group 2 (with application)
Week 8	Manipulating Ready-Made Shapes and Images (with application)
Week 9	Manipulating Ready-Made Shapes and Images (with application)
Week 10	Layers and 2D Shape Settings 1 (with application)
Week 11	Layers and 2D Shape Settings 2 Semester Theory Exam
Week 12	Dimensions and Measurements (with application)
Week 13	Dimensions and Measurements (with application)
Week 14	Main Tools 2
Week 15	Main Project Printing Final Output (with application) Second Practical Exam
Week 16	Final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts		No
Recommended Texts		No
Websites		

Grading Scheme
مخطط الدرجات

Group	**Grade**	التقدير	**Marks**	**Definition**

			(%)	
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

UOM2022 English language (2)

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**English language (2)**			**Module Delivery**	
Module Type	**B**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOM2022**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	**UGII**	**Semester of Delivery**	**1**		
Administering Department	**Architectural Engineering**	**College**	**College of Engineering**		
Module Leader	Dr. Sabreen Ali	**e-mail**	sabreen.abed@uomosul.edu.iq		
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**PHD**		
Module Tutor		**e-mail**			
Peer Reviewer Name		**e-mail**			
Scientific Committee Approval Date		**Version Number**	**1.0**		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	**The main Learning Outcomes of English language Beginner module for the first stage is:** **Developing student´s skills in English language includes the four skills:** - **Listening objectives: Understand the main points of clear speech.** - **Reading Objectives: Understand basic language to read any topic on architecture.** - **Writing Objectives: write simply about familiar and architectural topics.** - **Speaking Objectives: extended communication skills in education contexts. Reflection on own learning and**

	development and ability to work with, and relate to others. 1. **upgrading the quality of architectural educational aiming to obtain academic accreditation.**
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**The Module Learning Outcomes that serve the aim include:** **1. learning English language may allow students to communicate easily with fellow global students and other counterparts.** **2. learning English language may ease the access to different architectural information and resources in English.** **3. learning English language may improve and widen employment opportunities, and make them more confident.** **Those outcomes can be fulfilled through cognition domain from Blooms Taxonomy as following:** **1. Remembering Vocabulary.** • **Recognizing words and their meanings** • **Describing things or situation** **2. Understanding 'Everyday English'** • **Interpreting sentences** • **Explaining a word meaning.** **3. Applying 'Spoken grammar'** • **Comparing tools grammar** • **Applying tools and words meanings in forming sentences.** • **Carry out tools and grammars in writing.**
Indicative Contents المحتويات الإرشادية	**During the course, students will be able to speak interaction and production objectives, deal with most situations with basic English language. This course adopts Headway Student's Book, hence, is a communicative English language course designed by Oxford University. The course has been supplemented by a variety of communicative and business-related projects to ensure the outcomes of the program. The course aims to further develop students' language skills and strategies in reading, writing, listening, and speaking to a level where they can apply their language skills to longer, more complex material and tasks that help build confidence and prepare students to proceed to intermediate level. The course has twelve units where each is carefully designed to develop students' four main skills. The course also pays good attention to grammar, vocabulary, and pronunciation.**

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	**Learning and teaching strategies refer to instructors' methods and approaches to facilitate student learning and achievement of module learning outcomes. These strategies aim to engage students, promote understanding, and enhance their knowledge and skills in advanced English course. Here are the adopted learning and teaching strategies:** **1. Lectures and presentations: the notes and the instructors are delivered through presentations introducing fundamental knowledge of English grammar and skills.** **2. Interactive discussions: promotes active learning and thinking by engaging students in discussions. Instructors can facilitate class discussions on specific topics, encouraging students to share their insights, ask questions, and explore different perspectives.** **3. Formative Assessments and Feedback: Regular formative assessments, such as quizzes and homework that help instructors gauge students' understanding and progress. Providing timely feedback allows students to identify areas for improvement and reinforces their learning.**

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**33**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	**2**
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**50**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	**2**	**10% (10)**	**3,8**	**1,2**
	Homework assignments	**9**	**27% (27)**	**2,3,4,5,6,7,8,9,11,12,13**	**1,2**

	Discussions& Attendance	**1**	**3% (3)**	**1,2,3,4,5,6,7 ,8,9,11,12,1 3,14,15**	**1,2**
Summative assessment	**Midterm Exam**	**1 hr**	**10% (10)**	**10**	
	Final Exam	**3 hr**	**50% (50)**		
Total assessment			**100% (100 Marks)**		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	**Unit 1: Getting to know you** **Present, past, future tenses** **Right word, wrong word** **Social expression**
Week 2	**Unite 2: Whatever makes** **Present tenses** **Things I like doing** **Making conversation**
Week 3	**Unit 3: What´s in the news?** **Past tenses** **Regular and irregular verbs** **Saying when**
Week 4	**Unit 4: Eat, drink, and be merry!** **Quantity** **Food , Can you come for dinner?**
Week 5	**.Unit 5: Looking forward** **Verb patterns, Phrasal verbs, Expressing doubt and certainty**
Week 6	**Unit 6: The way I see it** **What …. Like?, Synonyms, What´s on?**
Week 7	**Unit 7: Living history** **Present perfect** **Word ending, Word stress, Agree with me**
Week 8	**Unit 8: Girls and boys** **have to – should – must** **Things to wear**

	What things are made of **At the doctor´s**
Week 9	**Unit 9: Time of a story** **Past perfect** **Narrative tenses** **Joining sentences- conjunctions** **Feelings** **Exclamations with so and such**
Week 10	**Midterm Exam**
Week 11	**Unit 10: Our interactive world** **Passives** **Words that go together** **On the phone**
Week 12	**Unit 11: Life´s what you make it!** **Present perfect continuous** **Birth, Marriage, Death** **Good news, bad news**
Week 13	**Unit 12: Just wondering** **First conditional if + will, Might, Second conditional if + will** **Prepositions** **Thank you and goodbye!**
Week 14	**Reading and listening**
Week 15	**Writing report**
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	**John and Liz Soars (2016) New Headway Pre-Intermediate Student's Book Fourth Edition. OXFORD University Press. ISBN : 978-0-19-476966-2**	**No**
Recommended Texts		**No**
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC 214 Graphic and Architectural Presentation

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Graphic and Architectural Presentation**			**Module Delivery**	
Module Type	S			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	**ARC 214**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	UGII		**Semester of Delivery**	1	
Administering Department	ARC		**College**	COE	
Module Leader	Anwar Meshal shareef		**e-mail**	anwar.meshal@uomosul.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**		
Module Tutor	Mafaz Tareq, Aseel Ibrahem ,Rusul saad		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. The subject aims at developing the skills needed for presenting and documenting designs using hand drawings. This course will focus on drawing as a tool of communication through exercises that explore

	design representation using techniques of perspective and shadow.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. . This enables students to develop their drawing, visualization, and representation skills effectively in the architectural design process. 2. . Using drawings and documenting designs manually without the use of a computer, using engineering techniques and rules for drawing perspective and shadow.
Indicative Contents المحتويات الإرشادية	1. Architectural drawing and rendering are methods for depicting and showcasing projects in advanced architectural design. 2. Utilizing shading techniques to depict the facades and surfaces of architectural projects. 3. • Perspective drawing and shading are among the most important elements in drawing and rendering design projects.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	• The main strategy that will be introduced to students is the fundamental principles of architectural drawings of both perspective and shadow • This enables students to develop their drawing, visualization, and representation skills effectively in the architectural design process. • Using drawings and documenting designs manually without the use of a computer, using engineering techniques and rules for drawing perspective and shadow.
Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا	

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	7	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	8%	2-5	
	Assignments	1	8%	6	
	Projects / Lab.	6	24%	1,2,4, 7,8,9	
	Report				

Summative assessment	Midterm Exam	1	10%	12	
	Final Exam	1	50%	15	
Total assessment			100%		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	30% (30)	4,7, 10 and 15	LO #(1, 2),(3),(4) and (5,6).
	Assignments	5	6% (6)	3, ,9,11,13 and 14	LO # 1-6
	Projects / Lab.				
	Report	1	4% (4)	14	LO # 1-6
Summative assessment	Midterm Exam	1 hr	10% (10)	9	LO # 1-4
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	**First Week:** The definition of perspective drawing of cubical forms using rays method.
Week 2	**Second Week:** Drawing perspective of stairs and sloping surfaces an using rays method.
Week 3	**Third Week:** The definition of perspective drawing using measuring points method.
Week 4	**fourth week:** The definition of perspective drawing using a circle of vision.
Week 5	**Fifth week:** Drawing perspective for circle and cylinder.
Week 6	**Sixth week:** The definition of one-point perspective drawing.
Week 7	**Seven week:** The definition of the principles of drawing shade and shadow for cubical forms- isometric and projections.
Week 8	**Eighth week:** Drawing shade and shadow for stairs and inclined surfaces - isometric and projections
Week 9	**Nine week:** Drawing shade and shadow for balconies and openings
Week 10	**Tenth Week:** Drawing shade and shadow for circles and cylinders
Week 11	**Elevan week:** Drawing shade and shadow for cubical perspectives
Week 12	**Twelfth week:**. Drawing window and column shadows
Week 13	**Thirteenth week :** Drawing shade and shadow for balconies and openings
Week 14	**Fourteenth week :** inclined surfaces - isometric and projections
Week 15	**Fifteenth week :** Drawing shade and shadow for house perspectives
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	The definition of perspective drawing of cubical forms using rays method.
Week 2	Drawing perspective of stairs and sloping surfaces an using rays method.
Week 3	Drawing perspective for circle and cylinder.
Week 4	Drawing shade and shadow for stairs and inclined surfaces - isometric and projections.
Week 5	Drawing shade and shadow for balconies and openings
Week 6	Drawing window and column shadows
Week 7	Drawing shade and shadow for balconies and openings

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	A methodological book: Shadow and Perspective - Author: Imad Al-Bakri	
Recommended Texts	Architectural Graphics by Ching,1996	
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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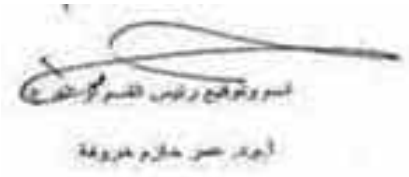

اسم وتوقيع صاحب المادة

انوار مشعل شريف

ARC 221 Architecture Design (2)

University of Mosul College of Engineering Architectural Engineering Department

Module Information
معلومات المادة الدراسية

Module Title	**Architecture Design (2)**		**Module Delivery**	
Module Type	Core		☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	**ARC 221**			
ECTS Credits	**12**			
SWL (hr/sem)	**300**			
Module Level	UGII	**Semester of Delivery**	1	
Administering Department	ARC	**College**	COE	
Module Leader	Lect. Dr. Muzahim Mohammed Mustafa	**e-mail**	Mozahim.hadidi@uomosul.edu.iq	
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	PhD	
Module Tutor	Lect. Dr. Osama Hammadi Lect. Dr. Omar Adil Lect. Dr. Iqbal Salim Younis Asst. Lect. Mohammed Mahfouz Lect. Dr. Ibtisam Sameer Idris Asst. Lect.Marwah Isam Asst. Lect. obay	**e-mail**		
Peer Reviewer Name		**e-mail**		
Scientific Committee Approval Date		**Version Number**		

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	• Enhancing critical thinking and problem-solving skills • Identify characteristics, constraints, and opportunities. • Develop effective communication and presentation skills. • This course is intended to provide skills for designing different projects, with emphasis on detailing, custom designs, materials, etc. The typical route to qualifying is a combination of standards, academic studies and practical work and experience. Initially, a system is required to fulfil certain requirements.

	• This course covers building techniques related to the construction drawing production in order to understand design concepts and procedures. • The purpose of this course is to stimulate students' insights and understandings about different functions buildings and the link between design concept, function, form, and presentation drawings. • Providing the students with an introduction to the basic requirements of the projects for the profession while explaining the basic elements as well as the requirements. • In combination with the teaching package, students learn about the design process; the importance of color and light; other design elements influence such as furniture and materials that are used in the projects. • Covering and satisfying requirements and desires, as well as creating environments with the use of specific equipment and, most importantly, imagination and creativity. • Combining the aesthetic, functional, and philosophical approach to architectural design. • Implementing the elements and principles of design into the project. • The course covers commonly used materials, components, and systems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Ability to gather, analyze, assess, record, apply, and comparatively evaluate relevant information within architectural design processes. • Demonstrate an understanding of principles and practices and integrate and apply that knowledge within architectural design processes. • Ability to develop imaginative and creative thinking. • Students will learn the basics of design including gathering data about the site plot, location, climate, space program, the relation between spaces, materials and finishes, openings such as doors and windows, and analyzing similar examples. • Students will learn how to formulate the concept of the project regarding the elements and principles of design, human needs, and form and function. • Students will learn about the philosophies and techniques for tackling three-dimensional design. • Students combine interdisciplinary talents they currently possess with new design skills. The projects look at concept creation and execution in 2D and 3D drawings including the detailing and furniture. • The student will gain the technical skills needed to express architectural concepts in a clear, efficient, and correct manner. • Students will draw increasingly complicated models and master new shading and color methods. Drawings of buildings and landscapes are also used to create and communicate ideas during the design process. • Students will use drawing board techniques, engineering drawing and handwriting to sketch, produce technical drawings with technical and design presentation and projections to express ideas and conceptions in the design process in the form of plans, elevations, sections, and other 3D illustrations. • It evolved into orthogonal, isometric, and axonometric projections, planes, sections, and elevations because of the employment of instruments and equipment required for precise drawing of simple geometric constructs.
Indicative Contents المحتويات الإرشادية	Architectural Design – School Design – Educational buildings - Graphics – Plans – Site Plan – Elevations – Sections – Perspectives – Isometrics
Learning and Teaching Strategies	

استراتيجيات التعلم والتعليم	
Strategies	1. **Project-based learning:** This strategy encourages students to engage in real-world or simulated design projects that require applying theoretical knowledge to practical scenarios. Through this approach, students can develop critical thinking and effective problem-solving skills while gaining valuable practical experience. 2. **Analysis and Critique:** In this strategy, students present their designs to the class and receive feedback from their peers and the instructor. This helps foster constructive criticism and opens the door to in-depth discussions about design principles and creative choices, improving students' overall communication and presentation skills. 3. **Contact hours:** 8 hours weekly. 4. **The explanation** using photos, videos, examples, drawings on the whiteboard and implementation through class work. 5. **The attendance of students** in lectures will have part of the credit. He / she is required to follow the lectures continuously, submits homework and assignments. Expect quizzes any time. 6. **Students' assessment:** The students will be assessed continuously through their activities in the class. Any student with ideas about learning and suggestions of alternative ways of dealing with problems will be very welcomed. 7. During the semester, extra information may provide for the students with more pictures and videos on the slide show, which can help them to maximize their imagination in design and modelling.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل		**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل		**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation
تقييم المادة الدراسية

		Time / Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	3	21% (21)	4, 10 and 15	
	Assignments	1	3% (3)	1….15	LO # 1-6
	Projects / Lab.	2	6% (6)		
	Report	2	10% (10)	1,3	LO # 1-6
Summative assessment	**Midterm Exam**	3 hr	10% (10)	9	LO # 1-4
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Introduction**
Week 2	**Day sketch**
Week 3	**Openings**
Week 4	**Spatial relationships**
Week 5	**Types of spatial organization**
Week 6	**Movement – accessibility**
Week 7	**Day sketch**
Week 8	**Movement patterns - Entrances**
Week 9	**Scale**
Week 10	**Proportion**
Week 11	**Ordering principles / Axes**
Week 12	**Hierarchy, datum**
Week 13	**Symmetry and dominance**
Week 14	**Rhythm, repetition**
Week 15	**Rendering**
Week 16	**Final submission**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	• Opening • Spatial relationships • Types of spatial organization • Movement – accessibility
Week 2	• Day sketch (planes of building (house, small building))
Week 3	• Movement patterns, Entrances • Scale • Proportion • Ordering
Week 4	• Day sketch
Week 5	• Principles / Axes • Hierarchy – datum • Symmetry and dominance
Week 6	• Rhythm, repetition • Rendering
Week 7	• Final submission

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1. Methods of systematic analysis of design in architecture, By D. Mohamed A. Shihab 2. “ARCHITECTURE, Form, Space, & Order Third	No

	Edition", Francis D.K. Ching 3. "Time Saver Standards for Architectural Design Data" by John Hanock 4. Neufert Architects Data Fourth Edition - By Wiley Blackwell 5. Joseph D Chiara, Julius Panero, & Martin Zelnick, Time Saver standards for Interior Design & space planning, 2nd edition, Mc-Graw Hill professional, 2001.	
Recommended Texts	1. "ARCHITECTURE, Form, Space, & Order Third Edition", Francis D.K. Ching 2. Neufert Architects Data Fourth Edition - By Wiley Blackwell	
Websites	□ Visualizing Architecture: A website that provides explanations and images of various architectural projects, helping to better understand new designs and ideas. □ Architizer: This site covers architecture news and new technologies and showcases architectural projects, providing a rich source of practical and theoretical information. □ Architecture Week: A specialized magazine that offers a wide range of articles and designs of interest to architecture students and architects.	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC 222 Free Hand Drawing (2)

University of Mosul College of Engineering Architectural Engineering Department

Module Information
معلومات المادة الدراسية

Module Title	**Free Hand Drawing (2)**	**Module Delivery**
Module Type	S	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☒ **Practical** ☐ **Seminar**
Module Code	**ARC 222**	
ECTS Credits	**3**	
SWL (hr/sem)	**75**	

Module Level	UGII	**Semester of Delivery**	
Administering Department	ARC	**College**	COE
Module Leader	Dr. Ahmad Yaroob Tohalla	**e-mail**	ahmadtohala@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	PhD
Module Tutor	Lect. Dr. Omar Adil Mafaz Tareq	**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date		**Version Number**	

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The freehand drawing curriculum for architecture students aims to achieve several important goals for the development of an architect during their academic years. These goals go beyond simply learning freehand drawing methods and techniques, to developing visual perception and a mature architectural vision of the world, which is of utmost importance for architects. These goals include: • A balanced vision and developing artistic taste for objects and formations. • Using the sense of sight to see and linking it to previous knowledge about perspective theory to shape thought, perception, and conceptualization of

	that form. • Practicing manual expression by creating a harmonious relationship between vision, brain, and hand to express visual perception of the world. • Learning how to measure proportions and dimensions using the hand, pen, and sight. • Understanding the differences between the values of light, shade, and shadows in perspective theory and learning to express them. • Learning drawing methods and techniques using various materials such as pens and colors. • Developing the ability to see and analyze the elements of artistic composition, such as lines, shapes, sizes, texture, and directions, in a model. • Developing self-reliance in the process of vision and expression through a series of drawing exercises that range in difficulty from simple to more complex forms. • Gaining a musical visual vision will be important and useful for future architecture students.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Acquire the skill of analyzing proportions and vanishing angles Strengthen the skill of planning a geometric shape Strengthen the skill of planning design ideas Strengthen the skill of drawing with pencils
Indicative Contents المحتويات الإرشادية	Gradient pencils, drawing paper, wooden board

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The silent geometric shape consisting of a group of cubes of different sizes and cylinders is explained and analyzed. Then the students begin to draw the shape freely using the skills acquired during the theoretical explanation.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	30% (30)	4,7, 10 and 15	LO #(1, 2),(3),(4) and (5,6).
	Assignments	5	6% (6)	3, ,9,11,13 and 14	LO # 1-6
	Projects / Lab.				
	Report	1	4% (4)	14	LO # 1-6
Summative	**Midterm Exam**	1 hr	10% (10)	9	LO # 1-4

assessment	**Final Exam**	3 hr	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to perspective, drawing angles, and vanishing points
Week 2	Preliminary test to assess student ability
Week 3	Practice drawing lines in different directions
Week 4	Simple model made of cubes - Stage 1
Week 5	Advanced model made of cubes - Stage 1
Week 6	General discussion with the student about drawing and coloring
Week 7	Simple model made of circles and cylinders - Stage 1
Week 8	Monthly drawing exam
Week 9	Simple model made of circles and cylinders - Stage 2
Week 10	Simple model made of circles and cylinders - Stage 3
Week 11	Simple model made of slanted cubes - Stage 1
Week 12	Simple model made of slanted cubes - Stage 2
Week 13	Simple models made of pottery
Week 14	Monthly drawing exam
Week 15	Simple models made of irregular shapes 1
Week 16	Advanced model made of irregular shapes 2

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Drawing a still life shape, analyzing the shape into dimensions and proportions
Week 2	Drawing a still life shape, analyzing the shape into dimensions and proportions
Week 3	Drawing a still life shape, analyzing the shape into dimensions and proportions
Week 4	Drawing a still life shape, analyzing the shape into dimensions and proportions
Week 5	Drawing a still life shape, analyzing the shape into dimensions and proportions
Week 6	Drawing a still life shape, analyzing the shape into dimensions and proportions
Week 7	Drawing a still life shape, analyzing the shape into dimensions and proportions
Week 8	Drawing a still life shape, analyzing the shape into dimensions and proportions
Week 9	Drawing a still life shape, analyzing the shape into dimensions and proportions
Week 10	Drawing a still life shape, analyzing the shape into dimensions and proportions
Week 11	Drawing a still life shape, analyzing the shape into dimensions and proportions
Week 12	Drawing a still life shape, analyzing the shape into dimensions and proportions
Week 13	Drawing a still life shape, analyzing the shape into dimensions and proportions
Week 14	Drawing a still life shape, analyzing the shape into dimensions and proportions
Week 15	Drawing a still life shape, analyzing the shape into dimensions and proportions
Week 16	Drawing a still life shape, analyzing the shape into dimensions and proportions

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		No
Recommended Texts	Drawing – a creative process, Francis d. k. Ching , john Wiley & sons , inc. , 1990 Drawing outdoor , henry c. pits , Watson- Guptill publications , 1965 , new York How to paint and draw , Bodo w. Jax Heimer , Thames and Hudson , 1962 , London Watercolor technique , rex Brandt , sixth edition , Reinhold publishing corporation , 1963	No
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC 223 Physics (1)

University of Mosul College of Engineering Architectural Engineering Department

Module Information
معلومات المادة الدراسية

Module Title	**Physics (1)**	**Module Delivery**
Module Type	**S**	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**
Module Code	**ARC 223**	
ECTS Credits	**4**	
SWL (hr/sem)	**100**	

Module Level	UGII	**Semester of Delivery**	
Administering Department	ARC	**College**	COE
Module Leader	Reem Ali Talib Alothman	**e-mail**	reemalothman@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	PhD
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date		**Version Number**	

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. Introduce students to the fundamentals of physics, primarily for students intending to major in a field of engineering. 2. Understanding the Introduction to Physics; Kinematics; Forces and motion; Newton's Laws of Motion; Work; Energy; power; Linear Momentum; Impulse; Simple Harmonic Motion; Universal Gravitation; Fluid Mechanics and Basic of Architectural Physics; Solar Radiation; Heat Transfer (Conduction, Convection, and Radiation); and Thermal Behaviour of Materials. 3. In this course, the students learn how to analyze various physical concepts, such as

	motion, forces, heat, and others, and apply them through mathematical problems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. At the end of this course, students will have gained knowledge of the basic concepts in Physics. Students who study principles of physics will be able to state SI units, write the units and their abbreviations correctly; Determine whether a physical quantity is a vector or a scalar; and distinguish between kinematic and kinetic energy. 2. They are able to define, calculate, and distinguish between distance and displacement, average and instantaneous speed and velocity, and average and instantaneous acceleration; State, explain, and apply Newton's three laws of motion; Differentiate between static and kinetic friction, and solve friction problems; State and apply Hooke's law for ideal springs; 3. They define work, and calculate the work done by a constant force in one and two dimensions; State the work–energy theorem, and use it to solve problems. 4. Apply the principle of conservation of mechanical energy to solve simple problems in mechanics; calculate both kinetic and potential energy; Calculate the power. 5. They will be able to define linear momentum, calculate and compare momenta of various objects; Express Newton's laws in terms of rates of change of linear momentum, and define and calculate impulse. 6. State, explain, and apply the simple harmonic motion; and Solve problems using Newton's law of universal gravitation and calculate the gravitation for different locations (i.e., Earth, Moon, Sun, etc.); and Calculate the pressure and density of fluid at different depths. 7. Explain the Hydrostatic Pressure; Explain Pascal's principle and the operation of a hydraulic lift; Define and describe the buoyant forces and Archimedes's principle, furthermore, weighing an object immersed in a fluid; Derive the equation of continuity for fluids; Use Bernoulli's equation to calculate flow speed and pressure of a moving fluid for simple situations and Determine the most important source of permanent and inexhaustible energy supply (Solar Radiation). 8. Ability to define and describe the flow of heat through a material by direct molecular contact (conduction), derive the equation of heat transfer by conduction, define and describe the transfer of heat by the movement or flow of molecules -liquid or gas (convection), Derive the equation of heat transfer by convection. Define and describe the transfer of heat by electromagnetic waves through a gas or vacuum (Radiation) and the equation of heat transfer by radiation.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Introduction to physics; Standards of length, mass, and time; Scalar and Vector quantities; Kinematics; Position, Displacement and Distance; Speed, Velocity and Acceleration; [2 hrs]. Forces and motion; Mass and gravity force; Newton's three laws of motion

	Spring forces and Hooke's law; Friction forces; Uniform circular motion; Work; Kinetic and Potential Energy; The work-kinetic energy theorem; Conservation of total mechanical energy; and Power [4 hrs]. Linear momentum; Momentum and kinetic energy; Rate of change of linear momentum and Newton's laws; Law of conservation of linear momentum; Impulse; and Simple Harmonic Motion.Universal gravitation; Newton's law of universal gravitation; Free-fall acceleration and the gravitational force; and solve problems using Newton's law of universal gravitation and calculate the gravitational force for different locations.Fluid mechanics; Pressure and density of fluid at different depths; Hydrostatic pressure; Pascal's principle and the operation of a hydraulic lift.Buoyant forces and Archimedes's principle; the equation of continuity for fluids; and Bernoulli's equation [10 hrs]. Introduction to Thermodynamics, Heat, heat transfer in materials, heat transfer by (Conduction, Convection, Radiation)Thermal comfort .(14 hrs)

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials, and by considering types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation
تقييم المادة الدراسية

		Time / Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	20% (20)	4, 13	LO #2, 3, 4, 5, and 6
	Assignments	3	15% (15)	3, 7,14	LO #3, 4, 5, and 8
	Projects / Lab.				
	Report	1	5% (5)	15	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All

