

**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 staff 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 the 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

Date: 20 / 4 / 2026

Signature:

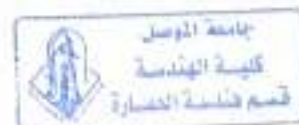


Asst. Prof. Rana
Burhan Abdulhadi



Dean's Approval

Asst pro Dr Omar
4 / 27



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- Bologna track

Level	Semester	No.	Module Code	Module Name in English	الدراسية المادة اسم	Language	CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UG I	One	1	ARC 111	Architecture Design and	التصميم والرسم المعماري (1)	English	2			6			3	123	177	300	12.00	C	
		2	ARC 112	Descriptive geometry &	الهندسة الوصفية والرسم الهندسي	English	1			3			3	63	87	150	6.00	S	
		3	ARC 113	Art & Architecture	الفن والمعمارية	English	2						3	33	67	100	4.00	C	
		4	ARC 114	Mathematics (1)	الرياضيات (1)	English	2	2			1		3	78	22	100	4.00	B	
		5	UOM 1011	Arabic Language	اللغة العربية	Arabic	2						3	33	17	50	2.00	B	
		6	UOM 1040	Democracy & Human Rights	الديمقراطية وحقوق الإنسان	Arabic	2						3	33	17	50	2.00	B	
				Total		English	11	2	0	9	1	0	18	363	387	750	30.00		
	Two	No.	Module Code	Module Name in English	الدراسية المادة اسم	Language	CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
		1	ARC 121	Architecture Design and	التصميم والرسم المعماري (2)	English	2			6			3	123	177	300	12.00	C	
		2	ARC 122	Free Hand Drawing (1)	الرسم اليدوي الحر (1)	English	1			3			3	63	62	125	5.00	S	
		3	ARC 123	Construction and Building Materials	الإتشاء ومواد البناء	English	2			1			3	48	52	100	4.00	C	
		4	ARC 124	Mathematics (2)	الرياضيات (2)	English	2	2			1		3	78	22	100	4.00	B	
		5	UOM 1031	computer (1)	حاسوب (1)	English	2		2				3	63	12	75	3.00	B	
		6	UOM 1021	English Language	اللغة الإنجليزية (1)	English	2						3	33	17	50	2.00	B	
				Total		English	11	2	2	10	1	0	18	408	342	750	30.00		

Second Level - Bologna track

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGII	Three	1	ARC 211	Architecture Design (1)	التصميم المعماري (1)	English	2				8		1	153	147	300	12.00	C	
		2	ARC 212	History of Ancient Architecture	تاريخ العمارة القديمة	English	2						3	33	42	75	3.00	C	
		3	ARC 213	Building Construction	البناء الإنشائي	English	2		2				3	63	37	100	4.00	B	
		4	ARC 214	Graphic and Architectural Presentation	الرسم المعماري	English	1			3			3	63	12	75	3.00	S	
		5	ARC 215	Computer Architectural Drawing 2D	الرسم المعماري بالحاسوب 2D	English	1		3				3	63	37	100	4.00	C	
		6	UOM 2050	Crimes of Ba'ath Regime in Iraq	جرائم نظام البعث في العراق	Arabic	2						3	33	17	50	2.00	B	
		7	UOM2022	English Language (2)	اللغة الإنجليزية (2)	Arabic	2						3	33	17	50	2.00	B	
				Total			12	0	5	11	0	1	21	441	309	750	30.00		
	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
	Four	1	ARC 221	Architecture Design (2)	التصميم المعماري (2)	English	2				8		1	153	147	300	12.00	C	
		2	ARC 222	Free Hand Drawing (2)	الرسم اليدوي الحر (2)	English	1				4		3	63	12	75	3.00	S	
		3	ARC 223	Physics (1)	الفيزياء (1)	English	2		2				3	63	37	100	4.00	C	
		4	ARC 224	Computer Architectural Drawing 3D	الرسم المعماري بالحاسوب 3D	English	1		3				3	63	12	75	3.00	B	ARC 215 Computer Architectural Drawing 2D
		5	ARC 225	Science of Mechanics	علم الميكانيك	English	2						3	33	42	75	3.00	C	
		6	UOM 2032	computer(2)	حاسوب (2)	English	2		2				3	63	12	75	3.00	B	
		7	UOM 2012	Arabic Language (2)	اللغة العربية (2)	Arabic	2						3	33	17	50	2.00	B	
				Total			11	0	7	12	0	1	21	471	279	750	30.00		