Total assessment	100% (100 marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to physics; Standards of length, mass, and time; Scalar and Vector quantities; Kinematics; Position, Displacement and Distance; Speed, Velocity and Acceleration;
Week 2	Forces and motion; Mass and gravity force; Newton's three laws of motion
Week 3	Spring forces and Hooke's law; Friction forces; Uniform circular motion; Work; Kinetic and Potential Energy; The work-kinetic energy theorem; Conservation of total mechanical energy; and Power
Week 4	Linear momentum; Momentum and kinetic energy; Rate of change of linear momentum and Newton's laws; Law of conservation of linear momentum; Impulse; and Simple Harmonic Motion.
Week 5	Universal gravitation; Newton's law of universal gravitation; Free-fall acceleration and the gravitational force; and solve problems using Newton's law of universal gravitation and calculate the gravitational force for different locations.
Week 6	Fluid mechanics; Pressure and density of fluid at different depths; Hydrostatic pressure
Week 7	Pascal's principle and the operation of a hydraulic lift.
Week 8	Buoyant forces and Archimedes's principle; the equation of continuity for fluids; and Bernoulli's equation
Week 9	Introduction to Thermodynamics.
Week 10	Heat, heat transfer in materials
Week 11	Thermal conductivity
Week 12	Thermal conductivity by Conduction
Week 13	Thermal conductivity by Convection
Week 14	Thermal Conductivity by Radiation
Week 15	Thermal comfort.
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1-Physics for scientists and engineers: An interactive approach. Robert Hawkes, Javed Iqbal, Firas Mansour, Marina Milner-Bolotin, and Peter Williams. 2nd edition, 2019. 2- Physics for Scientists and Engineers with Modern Physics. Raymond A. Serway and John W. Jewett. 9th edition, 2014. 3- Fundamentals of Physics. David Halliday, Robert Resnick, and Jearl Walker. 10th Edition, 2014. 4- Engineering Mechanics: Dynamics - Volume 2. J.L. Meriam, L.G. Kraige, and J. N. Bolton. 8th edition, 2015. 5- Physics of Radiation and Climate; Michael A. Box, Gail P. Box; CRC Press, 2015	No
Recommended Texts		No
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC 224 Computer Architectural Drawing 3D

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Computer Architectural Drawing 3D**			**Module Delivery**	
Module Type	**B**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	**ARC 224**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level		**UGII**	**Semester of Delivery**		
Administering Department		**ARC**	**College**	**COE**	
Module Leader	**Luma Abdulwahab aldabbagh**		**e-mail**	**Luma.a.aldabbagh@uomosul.edu.iq**	
Module Leader's Acad. Title		**Lecturer**	**Module Leader's Qualification**		
Module Tutor	**Waleed sami**		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	• Enhancing sequential practical thinking, skills for resolving drawing constraints, and defining work features. • Developing effective communication and presentation skills. • Following current work contexts and understanding them in a way that is relevant to the current situation.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Basic concepts: Understanding the basic settings and principles of three-dimensional architectural drawing. • Practical drawing skills as a starting point. • Drawing evaluation. • Communication and discussion among students. • Accuracy and skill in drawing. • Collaboration and teamwork.
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	• Learning based on architectural projects and pre-drawn illustrative examples: This strategy encourages students to engage in demonstrating how to draw projects sequentially or by simulating the drawing process. • Follow-up with peers: In this strategy, students form collaborative groups to produce electronic drawings through theoretical conversations among themselves, without direct drawing, to benefit from the close connection between students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	4	30% (30)	4,7, 10 and 15	LO #(1, 2),(3),(4) and (5,6).
	Assignments	5	6% (6)	3, ,9,11,13 and 14	LO # 1-6
	Projects / Lab.				
	Report	1	4% (4)	14	LO # 1-6
Summative assessment	**Midterm Exam**	1 hr	10% (10)	9	LO # 1-4
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
k	**Material Covered**
Week 1	Review of commands related to 2D drawing
Week 2	General commands for 3D engineering drawing (with application)
Week 3	Commands related to primary 3D shapes (with application)
Week 4	Modification commands for the first group (with application)
Week 5	Modification commands for the first group (with application)
Week 6	Modification commands for the second group (with application)
Week 7	First practical test (with application)
Week 8	Modification of 3D models (with application)

Week 9	Shaping 3D surfaces (with application)
Week 10	Semester theoretical test
Week 11	Operations on 3D models (with application)
Week 12	Architectural rendering
Week 13	Materials and modifications (with application)
Week 14	Lighting and scenery (with application)
Week 15	Final rendering (with application)
Week 16	Second practical test

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Review of commands related to 2D drawing
Week 2	General commands for 3D engineering drawing (with application)
Week 3	Commands related to primary 3D shapes (with application)
Week 4	Modification commands for the first group (with application)
Week 5	Modification commands for the first group (with application)
Week 6	Modification commands for the second group (with application)
Week 7	First practical test (with application)
Week 8	Modification of 3D models (with application)
Week 9	Shaping 3D surfaces (with application)
Week 10	Semester theoretical test
Week 11	Operations on 3D models (with application)
Week 12	Architectural rendering
Week 13	Materials and modifications (with application)
Week 14	Lighting and scenery (with application)
Week 15	Final rendering (with application)
Week 16	Second practical test

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	▪ □ Computer programs that assist in drawing ▪ □ AutoCAD for two-dimensional drawing ▪ □ Using Microsoft programs to support drawing operations. ▪ 1- Al-Allaf, Emad Hani, Architectural and Computer Aided Engineering Drawing, 2D Drawing Principles in AutoCAD®, 2018.	No
Recommended Texts	Al-Alaf, Imad Hani, Computer-Aided Architectural and Engineering Drawing, Principles of 2D® Drawing in AutoCAD 2018	No

Websites	https://static.sdcpublications.com/pdfsample/978-1-63057-339-3-1-cw77gw9lwo.pdf Randy H. Shih, Videos by Luke Jumper AutoCAD 2021 Tutorial ® First Level 2D Fundamentals , 2021

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC 225 Science of Mechanics

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	Science of Mechanics			Module Delivery	
Module Type	C			☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	ARC 225				
ECTS Credits	3.0				
SWL (hr/sem)	75				
Module Level		UGII	Semester of Delivery		2
Administering Department		ARC	College	College of Engineering	
Module Leader	Tuqa Waleed		e-mail	new.matrix242@uomosul.edu.iq	
Module Leader's Acad. Title		Lecturer	Module Leader's Qualification		M.Sc.
Module Tutor			e-mail		
Peer Reviewer Name			e-mail		
Scientific Committee Approval Date			Version Number	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	During this course, students should develop the ability to: • Work comfortably with basic engineering mechanics concepts required for analyzing static structures • Identify an appropriate structural system to study a given problem and isolate it from its environment. • Model the problem using good free-body diagrams and accurate equilibrium equations • Identify and model various types of loading and support conditions that act on structural systems. • Apply relevant mathematical, physical and engineering mechanical principles to the system to solve and analyze the problem. • Understand the meaning of centers of gravity (mass)/centroids and

	moments of Inertia using integration methods. • Communicate the solution to all problems in an organized and coherent manner and elucidate the meaning of the solution in the context of the problem. • Stress and Strain: Mechanics of materials provides a deep understanding of stress and strain in materials. Stress refers to the internal force per unit area within a material, while strain measures the deformation or elongation of a material in response to stress. These concepts help engineers and researchers analyze and predict the structural response of materials under different loading conditions. • Material Properties: Mechanics of materials helps characterize and understand materials' mechanical properties. These properties include elasticity, plasticity, strength, stiffness, toughness, and fatigue resistance. Knowledge of these properties allows engineers to select appropriate materials for specific applications and design structures that can withstand anticipated loads. • Mechanics of materials plays a crucial role in the design, analysis, and understanding of the mechanical behavior of materials and structures. It enables engineers to make informed decisions to ensure various engineering applications' reliability, efficiency, and safety.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Students who complete this course will be able to: • Solving mechanic problems using principles of engineering • Discern and determine the magnitude of loads acting on simple structural members • Analyze rigid body equilibrium • Construct free-body diagrams showing the function of simple structural elements; • Analyze the force(s) or moment(s) required to maintain a structure in equilibrium; • Analyze external reactions on structural members under applied loading. • Knowledge of different types of applied loading on a given structure. • Understanding the distribution and the path of forces within a structure. • Find center of gravity for a given body. • Find center of moment of inertia for a given body. • Understanding Material Behavior: By studying materials' mechanics, one deeply understands how materials respond to external forces and loads. This knowledge allows engineers to predict and analyze the behavior of materials in different situations, helping them make informed decisions regarding material selection, design, and structural integrity. • The outcomes of studying mechanics of materials and engineering mechanics empower engineers and researchers with the knowledge and skills necessary to design, analyze, and optimize the

	performance of materials and structures in a wide range of engineering applications.
Indicative Contents المحتويات الإرشادية	Demonstrate competence in identifying, defining, and solving problems. 1. Communicate effectively using written, oral and graphical skills 2. Use mathematical skills appropriate to an engineer. 3. Work independently and in a team environment. 4. Manage workloads and time effectively.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم			
Strategies	The primary strategy adopted in delivering this module is encouraging student participation in the exercises while refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering simple experiments involving enjoyable sampling activities for the students.		
Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.9
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation تقييم المادة الدراسية					
As		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	31% (31)	4, 7 and 10	LO # 3 – 10
	Assignments	2	4% (4)	6, 11	LO # 3 – 10
	Projects / Lab.				
	Report	1	5 (5%)	14	LO # 1-7
Summative assessment	Midterm Exam	1 hr	10% (10)	9	All
	Final Exam	3 hr	50% (50)		All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	Material Covered

Week 1	Resultant of Force Systems.
Week 2	Resultant of Concurrent Force Systems.
Week 3	Moment of Force, Couple.
Week 4	Resultant of Non-Concurrent Force Systems.
Week 5	Equilibrium of Force Systems, Equilibrium equations
Week 6	Free Body Diagram, Types of Supports, Types of Loadings.
Week 7	Centroids and Centers of Areas.
Week 8	Centroids of Composite Figures.
Week 9	Moments of inertia.
Week 10	Moments of Inertia of Composite Figures.
Week 11	Simple Stresses, Axial Stress, Shearing Stress, Bearing Stress.
Week 12	Simple Strain, Stress-Strain Diagram, Hook's Law.
Week 13	Shear and Moment in Beams.
Week 14	Shear Force Diagram, Bending Moment Diagram, Stresses in Beams.
Week 15	Deflection in beams.
Week 16	Preparatory week before the final exam.

Delivery Plan (Weekly Lab. Syllabus) **المنهاج الاسبوعي للمختبر**	
Week	**Material Covered**
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?

Required Texts	1- Pytel and J. Kiusalaas, Engineering Mechanics, 4th edition, 2017, Library of Congress. 2- Pytel and J. Kiusalaas, Mechanics of Materials, 2nd edition, 2012, Library of Congress.	No
Recommended Texts	Engineering Mechanics 14th by Hibbeler, 2016.	No
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM

Semester System

Third Level

Level	Semester	No.	Module Code	Module Name in English	اسم المقرر بالعربية	Language	SSWL (hr/sem)						Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
							CL (hr/sem)	Lect (hr/sem)	Lab (hr/sem)	Pr (hr/sem)	Tut (hr/sem)	Seminar (hr/sem)							
	Five	1	ARC 311	Architecture Design (3)	التصميم المعماري (3)	English	2			8		1	3	153	147	300	12.00	C	
		2	ARC 312	Working Drawings (1)	الرسوم التنفيذية (1)	English	1			3			3	63	72	75	3.00	C	
		3	ARC 313	Computer Rendering Techniques	تقنيات التنفيذ بالحاسوب	English	1			2			3	48	27	75	3.00	C	ARC 226 Computer Architectural Drawing 3D
		4	ARC 314	Principles of Housing	مبادئ الإسكان	English	2						3	33	42	75	3.00	C	
		5	ARC 315	Reinforced Concrete Design	تصميم الخرسانة المسلحة	English	2						3	33	42	75	3.00	B	
		6	ARC 316	Physics (2)	الفيزياء (2)	English	2		2				3	63	12	75	3.00	B	
		7	ARC 317	History of European Architecture	تاريخ العمارة الأوربية	English	2						3	33	42	75	3.00	C	
						Total	12	0	2	13	0	1	21	426	324	750	30.00		

Semester	No.	Module Code	Module Name in English	اسم المقرر بالعربية	Language	SSWL (hr/sem)						Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
							CL (hr/sem)	Lect (hr/sem)	Lab (hr/sem)	Pr (hr/sem)	Tut (hr/sem)	Seminar (hr/sem)							
Six	1	ARC 321	Architecture Design (4)	التصميم المعماري (4)	English	2			8		1	3	153	147	300	12.00	C	
	2	ARC 322	Survey and Architectural Documentation	المسح والتوثيق المعماري	English	2			2			3	63	37	100	4.00	B	
	3	ARC 323	Physics Laboratory	معمل الفيزياء	English	1		2				3	48	52	100	4.00	C	
	4	ARC 324	Physics (3)	الفيزياء (3)	English	2						3	33	42	75	3.00	B	
	5	ARC 325	Working Drawings (2)	الرسوم التنفيذية (2)	English	1			3			3	63	37	100	4.00	C	
	6	ARC 326	Principles of Planning	مبادئ التخطيط	English	2						3	33	42	75	3.00	B	
					Total	10	0	2	13	0	1	18	393	357	750	30.00		

ARC311 Architectural Design (3)

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Architectural design 3**			**Module Delivery**	
Module Type	**C**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	**ARCH 311**				
ECTS Credits	**12**				
SWL (hr/sem)	**300**				
Module Level	**UGIII**		**Semester of Delivery**		
Administering Department			**College**	**Engineering**	
Module Leader	**Raed salim alnumman**		**e-mail**	**raeedalnumman@uomosul.edu.iq**	
Module Leader's Acad. Title	**Assistant prof.**		**Module Leader's Qualification**	**Msc**	
Module Tutor	**Hussen salman/ Ashraf Ibrahim/Meyssa Muafaq/isra malallah /Sheymma Kheeraldeen/Aseel Ibrahim/mousabe yaarub/noor yasar / alhan /abudulla abed alrahmman**		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**	**1.0**	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	2. **To make students of architecture familiar with principles and concepts of planning taking into consideration the importance of the planning process and the role of the architect within this process.** 3. **Students should be able to deal with the urban planning process and its elements including street and parking design and master plans besides introducing many worldwide experiments within this subject.** 4. **• Systematic introduction to issues related to the design of human habitat, its components and space standards.** 5. **The objective of the studio will be on understanding residential spaces in both urban and traditional contexts.** 6. **• To train students for undertaking the design of multi-story buildings, frame structures, considering site planning, structures, services, etc.** 7. **• Study architecture prevalent in Iraq (MOSUL) and its local character and characteristic elements of design.** 8. **• Green: Demonstration of world-leading sustainability principles** 9. **• Global: Understanding of and interpreting the past, present, and future of the city, iconic, defining the identity and character of different Neighborhoods in MOSUL City, demonstration of excellence in all aspects of planning, design, contemporary, inspired, and inventive, and expressive of its time and place, poetic and thought-provoking.** 10. **• Responsiveness: Welcoming, open and inclusive, integrated and harmonious, visually connected with, and open to, its immediate surroundings, responsive to the site, the wider context, and the social needs of the families and the whole community.**
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**1. Ability to gather, analyze, assess, record, apply, and comparatively evaluate relevant information within architectural design processes.** **2. Ability to develop imaginative and creative thinking.** **A capacity for practicing architectural design methodology, by analyzing a problem and identifying and defining the architectural requirements appropriate to its solution.** **An understanding of the urban dimension of architecture and the consequences of building activities on the environment.** **3. An ability to function effectively on teams to accomplish a common goal.** **4. An ability to recognize and apply building structure design.**

Indicative Contents المحتويات الإرشادية	**Indicative contents for multi-storey residential buildings represent the architectural program of residential and support spaces required to ensure functional, social, and environmental performance of housing complexes.** **It does represent serves as a design guideline for space planning and zoning OF DIFFRENT BUILDINGS TYPES.** **1. POINT SYSTEM** **2. SEGEMENT SYSTEM** **3. GALLARY SYSTEM** **4. VILLA** **Architectural Importance** **Indicative contents for multi-storey housing are essential because they:** **Define unit mix and housing typologies** **Support social diversity and density planning** **Organize vertical circulation efficiency** **Ensure privacy vs. community balance** **Guide early-stage zoning and massing design** **This approach is widely used in Housing Design and Urban Planning..**

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	**Architectural design focuses on integrating practical design experience and collaboration. It emphasizes hands-on studio work, interdisciplinary approaches, and the application of architectural analysis, enabling students to create innovative, sustainable designs that respond to complex social and environmental contexts.** **1. Learning through projects:** **2. Field visits** **3. Design evaluation and feedback** **4. Use of technology and employing graphics, CAD, and VR tools to support the educational process** **5. Sustainable design** **6. Case studies and applied research** **Learning method** **IN THE BEGINNING** **Project-Based Learning (PBL)** **Students learn by analyzing a real project, to achieve the skills to solve architectural problems, such as designing a building or urban space.** **Peer Learning and Collaboration** **Students learn from each other through group discussions, teamwork, and critiques, fostering a collaborative learning environment that mirrors professional practice.** **AFTER** **Studio-Based Learning** **A collaborative studio environment encourages students to work on their**

	projects under the supervision of instructors, who guide the process and provide feedback at different stages. **Experiential Learning** **This involves learning through doing, where students actively participate in the design process—sketching, modeling, and testing ideas—while reflecting on their experiences to improve their work.**

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**153**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	**8**
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**147**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	**2**
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**300**		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	12	20%	3,7	SITE SNALYSIS CONCEPT
	Assignments		10%	1,2 ,4	CONCEPT
	Projects / Lab.		10%	4,5	PLANS
	Report		10%	6,8	ELEVATIONS
Summative assessment	Midterm Exam	4	10%	9	NEW TASK
	Final Exam		50%	10,11,12,13,14,15	DTIALES
Total assessment			100%		

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	**Introduction to multifamily housing**
Week 2	**Analysis of similar examples**
Week 3	**Site analysis**
Week 4	**Design concept and primary idea formulation**
Week 5	**Discussion**
Week 6	**Discussion**

Week 7	**First submission**
Week 8	**Details of plans**
Week 9	**Elevations and visual aspect**
Week 10	**Details**
Week 11	**Pre- Final submission**
Week 12	**Discussion**
Week 13	**Discussion**
Week 14	**Final presentation settings**
Week 15	**Final presentation settings**

Delivery Plan (Weekly Syllabus) **المنهاج الاسبوعي النظري**	
	Material Covered
Week 1	Housing Project Multi Stories
Week 2	Introduction TYPOLOGIES Design of Residential Areas
Week 3	Types of urban spaces ACCESSIBILITY Key Elements for Apartment Type
Week 4	Examples Apartments collection Segment system
Week 5	Point system Gallery system Service plac
Week 6	Green Architecture principles of sustainability in housing
Week 7	PARKING STANDARDS Iraq Urban Housing Standards
Week 8	Fundamentals of residential neighborhood design
Week 9	Architectural Elevation Architectural form (principles)

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Francis D.K. Ching (2014). Building Construction Illustrated. Wiley. Ernst Neufert (2012). Architects' Data. Wiley-Blackwell. Jan Gehl (2011). Life Between Buildings. Island Press. UN-Habitat (2015). Housing at the Centre of the New Urban Agenda. United Nations. Time-Saver Standards for Architectural Design Data. 7th ed., McGraw-Hill, 2004. Polservice, 1982 Housing Technical Standards & Codes of Practice URBAN-HOUSING-STANDARDS, Iraq (2010)	
Recommended Texts	Christopher Alexander (1977). A Pattern Language. Oxford University Press. Hershberger, R. G. (2015). Architectural Programming and Pre-Design Manager. McGraw-Hill. Architectural record AD.	
Websites	Ach net , PINTREST , AGA AHAN	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	قيد المعالجة(راسب)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC312 Working Drawings (1)

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Working drawing 1**			**Module Delivery**	
Module Type	**C**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ARC 312**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	**UGIII**	**Semester of Delivery**			
Administering Department	**ARCHITECTURE**	**College**	**ENGNEERING**		
Module Leader	**Maysaa Moffeq Alobaidi**	**e-mail**	**Maysaa.moffeq@uomosul**		
Module Leader's Acad. Title	**Lecture**	**Module Leader's Qualification**	**Master's**		
Module Tutor		**e-mail**			
Peer Reviewer Name		**e-mail**			
Scientific Committee Approval Date		**Version Number**	**1.0**		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Enhance critical thinking and problem-solving skills through the ability to identify design characteristics, understand constraints, and explore available opportunities within an architectural project. 2. Develop skills in creating integrated architectural solutions that are well-coordinated with the building's structural systems. 3. Acquire the ability to understand the contextual aspects of design ideas and relate them to realistic, applicable solutions in engineering projects.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. **Understanding Fundamental Concepts:** Develop a solid understanding of the core principles and concepts in structural design and analysis, including structural systems and their detailed components. 2. **Practical Design Skills:** Build the ability to design structurally sound projects that are realistic and feasible for implementation. 3. **Critical Evaluation and Analytical Thinking:** Enhance the ability to critically analyze and evaluate existing projects and design proposals in an effective and informed manner. 4. **Communication Skills:** Improve the ability to communicate effectively with other disciplines, including building services and construction detailing within projects. 5. **Teamwork and Collaboration:** Develop the ability to work within multidisciplinary teams and collaborate effectively with engineers, architects, and other structural specialists.
Indicative Contents المحتويات الإرشادية	• Introduction to working drawings and their importance. • Preparation and reading of plans, elevations, and sections. • Basic architectural detailing (walls, openings, stairs, ceilings). • Coordination with structural and MEP drawings. • Standard symbols and conventions. • Digital drafting and final drawing presentation.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**63**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**12**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**100**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	**2**	**10**	**3-6**	
	Assignments	**2**	**12**	**4**	
	Projects / Lab.	**2**	**13**	**8**	
	Report	**1**	**5**	**10**	
Summative assessment	**Midterm Exam**	**1**	**10**	**14**	
	Final Exam		**50**	**15**	
Total assessment					

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Definition of building construction material and the relationship between initial ideas and planned Executive and to all the terms of reference .**
Week 2	**Definition of building construction material and the relationship between initial ideas and planned Executive and to all the terms of reference .**
Week 3	**Structural types of systems for concrete structure**
Week 4	**Structural types of systems for concrete structure**
Week 5	**System of structural concrete (type of concrete Structure) with the structural details.**
Week 6	**System of structural concrete (type of concrete Structure) with the structural details.**
Week 7	**How to set up the chart of the Executive and the standards of the scheme, as well as special symbols chart Executive.**

Week 8	**How to set up the chart of the Executive and the standards of the scheme, as well as special symbols chart Executive.**
Week 9	**Detailed explanation of the planned construction and structural details .**
Week 10	**Discussion of reports**
Week 11	**Architectural details and construction of the building ready at the level of ceilings and walls, the work of the link between the prefabricated pieces (ready).**
Week 12	**Modern methods of construction (Construction cortical systems and the structural system hung and blown the structural system).**
Week 13	**Mid exam**
Week 14	**Detailed explanation of the method of construction-ready systems and various Construction.**
Week 15	**Detailed explanation of the method of construction-ready systems and various Construction.**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

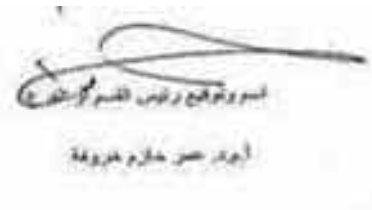
Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1- **Working Drawings Handbook , Keith Styles , Kindle Edition , 2014 by Architectural Press , USA , 2014**. 2- **Working Drawings Handbook , Keith Styles, Andrew Bichard , SBN 9780750663724 Published September 4, 2004 by Routledge , UK , 2004**. 3-**Architectural Working Drawings, Fourth Edition , Ralph W. Liebing (Author(Ralph W. Liebing , Wiley , USA , 1999**.	

	4-Architectural Working Drawings: Residential and Commercial Buildings , William. Spence , John Wiley & Sons , USA , 2000.	
Recommended Texts		
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A - Excellent**	امتياز	**90 - 100**	**Outstanding Performance**
	B - Very Good	جيد جدا	**80 - 89**	**Above average with some errors**
	C - Good	جيد	**70 - 79**	**Sound work with notable errors**
	D - Satisfactory	متوسط	**60 - 69**	**Fair but with major shortcomings**
	E - Sufficient	مقبول	**50 - 59**	**Work meets minimum criteria**
Fail Group (0 – 49)	**FX – Fail**	قيد المعالجة(راسب)	**(45-49)**	**More work required but credit awarded**
	F – Fail	راسب	**(0-44)**	**Considerable amount of work required**

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

م.ميساء موفق يونس العبيدي



ARC313 Computer Rendering Techniques

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Computer Rendering Techniques**			**Module Delivery**	
Module Type	**C**			☒ **Theory** ☒ **Lecture** ☒**Lab** ☒**Tutorial** ☒ **Practical** ☐**Seminar**	
Module Code	**ARC313**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	**UGIII**	**Semester of Delivery**	**1**		
Administering Department	**ARC**	**College**	**COE**		
Module Leader	**Dr. Reem Ali Talib Alothman**	**e-mail**	**reemalothman@uomosul.edu.iq**		
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**Ph.D.**		
Module Tutor		**e-mail**			
Peer Reviewer Name		**e-mail**			
Scientific Committee Approval Date		**Version Number**	**1.0**		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	ARC 224 Computer Architectural Drawing 3D	**Semester**	Four
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The course is concerned with applying the latest techniques used in computer-aided architectural presentation by learning about drawing and rendering techniques by using 3d Max and Corona render software, and also Lumion software to reach a computer-aided architectural presentation that is as close to realism as possible. In addition to getting acquainted with the most important techniques to assist in architectural presentation through the use of Adobe Photoshop software. The course develops students' design skills and creative thinking through design and formal alternatives that students learn about during work, as well as the architectural presentation of various projects and in various environmental conditions.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Remember and understand the most commonly used commands in 3ds Max, Corona render, and the Lumion program. • Comparing the different of using these programs. • Describe different ways that are used for drawing the same object or model. • Naming and describing the different kinds for the final render. • The ability to choose the appropriate mode for the final render, and judge its suitability for the building, reaching a realistic scene. • Carrying out the final renders of the project by applying different effects to reach the most suitable scene and design for the project . • Create an iconic design of any project in any location. • Integrating the design of any project with as much realism as possible. • Analysis of many effects, and different environments, and identifying the most suitable environment used to achieve the final project render. • Design a project, making an explanatory poster, using the most important programs for drawing, rendering, and postproduction, suitable for the location and function. • Expresses the aesthetic, architectural, and engineering uses of 3d Max, Corona render, Lumion, and Photoshop. • The use of architectural drawing and rendering programs to reach innovative engineering designs, and to reach a virtual reality using modern technologies in construction. Benefit from these programs in engineering and architectural work after graduation .
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Introducing the 3ds Max program, importing AutoCAD 2D file, creating advanced and 3D architectural models, and readymade models [15 hrs]. 2. The modifiers list and the most important modifiers used. Presenting an exterior design project. [9 hrs]. 3. Corona render software, the types and forms of Corona light, and Corona material. [12 hrs]. 4. Blocks in the 3ds Max program. [3 hrs]. 5. Lumion program, modify the materials. elements, environment,

	landscape, and weather elements. 6. The final render for architectural projects. [6 hrs]. Adobe Photoshop software program and post-production for an exterior and interior design project. [6 hrs].

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through training sessions by considering different projects.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 11	
	Poster	1	15% (15)	15	
	Projects / Lab.	1	5% (5)	7	
	Report				
Summative assessment	Midterm Exam	2 hr	20% (20)	8	
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introducing the 3ds Max program and the program's drawing board, adjusting the basic settings, and getting to know the main menus in the program.
Week 2	Learn the basic commands and commands used in 3ds Max.
Week 3	Learn how to draw two-dimensional geometric shapes and edit spline applications. Import an AutoCAD 2D file.
Week 4	Learn how to create advanced and 3D architectural models (Extended primitives) and readymade models used in architectural and construction works, AEC Extended.
Week 5	Edit poly applications.
Week 6	Get to know the modifiers list and the most important modifiers used. Start to convert the AutoCAD 2D file to 3D.
Week 7	Presenting an exterior design project (Villa exterior design) using instructions, orders, and rates.
Week 8	**Midterm Exam**
Week 9	Interior design of an architectural space using directives, orders, and modifiers + practical semester exam
Week 10	Learn about Corona render software and how to install it in 3ds Max. Learn how to set Corona cameras and how to adjust their main settings, and how to choose the appropriate shot.
Week 11	Adjust Corona render settings. Recognize the types and forms of Corona light and how to choose, adjust, and define the appropriate lighting to control it.
Week 12	Learn how to add Corona material and its types using the Material editor and how to adjust them, in addition to getting to know the Corona material library, and the method of manufacturing different materials.
Week 13	The way to insert the different blocks within the 3ds Max program and the way to insert them with their own material, in addition to identifying the most important sites from which the different blocks can be obtained.
Week 14	The final render and the most important render settings are to reach a more realistic scene and prepare the horizontal and vertical projections.
Week 15	Post production using the Adobe Photoshop software program and adding different backgrounds and environmental effects. Presenting a presentation for an exterior and interior design project.
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Use the 3ds Max program's drawing board, adjusting the basic settings, and the main menus in the program.
Week 2	Use basic commands and commands used in 3ds Max.

Week 3	Draw two-dimensional geometric shapes and edit spline applications. Import an AutoCAD 2D file.
Week 4	Create advanced and 3D architectural models (Extended primitives) and readymade models used in architectural and construction works, AEC Extended.
Week 5	Use Edit poly applications.
Week 6	Use the modifiers list and the most important modifiers used. Start to convert the AutoCAD 2D file to 3D.
Week 7	Presenting an exterior design project (Villa exterior design) using instructions, orders, and rates.
Week 8	**Midterm Exam**
Week 9	Draw an Interior design of an architectural space.
Week 10	Install Corona render software in 3ds Max. Set Corona cameras and adjust their main settings, and choose the appropriate shot.
Week 11	Adjust Corona render settings, and Corona light, adjust and define the appropriate lighting to control it.
Week 12	Add Corona material and its types using the Material editor and adjust them, in addition to getting the Corona material library, and the method of manufacturing different materials.
Week 13	Insert the different blocks within the 3ds Max program and insert them with their own material, in addition to identifying the most important sites from which the different blocks can be obtained.
Week 14	Render a more realistic scene and prepare the horizontal and vertical projections.
Week 15	Add different backgrounds and environmental effects by using the Adobe Photoshop software program. Presenting a presentation for an exterior and interior design project.
Week 16	Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	-	No
Recommended Texts	1- A Fascinating journey into the world of 3D Graphics with 3ds Max. By Iftikhar Abbasov 2- Autodesk 3D Max Design- The Designer's Handbook. By Marcello Femi, AIA 3- Corona Render 1.3. By Giao Trinh Mastering Lumion 3D. By Ciro Cardoso	No
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC314 Principles of Housing

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Principles of Housing**			**Module Delivery**	
Module Type	**C**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ARC314**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	UGIII		**Semester of Delivery**	**five**	
Administering Department	**department of architecture**		**College**	**Engineering**	
Module Leader	**Mazin Jaber Omar**		**e-mail**	**mazinjaber@uomosul.edu.iq**	
Module Leader's Acad. Title	**Assist. Prof.**		**Module Leader's Qualification**		
Module Tutor	**Assist. Lect. Esraa Malallah**		**e-mail**	esraa malallah@uomosul.edu.iq	
Peer Reviewer Name					
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The housing course aims to introduce the student to the concept of housing from the psychological, social, urban, economic and urban aspects, and to look at the Dwelling Unit (house or dwelling) as an urban unit within the urban fabric of the city as a whole.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Learning based on theoretical studies: This strategy encourages students to engage in real or simulated housing projects that require the application of theoretical knowledge in practical scenarios. Through this approach, students can effectively develop critical thinking and problem-solving skills while gaining valuable practical experience. Analysis and critique: In this strategy, students receive feedback from their peers and instructors. This helps foster constructive criticism and opens the door to in-depth discussions about housing principles and creative options, thereby improving students' overall communication and presentation skills.
Indicative Contents المحتويات الإرشادية	The Concept of Human Needs *Classification of Human Needs *Human Needs in the Housing Environment *Collective and Individual Housing Needs *Importance of Housing Needs in the Housing Sector The Historical Development of the Concept of Urban Housing in the World *Early Beginnings Pre-Industrial Stage Post-Industrial Stage The 1920s Stage The Contemporary Stage The evolution of urban housing patterns in Iraq during the last twenty years * Factors driving the evolution of housing patterns * Morphological changes in Iraqi housing during the last twenty years

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The strategy aims to equip students with skills in housing studies and helps them develop their intellectual, critical, and analytical abilities to achieve the best results in the field of housing, thus increasing their scientific knowledge

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	18%	2	Daily preparation
	Assignments	4	12%	4	Class activity
	Projects / Lab.	/	/	/	/
	Report	1	10%	10	Research activity
Summative assessment	Midterm Exam	1	10%	12	Student level assessment
	Final Exam	1	50%	15	Student level assessment
Total assessment			100%		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to science of Housing
Week 2	Basics of housing:
Week 3	definitions of important terms
Week 4	Housing need
Week 5	Housing demand
Week 6	Housing balance and housing Shortage
Week 7	Housing densities: definitions
Week 8	Housing densities and their relationship to degrees of urbanization Methods of controlling housing densities
Week 9	Housing policies and programs
Week 10	The housing market and the factors of market forces

Week 11	The importance of financing policy
Week 12	Components of the residential urban fabric
Week 13	weekend
Week 14	Movement Networks and Urban Space Network
Week 15	Discussion
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	• Housing Technical Standard and Codes of Practice", Report Two- Polservice - 1982 - Ministry of Housing and Construction - Iraq. • "Housing in Iraq - Problems - Policies - Programs", 1958 - Doxiadis Associates - Consulting Engineers - Republic of Iraq. • Thurthar New Town, 1985, "The Determinate of The Planning Process, The Formulation of The Master Plan and Conceptual Urban Design Elements", Doxiadis Associates – Consultants on Development and Ekistics. • J. J. Coulton. (1977). Ancient Greek Architects at Work. Cornell University Press	Available
Recommended Texts		
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC315 Reinforced Concrete Design

University of Mosul College of Engineering Architectural Engineering Department

Module Information

معلومات المادة الدراسية

Module Title	**Reinforced Concrete Design**	**Module Delivery**	
Module Type	**S**	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ARC315**		
ECTS Credits	**3**		
SWL (hr/sem)	**75**		

Module Level	**UGIII**	**Semester of Delivery**	**five**
Administering Department	**department of architecture**	**College**	**Engineering**
Module Leader	**fahad akram saeed**	**e-mail**	**fahad.akram@uomosul.edu.iq**
Module Leader's Acad. Title		**Module Leader's Qualification**	PHD
Module Tutor		**e-mail**	
Peer Reviewer Name			
Scientific Committee Approval Date		**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. Develop a solid understanding of the behavior of reinforced concrete elements under flexural bending, shear, and axial loads. 2. Enable students to analyze and design rectangular reinforced concrete beams subjected to bending moments and shear forces.

	3. Introduce the principles of designing short columns under combined axial load and bending. 4. Provide knowledge and skills for designing one-way slabs under uniformly distributed loads. 5. Enhance students' ability to apply design codes and safety considerations in practical structural design.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course, students will be able to: 1. Analyze internal forces (bending moment and shear) in reinforced concrete beams. 2. Design rectangular beams for flexure and shear according to standard design codes. 3. Evaluate and design short columns subjected to axial loads and bending moments. 4. Design one-way slabs under uniform loading conditions. 5. Apply appropriate safety factors and code provisions in reinforced concrete design. 6. Prepare clear and accurate structural calculations and basic detailing for reinforced concrete elements.
Indicative Contents المحتويات الإرشادية	Design of rectangular beams subjected to flexural bending and Shear design for beams moreover, Design of Short Columns Subject to Axial Load and Bending. Design of one-way slab subject to uniform load.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering some challenging problems to motivate students.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	15%	2	
	Assignments	10	20%		
	Projects / Lab.	/	/	/	
	Report	1	5%	10	
Summative assessment	Midterm Exam	1	10%	12	
	Final Exam	1	50%	15	
Total assessment			100%		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Reinforced Concrete
Week 2	Design of singly Reinforced Beams
Week 3	Design of singly Reinforced Beams
Week 4	Design of Doubly Reinforced Beams
Week 5	Design of Doubly Reinforced Beams
Week 6	exam
Week 7	Design of Doubly Reinforced Beams
Week 8	Design of one way slabs Reinforced Beams
Week 9	Design of one way slabs Reinforced Beams
Week 10	exam
Week 11	Design of Short Columns Subject to Axial Load and Bending
Week 12	Design of Short Columns Subject to Axial Load and Bending
Week 13	Design and Analysis of Eccentrically Loaded Columns Using Interaction Diagrams
Week 14	Introduction to Reinforced Concrete
Week 15	Design of singly Reinforced Beams
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Calculus I By: Darwin, David, Charles William Dolan, and Arthur H. Nilson.Design of concrete structures. New York, NY, USA: McGraw-Hill Education, 2020.	
Recommended Texts	Aghayere, A. O., Limbrunner, George F. (2014) "DESIGN OF REINFORCED CONCRETE"8th ed. Library of Congress, USA.	
Websites	-------	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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ARC316 Physics (2)

University of Mosul College of Engineering Architectural Engineering Department

Module Information
معلومات المادة الدراسية

Module Title	**Physics (2)**		**Module Delivery**	
Module Type	**B**		☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐**Tutorial** ☒ **Practical** ☒ **Seminar**	
Module Code	**ARC 316**			
ECTS Credits	**3**			
SWL (hr/sem)	**75**			
Module Level	**UGIII**	**Semester of Delivery**	**4**	
Administering Department	**ARC**	**College**	**COE**	
Module Leader	**Dr. Reem Ali Talib Alothman**	**e-mail**	**reemalothman@uomosul.edu.iq**	
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**Ph.D.**	
Module Tutor		**e-mail**		
Peer Reviewer Name		**e-mail**		
Scientific Committee Approval Date		**Version Number**	**1.0**	

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The module aims for the curriculum on Architectural Physics (1) are as follows: 1. To provide students with a comprehensive understanding of the relationship between architecture and climate. 2. To introduce students to the principles and strategies of climate-responsive design in architecture. 3. To explore the fundamental concepts of climate analysis and its influence on architectural design decisions. 4. To develop students' knowledge and skills in utilizing passive design strategies for energy efficiency and thermal comfort. 5. To familiarize students with sustainable technologies and practices related to renewable energy, water efficiency, and green infrastructure. 6. To examine the impact of climate change on the built environment and equip students with resilient design strategies. 7. To foster critical thinking and problem-solving abilities in addressing climate challenges through architectural design. 8. To encourage students to analyze and evaluate case studies of climate-conscious architectural projects. 9. To inspire students to explore future trends and innovations in sustainable architecture and climate-responsive design. 10. To promote interdisciplinary collaboration and an understanding of the role of architecture in creating climate-friendly cities. These modules aim to provide students with a strong foundation in the principles, techniques, and considerations related to architecture and climate, enabling them to design buildings that are responsive to their climatic conditions and contribute to environmental sustainability.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The module learning outcomes for the curriculum on Architectural Physics (1) are designed to provide students with a comprehensive understanding of the relationship between architecture and climate and equip them with the necessary knowledge and skills to design sustainable and climate-responsive buildings. The learning outcomes include: 1. Understanding the fundamental relationship between architecture and climate and recognizing the significance of climate-responsive design in creating sustainable built environments. 2. Analyzing and interpreting climate data to inform design decisions, including assessing different climate zones, understanding microclimates, and analyzing climate data for appropriate design responses. 3. Applying passive design strategies to enhance energy efficiency and occupant comfort, such as considering orientation, solar access, shading techniques, and daylighting strategies in architectural design. 4. Evaluating and selecting sustainable materials and technologies for building envelope design and insulation, including understanding the importance of a well-insulated building envelope and considering design considerations for minimizing heat transfer. 5. Integrating renewable energy systems, such as solar panels and photovoltaics, into architectural designs and understanding the concept of net-zero energy buildings. 6. Designing water-efficient systems and incorporating rainwater harvesting techniques, including understanding the importance of water efficiency in sustainable architecture and developing strategies for rainwater collection and reuse. 7. Understanding the benefits and design considerations of green roofs, vertical gardens, and other green infrastructure elements, including their ecological and thermal advantages and exploring design considerations and implementation techniques. 8. Conducting life cycle assessments (LCAs) and applying cradle-to-cradle design principles, including evaluating sustainable materials, assessing life cycle assessments, and exploring the concept of cradle-to-cradle design. 9. Developing resilient design strategies to address the impacts of climate change and extreme weather events, including understanding the challenges posed by climate change, exploring resilient design strategies, and considering adaptation and mitigation measures.

	10. Applying bioclimatic design principles inspired by vernacular and traditional architecture, including learning from lessons in traditional and vernacular architecture, exploring climate-responsive design in different regions and cultures, and incorporating passive cooling and heating techniques. 11. Utilizing daylighting techniques and designing energy-efficient lighting systems, including understanding the importance of natural light, exploring techniques for optimizing daylight, and developing artificial lighting design strategies. 12. Understanding the urban heat island effect and implementing mitigation strategies in urban design, including exploring sustainable urban planning principles and designing resilient and climate-friendly cities. 13. Analyzing and evaluating case studies of exemplary climate-conscious architectural projects, including critically reflecting on design strategies and outcomes and drawing lessons for their own architectural practice. 14. Identifying emerging trends, technologies, and innovations in sustainable architecture and climate-responsive design, including staying updated on advancements in the field, exploring emerging technologies, and identifying opportunities for further research. 15. Demonstrating effective communication and teamwork skills through project presentations and discussions, including presenting design projects, engaging in discussions on architecture and climate-related topics, and collaborating with peers. These module learning outcomes provide a clear roadmap for students to acquire the necessary knowledge and skills in designing sustainable and climate-responsive buildings
Indicative Contents المحتويات الإرشادية	The curriculum on Architectural Physics covers a range of indicative contents to provide students with a comprehensive understanding of the subject. It begins with an introduction to the relationship between architecture and climate, emphasizing the importance of climate-responsive design and exploring key milestones in climate-conscious architecture. The fundamentals of climate are then explored, including different climate zones, climate data analysis, and the impact of microclimates on architectural design. Passive design strategies are introduced, focusing on principles for energy efficiency, orientation, solar access, shading, and daylighting techniques. Thermal comfort and building performance are addressed, covering human thermal comfort requirements, energy-efficient HVAC systems and controls, and building envelope design for thermal insulation.

	The curriculum also includes topics such as natural ventilation and cooling, building envelope and insulation, solar energy and photovoltaics, water efficiency and rainwater harvesting, and green roof and vertical gardens. These topics delve into the benefits and techniques of optimizing airflow, minimizing heat transfer, harnessing solar energy, and implementing sustainable water practices and green infrastructure. Sustainable materials and life cycle assessment are explored to familiarize students with the selection of eco-friendly materials and the evaluation of their environmental impact. Resilient design and climate change adaptation are discussed, focusing on strategies to address the impacts of climate change and promote resilience in architectural design. Additional topics include bioclimatic design and vernacular architecture, daylighting and lighting design, urban design and climate, and case studies showcasing exemplary climate-conscious architectural projects. The curriculum concludes with an exploration of future trends and opportunities for research and development in architecture and climate. Overall, these indicative contents provide a comprehensive framework for students to develop knowledge and skills in designing sustainable and climate-responsive buildings, taking into account various climate factors and incorporating innovative approaches to address the challenges of a changing climate.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The curriculum on Architectural Physics incorporates various learning and teaching strategies to enhance the students' understanding and engagement. These strategies include: 1. Lectures: Traditional lectures are used to deliver foundational knowledge and theoretical concepts related to architecture and climate. Expert instructors provide in-depth explanations and present case studies to illustrate real-world examples. 2. Interactive Discussions: Facilitated discussions encourage students to actively participate and share their thoughts, perspectives, and questions related to the topics being covered. This fosters critical thinking and deepens the understanding of the subject matter. 3. Group Activities: Collaborative group activities promote teamwork and allow students to work together on projects, problem-solving tasks, and design exercises. This encourages peer learning and the exchange of ideas. 4. Case Studies: In-depth analysis of case studies provides students with practical examples of climate-responsive architecture. They can study successful projects, evaluate design strategies, and understand the real-world challenges and solutions.

	5. Site Visits: Organizing site visits to sustainable buildings and architectural landmarks offers students the opportunity to experience climate-responsive design principles in practice. They can observe the integration of passive design strategies, renewable energy systems, and sustainable materials in actual buildings. 6. Guest Lectures: Inviting guest speakers who are experts in the field of architecture and climate provides valuable insights and diverse perspectives. Guest lectures can offer practical experiences, industry trends, and emerging technologies, enriching the learning experience. 7. Hands-on Workshops: Practical workshops allow students to apply theoretical knowledge to hands-on activities. They can engage in activities such as building energy modeling, daylighting simulations, and sustainable material experiments to enhance their understanding of key concepts. 8. Research Projects: Assigning research projects to students enables them to delve deeper into specific topics of interest within architecture and climate. They can explore cutting-edge research, analyze data, and present their findings to the class. These strategies aim to create an interactive and immersive learning environment, fostering a deeper understanding of the relationship between architecture and climate and preparing students to design sustainable and climate-responsive buildings.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation
تقييم المادة الدراسية

	Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome

Formative assessment	**Quizzes**	2	15% (15)	3,10	1,2
	Homework/ classworks	2	10%(10)	3,5,7	6,8,9,10,11,12,13,14,15
	Report	1	10% (10)	2,10	5,7,8,9,10,11,12,13,14,15
	Discussions& Analysis team's work	1	5% (5)	14,15	8,9,10,11,14,15
Summative assessment	**Midterm Exam**	1 hr	% (10)10	8	1,2,3,4,6,14,15
	Final Exam	3 hr	50% (50)	16	1,2, 3, 4,6,14,15
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Lecture 1: Introduction to Architecture and Climate • Overview of the relationship between architecture and climate • Importance of climate-responsive design • Historical context and key milestones in climate-conscious architecture
Week 2	Lecture 2: Climate Fundamentals • Understanding different climate zones and their characteristics • Climate data analysis and interpretation • Microclimates and their impact on architectural design
Week 3	Lecture 3: Passive Design Strategies • Principles of passive design for energy efficiency • Orientation and solar access • Shading and daylighting techniques
Week 4	Lecture 4: Thermal Comfort and Building Performance • Human thermal comfort requirements • Energy-efficient HVAC systems and controls • Building envelope design for thermal insulation
Week 5	Lecture 5: Natural Ventilation and Cooling • Benefits of natural ventilation in buildings • Strategies for optimizing airflow and cross-ventilation • Passive cooling techniques, such as stack effect and evaporative cooling

Week 6	Lecture 6: Building Envelope and Insulation • Importance of a well-insulated building envelope • Insulation materials and their properties • Design considerations for minimizing heat transfer
Week 7	Lecture 7: Solar Energy and Photovoltaics • Harnessing solar energy in architectural design • Integration of solar panels and photovoltaic systems • Net-zero energy buildings and energy-positive design
Week 8	Lecture 8: Water Efficiency and Rainwater Harvesting • Importance of water efficiency in sustainable architecture • Design strategies for rainwater collection and reuse • Water-saving fixtures and systems
Week 9	Lecture 9: Green Roof and Vertical Gardens • Benefits of green roofs and vertical gardens • Design considerations and implementation techniques • Ecological and thermal advantages of green infrastructure
Week 10	Lecture 10: Sustainable Materials and Life Cycle Assessment • Selection of sustainable materials and their properties • Life cycle assessment (LCA) and embodied energy • Cradle-to-cradle design principles
Week 11	Lecture 11: Resilient Design and Climate Change Adaptation • Understanding the impacts of climate change on the built environment • Resilient design strategies for extreme weather events • Adaptation and mitigation measures for future climate scenarios
Week 12	Lecture 12: Bioclimatic Design and Vernacular Architecture • Lessons from traditional and vernacular architecture • Climate-responsive design in different regions and cultures • Passive cooling and heating techniques from around the world
Week 13	Lecture 13: Daylighting and Lighting Design • Importance of daylight in architectural spaces

	• Techniques for optimizing natural light and reducing energy consumption • Artificial lighting design for energy efficiency and visual comfort
Week 14	Lecture 14: Urban Design and Climate • Urban heat island effect and mitigation strategies • Sustainable urban planning principles • Designing resilient and climate-friendly cities
Week 15	Lecture 15: Case Studies and Future Trends • Case studies of exemplary climate-conscious architectural projects • Emerging technologies and innovations in sustainable architecture • Opportunities for further research and development in architecture and climate
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Textbooks and Reference Materials: -"Sustainable Architecture: Principles, Paradigms, and Case	No

	Studies" by Svetlana Shitova -"Climate-Responsive Design: A Study of Buildings in Moderate and Hot Humid Climates" by Richard Hyde "Passive Solar Architecture: Heating, Cooling, Ventilation, Daylighting, and More Using Natural Flows" by David Bainbridge	
Recommended Texts	-"Climate-Responsive Design: A Study of Buildings in Moderate and Hot Humid Climates" by Richard Hyde "Passive Solar Architecture: Heating, Cooling, Ventilation, Daylighting, and More Using Natural Flows" by David Bainbridge	No
Websites	Websites dedicated to sustainable architecture and climate-responsive design, such as the U.S. Green Building Council (USGBC) and the World Green Building Council (WGBC) Online platforms offering educational content on architecture and climate, such as Coursera, edX, and MIT OpenCourseWare	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC 317 History of European Architecture

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**History of European Architecture**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ARC 317**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	UGIII		**Semester of Delivery**	1	
Administering Department	ARC		**College**	COE	
Module Leader	Hassan Mahmood Kasim		**e-mail**	hassan.kasim@uomosul.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**		
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	• Inform students about the development of European Architecture from Greek Age till Renaissance & Baroque–17th century • Enhance the concept of architectural interactions between European civilizations and others, especially Arab-Islamic civilization • Enhance students' understanding of architectural design by analyzing historical examples of buildings according to architectural methodologies

	• Free-hand sketch analysis of historical buildings to enhance students' skills of free-hand sketches of design concepts.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	
Indicative Contents المحتويات الإرشادية	
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Understanding and analyzing

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	30% (30)	4,7, 10 and 15	LO #(1, 2),(3),(4) and (5,6).
	Assignments	5	6% (6)	3, ,9,11,13 and 14	LO # 1-6
	Projects / Lab.				
	Report	1	4% (4)	14	LO # 1-6
Summative assessment	**Midterm Exam**	1 hr	10% (10)	9	LO # 1-4
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to the history of European Architecture
Week 2	Greek Architecture: Architectural characters & Orders
Week 3	Greek Architecture: Temples
Week 4	Roman Architecture: Architectural characters
Week 5	Roman Architecture: Temples & Pantheon
Week 6	Roman Architecture: Basilicas, Thermae, Theatre & sports
Week 7	Roman Architecture: Palaces, Tombs & Triumphal Arches

Week 8	Interaction between Roman and Eastern Architecture
Week 9	Mid Term Exam
Week 10	Early Christian Architecture
Week 11	Byzantine Architecture
Week 12	Gothic Architecture
Week 13	Renaissance Architecture
Week 14	Renaissance Periods and Architects
Week 15	General Discussion
Week 16	Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		No
Recommended Texts		No
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC 321 Architecture Design (4)

University of Mosul College of Engineering Architectural Engineering Department

Module Information
معلومات المادة الدراسية

Module Title	**Architecture Design (4)**	**Module Delivery**	
Module Type	**C**	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	**ARC 321**		
ECTS Credits	**12**		
SWL (hr/sem)	**300**		

Module Level	**UGIII**	**Semester of Delivery**	Six
Administering Department		**College**	Engineering
Module Leader	Raed salim alnumman	**e-mail**	raeedalnumman@uomosul.edu.iq
Module Leader's Acad. Title	Assistant prof.	**Module Leader's Qualification**	Msc
Module Tutor	Hussen salman/ Ashraf Ibrahim/Meyssa Muafaq/isra malallah /Sheymma Kheeraldeen/Aseel Ibrahim/mousabe yaarub/noor yasar/ syra / alhan /abudulla abed alrahmman	**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date		**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Ability to gather, analyze, assess, record, apply, and comparatively evaluate relevant information within architectural design processes. 2. Demonstrate an understanding of principles and practices and integrate and apply that knowledge within architectural design processes. 3. Design Development Skills for Different Building Types Ability to create designs for a variety of building types such as schools, shopping malls, and cultural centers, while addressing specific functional, aesthetic, and social needs. Representation and Communication Advanced representation skills: Produce accurate and detailed digital drawings, models, and sketches for schools, shopping malls, and cultural centers, ensuring clarity and accuracy in the presentation of design ideas.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understanding Basic Concepts: Develop a deep understanding of the fundamental concepts and principles in the design (school, culture, shopping center) buildings, including history, theory, and current practices. 2. Practical Design Skills: Develop the ability to design realistic housing projects that take into account functionality, flexibility, aesthetics, functionality, and sustainability. 3. Critical Evaluation and Analytical Thinking: Enhance the ability to critically and effectively analyze and evaluate existing projects and design proposals.
Indicative Contents المحتويات الإرشادية	Indicative Contents refer to the architectural program (functional brief) of a building. It is a structured list of all required spaces, functions, and spatial requirements that a building must include to operate effectively. It does represent serves as a design guideline for space planning and zoning OF DIFFRENT BUILDINGS TYPES. 1. SCONDARY SCHOOLES 2. CLTURE CENTER 3. SHOPPING CENTER 4. ISLAMIC CENTER Architectural Role of Indicative Contents Indicative contents are a fundamental step in the architectural design process, as they: Define functional requirements before design development Help organize spatial relationships Support zoning and bubble diagram development Provide the basis for architectural programming This approach is widely used in Architectural Programming and Urban Design, ensuring that design decisions are based on functional and spatial logic rather than form alone.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	**Strategy** Architectural design focuses on integrating practical design experience and collaboration. It emphasizes hands-on studio work, interdisciplinary approaches, and the application of architectural analysis, enabling students to create innovative, sustainable designs that respond to complex social and environmental contexts. 1. Learning through projects: 2. Field visits 3. Design evaluation and feedback 4. Use of technology and employing graphics, CAD, and VR tools to support the educational process 5. Sustainable design 6. Case studies and applied research **Learning method** Interactive Learning: This approach involves using classroom discussions, workshops, and group activities to promote interaction between students and teachers. Practical Projects: Designing realistic projects allows students to apply their acquired knowledge in a practical setting, which helps enhance problem-solving skills and creative thinking. Field Trips and Study Visits: Visiting real sites enables students to see real-world applications of landscape design, which enhances their understanding of the challenges and opportunities in the field. Use of Technology: Digital learning through computer-aided design (CAD) software and virtual reality (VR) tools enhances students' ability to visualize projects and develop complex designs. Evaluation and Feedback: Providing Evaluations

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**153**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	8
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**147**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	300		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	12	20%	3,7	SITE SNALYSIS CONCEPT
	Assignments		10%	1,2 ,4	CONCEPT
	Projects / Lab.		10%	4,5	PLANS
	Report		10%	6,8	ELEVATIONS
Summative assessment	Midterm Exam	4	10%	9	NEW TASK
	Final Exam		50%	10,11,12,13,14,15	DTIALES
Total assessment			100%		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	TYPES OF BUILDING
Week 2	TYPES OF CERCULATION IN SCHOOL BUILDINGS
Week 3	TYPES OF CERCULATION IN SHOPPING CENTER BUILDINGS
Week 4	TYPES OF CERCULATION IN CULTURE CENTER BUILDINGS
Week 5	TYPES OF CERCULATION IN ISLAMIC CENTER BUILDINGS
Week 6	CONCEPT SOURCES
Week 7	ELEVATION DETALIES.