Third Level - Bologna track

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGIII	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	12	75	3.00	C	
		3	ARC 313	Computer Rendering Techniques	تقنيات الإظهار بالحاسوب	English	1			2			3	48	27	75	3.00	C	ARC 225 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	S	
		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 الأوروبية	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 المادة الدراسية	Language	CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
	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	المساحة والتوثيق المعماري	English	2			2			3	63	37	100	4.00	S	
		3	ARC 323	Physics Laboratory	مختبر 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	S	
		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	S	
				Total			10	0	2	13	0	1	18	393	357	750	30.00		

Fourth Level- Semesters System

Semester 1					
#	Course Code	Course Title	Theoretical Hours	Practical Hours	Credit Hours
1	ARC411	Architectural Design (4)	2	10	7
2	ARC414	Theory of Architecture (1)	2		2
3	ARC415	Interior Design	1	4	3
4	ARC416	Theories of Urban Design	2		2
5	ARC417	Architectural Spaces Programming	2		2
6	ARC418	Physics (6)	2		2
7	STR 417	Steel Structures	2		2
			27		20

Semester 2					
#	Course Code	Course Title	Theoretical Hours	Practical Hours	Credit Hours
1	ARC411	Architectural Design (4)	2	10	7
2	ARC4 22	Physics (7)	2		2
3	ARC4 24	Theory of Architecture (2)	2		2
4	ARC4 25	Contemporary Regional Architecture	2		2
5	ARC4 26	Landscape Architecture	1	4	3
6	ARC4 27	Safety of Architectural Structural	2		2
7	ARC4 28	Advanced Construction Techniques	2		2
			27		20

Fifth Level- Courses System

Requirement Category	Course Code	Course Title (English)	Course Title (Arabic)	Requirement Type	Theoretical Hours	Practical Hours	Credit Units	Prerequisite	Notes
College Requirements College Requirements	ENG525	Engineering Management	الإدارة الهندسية	Compulsory	2	-	2	-	
	ENG526	Engineering Economy	الاقتصاد الهندسي	Compulsory	2	-	2	-	
Department Requirements	ARC 541	Graduation Project (1)	مشروع التخرج (1)	Compulsory	2	6	5	Architectural Design (7)	
	ARC 542	Urban Design	التصميم الحضري	Compulsory	2	6	5	Theories of Urban Design	
	ARC 543	Estimation and Specifications	التخمين والمواصفات	Compulsory	2	-	2	-	
	ARC 544	Computer Aided Design	التصميم بمساعدة الحاسوب	Compulsory	1	2	2	-	
	ARC 561	Building Safety Requirements	متطلبات السلامة في المباني	Elective	2	-	2	-	Student chooses 1 course out of the electives (Required = 2 Units)
	ARC 562	Computer Applications	تطبيقات حاسوبية		1	2	2	-	
	ARC 563	Architectural Details	التفاصيل المعمارية		1	2	2	-	
	ARC 564	Theories of Architecture Criticism	نظريات النقد المعماري		2	-	2	-	
		Total Hours & Units for First Semester Level 5			11	18	20		
Requirement Category	Course Code	Course Title (English)	Course Title (Arabic)	Requirement Type	Theoretical Hours	Practical Hours	Credit Units	Prerequisite	Notes
College Requirements	ENGE536	Environmental Engineering and Sustainability	هندسة البيئة والاستدامة	Elective	3	-	3	-	Compulsory for Department Students
	ENGE539	Smart Building Systems	أنظمة البناء الذكي	Elective	3	-	3	-	Compulsory for Department Students
Department Requirements	ARC 545	Graduation Project (2)	مشروع التخرج (2)	Compulsory	1	14	8	Graduation Project (1)	-
	ARC 546	Professional Practice	السلوك وممارسة المهنة	Compulsory	2	-	2	-	-
		Total Hours & Units for Second Semester Level 5			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 Graphics (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 Graphics (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			✓					
	ARC 211	Architecture Design (1)	Basic	✓	✓		✓	✓	✓	✓	✓
Second Level	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