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعى للمختبر

	Material Covered
Week 1	Site analysis
Week 2	Design concept and primary idea formulation for different building types. (school, culture center, shopping center, and Islamic complex).
Week 3	feedback
Week 4	feedback
Week 5	First submission
Week 6	Details of plans
Week 7	feedback
Week 8	feedback

Week 9	Day sketch
Week 10	Elevations and visual aspect
Week 11	feedback
Week 12	feedback
Week 13	Pre- Final submission
Week 14	feedback
Week 15	Final submission

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1.Joseph De Chiara, Julius Panero, Time-Saver Standards for Housing Residential Development 2. Dutt, I. (2012) 'School Design and Students' Relationships with the Natural World', Children, Youthand Environments	
Recommended Texts	Francis D.K. Ching (2014). Architecture: Form, Space, a Order. Wiley. Christopher Alexander (1977). A Pattern Language. Ox University Press. Hershberger, R. G. (2015). Architectural Programming Pre-Design Manager. McGraw-Hill. Neufert, E. (2012). Architects' Data. Wiley-Blackwell. Architectural record AD.	
Websites	Ach net , PINTREST , AGA AHAN	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
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ARC 322 Survey and Architectural Documentation

University of Mosul College of Engineering Architectural Engineering Department

Module Information
معلومات المادة الدراسية

Module Title	**Survey and Architectural Documentation**		**Module Delivery**
Module Type	**S**		☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☒ **Practical** ☐ **Seminar**
Module Code	**ARC322**		
ECTS Credits	4		
(SWL (hr/sem	100		
Module Level	**UGIII**	**Semester of Delivery**	Six
Administering Department	**Architectural Engineering**	**College**	College of Engineering
Module Leader	**Dr. Emad Hani Ismaeel**	**e-mail**	emad.hani.ismaeel@uomosul.edu.iq
s Acad. Title'Module Leader	**Assistant Professor**	**s 'Module Leader Qualification**	.Ph.D
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date		**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The semester seeks to present and discusse the modern and contemporary tools and techniques used to collect and document spatial information and data related to historical constructions and sites, and later used in the activities of preserving the urban heritage, and the ways and mechanisms for digitally representing and extracting them in a variety of formats, while reviewing the characteristics, capabilities, efficiency and shortcomings of these technologies.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The student who exceeds the semester will be able to complete the architectural documentation and submit the engineering documents required for the survey and registration processes. He will also be able to learn about a number of advanced devices and technologies recently used in the field of architectural documentation with knowledge of its strengths and weaknesses. On completion of this course, students will be able to demonstrate through practical exercises on cultural heritage properties a basic understanding of the techniques involved in the conservation of cultural heritage; and realize the basic deterioration processes of historic objects.

Indicative Contents **المحتويات الإرشادية**	Architectural documentation is a scientific course with theoretical and practical parts, concerned with providing and analyzing information specialized in the field of urban conservation, especially the techniques and technologies of architectural documentation of historical buildings and the built environment. The semester establishes for fundamental base for the conservation and documentation processes, and provides the ability to use different techniques and tools for this purpose.

Learning and Teaching Strategies	
Strategies	The strategy is achieved through lectures, e-learning platforms, and giving home and class assignments.

Student Workload (SWL(**الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا**			
(Structured SWL (h/sem **الحمل الدراسي المنتظم للطالب خلال الفصل**	63	**(Structured SWL (h/w** **الحمل الدراسي المنتظم للطالب أسبوعيا**	2
(Unstructured SWL (h/sem **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	37	**(Unstructured SWL (h/w** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	
(Total SWL (h/sem **الحمل الدراسي الكلي للطالب خلال الفصل**	100		

Module Evaluation
تقييم المادة الدراسية

As		**Time/Number**	**Weight ((Marks**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**				
	Assignments	5	(30) %30	12 - 4	LO #1,2,3, 4, and 5
	.Lab / Projects				
	Report	1	(10) %10	13	LO # 1-5
Summative assessment	**Midterm Exam**	hr 1	(10) %10	7	LO # 1-5
	Final Exam	hr 3	(50) %50	16	All
Total assessment			100) %100 (Marks		

(Delivery Plan (Weekly Syllabus
المنهاج الاسبوعي النظري

Week	**Material Covered**
Week 1	.process and objectives ,Conservation history .International charters and organizations .The Heritage of Iraq and its old cities .Iraqi experiments in conservation and documentation
Week 2	Modern technologies and activities of documentation and urban conservation Urban preservation and the problem of multiplicity of modern technologies for documentation and information management Representation and three-dimensional models in documenting urban heritage Digital engineering models, their types and advantages in documentation and urban conservation activities
Week 3	Contact Techniques for 3D Information Acquisition
Week 4	Photogrammetry
Week 5	Laser Scanning
Week 6	Non-Destructive Techniques Infrared Thermography-IR

Week 7	Global Positioning System – GPS
Week 8	Semester exam
Week 9	.degrees panorama software, benefits, how to create, case study 360
Week 10	.Virtual reality- aims, requirements, interaction types
Week 11	.VR benefits and limitation, VR systems D virtual city, Virtual Museums3
Week 12	(Geographic information system (GIS
Week 13	Unmanned Aerial Vehicles Robots Heritage Documentation of Underwater
Week 14	D Printers3
Week 15	Applications
Week 16	Final Exam

/Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	**Available in the ?Library**
Required Texts	• Fielden, B. (2003). Conservation of Historic Buildings. London: Architectural Press.	No
Recommended Texts	• Al-Allaf, Emad Hani, (2018). Information modeling and management technology for historical sites and urban heritage buildings. • Al-Allaf, Emad Hani, Representation Technologies of the Built Heritage, 2018.	Yes
Websites		

Grading Scheme
مخطط الدرجات

Group	**Grade**	التقدير	**(%) Marks**	**Definition**
Success Group (100 - 50)	Excellent **- A**	**امتياز**	100 - 90	Outstanding Performance
	Very Good **- B**	**جيد جدا**	89 - 80	Above average with some errors
	Good **- C**	**جيد**	79 - 70	Sound work with notable errors
	Satisfactory **- D**	**متوسط**	69 - 60	Fair but with major shortcomings
	Sufficient **- E**	**مقبول**	59 - 50	Work meets minimum criteria
Fail Group (49 – 0)	Fail **– FX**	**راسب (قيد المعالجة)**	(49-45)	More work required but credit awarded
	Fail **– F**	**راسب**	(44-0)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a "near-pass fails" policy NOT to condone so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC 323 Physics Laboratory

University of Mosul College of Engineering Architectural Engineering Department

Module Information
معلومات المادة الدراسية

Module Title	**Physics Laboratory**	**Module Delivery**	
Module Type	**C**	☒ **Theory**	
Module Code	**ARC323**	☒ **Lecture**	
ECTS Credits	**4**	☐ **Lab**	
SWL (hr/sem)	**100**	☐ **Tutorial**	
		☒ **Practical**	
		☒ **Seminar**	

Module Level	**UGIII**	**Semester of Delivery**	6
Administering Department	**ARC**	**College**	COE
Module Leader	**Dr. Reem Ali Alothman**	**e-mail**	reemalothman@uomosul.edu.iq
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date		**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	Module Aims for the curriculum on using computers to study the behavior of air and fluid dynamics in the field of architecture: 11. Provide students with a comprehensive understanding of the application of Computational Fluid Dynamics (CFD) in architectural design and analysis. 12. Familiarize students with the principles and fundamentals of fluid mechanics and their relevance to architectural systems. 13. Develop students' proficiency in using CFD software to model and simulate airflow, thermal conditions, and other fluid dynamics phenomena

	in architectural environments. 14. Enable students to evaluate and optimize architectural designs based on their understanding of air and fluid dynamics. 15. Enhance students' ability to analyze and interpret simulation results to inform design decisions and improve building performance. 16. Cultivate students' critical thinking and problem-solving skills by engaging them in practical exercises and projects that apply CFD techniques to real-world architectural scenarios. 17. Foster collaboration and communication skills through group discussions, project presentations, and case study analysis. 18. Encourage students to critically assess the limitations and uncertainties associated with CFD simulations and recognize the importance of validation and verification. 19. Stimulate students' awareness of emerging trends and advancements in the field of CFD and its potential impact on architectural design and sustainability. 20. Promote an interdisciplinary approach by connecting fluid dynamics principles with other relevant aspects of architecture, such as thermal comfort, energy efficiency, and environmental performance. Overall, the module aims to equip students with the knowledge, skills, and mindset to effectively use CFD software to study and optimize the behavior of air and fluids in architectural contexts.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this module, students should be able to: 1. Understand the principles and theories of fluid dynamics and their application in architectural design and analysis. 2. Utilize Computational Fluid Dynamics (CFD) software to model and simulate air and fluid flow in architectural environments. 3. Apply boundary conditions and define appropriate parameters for accurate simulation of airflow, thermal conditions, and other fluid dynamics phenomena. 4. Analyze and interpret simulation results to evaluate the performance of architectural designs in terms of airflow, thermal comfort, and energy efficiency. 5. Assess and optimize architectural designs based on insights gained from CFD simulations and analysis. 6. Demonstrate proficiency in using CFD software to explore and evaluate different design options and scenarios. 7. Communicate effectively about CFD simulations, presenting findings and recommendations to stakeholders in a clear and concise manner. 8. Recognize the limitations and sources of uncertainty in CFD simulations and apply appropriate methods for validation and verification. 9. Collaborate effectively in interdisciplinary teams, integrating fluid dynamics principles into architectural design processes. 10. Stay informed about emerging trends and advancements in the field of CFD and their implications for architectural design and sustainability. 11. Apply ethical considerations in the use of CFD software, considering the responsible and sustainable use of resources. 12. Demonstrate critical thinking and problem-solving skills in applying CFD techniques to real-world architectural challenges. These learning outcomes aim to equip students with the knowledge, skills, and

	competencies required to effectively utilize CFD software for studying and optimizing the behavior of air and fluid dynamics in architectural contexts.
Indicative Contents المحتويات الإرشادية	The curriculum on using computers to study the behavior of air and fluid dynamics in the field of architecture covers a range of topics to equip students with the necessary knowledge and skills. The indicative contents include an introduction to Computational Fluid Dynamics (CFD) in architecture, fundamentals of fluid mechanics, and an overview of commonly used CFD software. Students will learn techniques for building geometry modeling, defining boundary conditions, and generating accurate meshes for simulations. The curriculum also emphasizes practical applications, such as simulating airflow in building interiors and analyzing ventilation effectiveness, evaluating thermal comfort parameters, and exploring design modifications for improved thermal conditions. Students will gain insights into wind flow analysis around buildings, assessing wind effects on facades and outdoor spaces. Additionally, they will explore fire and smoke simulations, rainwater penetration analysis, and large-scale simulation techniques for efficient modeling. The curriculum includes validation and verification of CFD simulations, enabling students to compare results with experimental data and understand the limitations and sources of uncertainty. Optimization of building performance is covered, allowing students to set up optimization studies and use algorithms to find optimal design solutions. Real-world case studies showcase the application of CFD in architecture, and ethical considerations and sustainability aspects in CFD simulations are discussed. Overall, this curriculum provides a comprehensive and practical approach to using computers for studying air and fluid dynamics in architecture, enabling students to analyze and optimize architectural designs for improved performance and sustainability.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The curriculum of Physics Laboratory employs a combination of learning and teaching strategies. These include interactive lectures to introduce theoretical concepts and principles, hands-on practical sessions where students can apply CFD software to solve real-world problems, and group discussions to analyze case studies and share insights. Students will also engage in individual and group projects, allowing them to explore specific topics in-depth and apply their knowledge to practical scenarios. Guest lectures by industry professionals will provide valuable insights into the application of CFD in architecture. Additionally, site visits and fieldwork may be organized to observe and analyze real-world architectural environments. The teaching strategies emphasize active learning, encouraging students to participate, ask questions, and collaborate with their peers. The use of visual aids, demonstrations, and multimedia resources enhances understanding and engagement. Regular assessments, including assignments and exams, will be used to evaluate students' understanding and progress throughout the curriculum. Overall, these strategies promote a comprehensive and immersive learning experience for students in the field of architectural air and fluid dynamics.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	3,10	1,3,10
	Computer-simulated experiments	4	40%(40)	3,6,9,12	2,3,4,5,6,7,8,11,12
	Discussions & Analysis team's work	4	20% (20)	3,6,9,12	2,3,4,5,6,7,8,11,12
Summative assessment	Midterm Exam	1 hr	10% (10)	8	1,3,4,5,9
	Final Exam	3 hr	20% (20)	16	1,2,3,4,5,6,8,9,10 ,11
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Practical Lesson 1: Introduction to Computational Fluid Dynamics (CFD) Software • Familiarize students with CFD software interface and basic functionalities • Learn how to create a simple geometry and define boundary conditions • Run a basic simulation and analyze the results
Week 2	Practical Lesson 2: Modeling Airflow in Building Interiors • Create a 3D model of an indoor space using CFD software • Set up ventilation system and define inlet/outlet conditions • Simulate airflow patterns and analyze ventilation effectiveness
Week 3	Practical Lesson 3: Thermal Comfort Analysis

	• Simulate the temperature distribution in an indoor space • Evaluate thermal comfort parameters, such as PMV and PPD • Explore design modifications to improve thermal comfort
Week 4	Practical Lesson 4: Wind Flow Analysis around Buildings • Model a building and its surroundings in CFD software • Simulate wind flow patterns and analyze pressure distribution • Assess wind effects on building facades and outdoor comfort
Week 5	Practical Lesson 5: Natural Ventilation Design Optimization • Optimize the design of a natural ventilation system using CFD • Explore different inlet and outlet configurations • Analyze the impact on airflow rates and indoor air quality
Week 6	Practical Lesson 6: Indoor Air Quality Assessment • Model a space with pollutant sources using CFD software • Simulate the dispersion of pollutants and assess air quality • Evaluate the effectiveness of ventilation strategies in pollutant removal
Week 7	Practical Lesson 7: Fire and Smoke Simulation • Simulate a fire scenario and smoke movement in a building • Assess the effectiveness of fire safety measures • Analyze evacuation routes and smoke control strategies
Week 8	Practical Lesson 8: Urban Microclimate Analysis • Model an urban area and simulate its microclimate • Study the impact of buildings and vegetation on temperature and wind patterns • Evaluate the potential for urban heat island mitigation strategies
Week 9	Practical Lesson 9: Rain Penetration Analysis • Simulate rainwater penetration in a building facade • Analyze potential areas of water ingress and moisture damage • Explore design modifications for improved waterproofing
Week 10	Practical Lesson 10: Optimization of Building Performance • Set up an optimization study using CFD software • Define design parameters and performance metrics • Use optimization algorithms to find the optimal design solution
Week 11	Practical Lesson 11: Sensitivity Analysis • Perform a sensitivity analysis on a building design • Vary input parameters and assess their impact on performance

	• Identify the most influential design factors for further optimization
Week 12	Practical Lesson 12: Parametric Design Exploration • Explore parametric design techniques using CFD software • Generate a range of design variations and evaluate their performance • Analyze the trade-offs between different design options
Week 13	Practical Lesson 13: Large-Scale Simulation Techniques • Learn techniques for efficient simulation of large-scale models • Utilize parallel computing and distributed processing methods • Run simulations on high-performance computing platforms
Week 14	Practical Lesson 14: Validation and Verification of CFD Simulations • Compare CFD simulation results with experimental data • Analyze the accuracy and reliability of the simulations • Understand the limitations and sources of uncertainty in CFD modeling
Week 15	Practical Lesson 15: Case Studies and Project Presentations • Present and discuss case studies showcasing CFD applications in architecture • Encourage students to present their own CFD projects and findings • Foster a discussion on future trends and advancements in the field
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	-"Computational Fluid Dynamics for Engineers" by Tuncer Cebeci and Jian P. Shao -"Introduction to Computational Fluid Dynamics" by Anil W. Date -"Building Performance Simulation for Design and Operation" by Jan L. M. Hensen and Roberto Lamberts -"CFD for Architects: A Practical Guide" by Asim Hussain	No
Recommended Texts	-"Computational Fluid Dynamics for Engineers" by Tuncer Cebeci and Jian P. Shao -"Building Performance Simulation for Design and Operation" by Jan L. M. Hensen and Roberto Lamberts	No
Websites	"Introduction to Computational Fluid Dynamics" - Online course offered by Cornell University or edX "CFD for Building Design" - Online course offered by SimScale "Introduction to CFD Analysis" - Tutorial series by Autodesk CFD Learning Channel on YouTube "CFD for Architects: A Step-by-Step Guide" - Tutorial series by EngiSoft on YouTube	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC 324 **Physics (3)**

University of Mosul College of Engineering Architectural Engineering Department

Module Information
معلومات المادة الدراسية

Module Title	**Physics (3)**	**Module Delivery**	
Module Type	**S**	☒ **Theory**	
Module Code	**ARC 324**	☐ **Lecture**	
ECTS Credits	**3.00**	☐ **Lab**	
SWL (hr/sem)	**75**	☐ **Tutorial**	
		☐ **Practical**	
		☐ **Seminar**	
Module Level	**UGIII**	**Semester of Delivery**	**Six**
Administering Department	**Architectural**	**College**	**Engineering**
Module Leader	**Rawia Marwan Dabdoob**	**e-mail**	rawia.dabdoob@uomosul.edu.iq
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**Master**
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date		**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	• Describe and specify equipment and fittings for water supply and sewage systems. • Install appropriate pipes and fittings for water supply, sewage, stormwater, and wastewater systems, and waste disposal systems, according to the building design. • Calculate the building's average water consumption and the required pipe width and length.
Module Learning	• Develop an understanding of the principles of urban water distribution and drainage through the public distribution network, and the factors affecting urban water consumption.

Outcomes مخرجات التعلم للمادة الدراسية	• Develop practical skills in designing sanitary pipes for supply and drainage within buildings, and rainwater drainage. • Develop practical skills in designing sanitary spaces and the standards used in distributing sanitary equipment within sanitary spaces. • Instill an understanding of environmental sustainability in the subject of rainwater collection and reuse. • Instill an understanding of environmental sustainability in the subject of waste collection in multi-story residential or office buildings via waste pipes and methods for waste separation and recycling.
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	• **Lecture strategy** • **Discussion strategy** • **Problem-solving strategy** • **Cooperative learning strategy** **1. Promote an interactive studio environment for lecture presentations and discussions to reflect a realistic picture that simulates professional challenges.** **2. Enhance understanding through classroom assignments, including calculations and diagrams of the supply and drainage network and waste disposal pipes.** **3. Enhance understanding through implemented real-life projects that reflect the job market.**

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.9
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	5	%15(15)	3, 5,6,8 and 11	LO # 1-3
	Assignments	1	20%(20)	2 and 12	LO # 5-6
	Projects / Lab.				
	Report	1	5%(5)	7	LO # 4
Summative assessment	Midterm Exam	1 h	10% (10)	9	LO # 1-4
	Final Exam	3 h	50% (50)	16	All
Total assessment			100% (100)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction, Definitions of the Scope of Sanitary Supply and Drainage Works
Week 2	Sanitary Equipment, Sanitary Spaces
Week 3	Public Water Distribution System and Building Water Distribution Network
Week 4	Building Water Requirements Calculations
Week 5	Term exam 1
Week 6	Types of Supply and Drainage Network Pipes
Week 7	Public drainage system and building drainage network
Week 8	Calculating sewer pipe sizes and lengths
Week 9	Monthly exam
Week 10	Rainwater drainage system
Week 11	Waste pipe system
Week 12	Seminars
Week 13	Seminars
Week 14	Seminars
Week 15	Seminars
Week 16	Final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	• **Plumbing Complete: Expert Advice from Start to Finish, Book by Rex Cauldwell.**	No
Recommended Texts	**Ultimate Guide: Plumbing, Updated 5th Edition, Book**	No
Websites	https://iccts.moch.gov.iq/wp-content/uploads/2023/09/%D9%85%D8%AF%D9%88%D9%86%D8%A9-%D8%A7%D9%84%D8%B5%D8%B1%D9%81-%D8%A7%D9%84%D8%B5%D8%AD%D9%8A-%D9%81%D9%8A-%D8%A7%D9%84%D9%85%D8%A8%D8%A7%D9%86%D9%8A.pdf https://www.alnaqeeb.me/%D8%AA%D9%86%D9%81%D9%8A%D8%B0-%D8%B4%D8%A8%D9%83%D8%A7%D8%AA-%D8%A7%D9%84%D8%B5%D8%B1%D9%81-%D8%A7%D9%84%D8%B5%D8%AD%D9%8A/#google_vignette	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC 325 Working Drawings (2)

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Working Drawings 2**			Module Delivery	
Module Type	**C**			☐Theory ☒ Lecture ☐ Lab ☐Tutorial ☒ Practical ☐ Seminar	
Module Code	**ARC 325**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	UGI		Semester of Delivery	10	
Administering Department	Architectural Engineering		College	College of Engineering	
Module Leader	Roua Suhail Mohammad		E-mail	rouasuhail@uomosul.edu.iq	
Module Leader's Acad. Title	teacher		Module Leader's Qualification	Master Degree	
Module Tutor	Maysaa moffeq Shaimaa aldabbagh Alhan faris Esraa malallah Fahad akram		e-mail	maysaa.moffeq@uomosul.edu.iq Shaimaa.aldabbagh@uomosul.edu.iq alhan.faris@uomosul.edu.iq Esraa.malallah@uomosul.edu.iq fahad.akram@uomosul.edu.iq	
Peer Reviewer Name			e-mail		
Scientific Committee Approval Date			Version Number	2.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	□ Enhancing critical thinking and problem-solving skills, identifying characteristics, constraints, and opportunities. Enhancing critical thinking and problem-solving skills, and identifying characteristics, constraints, and opportunities □ Developing skills related to architectural solutions linked to the structural solution of the building. Developing skills related to architectural solutions associated with the structural solutions of the building. □ Estimating the contexts of ideas related to architectural design and the possibility of linking them to practical solutions for engineering projects. Appreciation of the contexts related to architectural design ideas and the possibility of linking them to practical solutions for engineering projects.

Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	By the end of the course, the student will be able to: • The student's ability to design and analyze structural engineering structures and their detailed elements. • The student is capable of designing projects with structural frameworks that are realistic and feasible. • The student's ability to conduct critical evaluation and analytical thinking, and to enhance the capacity to analyze and assess existing projects and design proposals critically and effectively. • The student's ability to communicate effectively with other specializations regarding services and construction details of projects. • The ability of students to collaborate and work as a team, and their capacity to work within multidisciplinary teams, effectively cooperating with engineers, architects, and other specialists (structural engineers).
Indicative Contents **المحتويات الإرشادية**	1-Teaching the student the principles of designing structures with steel frameworks, as well as familiarizing them with the types of steel structures and how to handle them as an essential part of architectural design. 2-Implement clear practical programs that focus on the technological details of using steel structures, without neglecting architectural beauty standards, and keeping up with advancements in developed countries by offering an architectural educational program that establishes a foundation based on modern technologies related to recent developments in engineering and artistic fields, especially concerning architectural constructions and building installations. 3-Enhancing the capabilities and skills of graduates by offering specialized continuing education courses and engaging with them to support the department's mission.

Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	□ Learning thru projects: Learning thru projects □ Field visits Field visits□ Video-based observations (visual learning method) □ Evaluation of design and feedback Design evaluation and feedback □ Use of visual media and technology Using visual media and technology

Student Workload (SWL) **الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا**			
Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	63	Structured SWL (h/w) **الحمل الدراسي المنتظم للطالب أسبوعيا**	4
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	37	Unstructured SWL (h/w) **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	100		

Module Evaluation
تقييم المادة الدراسية

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (5)	4,13	LO #1,2, and 3
	Assignments	1	40% (20)	6	LO #3
	Projects / Lab.		20%(10)		
	Report	1	10% (5)	5 and 15	
Summative assessment	Midterm Exam	2 hr	20% (10)	15	LO # 1-4
	Final Exam	3 hr	100% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	Material Covered
Week 1	Introduction, definitions, references
Week 2	Review of international natural design projects
Week 3	he history of landscape design
Week 4	How to start designing a project thru its structural framework
Week 5	Basics of executive drawing for architectural projects.
Week 6	
Week 7	Design of structural networks for projects
Week 8	Structural spaces and their engineering specifications
Week 9	Designing buildings in harmony with the execution plans.
Week 10	Details of the external spaces
Week 11	
Week 12	Designing the executive details of the projects under study
Week 13	
Week 14	Discussion of the report
Week 15	The final exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	• 1 -Working Drawings Handbook , Keith Styles , Kindle Edition , 2014 by Architectural Press , USA . • 2 -Design of Steel Structures , Mc Graw Hill India , Brand New, International Softcover Edition , 3rd edition 2017 , USA . • 3 -Architecture and Construction in Steel , Alan Blanc, Michael Mc Evoy, Roger Plank , ISBN 9780419176602 , Taylor & Francis , 2019 , USA .	Yes
Recommended Texts		
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
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Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ARC 326 Principles of Planning

University of Mosul College of Engineering Architectural Engineering Department

Module Information معلومات المادة الدراسية					
Module Title	**Principles of Planning**			**Module Delivery**	
Module Type	**S**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ARC 326**				
ECTS Credits	**3.00**				
SWL (hr/sem)	**75**				
Module Level	**UGIII**		**Semester of Delivery**		**Six**
Administering Department	**Architectural**		**College**	**Engineering**	
Module Leader	**Dr. Hussein Salman Abdullah**		**e-mail**	hussein.salman@uomosul.edu.iq	
Module Leader's Acad. Title	**Lecturer**		**Module Leader's Qualification**		**PHD**
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Enhance philosophical thinking and urban problem-solving skills, Identifying characteristics, constraints, and opportunities Develop modern urban planning skills Appreciate the cultural, social, and historical contexts of urban planning
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Understanding Basic Concepts • Understanding the characteristics of human settlements and how they emerged in ancient civilizations • The concept of sustainability in cities

	• Characteristics of sustainable cities • Types of sustainability and their applications • The most important sustainable cities in the Arab world
Indicative Contents المحتويات الإرشادية	Introduce architecture students to the principles and concepts of planning, taking into account the practical importance of planning and the role of the architect in this process. Students should be able to engage with the urban planning process and its elements, including streetscapes, parking design, and master plans, in addition to providing numerous parking spaces around the world as examples of this topic.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	• **Lecture strategy** • **Discussion strategy** • **Problem-solving strategy**

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.9
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	5	%15(15)	3, 5,6,8 and 11	LO # 1-3
	Assignments	1	20%(20)	2 and 12	LO # 5-6
	Projects / Lab.				
	Report	1	5%(5)	7	LO # 4
Summative assessment	**Midterm Exam**	1 h	10% (10)	9	LO # 1-4
	Final Exam	3 h	50% (50)	16	All
Total assessment			100% (100)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Introduction, definitions of the development of urban planning concepts and principles, and the role of the architect**
Week 2	**The emergence of human settlements in ancient civilizations**
Week 3	**Medieval and Islamic cities**
Week 4	**Modern theories and ideas of urban planning**
Week 5	**Term exam 1**
Week 6	**Sustainable and Contemporary Cities**
Week 7	**Elements of Urban Spaces and Streets**
Week 8	**Technical Aspects of Street Planning**
Week 9	**Term exam 2**
Week 10	**Technical Aspects of Walkway Planning**
Week 11	**Planning Aspects of Parking Garages**
Week 12	**Seminars**
Week 13	**Seminars**
Week 14	**Seminars**
Week 15	**Seminars**
Week 16	**Final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	▪ "Ecological Design and Planning" - يقدم جورج إف. طومسون وفريدريك آر. ستاينر، رؤى حول كيفية تضمين مبادئ الاستدامة في تصميم وتخطيط المواقع الخارجية. ▪ جالين ، آرثر ب. ،The Urban Pattern ،Van Nostrand Reinhold Co. • Chapin ،F. Stewart ،Urban Land use Planning ، University of Illinois	No
Recommended Texts	▪ Simonds - كتاب يغطي جوانب متعددة من تخطيط وتصميم البيئي من الناحية النظرية والعملية. ▪ مجلة " Urban Planning" - مجلة علمية تنشر بحوثاً ودراسات حول تخطيط وتصميم المدن والعمران. "Ecological Design and Planning" بواسطة George F. Thompson و Frederick R. Steiner - يقدم الكتاب منظوراً على كيفية دمج مبادئ الاستدامة في تصميم وتخطيط المدن.	No
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM

Course System

Fourth Level

Fourth Level

Semester 2					Semester I				Fourth Level	
Credit Hours	Practical Hours	Theoretical Hours	Course Title	Course Code	Credit Hours	Practical Hours	Theoretical Hours	Course Title	Course Code	#
7	**10**	**2**	**Architectural Design (4)**	**ARC411**	**7**	**10**	**2**	**Architectural Design (4)**	**ARC411**	**1**
2		**2**	**Physics (7)**	**ARC4 22**	**2**		**2**	**Theory of Architecture (1)**	**ARC414**	2
2		**2**	**Theory of Architecture (2)**	**ARC4 24**	**3**	**4**	**1**	**Interior Design**	**ARC415**	3
2		**2**	**Contemporary Regional Architecture**	**ARC4 25**	**2**		**2**	**Theories of Urban Design**	**ARC416**	4
3	**4**	**1**	**Landscape Architecture**	**ARC4 26**	**2**		**2**	**Architectural Spaces Programming**	**ARC417**	5
2		**2**	**Safety of Architectural Structural**	**ARC4 27**	**2**		**2**	**Physics (6)**	**ARC418**	6
2		**2**	**Advanced Construction Techniques**	**ARC4 28**	**2**		**2**	**Steel Structures**	**STR 417**	7
20	**27**				**20**	**27**				

ARC411 Architectural Design (4)

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Architectural Design (4)
2. Course Code:
ARC 411
3. Semester / Year:
Annual
4. Description Preparation Date:
2026
5. Available Attendance Forms:
In person - twice a week
6. Number of Credit Hours (Total) / Number of Units (Total):
12 hrs / 7 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Dhuha Abdulgani Al-kazzaz Email: dhuha.kazzaz@uomosul.edu.iq Ghada Mohammed Younis Miqdam Ameen Majeed Baydaa Hanna Saffo Farhan Awad Jasim Amer Abdullah Alazzawi Dr. Sinan Mohammed Ayad Waleed Jalal
8. Course Objectives

Course Objectives	Enhancing the student ability of creative thoughts during formation of architectural works is the main issue of this design course with emphasis on the site, the context, the function, the user, the case study, and the personal vision as external motives of creativity in design. The course objectives are: ● To examine a building integration with its site during the time to perceive how significant and unavoidable the role of site is during designing process. ● To examine a building integration with its function and how significant and unavoidable the role of function is during designing process. ● To improve the student ability to use the site and the surrounding environment as significant factors for creating in architecture. ● To improve the ability to find a creative solution which respond to the user needs and problems. ● Applying a proper concept and design methodology which respect the human factor in architecture. ● To enhance creative thoughts by utilizing the student personal temperaments, attitudes, characters to provide an opportunity for students during formation of

	architectural works. ● To enhance creative thoughts by developing the student knowledge of relevant case studies. ● To improve the student abilities of continuity and insistence in developing a design concept for their significant role in achieving creativity. ● To improve the ability of providing a successful, realistic and meaningful presentation.

9. Teaching and Learning Strategies

Strategy	● Lecture based teaching method ● Project based learning method ● Critic-based learning

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	9	analyze, assess, record, and comparatively evaluate relevant information	Data collection: Precedents Analysis of previous hospital projects	Group discussion	Assignments
2	9	analyze, assess, record, and comparatively evaluate relevant information	Data collection of Design standards and criteria of health facilities in hospital building designs.	Group discussion	Assignments
3	9	analyze, assess, record, and comparatively evaluate relevant information	Site analysis	Group discussion	Assignments
4	9	Apply critical and and imaginative thinking	Day Sketch-1		Class Exam
5	9	Apply knowledge to solve design problem	Discussion of proposals of design concept	Guiding feedback	Continuous evaluation
6	9	Ability to communicate design idea	First submission of Design concept		Jury assessment system
7	9	Apply knowledge to solve design problem	Design concept development	Guiding feedback	Continuous evaluation
8	9	Apply knowledge to solve design problem	Development of plans (zoning & circulation)	Guiding feedback	Continuous evaluation
9	9	Apply knowledge to solve design problem	Development of plans (building structure)	Guiding feedback	Continuous evaluation
10	9	Ability to communicate and design	Second submission: plans and physical model		Jury assessment system
11	9	Develop imaginative and thinking in design	Development of elevations & sections	Guiding feedback	Continuous evaluation
12	9	Apply critical and and imaginative thinking	Day Sketch-2		Class Exam
13	9	Ability to communicate design	Pre-final submission		Jury assessment system

14	9	Ability to consider diverse points of view, and reach well-reasoned conclusions	Solving minor problems: functional, formal & structure	Guiding feedback	Continuous evaluation
15	9	Ability to communicate design	Final submission		Jury assessment system

11.Course Evaluation

Day 30 pts
Precedent analysis reports 4 pts
Functional analysis reports 4 pts
Site analysis reports 2 pts
Design project – concept submission 10 pts
Design project – plan submission 10 pts
Design project – prefinal submission 15 pts
Design project – final submission 15 pts
Attendance + Daily assessment 10 pts
Total 100pts

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	1- Joseph De Chiara, "Time-Saver Standards for Building Types". 2- Ernst Neufert ,"Neufert Architects' Data".
Recommended books and references (scientific journals, reports...)	3- Philipp Meuser & Christoph Schirmer, "New Hospital Buildings in Germany". 4- Philipp Meuser & Christoph Schirmer, "New Hospital Buildings in Germany". 5- Philipp Meuser "Constructon and Design manual - Hospital and Health Centers". 6- Louis G. Redistone, "Hospitals and Health Care Facilities". 7- Christine Nickl-Weller & Hans Nickl, "Hospital Architecture + Design". 8- Richard Sprow, "Planning Hospitals of the Future".
Electronic References, Websites	

ARC414 Theory of Architecture (1)

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Theory of Architecture (1)
2. Course Code:
ARC 414
3. Semester / Year:
Fall / 2025-2026
4. Description Preparation Date:
2026
5. Available Attendance Forms:
Lectures in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours/ 2 ECTS
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Sinan mohammed Email:
8. Course Objectives

Course Objectives	The course aims to present a theoretical framework of the main architectural movements and their secondary sub-divisions, with their main characteristics and practices.
9. Teaching and Learning Strategies	
Strategy	It depends on the ability to identify changes in ideologies through three centuries, so enhancing the ability to differentiate between them, and applying them in design.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	An ability to define causes of changes	Backgrounds of Modern Architecture, Revivalism, Eclecticism	A lecture in the classroom	Direct exam
2	3	An ability to define principles of deferent approaches	The Beginning Strands of Modern Architecture, Art Nouvea, De Stijl & Constructivism, Futurism	A lecture in the classroom	Direct exam
3	3	An ability to define principles of deferent approaches	Expressionism, The Chicago School of Architecture, Organic Architecture/ Frank Lloyd Wright	A lecture in the classroom	Direct exam
4	3	An ability to define principles of deferent approaches, and to compare between them	International Style & the Bauhaus School, The Architecture of Functionalism, New Objectivitism	A lecture in the classroom	Direct exam
5	3	An ability to define principles of deferent approaches, and to compare between them	The Architecture of Le- Corbusier, The Architecture of	A lecture in the classroom	Direct exam

			Ludwig Mies		
6	3	An ability to define principles of deferent approaches, and to compare between them	The deficiencies of Modern Architecture, Crises of Modern Architecture	A lecture in the classroom	Direct exam
7	3	An ability to define principles of deferent approaches, and to compare between them	The Architecture of Brutalism, Archigram & Metabolism	A lecture in the classroom	Direct exam
8-9	3	An ability to define principles of deferent approaches, and to compare between them	Exam.	A lecture in the classroom	Direct exam
10	3	An ability to define principles of deferent approaches, and to compare between them	Late-Modern Architecture/ Theories & Practices	A lecture in the classroom	Direct exam
11-12	3	An ability to define principles of deferent approaches, and to compare between them	Late-Modern Architecture/ Theories & Practices	A lecture in the classroom	Direct exam
13	3	An ability to define principles of deferent approaches, and to compare between them	Late-Modern Architecture/ Theories & Practices	A lecture in the classroom	Direct exam
14	3	An ability to define principles of deferent approaches, and to compare between them	Post-Modern Architecture/ Theories & Practices	A lecture in the classroom	Direct exam
15	3	An ability to define principles of deferent approaches, and to compare between them	Post-Modern Architecture/ Theories & Practices	A lecture in the classroom	Direct exam

11. Course Evaluation

Evaluation type	**Degree**
2 quizzes	12
Term exam	28
Final exam	60
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	None
Main references (sources)	Changing Ideals in Modern Architecture/ Peter Collins Modern Architecture since 1900/ William Curtis Architecture Today/ Charles Jencks International Style in Architecture/ Shereen Sherzad
Recommended books and references (scientific journals, reports...)	-------
Electronic References, Websites	-------

ARC415 Interior Design

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name / Level	
Interior Design	
2. Course Code:	
ARC 415	
3. Semester / Year:	
1st Semester 2026	
4. Description Preparation Date:	
2026	
5. Available Attendance Forms:	
Inside the class, in person	
6. Number of Credit Hours (Total) / Number of Units (Total):	
5 hours/ 3 ECTS credits	
7. Course administrator's name (mention all, if more than one name)	
Asst. Prof. Dr. Oday Qusay Abdulqadir Al-Jalabi – odaychalabi@uomosul.edu.iq Lecturer :Dr. Omar Adil Lecturer :Anfal Azzam Asst. Lecturer : Mafaz Tariq	
8. Course Objectives	
Course Objectives	Introduce students to the principles of interior design including spatial composition, visual balance, proportion, and functional-aesthetic integration. - Enable students to analyze and develop interior spaces based on user comfort, circulation, and lighting/material applications. - Train students to create complete interior design projects with concept development, site analysis, drawings, materials, and finishes. - Strengthen skills in digital design software such as AutoCAD, Revit (BIM), SketchUp, and 3ds Max for 3D modeling and design analysis. - Integrate sustainability and smart technology into interior design through eco-materials, energy efficiency, and lighting optimization. - Develop presentation and professional communication skills through boards, reports, and visualization tools.
9. Teaching and Learning Strategies	
Strategy	- Combine theory with practical projects and field training. - Use modern technology for space analysis and visualization. - Encourage interactive learning and group participation. - Address real-world design problems to boost critical and creative thinking. - Focus on professional communication and project presentation.

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Topic	Teaching Method	Assessment Method	Learning Outcomes
2	3	Introduction to Interior Design: Concepts and Fundamentals	Lecture + Analytical Discussions	Short Written Quiz + Participation	Understanding the basic principles of interior

					design
3	3	Interior Space Analysis: Spatial and Functional Relationships	Project Analysis + Case Studies	Applied Project Analysis + Written Report	Analyze interior spaces and define design relationships
4	3	Use of Color and Lighting in Interior Design	Lecture + Practical Exercises	Practical Exercise + Group Review	Utilize color and lighting to enhance design performance
5	3	Material and Finishes Selection and Their Impact on Function and Aesthetics	Model Display + Material Analysis	Research Report Evaluation + Presentation	Evaluate and select appropriate materials for finishes
6	3	Furniture Design and Interior Space Planning	Design Exercises + Group Reviews	Design Layout + Critical Review	Develop ability to functionally distribute furniture
7	3	Use of Digital Software in Interior Design (AutoCAD, Revit)	Practical Workshop + Software Training	Software Exercise + Practical Evaluation	Master the use of digital design tools
8	3	Sustainable Design and Smart Materials in Interior Spaces	Lecture + Applied Research	Research Report + Group Discussion	Promote sustainable thinking in interior design
9	3	Applied Project (Phase 1): Interior Site Analysis and Concept Development	Review + Design Idea Development	Initial Drawings Review and Evaluation	Analyze and develop a conceptual interior design project
10	3	Applied Project (Phase 2): Development of Preliminary Plans and Drawings	Design Studio Session + Mentor Discussions	Initial Model and Drawing Evaluation	Prepare and present initial drawings for evaluation
11	3	Designing Commercial and Office Spaces: Case Studies and Analysis	Case Study Analysis + Project Presentations	Case Study Review + Group Critique	Understand principles of commercial and office space design
12	3	Designing Residential Spaces: Patterns and Layouts	Applied Design + Critical Evaluation	Individual Project Presentation and Correction	Design residential spaces based on functional

					patterns
13	3	Digital Visualization and 3D Modeling using 3ds Max and SketchUp	3D Modeling Workshop	3D Model Presentation + Evaluation	Master digital visualization and 3D modeling
14	3	Applied Project (Phase 3): Preparation of Working Drawings and Material Selection	Studio Session + Mentor Reviews	Final Review of Drawings and Implementation	Prepare complete working drawings
15	3	Final Project Preparation and Presentation	Final Project Presentation + Discussion	Final Project Evaluation + Presentation	Present and deliver projects professionally

10. Course Evaluation

The final grade is out of 100 and is distributed based on tasks assigned to the student, such as daily preparation, quizzes (oral and written), midterm and final exams, reports, and other assignment

11. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	● ABC of Interior Design – Noor Book ● Material Technology in Interior Design – Tariq Library ● Interior Design – Safa2010 Blog ● Handbook of Lighting Design – WPU Library ● History of Interior Design – WPU Library
Recommended books and references (scientific journals, reports...)	● Interactive Design and its Impact on Interiors and Furniture – JSOS Journal ● The Role of Smart Design in Interior Design and Its Impact on Home Occupants – ResearchGate ● Analysis of Interior Design Patterns and Their Effects on Residential Spaces – GU Journal ● The Role of Interior Space Design in the Quality of Architectural Design – AJSP
Electronic References, Websites	● **ArchDaily** – https://www.archdaily.com ● **Dezeen** – https://www.dezeen.com ● **Homestyler** – https://www.homestyler.com ● **Canva - Interior Design AI** – https://www.canva.com ● **OPPOLIA** – https://www.oppoliahome.com

ARC416 Theories of Urban Design

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Theories of urban design
2. Course Code:
ARC 416
3. Semester / Year:
First/ 2025-2026
4. Description Preparation Date:
2026
5. Available Attendance Forms:
Lectures in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
Hours/2 - units/ 2
7. Course administrator's name (mention all, if more than one name)
Name: Faris A. Matloob, Email: faris.matloob@uomosul.edu.iq Usama H. Ali Email: :usamahumadi@uomosul.edu.iq
8. Course Objectives

Course Objectives	● Provide students with general knowledge of the field of urban design. ● Introduce the main theories related to urban design. ● Equip students with the ability to critique, analyze, and infer. And subsequently, the ability to solve and address problems according to the basic principles of urban design. ● By the end of the course, students will have acquired basic skills related to urban design and development. They will be equipped with design principles that enable them to address various issues and challenges related to the urban environment.
9. Teaching and Learning Strategies	
Strategy	-Encourage active student participation through pre-lecture readings and classroom discussions on important elements and principles of urban design and theories. - Promote interactive learning of important theories, elements, and principles of advanced urban design through the implementation of flipped learning, where students explore and research urban design theories, contemporary urban design elements, and new urban design principles, leading to discussions and a deeper understanding of the subject.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction to the subject of urban design, its principles, and characteristics	What is urban design	- Presenting information using modern media. - Interactively explaining the information, reinforced by examples and real-life characteristics. - Encouraging	- Oral questions - Daily instant tests - Midterm exam - Final exam
2	2	Understanding the principle of closure and its relationship to design	Enclosure and containment		
3	2	Being able to understand and analyze the characteristics of positive and negative space	Positive and negative space		
4	2	Identifying the elements and	Quality of public		

		characteristics that determine the quality of the public realm	realm	student interactive participation and raising questions and comments about the topic.	
5	2	Understanding the characteristics of connections and their properties in urban areas	Making connections		
6	2	Identifying the characteristics of distinctiveness, character, and identity in urban design	Distinctive-ness		
7	2	Understanding the principle of urban space capabilities and the factors influencing it	Robustness		
8	2	Identifying the characteristic of clarity in urban design and how to enhance it in urban areas	Legibility		
9	2	Providing students with the necessary understanding of the principle of diversity in urban design	Diversity		
10	2	Enhancing students' understanding of cognitive studies in urban design and their impact on urban production	Cognitive Studies		
11	2	Understanding the foundations of spatial organization theory	Spatial Organization		
12	2		Mid-Term Exam		
13	2	Identifying the most prominent theories related to urban design and the characteristics of each	Urban Design Theories 1		
14		Identifying the most prominent theories related to urban design and the characteristics of each	Urban Design Theories 2		
15		Understanding rational approaches in urban design and their characteristics	Rationality in Urban Design		

11. Course Evaluation

Evaluation type	**Degree**
Quizzes: 12 points	12 60
Term Exam points	25
Final exam	60
Interactive contributions	3
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	-Carmona, M. (2021). Public places urban spaces: The

	dimensions of urban design. Routledge. -BENTLEY, I. 1985. Responsive environments, Routledge -DETR & CABE 2000. By Design: Urban Design in the Planning System, Great Britain, Crown -DAVIES, L. 2000. Urban design compendium. London: English Partnership.
Recommended books and references (scientific journals, reports...)	-------
Electronic References, Websites	www.Urban Design Lab.com

ARC417 Architectural Spaces Programming

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Architectural Spaces Programming
2. Course Code:
ARC417
3. Semester / Year:
Fall / 2025-2026
4. Description Preparation Date:
2026
5. Available Attendance Forms:
Lectures in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
(2) hours per week / (2) units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. rana mahfodh Email: rana.mahfoodh@uomosul.edu.iq **Asst. Prof. Baedaa' Hanna**
8. Course Objectives

Course Objectives	**● Increase students' methodological knowledge of planning the design process according to modern scientific methods.** **● Analyze real-world projects to discover their objectives and application locations.** **● Learn how to interpret a functional program based on functional and spatial relationships.**
9. Teaching and Learning Strategies	
Strategy	**● A theoretical course that includes previous programming methods and the process of solving design problems, as well as the course related to aspects of design products (function; performance methods, analysis, goal setting, performance requirements, programming concepts, synthesis evaluation and development),**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	2	Understanding the design process using modern scientific methods. Analysis of real-life projects to	Introduction, definition, programming considerations. Domains of architectural	Understanding and analysis	Semester exam

		discover their objectives and application areas. **Analysis of functional programs and understanding of functional relationships.**	**programming, generating design problems.** **Steps of the design process, design constraints.** **Design process methodology.** **The concept of architectural programming, the Bina model.** **Concept formation in programming and design, the Doric framework for programming.** **Functional program steps/activities, relationships, and zoning.** **Architectural programming representations, diagrams, and matrices.** **Site analysis steps, evaluation of alternatives.** **Architectural programming thinking in relation to the types of design process.** **Programming case study and design concept formulation.** **Programming report discussion.** **Semester exam.**		

11. Course Evaluation

Evaluation type	**Degree**
Quizzes	**5 %**
Term Exam points	**20 %**

Report	**10%**
Daily Preparation	**5%**
Final exam	**60%**
Total	**100%**

1. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Pena, W. & S., Parshall, PROBLEM SEEKING, An Architectural Programming Primer, (4th Ed), John Wiley & Sons Ltd. New York, 2003. Duerk P. Donna , Architectural Programming: Information Management for Design, Wiley, 17.09.1993 - 272 Seiten.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

ARC418 Physics (6)

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Physics (6)
2. Course Code:
ARC418
3. Semester / Year:
First/ 2025-2026
4. Description Preparation Date:
2026
5. Available Attendance Forms:
Lectures in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hr/ 2 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Bassam Al-Hafith bisam.alhafiz@uomosul.edu.iq
8. Course Objectives • Introducing students to the fundamentals of environmental engineering and sustainability concepts, with a focus on the relationship between human activities and the natural environment. • Analyzing types of environmental pollution and the impact of design on the environment and society, and developing sustainable architectural and urban solutions. • Enhancing students' capabilities in managing waste and natural resources, and utilizing recycling and environmental conservation techniques. • Developing students' skills in applying green building and renewable energy techniques to support sustainable development projects. • Introducing students to water and air treatment technologies and natural disaster management, and analyzing their role in protecting the environment and public health. • Equipping students with the ability to conduct Environmental Impact Assessment (EIA), while applying sustainability standards in urban planning and design. • Enhancing students' scientific research and academic presentation skills through the preparation of innovative projects and specialized seminars.

Course Objectives	• Enabling students to identify sources of environmental pollution, types of waste, and control mechanisms within engineering contexts. • Developing students' ability to use recycling and clean energy principles to address environmental problems within engineering design. • Providing students with the basic skills to apply environmental impact assessment techniques to real engineering and construction projects. • Enhancing students' understanding of environmental protection policies and laws related to sustainable development, and how to integrate them into professional practice. • Encouraging students to develop applied research projects that contribute to the creation of sustainable solutions to address local and global environmental issues.
9. Teaching and Learning Strategies	
Strategy	• Lecture strategy • Discussion strategy • Problem-solving strategy • Cooperative learning strategy

Strategy: 1. Use of visual media and technology 2. Classroom assignments 3. Discussion groups	Application • Providing an interactive learning studio environment that allows for lectures and lively discussions, simulating real-life professional challenges. • Supporting students' practical understanding through classroom assignments that include calculations and illustrations of water supply and sewage networks and waste disposal systems. • Consolidating knowledge through the implementation of real-life projects inspired by the needs and requirements of the labor market.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First Second Third Fourth 5th 6th 7th	2	• Learn the basic principles of environmental engineering and the foundations of sustainability and apply them to engineering projects. • Analyze different types of environmental pollution and their impact on the environment and society, while proposing sustainable design solutions. • Develop effective waste management plans, promote a culture of recycling, and sustainable resource use. • Evaluate the importance of biodiversity and the role of environmental engineering in protecting natural ecosystems. • Apply industrial pollution control techniques and adopt green building principles in engineering projects. • Design effective strategies for managing and conserving natural resources using modern technologies. • Identify water and air treatment technologies and evaluate their	• Introduction to Environmental and Sustainability Engineering • Environmental Pollution and Design Impacts on the Environment and Society • Waste Management and Recycling Promotion • Biodiversity Protection and Ecosystem Conservation • Industrial Pollution Control and Green Building Technologies • Natural Resource Management and Conservation Technologies • Water and Air Treatment Technologies • Natural Disaster Management and Environmental Response • Renewable Energy and Clean Energy Technologies • Environmental Impact Assessment (EIA) • Sustainable City Planning and Environmental Design • Environmental Policies and Legislation • Research and Innovation Projects in Environmental and Sustainability Engineering • Seminars • Seminars	Interactive learning: This approach includes the use of class discussions, cooperative learning in groups,	

8th 9th 10th 11 12 13 14		effectiveness in improving environmental quality. • Develop environmental response plans to manage natural disasters and reduce their impacts on society and the environment. • Evaluate renewable energy sources and apply clean energy technologies to achieve environmental sustainability. • Apply Environmental Impact Assessment (EIA) methodologies to prepare environmental reports and analyze sustainable alternatives. • Design development plans for sustainable cities by integrating environmental principles into urban planning. • Interpret national and international environmental policies and analyze the impact of legislation on development projects. • Conduct applied and innovative research in the fields of environmental sustainability and provide advanced technical solutions. • Develop research and scientific presentation skills by delivering seminars on contemporary environmental topics. Develop communication and interactive presentation skills while promoting critical thinking in environmental seminar discussions.		