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prere site Modu (s) Co	ui e
UG I	One	1	ARC 111	Architecture Design and	التصميم والرسم المعماري (1)	English	2			6			3	123	177	300	12.00	C		
		2	ARC 112	Descriptive geometry &	الهندسة الوصفية والرسم الهندسي	English	1			3			3	63	87	150	6.00	S		
		3	ARC 113	Art & Architecture	الفن والمعمارة	English	2						3	33	67	100	4.00	C		
		4	ARC 114	Mathematics (1)	الرياضيات (1)	English	2	2			1		3	78	22	100	4.00	B		
		5	UOM 1011	Arabic Language	اللغة العربية	Arabic	2						3	33	17	50	2.00	B		
		6	UOM 1040	Democracy & Human Rights	الديمقراطية وحقوق الإنسان	Arabic	2						3	33	17	50	2.00	B		
				Total		11	2	0	9	1	0	18	363	387	750	30.00				
	Two	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prere site Modu (s) Co	ui e
		1	ARC 121	Architecture Design and	التصميم والرسم المعماري (2)	English	2			6			3	123	177	300	12.00	C		
		2	ARC 122	Free Hand Drawing (1)	الرسم اليدوي الحر (1)	English	1			3			3	63	62	125	5.00	S		
		3	ARC 123	Construction and Building Materials	الإشياء ومواد البناء	English	2			1			3	48	52	100	4.00	C		
		4	ARC 124	Mathematics (2)	الرياضيات (2)	English	2	2			1		3	78	22	100	4.00	B		
		5	UOM 1031	computer (1)	حاسوب (1)	English	2		2				3	63	12	75	3.00	B		
		6	UOM 1021	English Language	اللغة الإنجليزية (1)	English	2						3	33	17	50	2.00	B		
				Total		11	2	2	10	1	0	18	408	342	750	30.00				

Course Description Form

1. Course Name:	
Architecture Design and Graphics (1)	
2. Course Code:	
ARC 111	
3. Semester / Year:	
First / 2025–2026	
4. Description Preparation Date:	
1/6/2025	
5. Available Attendance Forms:	
Lectures in the classroom and studio	
6. Number of Credit Hours (Total) / Number of Units (Total)	
300 hours/ 12 ECTS credits	
7. Course administrator's name (mention all, if more than one name)	
Ahmed A. Alfakhry ahmed.alfakhry@uomosul.edu.iq Nasma M. Thabet Maha A. Sadella Luma M. Yahya Russul S. Aloabidi Marwa Isam Farah Jalo Surour N. Thamer Ghofran Mohammad Sara Mohammed	
8. Course Objectives	
Course Objectives	- 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
--	---

9. Teaching and Learning Strategies

Strategy	• 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.
-----------------	--

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	8	analyze, assess, record, and comparatively evaluate relevant information	Line (free hand drawing)	Group discussion	Assignments
2	8	analyze, assess, record, and comparatively evaluate relevant information	Line (geometrical drawing)	Group discussion	Assignments
3	8	analyze, assess, record, and comparatively evaluate relevant information	Texture	Group discussion	Assignments
4	8	Apply critical and and imaginative thinking	Basic geometrical shapes		Class Exam
5	8	Apply knowledge to solve design problem	Collage	Guiding feedback	Continuous evaluation
6	8	Ability to communicate design idea	Collage representation exercise by drawing		Jury assessment system
7	8	Apply knowledge to solve design problem	3D form design and composition	Guiding feedback	Continuous evaluation
8	8	Apply knowledge to solve design problem	3D form design and composition	Guiding feedback	Continuous evaluation
9	8	Apply knowledge to solve design problem	3D form design and composition	Guiding feedback	Continuous evaluation
10	8	Ability to communicate and design	3D form design and composition		Jury assessment system

11	8	Develop imaginative and thinking in design	3D form design and composition	Guiding feedback	Continuous evaluation
12	8	Apply critical and and imaginative thinking	3D form design and composition	Group discussion	Class Exam
13	8	Ability to communicate design	3D form design and composition	Group discussion	Jury assessment system
14	8	Ability to consider diverse points of view, and reach well-reasoned conclusions	3D form design and composition	Group discussion	Continuous evaluation
15	8	Ability to communicate design	Final submission		Jury assessment system