11. Course Evaluation	
Evaluation type	**Degree**
Quizzes	15
Term Exam points	15
Report	10
Final exam	60
Total	100
12.	
Required textbooks (curricular books, if any)	None
Main references (sources)	▪ United Nations Environment Programme (UNEP). "Global Environment Outlook – GEO-6: Healthy Planet, Healthy People."
Recommended books and references (scientific journals, reports...)	• Gilbert M. Masters and Wendell P. Ela • "Introduction to Environmental Engineering and Science" (3rd Edition). • John Randolph and Gilbert Masters • "Environmental Science and Technology: A Sustainable Approach to Green Science and Technology". • Journal of Environmental Management (Elsevier). Sustainability (MDPI).
Electronic References, Websites	▪ https://iccts.moch.gov.iq/wp-content/uploads/2023/09/%D9%85%D8%AF%D9%88%D9%86%D8%A9-%D8%A7%D9%84%D8%B5%D8%B1%D9%81-%D8%A7%D9%84%D8%B5%D8%AD%D9%8A-%D9%81%D9%8A-%D8%A7%D9%84%D9%85%D8%A8%D8%A7%D9%86%D9%8A.pdf ▪ https://www.alnaqeeb.me/%D8%AA%D9%86%D9%81%D9%8A%D8%B0-%D8%B4%D8%A8%D9%83%D8%A7%D8%AA-%D8%A7%D9%84%D8%B5%D8%B1%D9%81-%D8%A7%D9%84%D8%B5%D8%AD%D9%8A/#google_vignette

STR 417 Steel Structures

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Steel Structures
2. Course Code:
STR 417
3. Semester / Year:
First/ 2025-2026
4. Description Preparation Date:
2026
5. Available Attendance Forms:
Lectures in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours/ 2 ECTS credits
7. Course administrator's name (mention all, if more than one name)
Name: fahad akram saeed Email: fahad.akram@uomosul.edu.iq
8. Course Objectives

Course Objectives	1. introduce students to the fundamental design process of steel as a structural member which found in bridges and building structures. 2. The AISC LRFD Code is the design specifications choice used in this course. 3. Understanding the relationship between analysis and design of steel structures by applying gain knowledge from statics, mechanics of solid, and structural analysis further. 4. In this course, the students learn how to analysis the steel members under different loading conditions. In addition to the connection between members.
9. Teaching and Learning Strategies	
Strategy	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Introduction to structural steel design. Advantages of steel as a structural material. Disadvantages of steel as a structural material. Steel sections. Stress–strain relationships in structural steel.	Introduction to structural steel design. Advantages of steel as a structural material. Disadvantages of steel as a structural material. Steel sections. Stress–strain relationships in structural steel.	A lecture in the classroom	HW and CW
2	3	ANSI/AISC 360-16 doe definitions. How to used AISCM.	ANSI/AISC 360-16 doe definitions. How to used AISCM.	A lecture in the classroom	HW, CW, exam

3	3	Specifications, loads, and methods of design. Specifications and building codes. Load and resistance factor design (LRFD) and allowable strength design (ASD). Computing combined loads with LRFD expressions. Computing combined loads with ASD expressions.	Specifications, loads, and methods of design. Specifications and building codes. Load and resistance factor design (LRFD) and allowable strength design (ASD). Computing combined loads with LRFD expressions. Computing combined loads with ASD expressions.	A lecture in the classroom	HW, CW, exam
4	3	Tension members. Analysis of tension members. Introduction. Nominal strengths of tension members.	Tension members. Analysis of tension members. Introduction. Nominal strengths of tension members.	A lecture in the classroom	HW, CW, exam
5	3	Net areas. Effect of staggered holes in analysis of tension members.	Net areas. Effect of staggered holes in analysis of tension members.	A lecture in the classroom	HW, CW, exam
6	3	exam	exam	A lecture in the classroom	HW, CW, exam
7	3	Shear lag and effective net areas. Block shear.	Shear lag and effective net areas. Block shear.	A lecture in the classroom	HW, CW, exam
8-9	3	Design of tension members. Selection of sections	Design of tension members. Selection of sections	A lecture in the classroom	HW, CW, exam
10	3	Built-up tension members. Threaded rods. Design of tension members and sag rods in roof trusses.	Built-up tension members. Threaded rods. Design of tension members and sag rods in roof trusses.	A lecture in the classroom	HW, CW, exam
11-12	3	exam	exam	A lecture in the classroom	HW, CW, exam
13	3	Compression members under concentric axial loads. Introduction. Sections used for columns.	Compression members under concentric axial loads. Introduction. Sections used for columns.	A lecture in the classroom	HW, CW, exam
14	3	The Euler formula. Effective length and slenderness ratio.	The Euler formula. Effective length and slenderness ratio.	A lecture in the classroom	HW, CW, exam

15	3	AISC requirements for compression members. Analysis of compression members. Design compressive strength of compression members.	AISC requirements for compression members. Analysis of compression members. Design compressive strength of compression members.	A lecture in the classroom	HW, CW, exam

11. Course Evaluation

Evaluation type	**Degree**
4 quizzes	6
14 homework	7
10 classwork	7
Term exam	15
report	5
Final exam	60
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Structural Steel Design, Jack C. McCormac and Stephen F. Csernak, Pearson Education Limited, 5th edition, 2012.
Main references (sources)	AISC Construction Manual, 14th Edition.
Recommended books and references (scientific journals, reports...)	-------
Electronic References, Websites	-------

2nd Semester

ARC422 Physics (7)

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:	
Physics (7)	
2. Course Code:	
ARC422	
3. Semester / Year:	
Spring / 2025-2026	
4. Description Preparation Date:	
2026	
5. Available Attendance Forms:	
Lectures in the classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Total Hours = 2 / Total Units = 2	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Mahmood Osama	Email:
8. Course Objectives	
Course Objectives	This course provides students with sufficient knowledge in the field of general engineering construction services. Therefore, there are several objectives that can be achieved, as listed below: 1. Through this course, students will learn how to deal with other engineering disciplines, which are essential in construction. 2. This course provides a sufficient understanding of most engineering services, which is required during the conceptual phase of the building design process, and provides students with sufficient partial qualifications in construction engineering services. 3. This course provides students with effective knowledge, supported by examples and homework assignments, to examine the electrical and mechanical systems that are fundamental to construction and architectural design, and the necessary practical skills. 4. This course provides students with sufficient practical knowledge of terminology and requirements (spatial and structural). 5. This course enhances students' problem-solving skills.
9. Teaching and Learning Strategies	
Strategy	1. Theoretical lectures updated annually based on technological advancements in engineering services, supported by educational videos. 2. Demonstration tools such as light measuring devices, various lighting devices, fire and smoke sensors, and others. 3. Classroom or homework assignments in the form of an application of engineering services systems in projects designed by students. 4. Field visits. 5. Recent research related to the relationship between engineering services and architecture.
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	2 hours	Understanding Basic Concepts: Develop a deep understanding of the fundamental concepts and principles of engineering services design and their applications. Practical Design Skills: Develop the ability to design engineering services applications, especially those on small scales. Critical Evaluation and Analytical Thinking: Enhance the ability to critically and effectively analyze and evaluate engineering services applications of all kinds in existing projects and design proposals, along with other engineering disciplines. Communication Skills: Improve the ability to communicate effectively, both written and verbally, with engineering services engineers, and the ability to present design alternatives, design ideas, and concepts that enhance the development of designed projects. Environmental Responsibility: Understand and apply sustainable design principles in engineering services, improving the overall quality of life. Cooperation and Teamwork: The ability to work within multidisciplinary teams and collaborate effectively with engineering services engineers.	Introduction to Engineering Services The Relationship Between Architecture and Engineering Services Electrical Installations and Electrical Services Systems Interior Lighting Designs 1 Interior Lighting Designs 2 Exterior Lighting Designs 1 Exterior Lighting Designs 2 Fire Alarm and Detection Systems Fire Suppression and Fighting Systems HVAC Systems 1 HVAC Systems 2 Transportation Systems Elevators Transportation Systems Escalators Integration of Engineering Services General Review and Discussion Final Exam	Interactive Learning: This approach includes the use of classroom discussions, workshops, and group activities that promote interaction between students and teachers. Practical Projects: The application of engineering services in student designs allows students to apply their acquired knowledge in a practical setting and helps enhance problem-solving and creative thinking skills. Field Trips and Study Visits: Visits to real-life sites enable students to see the applications of engineering services in practice and in implemented designs, enhancing their understanding of the challenges and opportunities in the practical field.	Daily and semester exams, reports, descriptive homework, and applied engineering services projects in architectural designs.
11. Course Evaluation					

Evaluation type	Degree
The grade is distributed out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly and written exams, reports, etc.	
Total	100
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Nothing
Main references (sources)	• Electrical Installations, Dr. Muzaffar Al-Nama, Dr. Sinan Attar Bashi, 1982 • Architectural Electrical Services Engineering, Dr. Muzaffar Al-Nama, 2012 • Arabic Lighting Design, Ezzat Baroudi, 2008 3 • Environment and Services by Peter Burberry Dip Arch, MSc, RIBA, FCIOB, London, Basford Limited, 1986 • Architectural Lighting Design, a Practical Guide, Admire Jukanovic, 2018 Building Control Systems, Vaughn Bradshaw, 1985
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	www.erco.com www.zumtobel.com www.dialux.com

ARC 424 Theories of Architecture (2)

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Theory of Architecture 2
2. Course Code:
ARC 424
3. Semester / Year:
second / 2025-2026
4. Description Preparation Date:
2026
5. Available Attendance Forms:
Lectures in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
30 **hours/** 2 **ECTS credits**
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Sinan Mohammad Talee, Email: sinan.mohammad@uomosul.edu.iq
8. Course Objectives

Course Objectives	The course aims to present a theoretical framework of the main architectural movements and their secondary sub-divisions, with their main characteristics and practices.

9. Teaching and Learning Strategies

Strategy	It depends on the ability to identify changes in ideologies through three centuries, so enhancing the ability to differentiate between them, and applying them in design.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	An ability to define causes of changes	Postmodern Architecture	A lecture in the classroom	Direct exam
2	2	An ability to define principles of deferent approaches	Characteristics of Postmodern Architecture	A lecture in the classroom	Direct exam
3	2	An ability to define principles of deferent approaches	Historical to Eclectic	A lecture in the classroom	Direct exam

4	2	An ability to define principles of deferent approaches	Direct Bio-Revival	A lecture in the classroom	Direct exam
5	2	An ability to define principles of deferent approaches, and to compare between them	Axis Decoration	A lecture in the classroom	Direct exam
6	2	An ability to define principles of deferent approaches, and to compare between them	Deconstructivist Architecture	A lecture in the classroom	Direct exam
7	2	An ability to define principles of deferent approaches, and to compare between them	The Architect's Style of Folding	A lecture in the classroom	Direct exam
8	2	An ability to define principles of deferent approaches, and to compare between them	Folding in Architecture	A lecture in the classroom	Direct exam
9	2	An ability to define principles of deferent approaches, and to compare between them	Bio-Architecture	A lecture in the classroom	Direct exam
10	2	An ability to define principles of deferent approaches, and to compare between them	Biophile Theory in Architecture	A lecture in the classroom	Direct exam
11	2	An ability to define principles of deferent approaches, and to compare between them	Intelligent Architecture Exam	A lecture in the classroom	Direct exam
12	2	An ability to define principles of deferent approaches, and to compare between them	Humanistic Architecture	A lecture in the classroom	Direct exam
13	2	An ability to define principles of deferent	Architectural	A lecture in	Direct exam

		approaches, and to compare between them	Design Theories	the classroom	
14	2	An ability to define principles of deferent approaches, and to compare between them	Functional Theories	A lecture in the classroom	Direct exam
15	2	An ability to define principles of deferent approaches, and to compare between them	Formal Theories Exam	A lecture in the classroom	Direct exam

11. Course Evaluation

Evaluation type	**Degree**
2 quizzes	12
Term exam	28
Final exam	60
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	None
Main references (sources)	Changing Ideals in Modern Architecture/ Peter Collins Modern Architecture since 1900/ William Curtis Architecture Today/ Charles Jencks International Style in Architecture/ Shereen Sherzad
Recommended books and references (scientific journals, reports...)	-------
Electronic References, Websites	-------

Name and signature of the course instructor

Dr. Sinan Mohammad Talee

Name and signature of the department head

Associate Prof. Dr. Omar Hazem Khroufa

ARC 425 Contemporary Regional Architecture

University of Mosul College of Engineering Architectural Engineering Department

• Course Name:
Contemporary Regional Architecture
• Course Code:
ARC 425
• Semester / Year:
Spring / 2025-2026
• Description Preparation Date:
2026
• Available Attendance Forms:
Lectures in the classroom
• Number of Credit Hours (Total) / Number of Units (Total)
2hr / Total Units = 2
• Course administrator's name (mention all, if more than one name)
Name: Rana Mahfoodh Email: rana.mahfoodh@uomosul.edu.iq Asst. Prof. Baedaa' Hanna
• Course Objectives

Course Objectives	• Understanding the concept of architectural heritage and its relationship to contemporary architecture. • Analyzing the factors influencing the formation of regional architecture (climatic, social, cultural, economic). • Studying intellectual positions toward heritage (rejectionist, traditionalist, developmental). • Identifying the evolution of architecture in Iraq across different historical periods. • Analyzing the impact of globalization and international trends on local architecture. • Developing the ability to read and analyze architectural projects and relate them to their cultural context. • Enhancing critical thinking in dealing with heritage and integrating it into contemporary design.
• Teaching and Learning Strategies	
Strategy	• Theoretical Lectures: to present key concepts (heritage, globalization, intellectual positions). • Analytical Learning (Case Study): analyzing projects such as the Grand Mosque in Riyadh or buildings in Baghdad. • Classroom Discussion: on topics such as the relationship between heritage and modernity. • Problem-Based Learning (PBL): posing critical questions about architectural identity. • Comparative Learning: comparing different time periods (1920s, 1930s, 1950s, etc.). • Applied Learning: linking concepts to design projects.
• Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

	2 hours	• Recognizing the importance of heritage in shaping identity • Analyzing the concept of heritage • Explaining its relationship with modern architecture • Distinguishing between (rejectionist, traditionalist, developmental) approaches • Critically evaluating each approach • Understanding the impact of globalization • Analyzing architectural transformations • Understanding local specificity • Analyzing influencing factors • Analyzing the transition from traditionalism to modernity • Applying architectural analysis and reading projects • Understanding the emergence of modern architecture • Analyzing political and economic factors • Analyzing modern trends • Evaluating interaction with heritage • Understanding architectural maturity • Analyzing stylistic diversity • Linking theoretical knowledge with practice	• Introduction to Contemporary Regional Architecture • Architectural Heritage and its Relationship to Contemporary Architecture • Intellectual Positions Toward Heritage • The Impact of Globalization on Regional Architecture • Architecture in Iraq before World War I • Architecture of the 1920s • Analysis of Selected Examples from 1920s Architecture • Architecture of the 1930s • Architecture of the 1950s • Contemporary Iraqi Architecture • Architecture of the 1960s and 1970s • Modern Architectural Trends and Applications • Discussion of Programming Report • Midterm Exam	Understanding and Analysis	HW, CW, exam
• Course Evaluation					

Evaluation type	Degree
Quizzes	**5 %**
Term Exam points	**20 %**
Report	**10%**
Daily Preparation	**5%**
Final exam	**60%**
Total	**100%**
• Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	مراجع عربية • كتب في **العمارة العربية والإسلامية** • دراسات عن **العمارة العراقية الحديثة** • محاضرات مقرر العمارة الإقليمية المعاصرة (المصدر الأساسي) مراجع أجنبية • Frampton, Kenneth – *Critical Regionalism* • Curtis, William – *Modern Architecture Since 1900* Norberg-Schulz – *Genius Loci*
Electronic References, Websites	

ARC426 Landscape Architecture

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Landscape Architecture
2. Course Code:
ARC 426
3. Semester / Year:
Second/ 2025-2026
4. Description Preparation Date:
2026
5. Available Attendance Forms:
Lectures in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
5 hours/ 3 ECTS credits
7. Course administrator's name (mention all, if more than one name)
Name: Assist Prof Dr Oday Qusay Abdulqader Alchalabi odaychalabi@uomosul.edu.iq Name: Dr. Iqbal Salim ALsofi ekbal.alsoofee@uomosul.edu.iq Ms. Anfal Azzam Hamoudat Email: anfal.azam@uomosul.edu.iq Ms. Aseel Hazem Ms. Russel Saad Ms. Mafaz Tariq Ms. Jwan Atheel
8. Course Objectives

Course Objectives	Develop an understanding of the principles and theories in outdoor space design. Enhance practical skills in outdoor space design. Foster creativity and design thinking. Instill an understanding of environmental sustainability in outdoor space design.
9. Teaching and Learning Strategies	
Strategy	**Project-Based Learning:** This strategy encourages students to engage in real or simulated design projects that require applying theoretical knowledge in practical scenarios. Through this approach, students can effectively develop critical thinking and problem-solving skills while gaining valuable hands-on experience. **Analysis and Critique:** In this strategy, students present their designs to the class and receive feedback from peers and the instructor. This helps enhance their ability to provide and receive constructive criticism and opens the door for in-depth discussions about design principles and creative choices, ultimately improving students' communication and presentation skills.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3/hr/w	Develop a deep understanding of the fundamental concepts and principles in landscape design, including history, theories, and current practices.	Introduction, Definitions, References	**Interactive Learning:** This approach involves the use of classroom discussions, workshops, and group activities that enhance interaction	Theoretical and practical lectures with daily and monthly exams, weekly reports, and preliminary, midterm, and final presentations.

				between students and instructors.	
Week 2	3/hr/w		Review of International Landscape Design Projects		
Weeks 3 and 4	3/hr/w	**Practical Design Skills:** Develop the ability to design realistic landscape projects that consider aesthetics, functionality, and sustainability.	History of Landscape Design How to Start Landscape Design Fundamentals of Natural Architecture	Practical projects: Designing real-world projects allows students to apply the knowledge they have gained in a practical environment, which helps enhance problem-solving skills and creative thinking.	
Weeks 5 ,6,7,8	3/hr/w	Critical assessment and analytical thinking: Enhancing the ability to analyze and critically evaluate existing projects and design proposals in an effective manner.	Furniture and site furnishings Water in outdoor spaces Interactive spaces	Field trips and study visits: Visiting real sites allows students to see the applications of landscape design in the real world, enhancing their understanding of the challenges and opportunities in the field.	
Weeks 9,10,11,12	3/hr/w	Communication skills: Improving the ability to communicate effectively, both in writing and verbally, and the ability to present designs and ideas clearly to different audiences.	Sustainable outdoor space design Outdoor space details	Use of technology: Digital learning through computer-aided design (CAD) software and virtual reality (VR) tools enhances students' ability to visualize projects and develop complex designs.	
Weeks 13,14,15	3/hr/w	Environmental responsibility: Understanding and applying sustainable design principles, using resources in a way that preserves the environment and improves the quality of public life.	Outdoor space design Report discussion Final exam	Assessment and feedback: Providing regular assessments and constructive feedback from teachers and peers, helping students continuously improve their work.	

		Collaboration and teamwork: The ability to work within multidisciplinary teams and collaborate effectively with engineers, planners, and other specialists.			

Course Evaluation : Distribution of the grade out of 100 based on the tasks assigned to the student, such as daily preparation, daily and oral exams, monthly and written exams, reports, etc.

Evaluation type	**Degree**
report	5
Day sketches	10
Concept submission	10
Mid-course submission	20
Final submission	25
Final exam	30
Total	100

11. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	" Foundations of landscape architecture : integrating form and space using the language of site design” Norman Booth "Site Engineering for Landscape Architects" "Landscape and Urban Planning” "Journal of Landscape Architecture"
Recommended books and references (scientific journals, reports...)	"Landscape Architecture: A Manual of Environmental Planning and Design" by Barry Starke and John Ormsbee Simonds – A book that covers multiple aspects of landscape design from both theoretical and practical perspectives. "Landscape and Urban Planning" journal – A scientific journal that publishes research and studies on landscape and urban planning and design. "Site Engineering for Landscape Architects" by Steven Strom, Kurt Nathan, and Jake Woland – A book that focuses on the engineering techniques essential for landscape design. "Journal of Landscape Architecture" – A journal dedicated to publishing research and articles on innovations and developments in landscape design.
Electronic References, Websites	**Visualizing Architecture**: A website that provides explanations and images of various architectural projects, helping to better understand designs and new ideas. **Architizer**: This website covers architecture news

	and modern technologies, showcasing architectural projects, providing a rich source of both practical and theoretical information.
	  Freecadapps: A specialized website offering a library of CAD blocks and files that can be used in landscape design projects.
	  Arc Space: Offers detailed articles and projects in the fields of architecture and landscape design, highly beneficial for students and architects.
	  Architecture Week: A specialized magazine that provides a wide range of articles and designs relevant to architecture students and architects.

Curriculum or description update ratio	95%

ARC427 Architectural Structures Safety

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Architectural Structures Safety
2. Course Code:
ARC427
3. Semester / Year:
Spring / 2025-2026
4. Description Preparation Date:
2026
5. Available Attendance Forms:
Lectures in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours/ 2 ECTS credits
7. Course administrator's name (mention all, if more than one name)
Name: Mafaz tariq
8. Course Objectives

Course Objectives	The course on Architectural Safety aims to equip students with an understanding of the principles of building safety and the protection of lives and property from various hazards. It focuses on fire prevention systems, escape routes, and effective evacuation methods. The course also addresses the application of safety requirements in architectural design and overall building planning. Furthermore, it covers the identification of structural and environmental hazards and methods for mitigating them. Ultimately, the course aims to prepare engineers capable of designing safe buildings that comply with modern standards and regulations.
9. Teaching and Learning Strategies	
Strategy	The teaching strategy in the Architectural Safety course is based on integrating theoretical and practical aspects to foster a comprehensive understanding. Lectures, real-world case studies, and design exercises are used to analyze risks and find appropriate solutions. Interactive learning and teamwork are also encouraged to develop critical thinking and decision-making skills in various safety situations.

10. Course Structure

Week	Hours	Learning Outcome	Topic	Teaching Method	Assessment
1	2	Understanding general safety concepts	Introduction to architectural safety	Interactive theoretical lectures	In-class exam
2	2	Identifying building hazards	Classification of building risks	Interactive theoretical lectures	
3	2	Understanding basic prevention principles	Fundamentals of protection and prevention	Interactive theoretical lectures	
4	2	Understanding fire systems and components	Fire protection systems	Interactive theoretical lectures	
5	2	Classifying fires and extinguishing methods	Types of fires and suppression methods	Interactive theoretical lectures	

6	2	Designing evacuation routes	Evacuation route planning	Practical exercises	
7	2	Calculating safe evacuation	Safe evacuation standards	Class discussions	
8	2	Designing emergency exits	Emergency exit design	Interactive theoretical lectures	
9	2	Early warning systems	Alarm and detection systems	Interactive theoretical lectures	
10	2	Automatic fire suppression systems	Automatic suppression technologies	Interactive theoretical lectures	
11	2	Integrating safety into architectural design	Safety in architectural design	Real case study analysis	
12	2	International code requirements	Building codes and regulations	Interactive theoretical lectures	
13	2	Midterm exam		Exam	Exam
14	2	Risk analysis in buildings	Risk assessment and analysis	Interactive theoretical lectures	
15	2	Comprehensive applied project	Integrated safe design project	Interactive theoretical lectures	

11. Course Evaluation

Evaluation type	**Degree**
2 quizzes	10
homework	5
Term exam	25
Final exam	60
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	• Time-Saver Standards for Building Types (2016) — Joseph De Chiara & John Hancock Callender • Neufert Architects' Data (2019) — Ernst Neufert • Building Codes Illustrated (2021) — Francis D.K. Ching & Steven R. Winkel • Fire Safety Design in Buildings (2017) — Robert W. Fitzgerald • Principles of Fire Safety Engineering (2020) — John H. Klote & James A. Milke
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

ARC428 Advanced Structures Techniques

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:

Advanced Structures Techniques

2. Course Code:

ARC428

3. Semester / Year:

Second semester/ 2025-2026

4. Description Preparation Date:

2026

5. Available Attendance Forms:

Lectures in the classroom

6. Number of Credit Hours (Total) / Number of Units (Total)

hours = 2 / Total number of units: 2

7. Course administrator's name (mention all, if more than one name)

Name: Assistant Professor Dr. Omar Hazem Kharufa Email: omar.kharufa@uomosul.edu.iq

8. Course Objectives

Develop an understanding of principles and theories in structural topics and construction techniques.

Develop practical skills in structural design.

Instill creativity and design thinking.

Course Objectives	**● Enhance critical thinking and problem-solving skills, identifying characteristics, constraints, and opportunities.** **● Develop effective communication and presentation skills.** **● Appreciate the cultural, social, and historical contexts of architectural design.**

9. Teaching and Learning Strategies

Strategy	1. Project-based learning: This strategy encourages students to engage in real-world or simulated design projects that require applying theoretical knowledge to practical scenarios. Through this approach, students can develop critical thinking and effective problem-solving skills while gaining valuable practical experience. 2. Analysis and Critique: In this strategy, students present their designs to the class and receive feedback from their peers and the instructor. This helps foster constructive criticism and opens the door to in-depth discussions about design principles and creative choices, improving students' overall communication and presentation skills.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 hours	Understanding Basic Concepts: Develop a deep understanding of the fundamental concepts and principles of building design. Practical Design Skills: Develop the ability to design complex architectural	Nanotechnology in architecture	Interactive learning: This approach includes the use of class discussions, workshops, and group activities that promote interaction between students and teachers.	Theoretical and practical lectures with daily and monthly exams, weekly reports, and preliminary, secondary, and final presentations.
2	2 hours		Design of tall buildings		
3	2 hours		Types of building structures		
4	2 hours		Deconstructive architecture		
5	2 hours		Folded architecture techniques		
6	2 hours		Sustainable architecture		

7	2 hours	projects. Critical Evaluation and Analytical Thinking: Enhance the ability to critically and effectively analyze and evaluate existing projects and design proposals. Communication Skills: Improve the ability to communicate effectively, both written and verbally, and the ability to clearly present designs and ideas to various audiences.	Architecture of the future		
8	2 hours		Bioarchitecture techniques		
9	2 hours		Smart architecture technologies		
10	2 hours		Mud architecture		
11	2 hours		Concepts related to construction techniques		
12	2 hours		Cortical structures		
13	2 hours		Inflatable structures		
14	2 hours		Domes and vaults		
15	2hours		Discuss the report Final exam		

11. Course Evaluation

Evaluation type	Degree
	The grade is distributed out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly and written exams, reports, etc.

12. Learning and Teaching Resources

MODULE DESCRIPTION FORM

Course System

Fifth Level

Fifth Level

المستوى الدراسي الخامس (الفصل الأول)									
اسم المتطلب	اسم المقرر		نوع المتطلب	عدد الساعات النظرية	عدد الساعات العملية	عدد الوحدات	المتطلبات السابقة	رمز المقرر	الملاحظات
	باللغة العربية	باللغة الإنكليزية							
متطلبات كلية	الإدارة الهندسية	Engineering Management	اجباري	2		2		ENGC525	
	الاقتصاد الهندسي	Engineering Economy	اجباري	2		2		ENGC526	
متطلبات القسم	مشروع التخرج(1)	Graduation Project (1)	اجباري	2	6	5	التصميم المعماري(7)	ARC 541	
	التصميم الحضري	Urban Design	اجباري	2	6	5	نظريات التصميم المعماري	ARC 542	
	التخمين والمواصفات	Estimation and Specifications	اجباري	2		2		ARC 543	
	التصميم بمساعدة الحاسوب	Computer Aided Design	اجباري	1	2	2		ARC 544	
	متطلبات السلامة في المباني	Building Safety Requirements	اختياري	2		2		ARC 561	يختار الطالب مقرر واحد عدد الوحدات النظرية = 2 وحدة
	تطبيقات حاسوبية	Computer Applications		1	2	2		ARC 562	
	التفاصيل المعمارية	Architectural Details		1	2	2		ARC 563	
	نظريات النقد المعماري	Theories of Architecture Criticism		2		2		ARC 564	
مجموع ساعات و وحدات الفصل الأول للمستوى الخامس				11	18	20			

المستوى الدراسي الخامس (الفصل الثاني)									
اسم المتطلب	اسم المقرر		نوع المتطلب	عدد الساعات النظرية	عدد الساعات العملية	عدد الوحدات	المتطلبات السابقة	رمز المقرر	الملاحظات
	باللغة العربية	باللغة الإنكليزية							
متطلبات كلية	هندسة البيئة و الاستدامة	Environmental Engineering and Sustainability	اختياري	3		3		ENGE536	اجباري لطلبة القسم
	انظمة البناء الذكي	Smart Building Systems	اختياري	3		3		ENGE539	اجباري لطلبة القسم
متطلبات القسم	مشروع التخرج(2)	Graduation project (2)	اجباري	1	14	8	مشروع التخرج(1)	ARC 545	
	السلوك وممارسة المهنة	Professional Practice	اجباري	2		2		ARC 546	
مجموع ساعات و وحدات الفصل الثاني للمستوى الخامس				9	14	16			

ENGC525 Engineering Management

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Engineering Management
2. Course Code:
ENGC525
3. Semester / Year:
First /2025-2026
4. Description Preparation Date:
2026
5. Available Attendance Forms:
Lectures in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
hours = 2 / number of units: 2
7. Course administrator's name (mention all, if more than one name)
Name: Dr.mozahim hadidi Email: mozahim.hadidi@uomosul.edu.iq

8.Course Objectives :

Develop a beginner's understanding of engineering management and its meaning.
Develop skills through practical tests on a specific engineering management topic, such as marketing.

Course Objectives	● 1. Understanding modern management concepts in general and project management a focused manner, which will enable students to acquire the necessary skills and knowledge to manage projects according to a well-established scientific methodology. ● 2. Understanding the vocabulary required within the framework of project managemer in accordance with what is globally recognized as a specific language that enables students to achieve management objectives.

9.Teaching and Learning Strategies :

The main strategy used in delivering this course is to encourage students to engage in exercises while simultaneously honing and expanding their critical thinking skills. This will be achieved through interactive classes and lessons, and by considering simple experiments that involve some sampling activities of interest to students.

Strategy	1. Learning through practice 2. Field visits, if possible 3. Design evaluation and feedback
Application	• Practical application of management skills in real-life projects that simulate professional challenges • Daily and monthly tests

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 hours per week	Understanding basic concepts Engineering management skills	• Management components • Basic organizational	Interactive Learning: This approach includes the use	**Theoretical lectures with daily and monthly exams and weekly reports**

2 3 4 5 6 7 8 9 10 11 12 13 14 15		Critical evaluation and analytical thinking Communication skills Collaboration and teamwork	functions within the engineering project management approach • A brief overview of the system concept • Some of the skills required in engineering project management, with an emphasis on soft skills (organizational skills) • (Communication Skills) • (Organizational Skills) • Some of the skills required in engineering project management, with a focus on soft skills • (Leadership Skills) • (Adaptive Skills) • (Negotiation Skills) • Various project management tools and techniques. • Introduction to engineering project management, characteristics, and basic concepts. • Success factors and causes of project failure. • Knowledge areas related to project management according to the PMBOK. • SQCT objectives. • Stakeholder analysis matrix. • WPS (Work Process	of classroom discussions, workshops, and group activities that promote interaction between students and teachers. Daily exercises and reports Field trips and study visits Use of technology: Digital learning. Assessment and feedback: Providing regular assessments and constructive feedback from teachers and peers helps students continually improve their work.	

			Framework). • Project schedule (critical path) • Network diagram • Practical exercise in managing a virtual project • Final exam		

11.Course Evaluation	
Evaluation type	**Degree**
The grade distribution is out of 40 for the annual effort and 60 for the final exam, so the total is 100. The annual effort consists of daily and monthly exams, reports, and daily assessments.	

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	None
Main references (sources)	**1. Project management: The basics of success by: Eugene G. Spiegle** **2. Project management: principles and practices by: M. Pete Spinner** **3. Principles of management with a focus on business administration, Prof. Dr. Khalil Mohammed Al-Shamaa**
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

ENGC526 Engineering Economy

University of Mosul College of Engineering Architectural Engineering Department

Course Description

1. Course Name:	
Engineering Economics	
2. Course Code:	
ENGC526	
3. Semester / Year:	
First Semester / 2025/2026	
4. Description Preparation Date:	
2026	
5. Available Attendance Forms:	
Theoretical Lecturers and Tutorials	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours / 2 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Rakan Farooq Qasim Email: Ra_fa99@yahoo.com	
8. Course Objectives	
Course Objectives	1- Introducing the student to the importance of studying the engineer economics course. 2- Introducing the student to the importance of controlling costs Engineering projects. 3- Training students to conduct economic studies Comparisons a alternatives.
9. Teaching and Learning Strategies	
Strategy	Theoretical , Practical , Tutorial and Field lecturers

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Learning	General concepts of engineering economics and sustainability	Learning and discussion	Discussion
2,3,4	2 for each week	Learning and solving problems	Costs, annual cost bonus and inflation	Learning and discussion	Discussion and homework
5,6	2 for each week	Learning and solving problems	Compound interest and economic relations	Learning and discussion	Discussion and homework
7,8	2 for each week	Learning and solving problems	Analysis of cash flow and time value of capital	Learning and discussion	Discussion and homework
9,10,11	2 for each week	Learning and solving problems	Comparisons and alternatives - present value - future value - internal rate of	Learning and discussion	Home works

			return		
12,13	**2 for each week**	**Learning and solving problems**	**Consumption - ways to find extinction**	**Learning and discussion**	**Home works**
14,15	**2 for each week**	**Learning**	**Economic feasibility of projects and sensitivity analysis**	**Learning and discussion**	**Discussion and homework**

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Engineering economics
Main references (sources)	Project Evaluation
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

ARC541 Graduation Project (1)

University of Mosul College of Engineering Architectural Engineering Department

2. Course Name:
Graduation Project (1)
3. Course Code:
ARC541
4. Semester / Year:
First 2025-2026
5. Description Preparation Date:
2026
6. Available Attendance Forms:
Lectures in the classroom
7. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical + 6 practical (8) / number of units (5)
8. Course administrator's name (mention all, if more than one name)
Name: Khawola Fayad Mahmood Email : khawola. mahmoud@uomosul.edu.iq Dr.hassan kasim Email: hassan.kasim@uomosul.edu.iq
9. Course Objectives

Course Objectives	• The ability to identify, define, formulate, and solve engineering problems by applying th principles of engineering, science, and mathematics. • The ability to produce engineering designs that meet desired needs within given constraints by applying analysis and synthesis processes in the design process. • The ability to establish and implement appropriate measurements and tests with quality assurance, analyze and interpret results, and apply engineering judgment to reach conclusions. • The ability to work effectively within teams, set goals, plan activities, meet deadlines, ar manage risk and uncertainty.

10. Teaching and Learning Strategies

Strategy	• Gather information and data about the project from various relevant sources, including books, scientific references, examples and models of implemented buildings, and review relevant governmental and non-governmental institutions. • Analyze data and information and identify pros and cons using a SWOT analysis strategy. • Make design decisions based on the information analysis.

11. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	**2hours of theory + 6 hours of practical**	The ability to identify, define, formulate, and solve engineering problems by applying the principles of engineering, science, and mathematics.	Project components and elements	جمع المعلومات	المناقشة
2			Users	المراقبة والتحليل	المناقشة
3			Similar examples	المراجعة والتحليل	تقديم تقرير
4					
5		Ability to establish and perform appropriate measurements and tests	Career programme	Collect information	Discussion
6				Analyze	Discussion

		with quality assurance, analyze and interpret results, and exercise engineering judgment to reach conclusions.		examples	
7			Surveying programme	Data collection	Submit a report
8				Review and evaluation	
0			Project website	Data collection	Presentation, display and discussion of results
10				Analysis	
11				Evaluation	
12		The ability to produce engineering designs that meet required needs within given constraints by applying analysis and synthesis processes in the design process.	Design principle and decision making	Analysis and evaluation	Discussions and presenting results
13					
14					
15		Ability to work effectively within teams, set goals, plan events, meet deadlines, and manage risk and uncertainty.	Final evaluation	Analysis and evaluation	Discussions and presenting results
16				Analysis and evaluation	

12. Course Evaluation

Evaluation type	**Degree**
Grades are distributed out of 100 based on the tasks assigned to the student: Daily preparation: 10% Daily and oral exams: 20% Monthly exams: 20% Report submission: 50%	

13. Learning and Teaching Resources

Required textbooks (curricular books, if any)	None
Main references (sources)	• Neufert, Ernst and Peter . Architect's Data . Oxford Brookes University. • **Time Saver Standards for Building Types . McGraw-Hill.**
Recommended books and references (scientific journals, reports...)	Site analysis by Tariq Farouk Abu Auf
Electronic References, Websites	• http://www.archiprix.net / • www.arcspace.com • www.archiseek.com • www.a-matter.com • www.byggeinfo.dk www.architactic.com/en/index.html

ARC542 Urban Design

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Urban Design
2. Course Code:
ARC542
3. Semester / Year
Autumn Semester/2025-2026
4. Description Preparation Date:
2026
5. Available Attendance Forms:
Inside the Studio, online
6. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical + 6 practical (8)/ 5 Units
7. Course administrator's name (mention all, if more than one name)
Name : Assist. Prof. Mazin Jaber Omar Email: mazinjaber@uomosul.edu.iq Name : Dr. Usama Humadi Email: usamahumadi@uomosul.edu.iq Name: Dr. Faris Matloob Email: faris.matloob@uomosul.edu.iq Name: Dr. Khalid Jamal Aldeen Email: khalid.j.aldeen@uomosul.edu.iq Name: Dr. Ahmad Tohala Email: ahmadtohala@uomosul.edu.iq Name: Dr. rana mahfoodh Email: rana.mahfoodh@uomosul.edu.iq Name : Alhan faris Email: alhan.faris@uomosul.edu.iq
8. Course Objectives
Course Objectives: The chapter focuses on the role of urban design within the context of urban planning and emphasizes Distinguished curricula, specialized perspectives and scientific method for studying this discipline. The class equips specialist knowledge and skills in the field of urban design theory; Study the elements affecting urban design such as flexibility, sustainability and handling In addition to exposure to scientific research methods related to the study of the environment Urbanism.
9. Teaching and Learning Strategies
Strategy 1. Project-based learning: This strategy encourages students to engage in real design or simulation projects that require the application of theoretical knowledge on the ground. Through this approach, students can develop critical thinking and problem-solving skills effectively while gaining valuable practical experience, especially with regard to structural structures and their details. 2. Analysis: In this strategy, students present their designs in front of the classroom and receive feedback from their classmates and the teacher. This helps to enhance the capacity for constructive criticism and opens the door to in-depth discussions on the principles of construction and synthesis, improving students' general analysis and synthesis skills.
10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

First Second Third Fourth Fifth Sixth Seventh Eighth Ninth Tenth Eleventh Twelfth Thirteenth	10	Understanding Key Concepts: Develop a deep understanding of key concepts and principles in urban design Practical design skills: Develop the ability to design realistic and implementable urban projects. Critical Evaluation and Analytical Thinking: Enhance the ability to critically and effectively analyze and evaluate existing projects and design proposals. Communication skills: Improving the ability to communicate effectively with other disciplines of services and details of projects. Collaborations and teamwork: Ability to work in multidisciplinary teams and collaborate effectively with engineers, architects, and other specialists (constructionists).	Introduction to Urban Design Collect data related to the project Project data analysis Evaluation of data, standards and metrics Initial idea concepts to present design proposal A comprehensive model of proposed design alternative(1) A comprehensive model of the proposed design alternative(2) Land use model for the proposed design alternative The initial idea of the proposed design alternative(1) The initial idea of the proposed design alternative(2) Elevations	Interactive learning: This approach includes the use of Classroom discussions, workshops, and group activities t promote interact between student and teachers. Scientific reports help students expand their perceptions through research Use of technolog through research and developmen Assessment and feedback: Provid regular assessments an constructive feedback by teachers and peers, helping students continuously improve their wo	Theoretical lectures with daily and monthly exams, class assignments, reports and discussions with students.

Fourteenth Fifteenth			models for the proposed design alternative Section models for the proposed design alternative Perspectives models for the proposed design alternative Developing the final presentation of the project Discussion Final Exam		

11.Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

Day-sketches	**5pts**
Visits reports	**5pts**
Multidisciplinary design project	**25pts**
Term Project Presentation	**40pts**
Final Project Presentation	**25pts**
Total	**100pts**

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	• URBAN DESIGN: A TYPOLOGY OF PROCEDURES AND PRODUCTS :Jon Lang • Urban Design Guidelines: PB's PlaceMaking Group • Housing Technical Standard and Codes of Practice", Report Two- Polservice - 1982 - Ministry of Housing and Construction - Iraq. • Thurthar New Town, 1985, "The Determinate of The Planning Process, The Formulation of The Master Plan and Conceptual Urban Design Elements",

	Doxiadis Associates – Consultants on Development and Ekistics.
Main references (sources)	• Urban Design Guidelines: PB's PlaceMaking Group
Recommended books and references (scientific journals, reports...)	• Housing Technical Standard and Codes of Practice", Report Two- Polservice - 1982 - Ministry of Housing and Construction - Iraq.
Electronic References, Websites	Ach net.com : Pinterest.com

ARC543 Estimation and Specifications

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Estimates and technical specifications
2. Course Code:
ARC543
3. Semester / Year:
First /2025-2026
4. Description Preparation Date:
2026
5. Available Attendance Forms:
Lectures in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hr /2 units
7. Course administrator's name (mention all, if more than one name)
Name: Raed Salim Ahmad Email: raeedalnumman@uomosul.edu.iq
8. Course Objectives

Course Objectives	● Understanding Estimation Criteria: Providing students with the knowledge necessary estimate the initial cost of architectural and construction projects, based on a range factors such as materials used, labor, and required tools. ● Teaching Technical Specification Preparation: Introducing students to the methods preparing detailed technical specifications for projects, including identifying technica requirements for materials, implementation, and quality. ● Cost and Budget Analysis: Training students to analyze the components of the total cost of projects, prepare budgets for various projects, and estimate costs at various project stages. ● Achieving Efficiency and Quality in Implementation: Developing students' understanding of the importance of adhering to technical specifications to achieve quality and efficiency in implementation while avoiding errors and delays.

9. Teaching and Learning Strategies

Strategy	Linking Theory and Practice: Offering a combination of theoretical lectures covering fundamentals and concepts, along with practical workshops where students prepare realistic estimates and provide specifications for hypothetical or actual projects. Cooperative Learning: Dividing students into teams to estimate costs for actual projects and prepare technical specifications, enhancing teamwork and professional interaction. Informative Assessment: Adopting an internship assessment system that continuously monitors student performance through small tests and short projects to improve understanding and application.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 hours per week	Understanding estimation criteria	General Definitions	**Interactive learning: This approach includes the use**	**Theoretical and practical lectures with daily and monthly exams and**
2		and cost estimation at different project stages.	Basis of Cost Estimates		

3		And cost estimation at different project stages.	Types of Estimates / Actual Cost	**of classroom discussions and group activities that promote interaction between students and teachers.**	**reports.**
4		With the necessary knowledge to estimate the initial cost of architectural and construction projects.	Construction Materials and Unit Measurements / Brick		
5		With the necessary knowledge to estimate the initial cost of architectural and construction projects.	Construction Materials and Unit Measurements / Plaster		
6		With the necessary knowledge to estimate the initial cost of architectural and construction projects.	Construction Materials and Unit Measurements / Concrete		
7		With the necessary knowledge to estimate the initial cost of architectural and construction projects.	Construction Materials and Unit Measurements / I-Beam Section		
8		With the necessary knowledge to estimate the initial cost of architectural and construction projects.	Testing		
9		Developing students' understanding of the importance of adhering to technical specifications to achieve quality and efficiency ...Analysis of the components of the total cost of	Specifications and Bills of Quantities		

		projects.			
10		Analysis of the components of the total cost of projects.	Depreciation		
11		Understanding estimation criteria	Standard Specifications		
12		and cost estimation at different project stages.	Technical Specifications		
13		And cost estimation at different project stages.	Bills of Quantities and Prices		
14		With the necessary knowledge to estimate the initial cost of architectural and construction projects.	Total Contract Costs		

11. Course Evaluation

Evaluation type	**Degree**
The grade is distributed out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly and written exams, reports,etc. Daily exams 10% Semester exam 20% Practical report 10% Final exam 60%	

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	None
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

ARC544 Computer Aided Design

University of Mosul College of Engineering Architectural Engineering Department

13. Course Name:
Computer Aided Design
14. Course Code:
ARC 544
15. Semester / Year:
1st Semester 2025-2026
16. Description Preparation Date:
2026
17. Available Attendance Forms:
Weekly In-person lectures
18. Number of Credit Hours (Total) / Number of Units (Total)
3 hrs / 2 units
19. Course administrator's name (mention all, if more than one name)
1- Name: Dr. Dhuha Abdulgani Al-kazzaz Email: dhuha.kazzaz@uomosul.edu.iq 2- Name: Aseel Ibraheem
20. Course Objectives

Course Objectives	• Introduce students to the concept of computational design methods highlighting its role in the architectural design process. • Introduce students to algorithmic design thinking using rules to describe information, defined in a logical sequence to generate design ideas. • Understanding computational design as the set of methods borrowed from fields such as computer science, mathematics, and geometry, applied to solving design problems. • Introduce students to the concept of generative design approach such shape grammars, case-based design, genetic algorithms, etc. • Introduce students to the simulation-based building design as the guiding principle behind form generation through performative simulation processes. • Introduce students to the BIM as the guiding method in current architecture practice. • Achieve a comprehensive understanding of the application of digital tools in the context of architecture. • Explore a range of global architectural projects, providing examples of advanced digital design methods. • Bridging the Gap between academic theories and architecture practice.
21. Teaching and Learning Strategies	
Strategy	• Lecture based teaching method • Classroom Questioning and Discussions • Using Video as a Teaching Tool

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Acquiring new knowledge	Introduction to computation design: types and function	Lecture and discussion	none
2	3	Acquiring new	Generative Design Method	Lecture and	none

		knowledge		discussion	
3	3	Understanding digital design thinking and methods	Generative Design Method Shape grammars	Lecture and discussion	none
4	3	Understanding digital design thinking and methods	Generative Design Method Genetic Algorithms	Lecture and discussion	Quiz
5	3	Understanding digital design thinking and methods	Generative Design Method Parametric Design	Lecture and discussion	none
6	3	Understanding digital design thinking and methods	Simulation techniques in Architectural Design	Lecture and discussion	none
7	3	Understanding digital design thinking and methods	Virtual reality techniques in Architectural Design	Lecture and discussion	none
8	3		Midterm Exam		Exam
9	3	Acquiring new knowledge	Machine Learning techniqu in Architectural Design	Lecture and discussion	none
10	3	Identify digital design strategies in practice	Building Information Modelling	Lecture and discussion	none
11	3	Identify digital design strategies in practice	Building Information Modelling	Lecture and discussion	none
12	3	Identify digital design strategies in practice	Application of Generative Design Practice	Discussion	Quiz
13	3	Identify digital design strategies in practice	Application of Generative Design in Practice	Discussion	

23. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

Mid-term exam	**25%**
Report	**10%**
Classwork	**5%**
Final exam	**60%**

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	1. Architecture's New Media - Principles, Theories, and Methods of Computer-Aided Design. By Yehuda E. Kalay 2. Algorithmic architecture. by Kostas Terzidis 3. Computational Design: Technology, Cognition and Environments. By Rongrong Yu, Ning Gu, Michael J. Ostwald.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	https://papers.cumincad.org/

ARC561 Building Safety Requirements

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Building Safety Requirements
2. Course Code:
ARC 561
3. Semester / Year:
Fall / 2025-2026
4. Description Preparation Date:
2026
5. Available Attendance Forms:
Lectures in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours/ 2 ECTS credits
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Omar Hazim Kharoofa Email: Omar.kharufa@uomosul.edu.iq Mafaz tariq
8. Course Objectives

Course Objectives	The Building Safety Requirements course for fifth-year students aims to deepen their understanding of comprehensive safety principles in architectural design. It focuses on enabling students to apply international codes and standards in architectural projects. It also aims to develop their ability to design evacuation systems and escape routes effectively. Furthermore, it enhances their skills in risk analysis and assessing the safety level of various buildings. Ultimately, it seeks to prepare architects capable of creating safe and sustainable built environments.
9. Teaching and Learning Strategies	
Strategy	The teaching and learning strategy for the Building Safety Requirements course relies on integrating theoretical lectures with practical applications to enhance understanding. Case studies, design exercises, and simulations are employed to analyze risks and implement safety requirements. Interactive learning is further promoted through group work, discussions, and presentations.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understanding local and international codes	Introduction to safety codes	Interactive theoretical lectures	In-class exam
2	2	Detailed analysis of safety requirements	Safety requirements analysis	Interactive theoretical lectures	
3	2	Designing integrated protection systems	Integrated protection systems	Interactive theoretical lectures	
4	2	Evaluating functional usage risks	Architectural usage risks	Interactive theoretical lectures	
5	2	Applying fire resistance standards	Fire resistance in buildings	Interactive theoretical lectures	
6	2	Evacuation planning for complex buildings	Advanced evacuation planning	Practical exercises	
7	2	Studying user	User behavior in	Class discussions	

		behavior during emergencies	emergencies		
8	2	Integrating smart safety systems	Smart safety systems	Interactive theoretical lectures	
9	2	Analyzing safety failure cases	Architectural safety failures	Interactive theoretical lectures	
10	2	Reviewing design compliance with codes	Code compliance review	Interactive theoretical lectures	
11	2	Designing advanced alarm systems	Advanced alarm systems	Real case study analysis	
12	2	Midterm exam		Exam	Exam
13	2	Safety in high-rise buildings	Safety in tall buildings	Real case study analysis	
14	2	Preparing safety evaluation reports	Safety evaluation reports	Interactive theoretical lectures	
15	2	Developing innovative design solutions	Innovative safety solutions	Interactive theoretical lectures	

11. Course Evaluation	
Evaluation type	**Degree**
2 quizzes	10
homework	5
Term exam	25
Final exam	60
Total	100

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	• Building Construction Illustrated (2021) — Francis D.K. Ching • Architectural Graphic Standards (2020) — The American Institute of Architects (AIA) • Fire Safety in Buildings (2019) — J. H. Klote & P. G. Neale • SFPE Handbook of Fire Protection Engineering (2022) — Society of Fire Protection Engineers (SFPE) • Designing for Fire Safety (2018) — Andrew H. Buchanan & Anthony F. Sadgrove
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

ARC562 Computer Applications

25. Course Name:
Computer Applications
26. Course Code:
ARC 562
27. Semester / Year:
1st Semester 2025-2026
28. Description Preparation Date:
2026
29. Available Attendance Forms:
In-person lectures
30. Number of Credit Hours (Total) / Number of Units (Total)
3 hrs / 2 units
31. Course administrator's name (mention all, if more than one name)
1- Name: Dr. Eqbal Salim younis Email: ekbal.alsoofee@uomosul.edu.iq
32. Course Objectives

Course Objectives	• The course aims to enable the student to understand and use modern digital technologies in architecture and engineering, such as Building Information Modeling (BIM), simulation, the Internet of Things, and virtual and augmented reality, in a way that supports the development of more efficient and sustainable designs. It also seeks to enhance the student's ability to employ the computer as an integrated tool for analysis and design, not only for drafting, while understanding the role of data and digital models in improving decision-making throughout all project stages.

33. Teaching and Learning Strategies

Strategy • Interactive lectures • Hands-on learning • Project-Based Learning • Collaborative learning • Case studies • Simulation and digital experiments • Presentations • Self-learning • Continuous feedbac	• Presenting theoretical concepts such as BIM, digital design, and simulation while engaging students in discussion. • Direct application using software such as drafting and modeling to transform theoretical knowledge into skills. • Assigning students digital design projects that simulate real professional practice. • Working in groups to exchange experiences and develop teamwork skills. • Analyzing real projects related to smart or heritage buildings. • Using performance simulation tools and virtual environments to understand the impact of design decisions. • Having students present and discuss their work to develop communication skills. • Encouraging students to research and use digital resources to develop their skills. • Providing regular feedback to improve performance and design.

34. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Understanding the principles of digital architecture and the role of Building	Mathematical theories that contributed to the development of digital architecture	Interactive learning; this approach includes	Classroom applicatio and homework assignments Daily, monthly, and electronic exams
2	3				
3	3				
4	3				
5	3				

6	3	Information Modeling and its related technologies. Producing and analyzing digital models and designs using computer tools. Evaluating design performance and comparing traditional and digital approaches. Evaluating digital tools and selecting the most appropriate ones. Developing innovative design solutions. Collaborative work and delivering accurate and professional digital design outputs.	Computing applications Digital architecture Building Information Modeling (BIM) Heritage Building Information Modeling (HBIM) Virtual Reality Augmented Reality Digital fabrication Digital drawing and digital design Computer-aided drafting Computer-aided digital design Representational level Performance evaluation and simulation level Generative level Parametric boundary level Algorithmic level Traditional design process and digital design process Software used in effective digital drawing and design Report discussions Exam	delivering practical lectures in front of students and using classroom discussions, as well as utilizing computer labs for hands-on application, and group activities that enhance interaction between students and instructors. Modeling real projects; applying acquired knowledge in a practical environment, which helps in designing architectural projects, with regular assessments and continuous feedback from instructors to improve student outcomes. Assigning students to work in groups to accomplish a specific modeling task, contributing to preparing them for teamwork within engineering work environments.	Report preparation (applying modeling t an architectural project)
7	3				
8	3				
9	3				
10	3				
11	3				
12	3				
13	3				

				Applying the modeling of a fully integrated architectural project while giving the student the freedom to choose the project and the software.	

35. Course Evaluation	
Distribution of the 50 marks according to the tasks assigned to the student, such as in-class and homework practical applications, daily and monthly exams, written exams, reports, etc.	
36. Learning and Teaching Resources	
Required textbooks (curricular books, if any	
Main references (sources)	• ***Design Integration Using Autodesk Revit 2024: Architecture, Structure and MEP.*** • ***Autodesk Revit Architecture 2015: No Experience Required: Autodesk Official Press.*** • ***Dumas II, J. D. (2018). Computer architecture: fundamentals and principles of computer design. CRC press.*** • **Harris, S. L., & Harris, D. (2021, June). Digital design and RISC-V computer architecture textbook. In *2021 ACM/IEEE Workshop on Computer Architecture Education (WCAE)* (pp. 1-5). IEEE.** • ***Caetano, I., Santos, L., & Leitão, A. (2020). Computational design in architecture: Defining parametric, generative, and algorithmic design. Frontiers of Architectural Research, 9(2), 287-300.*** • ***Touloupaki, E., & Theodosiou, T. (2017). Performance simulation integrated in parametric 3D modeling as a method for early stage design optimization—A review. Energies, 10(5), 637.*** • **Gschwind, H. W. (2013). *Design of digital computers: an introduction*. Springer-Verlag.** • **Bindal, A. (2017). *Fundamentals of computer architecture and design*. Cham, Switzerland: Springer International Publishing.**
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

ARC563 Architectural Details

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Architectural Details
2. Course Code:
ARC563
3. Semester / Year:
2025-2026 Autumnal
4. Description Preparation Date:
2026
5. Available Attendance Forms:
Lectures in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours/ 2 ECTS credits
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Omar Hazim Kharoofa Email: Omar.kharufa@uomosul.edu.iq Mafaz tariq
8. Course Objectives 1. Teach students to design architectural details with functional characteristics and how to deal with problems that arise in building components, such as moisture infiltration, heat transfer within the building, or passive sound transmission. These problems are addressed as part of the building's architectural design. 2. Teach students to design and modify architectural details with structural and compositional characteristics and how to deal with problems that arise in structural components of the building, such as expansion joints, structural movements in the general structure of the building, building foundations, etc., and how to address such details in the architectural and structural design of the building as an integrated unit. 3. Enhance the capabilities and skills of graduates by offering specialized continuing education courses and communicating with them to support the achievement of the department's mission.

Course Objectives	● Enhance detailed thinking and problem-solving skills, identifying characteristics related to the level of architectural detail. ● Develop skills related to architectural solutions related to structural detail solutions and environmental comfort treatments for buildings. ● Appreciate the contexts of ideas related to architectural design and the possibility of linking them to realistic solutions for engineering projects through the study of architectural details and the possibility of their application.
9. Teaching and Learning Strategies	
Strategy	• Project-based learning: This strategy encourages students to engage in real-life or simulated design projects that require the application of theoretical knowledge to real-world situations. Through this approach, students can develop detailed architectural thinking skills through effective problem-solving while gaining valuable practical experience, particularly with regard to detailed structures at all levels (structural or environmental). • Analysis: In this strategy, students study architectural detail designs in front of the class and receive feedback from their peers and the instructor. This helps enhance the ability to offer constructive criticism and opens the door to in-depth discussions about sound thinking principles and how to deal with details scientifically, thus improving students' overall analytical and synthesis skills.
10. Course Structure	
Strategy:	Application

• Learning through projects: • Field visits • Design evaluation and feedback • Use of visual media and technology	• Practical application of design skills in real-life projects that simulate professional challenges. • Live analysis of architectural details and their specific composition. • Promoting an interactive studio environment for presenting designs and exchanging constructive feedback. • Using drawings and CAD tools to support the learning process.

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	2 hours per week	Understanding Basic Concepts: Develop a deep understanding of the fundamental concepts and principles in the design and analysis of structural and structural detailing. Practical Design Skills: Develop the ability to design architectural details that are functionally relevant to the purpose for which they are intended, ensuring they are realistic and feasible. Critical Evaluation and Analytical Thinking: Enhance the ability to effectively analyze and evaluate design projects based on their architectural details. Communication Skills: Improve the ability to communicate effectively with other disciplines, including services and construction details for projects. Collaboration and Teamwork: The ability to work within multidisciplinary teams and collaborate effectively with engineers, architects, and other specialists.	Introduction, Definitions, References Review of design projects through the fine-grained level of detail for each function. How to begin thinking about the process through its detailed composition. Basics of executive drawing for architectural projects and drawing their specialized details. Design of architectural details for each design level. Architectural details and their engineering specifications. Design of buildings realistically in line with executive designs. Design of executive details for the projects under study. Report discussion. Final exam.	Interactive Learning: This approach includes the use of classroom discussions, workshops, and group activities that promote interaction between students and teachers. Practical Projects: Discussing real-life projects allows students to apply their acquired knowledge in a practical setting, helping to enhance problem-solving skills and creative thinking. Field Trips and Study Visits: Visits to real sites enable students to see real-life applications of architectural detail design, enhancing their understanding of the challenges and opportunities in the field. Use of Technology: Digital learning through computer-aided design (CAD) software enhances students' ability to visualize architectural details and develop designs. Assessment and Feedback: Regular assessments and constructive feedback from teachers and peers help students	**Theoretical and practical lectures with daily and monthly exams, weekly reports, and preliminary, secondary, and final presentations.**

				continually improve their work.	

11. Course Evaluation	
Evaluation type	**Degree**
The grade is distributed out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly and written exams, reports, etc.	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	None
Main references (sources)	1-Architectural Detailing - Function, Constructability, Aesthetics , Publication date 2021 Topics Architectural drawing – Detailing Publisher New York : Wiley , USA. 2-Working Drawings Handbook , Keith Styles, Andrew Bichard , SBN 9780750663724 Published September 4, 2004 by Routledge , UK , 2004 3-Architectural Working Drawings: Residential and Commercial Buildings , William P. Spence , John Wiley & Sons , USA , 2000 **4-The Professional Practice of Architectural Working Drawings , Osamu A. Wakita, Hon. A.I.A. , Copyright © 2003 by John Wiley & Sons, Inc., New York. All rights reserved.**
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

ARC564 Theories of Architecture Criticism

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Theory of Architectural Criticism
2. Course Code:
ARC 564
3. Semester / Year:
Fall / 2025-2026
4. Description Preparation Date:
12/4/2026
5. Available Attendance Forms:
Lectures in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours/ 2 ECTS credits
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Asma Al-Dabbagh, Email: asma.dabbagh@uomosul.edu.iq
8. Course Objectives

Course Objectives	The aims of this course are to give a theoretical conception about criticism definition, importance and classifications, as well as to understand criticism methodologies, classified as contextual and textual, so as to improve the ability to analyze the architectural written text from critical point of view, practice architectural criticism, and improving architectural practicing depending on criticism theories, finally to express his/her hypothetical conception about design to others .
9. Teaching and Learning Strategies	
Strategy	Understanding the architectural criticism, importance and classifications. Understanding the criteria of architectural criticism . Understanding the methods of architectural criticism .

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	An ability to define principles of deferent methodologies	Definition of criticism, importance and classification .	A lecture in the classroom	Direct exam
2	2	An ability to define principles of deferent methodologies	Components of critical process .	A lecture in the classroom	Direct exam
3	2	An ability to define principles of deferent methodologies	Criteria of critical process .	A lecture in the classroom	Direct exam
4	2	An ability to define principles of deferent methodologies	Secondary activities within critical process .	A lecture in the classroom	Direct exam
5	2	An ability to define principles of deferent methodologies	Contextual methods / Doctrine	A lecture in the classroom	Direct exam
6	2	An ability to define principles of deferent methodologies	Systemic /Typed	A lecture in the classroom	Direct exam
7	2	An ability to define principles of deferent methodologies	Psychology/ Sociological	A lecture in the classroom	Direct exam

8-9	2	An ability to define principles of deferent methodologies	Textual methods	A lecture in the classroom	Direct exam
10	2	An ability to define principles of deferent methodologies	Phenomenology	A lecture in the classroom	Direct exam
11-12	2	An ability to define principles of deferent methodologies	Structuralism	A lecture in the classroom	Direct exam
13	2	An ability to define principles of deferent methodologies	Structuralism	A lecture in the classroom	Direct exam
14	2	An ability to define principles of deferent methodologies	Exam	A lecture in the classroom	Direct exam
15	2		Discussion	A lecture in the classroom	Direct exam

11. Course Evaluation

Evaluation type	**Degree**
2 quizzes	12
Term exam	28
Final exam	60
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	None
Main references (sources)	Jido, Yanar Hassan, 1993, **"Modern Ideological Schools and Architecture – A Research in Architectural Criticism Criteria"**, Al-Talee'a Publishing House, Beirut, Lebanon. Sharp, Dennis, Dec. 2005 **"Criticism in Architecture"** Architectural Criticism and Journalism: Global Perspective, International Seminar, Kuwait. Wayne Attoe " **Architecture and Critical Imagination** " 1977
Recommended books and references (scientific journals, reports...)	-------
Electronic References, Websites	-------

2nd semester

ENGE536 Environmental Engineering and Sustainability

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Environmental Engineering and Sustainability
2. Course Code:
ENGE536
3. Semester / Year:
second/ 2025-2026
4. Description Preparation Date:
2026
5. Available Attendance Forms:
Lectures in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
hours: 3 **/ units :3**
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Bassam Al-Hafith bisam.alhafiz@uomosul.edu.iq Dr. Husain Salman hussein.salman@uomosul.edu.iq
8. Course Objectives • Introducing students to the fundamentals of environmental engineering and sustainability concepts, with a focus on the relationship between human activities and the natural environment. • Analyzing types of environmental pollution and the impact of design on the environment and society, and developing sustainable architectural and urban solutions. • Enhancing students' capabilities in managing waste and natural resources, and utilizing recycling and environmental conservation techniques. • Developing students' skills in applying green building and renewable energy techniques to support sustainable development projects. • Introducing students to water and air treatment technologies and natural disaster management, and analyzing their role in protecting the environment and public health. • Equipping students with the ability to conduct Environmental Impact Assessment (EIA), while applying sustainability standards in urban planning and design. • Enhancing students' scientific research and academic presentation skills through the preparation of innovative projects and specialized seminars.

Course Objectives	• Enabling students to identify sources of environmental pollution, types of waste, and control mechanisms within engineering contexts. • Developing students' ability to use recycling and clean energy principles to address environmental problems within engineering design. • Providing students with the basic skills to apply environmental impact assessment techniques to real engineering and construction projects. • Enhancing students' understanding of environmental protection policies and laws related to sustainable development, and how to integrate them into professional practice. • Encouraging students to develop applied research projects that contribute to the creation of sustainable solutions to address local and global environmental issues.

9. Teaching and Learning Strategies	
Strategy	• Lecture strategy • Discussion strategy • Problem-solving strategy • Cooperative learning strategy
Strategy: 1. Use of visual media and technology 2. Classroom assignments 3. Discussion groups	Application • Providing an interactive learning studio environment that allows for lectures and lively discussions, simulating real-life professional challenges. • Supporting students' practical understanding through classroom assignments that include calculations and illustrations of water supply and sewage networks and waste disposal systems. • Consolidating knowledge through the implementation of real-life projects inspired by the needs and requirements of the labor market.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	3 weekly	• Learn the basic principles of environmental engineering and the foundations of sustainability and apply them to engineering projects. • Analyze different types of environmental pollution and their impact on the environment and society, while proposing sustainable design solutions. • Develop effective waste management plans, promote a culture of recycling, and sustainable resource use. • Evaluate the importance of biodiversity and the role of environmental engineering in protecting natural ecosystems. • Apply industrial pollution control techniques and adopt green building principles in engineering projects. • Design effective strategies for managing and conserving natural resources using modern technologies. • Identify water and air treatment technologies and evaluate their effectiveness in improving environmental quality.	• Introduction to Environmental and Sustainability Engineering • Environmental Pollution and Design Impacts on the Environment and Society • Waste Management and Recycling Promotion • Biodiversity Protection and Ecosystem Conservation • Industrial Pollution Control and Green Building Technologies • Natural Resource Management and Conservation Technologies • Water and Air Treatment Technologies • Natural Disaster Management and Environmental Response • Renewable Energy and Clean Energy Technologies • Environmental Impact Assessment (EIA) • Sustainable City Planning and Environmental Design • Environmental Policies and Legislation • Research and Innovation Projects in Environmental and Sustainability Engineering	Interactive learning: This approach includes the use of class discussions, cooperative learning in groups,

		• Develop environmental response plans to manage natural disasters and reduce their impacts on society and the environment. • Evaluate renewable energy sources and apply clean energy technologies to achieve environmental sustainability. • Apply Environmental Impact Assessment (EIA) methodologies to prepare environmental reports and analyze sustainable alternatives. • Design development plans for sustainable cities by integrating environmental principles into urban planning. • Interpret national and international environmental policies and analyze the impact of legislation on development projects. • Conduct applied and innovative research in the fields of environmental sustainability and provide advanced technical solutions. • Develop research and scientific presentation skills by delivering seminars on contemporary environmental topics. Develop communication and interactive presentation skills while promoting critical thinking in environmental seminar discussions.	• Seminars • Seminars	

11. Course Evaluation

Evaluation type	**Degree**
Quizzes	15
Term Exam points	15
Report	10
Final exam	60
Total	100

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	None
Main references (sources)	▪ United Nations Environment Programme (UNEP). "Global Environment Outlook – GEO-6: Healthy Planet, Healthy People."
Recommended books and references (scientific journals, reports...)	• Gilbert M. Masters and Wendell P. Ela • "Introduction to Environmental Engineering and Science" (3rd Edition). • John Randolph and Gilbert Masters • "Environmental Science and Technology: A Sustainable Approach to Green Science and Technology". • Journal of Environmental Management (Elsevier). Sustainability (MDPI).
Electronic References, Websites	▪ https://iccts.moch.gov.iq/wp-content/uploads/2023/09/%D9%85%D8%AF%D9%88%D9%86%D8%A9-%D8%A7%D9%84%D8%B5%D8%B1%D9%81-%D8%A7%D9%84%D8%B5%D8%AD%D9%8A-%D9%81%D9%8A-%D8%A7%D9%84%D9%85%D8%A8%D8%A7%D9%86%D9%8A.pdf ▪ https://www.alnageeb.me/%D8%AA%D9%86%D9%81%D9%8A%D8%B0-%D8%B4%D8%A8%D9%83%D8%A7%D8%AA-%D8%A7%D9%84%D8%B5%D8%B1%D9%81-%D8%A7%D9%84%D8%B5%D8%AD%D9%8A/#google_vignette

ENGE539 Smart Building Systems

University of Mosul College of Engineering Architectural Engineering Department

13. Course Name:
Smart building systems
14. Course Code:
ENGE 539
15. Semester / Year:
Spring / 2025-2026
16. Description Preparation Date:
2026
17. Available Attendance Forms:
Lectures in the classroom
18. Number of Credit Hours (Total) / Number of Units (Total)
3 hours/ 3 ECTS credits
19. Course administrator's name (mention all, if more than one name)
Name: Omar Hazem Kharoufa Email: omar.kharufa@uomosul.edu.iq Maysaa Muwaffaq Younis Email: Maysaa.moffeq@uomosul.edu.iq
20. Course Objectives

Course Objectives	Learn about the concept of smart architecture and smart buildings, their generations, components, and features. Learn about the most important smart systems attached to smart buildings, which enable them to improve their functional and environmental performance. Learn about the concept of smart cities and their components, which represent an important solution for achieving sustainable urban development and keeping pace with the modern technological developments witnessed by contemporary societies.

21. Teaching and Learning Strategies

Strategy	1.Learning based on analyzing smart building models. This strategy encourages students to explore smart building projects as global models. This requires applying theoretical knowledge to practical scenarios, enabling students to add appropriate smart systems based on the project's function. 2. Analysis and Critique: In this strategy, students present their reports on analyzing the smart features of buildings to the class and receive feedback from their peers and the teacher. This helps enhance the ability to offer constructive criticism, which improves students' overall communication and presentation skills.

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Interactive Learning: This approach includes the use of class discussions, workshops, and group activities that promote interaction between students	Introduction to the concept of intelligence, artificial intelligence, and smart architecture	A lecture in the classroom	Theoretical lectures with daily and monthly exams, reports and discussions with students

		and teachers.			
2	3	Interactive Learning: This approach includes the use of class discussions, workshops, and group activities that promote interaction between students and teachers.	The concept of smart buildings, their features, and classification of smart buildings and the first generation	A lecture in the classroom	Theoretical lectures with daily and monthly exams, reports and discussions with students
3	3	Interactive Learning: This approach includes the use of class discussions, workshops, and group activities that promote interaction between students and teachers.	Second and third generation smart buildings and their features The impact of smart architecture on the design process Daily quiz	A lecture in the classroom	Theoretical lectures with daily and monthly exams, reports and discussions with students
4	3	Interactive Learning: This approach includes the use of class discussions, workshops, and group activities that promote interaction between students and teachers.	Components of smart systems within buildings and water in outdoor spaces	A lecture in the classroom	Theoretical lectures with daily and monthly exams, reports and discussions with students
5	3	Interactive Learning: This approach includes the use of class discussions, workshops, and group activities that promote interaction between students and teachers.	Homework Review of global projects that represent models and applications of smart architecture,	A lecture in the classroom	Theoretical lectures with daily and monthly exams, reports and discussions with students
6	3	Interactive Learning: This approach includes the use of class discussions, workshops, and	Smart envelopes: characteristics, importance, and types	A lecture in the classroom	Theoretical lectures with daily and monthly exams, reports and discussions with students

		group activities that promote interaction between students and teachers.			
7	3	Assessment and Feedback: Regular assessments and constructive feedback from teachers and peers help students continually improve their work.	Smart envelopes: characteristics, importance, and types	A lecture in the classroom	HW, CW, exam
8-9	3	Interactive Learning: This approach includes the use of class discussions, workshops, and group activities that promote interaction between students and teachers.	Smart materials	A lecture in the classroom	HW, CW, exam
10	3	The student learned how to find the areas of specific shapes by applying integrals	Smart cities	A lecture in the classroom	HW, CW, exam
11-12	3	The student learned how to find the volumes of specific shapes by applying integrals	Smart cities	A lecture in the classroom	HW, CW, exam
13	3	Assessment and Feedback: Regular assessments and constructive feedback from teachers and peers help students continually improve their work.	Smart cities	A lecture in the classroom	HW, CW, exam
14	3	Practical Projects: Students are tasked with	Report discussion	A lecture in the classroom	HW, CW, exam

		proposing a number of intelligent systems they have learned about in the course using architectural diagrams			
15	3		Final exam	A lecture in the classroom	HW, CW, exam

23. Course Evaluation	
Evaluation type	**Degree**
2 quizzes	12
homework	5
Report	5
Term exam	18
Final exam	60
Total	100

24. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	▪ **SMART MATERIAL.IN ARCHITECTURE , Birkhäuser – Publishers for Architecture , ISBN10:37643** ▪ **Smart buildings. Our future is smart.,2021** ▪ **The concept of "Local Smart Architecture": An Approach to Appropriate Local Sustainable Building "Faysal M. Abo-elazm, Shimaa M. AliInternational Journal of Cultural Heritage http://iaras.org/iaras/journals/ijchISSN: 2367-90501Volume 2, 2017** **خصائص المدن الذكية وامكانية تطبيقها , ايمان علي ناجي ,اطروحة ماجستير ,جامعة صنعاء كلية الهندسة,**
Main references (sources)	▪ **Advancements in smart building envelopes: A comprehensiv https://www.sciencedirect.com/journal/energy-and-buildings**
Recommended books and references (scientific journals, reports...)	▪ **- Smart Materials: A Revolution in Architecture, Yasaman Hosseini, Siamak Panahi** ▪ **Everything You Wanted to Know About Smart Cities,** Saraju P. Mohanty**,IEEE Consumer Electronics Magazine 5(3):60-70**
Electronic References, Websites	

ARC545 Graduation project II

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:	
Graduation project II	
2. Course Code:	
ARC545	
3. Semester / Year:	
Spring 2025-2026	
4. Description Preparation Date:	
2026	
5. Available Attendance Forms:	
Lectures in the classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
1 theoretical + 14 practical (15) / Number of units (8)	
7. Course administrator's name (mention all, if more than one name)	
Name :Dr. Khawola Fyad Mahmood	email : khawola.mahmoud@uomosul.edu.iq
8. Course Objectives	
Course Objectives	• The ability to identify, define, formulate, and solve engineering problems by applying the princip of engineering, science, and mathematics. • The ability to produce engineering designs that meet desired needs within given constraints by applying analysis and synthesis processes in the design process. • The ability to establish and implement appropriate measurements and tests with quality assurance, analyze and interpret results, and apply engineering judgment to reach conclusions. • The ability to work effectively within teams, set goals, plan activities, meet deadlines, and mana risk and uncertainty.
9. Teaching and Learning Strategies	
Strategy	• Gather information and data about the project from various relevant sources, including books, scientific references, examples and models of implemented buildings, and review relevant governmental and non-governmental institutions. • Analyze data and information and identify pros and cons using a SWOT analysis strategy. • Make design decisions based on the information analysis.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1hour of theory + 14 hours of practical	The ability to identify, define, formulate, and solve engineering problems by applying the principles of engineering, science, and mathematics.	Building the design idea	Feedback	Discussion
2			Website design solutions	Feedback	Discussion
3			Integrate the project into the site	Feedback	Provide diagrams
4					
5		Ability to establish and perform appropriate	Ground floor plans	Feedback	Discussion
6				Feedback	Discussion
7			Floor plans	Feedback	Provide diagrams

8		measurements and tests with quality assurance, analyze and interpret results, and exercise engineering judgment to reach conclusions.		Feedback	
0			Clips	Feedback	Presentation and discussion of plans
10				Feedback	
11				Feedback	
12		The ability to produce engineering designs that meet required needs within given constraints by applying analysis and synthesis processes in the design process.	Facades and exterior design	Feedback	Presentation and discussion of plans
13					
14					
15		Ability to work effectively within teams, set goals, plan events, meet deadlines, and manage risk and uncertainty.	Final evaluation	Analysis and evaluation	Presentation and discussion of plans
16				Analysis and evaluation	

11. Course Evaluation

Evaluation type	**Degree**
Grade distribution out of 100 is based on the tasks assigned to the student. Daily preparation: 10% Daily exams: 10% Regular assessments: 20% Final project submission and discussion: 60%	

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	None
Main references (sources)	• Neufert, Ernst and Peter . Architect's Data . Oxford Brookes University. **• Time Saver Standards for Building Types . McGraw-Hill.**
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	• http://www.archiprix.net / • www.arcspace.com • www.archiseek.com • www.a-matter.com • www.byggeinfo.dk www.architactic.com/en/index.html

ARC546 Professional Practice

University of Mosul College of Engineering Architectural Engineering Department

1. Course Name:
Professional Practice
2. Course Code:
ARC546
3. Semester / Year:
Spring/ 2025-2026
4. Description Preparation Date:
2026
5. Available Attendance Forms:
Lectures in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hr / 2 units
7. Course administrator's name (mention all, if more than one name)
Name: Raeed salim Email: RAEEDALNUMMAN@UOMOSUL.EDU.IQ
8. Course Objectives

Course Objectives	The ability to provide each student with awareness and understanding of the conceptual framework. The ability to utilize the practical knowledge base and facilitate the transition from vocational school to professional practice. The ability to understand and engage with the role the architect in society.
9. Teaching and Learning Strategies	
Strategy	It is an organized plan aimed at achieving specific educational objectives using effective methods and tools. This strategy includes selecting the most appropriate ways to deliver knowledge (such as lectures, discussions, and project-based learning), assessing students (through exams, presentations, and assignments), and guiding them toward critical thinking and practical application of the subject. The goal is to enhance deep understanding and encourage active learning among students.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	2 hours	Theoretical knowledge The legal and regulatory framework of the profession Understanding the laws and regulations governing the practice of architecture, such as building codes, urban planning laws, and environmental legislation. Understanding	general definitions	Interactive: this approach involves using classroom discussions and group activities to enhance interaction between students and instructors.	• Theoretical and practical lectures with daily and monthly tests and reports.
			The architect and their main duties		
			The formation of the architect and their obligations		
			Elements of the construction field		
			Classification of architects		
			Professional organizations		

		professional licensing requirements, and familiarity with local professional engineering bodies, such as the Engineers Syndicate and the Architects Association, as well as local and international standards for professional practice. Understanding different types of engineering contracts and the legal responsibilities of the architect. Recognizing the importance of economic feasibility and project timelines. Professional and ethical standards Understanding professional ethics and the social responsibility of the architect. Understanding the rights and duties of the architect تجاه clients and society. Applied skills Managing the engineering office and institutional work Enhancing teamwork skills with other disciplines (structural, mechanical, electrical engineering, and urban planning			

		engineering)			
			Law and regulations of professional practice and conduct 8 Semester exam 9 The architect and their services 10 Methods of selecting the architect and their fees 11 Architectural competitions 12 Architectural professional services agreement 13 Types of contracts		

11. Course Evaluation	
Grade distribution out of 100 is based on the tasks assigned to the student. **pts 10 report 1** **pts 20 Quiz 1** **pts 10 Term Exam 1** **pts 60 Final Exam** **pts 100 Total**	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	None
Main references (sources)	Professional Practice and Code of Prof. Ethics by Nasir Majeed Al Asady The Law & the Internal System of Iraqi Engineers Union General conditions for contracting, Ministry of -Local Government
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	