11. Course Evaluation

Evaluation type	Degree
2 Quizzes	8
1 Assignments	4
6 Projects / Lab.	24
1 Report	4
1 Midterm Exam	10
1 Final Exam	50
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Time saver standard
Main references (sources)	Architecture, Form, Space and Order, Franic Ching, Van Nostrand Reinhold Company, New York, 1996
Recommended books and references (scientific journals, reports...)	Neufert
Electronic References, Websites	

Course Description Form

1. Course Name:					
Descriptive geometry & Engineering Drawing					
2. Course Code:					
ARC 112					
3. Semester / Year:					
First/ 2025–2026					
4. Description Preparation Date:					
1/6/2025					
5. Available Attendance Forms:					
Lectures in the classroom and Studio					
6. Number of Credit Hours (Total) / Number of Units (Total)					
150 hours/ 6 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Reem Ali Talib Alothman reemalothman@uomosul.edu.iq Maha Akram					
8. Course Objectives					
Course Objectives		• 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.			
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 practical sessions and homework.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	• Understand the theoretical principles of Monge's projection. • Project and represent 3D point coordinates on 2D principal planes.	Monge's Orthographic Projection. Defining points for Monge's descriptive geometry analysis	Studio lecture & practical drafting exercises.	Classwork assessment & homework assignment.
2	4	• Classify principal, inclined, and oblique lines in spatial	Defining lines for Monge's descriptive geometry analysis	Studio lecture & interactive drawing	Classwork assessment & homework

		projection. • Represent straight line segments accurately across projection planes.		tutorial.	assignment.
3	4	• Calculate true lengths of spatial lines. • Graphically determine true angles and distances between points and lines.	Solve for various projections (1) such as: True size and shape projections, True angles, Distances between points and lines.	Guided problem-solving studio & hands-on drafting.	Classwork assessment & homework assignment.
4	4	• Determine true size and true shape of oblique geometric planes. • Solve complex spatial distance and angular problems graphically.	Solve for various projections (2) such as: True size and shape projections, True angles, Distances between points and lines.	Practical studio workshop & step-by-step drafting.	Classwork assessment & homework assignment.
5	4	• Demonstrate proficiency in Monge's descriptive geometry, point/line projections, and spatial analysis.	Midterm exam	Practical mid-term examination session.	Midterm Exam (20 Marks).
6	4	• Construct primary auxiliary views to reveal inclined surfaces in true size/shape. • Apply auxiliary projection rules to complex geometry.	Auxiliary Views. Defining principal views relative to spatial analysis and expanding the principles of basic views to auxiliary view application	Studio lecture & practical drafting application.	Classwork assessment & homework assignment.
7	4	• Master drawing instruments and technical board setup. • Apply standard technical line types (visible, hidden, center, dimension, cutting) correctly.	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.	Hands-on studio orientation & tool demonstration.	Classwork sheet evaluation & direct observation.
8	4	• Convert dimensions using civil, mechanical, zoom-in/out drawing scales.	Various engineering operations: * Introducing the drawing scale and its types: civil,	Studio lecture & practical geometric construction.	Classwork assessment & homework assignment.

		Construct fundamental geometric operations (parallel lines, bisectors, tangents).	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		
9	4	- Draw tangent arcs connecting lines at acute, right, and obtuse angles. - Construct smooth arc transitions and plot inverted shapes.	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	Studio demonstration & practical drafting session.	Classwork assessment & homework assignment.
10	4	Evaluate rapid precision and mastery in geometric operations and technical line conventions.	Quiz	Individual timed studio assessment.	Practical Quiz (10 Marks).
11	4	- Understand orthographic projection theory using vertical rays. - Derive and arrange front, top, and side views systematically on drawing boards.	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	Studio lecture, 3D model visualization & drafting.	Classwork assessment & homework assignment.
12	4	Identify 3D visual formats and construct	Drawing three-dimensional figures	Interactive studio lecture	Classwork assessment &

		technical isometric drawings. • Use isometric axes and circles to represent 3D objects.	* Types of three-dimensional figures and their practical benefits * Isometric	& isometric drafting exercise.	homework assignment.
13	4	• Correlate multi-view 2D drawings into 3D spatial representations. • Apply standard technical dimensioning rules and measurement axes accurately.	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	Studio practical session & peer drafting review.	Classwork assessment & homework assignment.
14	4	• Deduce and construct missing orthographic views from two given views. • Analyze and project objects containing inclined and complex surfaces.	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	Studio problem-solving workshop & guided drafting.	Classwork assessment & homework assignment.
15	4	• Apply cutting plane conventions and section hatching rules. • Recognize non-sectioned structural features (ribs, webs, supports) in section views.	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	Studio lecture & comprehensive drafting practice.	Classwork assessment & final studio portfolio evaluation.

11. Course Evaluation

Evaluation type	Degree
1 Quizzes	10
12 Projects / Lab. Class work	15
12 Projects / Homework	15
1 Midterm Exam	20
1 Final Exam	40%
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Engineering Drawing and Graphic Technology, By French & Vierk, Twelve tion.
Electronic References, Websites	

Course Description Form

1. Course Name:	
Art & Architecture	
2. Course Code:	
ARC 113	
3. Semester / Year:	
First/ 2025–2026	
4. Description Preparation Date:	
1/6/2025	
5. Available Attendance Forms:	
Lectures in the classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
100 hours/ 4 ECTS credits	
7. Course administrator's name (mention all, if more than one name)	
Khawola faith Mahmoud Khawola.mahmoud@uomosul.edu.iq	
8. Course Objectives	
Course Objectives	- 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.
--	--

9. Teaching and Learning Strategies

Strategy	• Interactive Visual Analysis: Lectures utilize high-resolution digital image banks, architectural drawings, and virtual museum archives (e.g., Google Arts & Culture, Artstor) to dissect design elements, historical styles, and architectural movements. • Student-Led Seminars: Students conduct brief presentation seminars on assigned architectural movements (e.g., Art Nouveau, Cubism) and contemporary trends, fostering critical thinking, research, and public speaking skills. • Tactile & Graphic Drafting Workshops: In-class drafting and sketching exercises allow students to directly apply principles of design, geometric form articulation, scale, and spatial proportion. • Physical & Digital Representation: Practical mini-projects focused on architectural visualization, color theory application, and physical model-making translate theoretical concepts into tangible spatial representations. • Exemplar Analysis: Systematic breakdown of landmark historical and modern buildings to evaluate how architects integrate structural materials, interior lighting, site topography, and environmental sustainability. • Comparative Critique: Group discussions comparing different historical eras, structural materials, and design approaches to develop analytical evaluation skills. • Guided Reading & Research: Structured assignments leveraging core texts (e.g., Francis Ching's <i>Architecture: Form, Space, and Order</i>) and online architectural databases to maximize the 67 hours of unstructured student workload (SWL). • Digital Exploration: Virtual tours and digital library exploration (Getty, Metropolitan Museum of Art) to investigate global art and architectural artifacts independently. • Iterative Design Reviews: Continuous formative feedback on weekly drawing assignments, quizzes, and project drafts prior to major submissions (Midterm and Final Exams). • Peer Evaluation: Peer-critique sessions during project presentations to encourage collaborative evaluation, constructiveness, and self-assessment in spatial design.
-----------------	--

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	• Define fundamental concepts and terminology in art and architecture. • Examine the	• Introduction to Art and Architecture • Overview of the course and its objectives • Understanding the basic principles of art and architecture	Interactive visual lecture & group discussion.	Class participation & intro assessment.

		interdisciplinary relationships between architecture and other sciences.	• Exploring the relationship between art and architecture • Exploring the relationship between architecture and other sciences		
2	2	• Identify core design elements (line, shape, form, texture, color). • Analyze how artists and architects apply these elements functionally and aesthetically.	• 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.	Interactive visual analysis & tactile sketching workshop.	Assignment 1 (Design Elements Sheet).
3	2	• Differentiate core design principles (contrast, balance, unity, hierarchy, gradation). • Evaluate architectural compositions using established design principles.	• 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	Interactive visual analysis & exemplar analysis.	Quiz 1 (10 Marks share).
4	2	• Master basic architectural sketching techniques and drawing tools. • Apply standard technical graphic conventions for visual representation.	• 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	Tactile & graphic drafting workshop.	Practical drafting assignment / Classwork review.
5	2	• Apply concepts of human scale, proportion, and spatial perception to architectural form. • Manipulate scale deliberately to create desired spatial effects.	• 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	Interactive visual analysis & studio drafting.	Assignment 2 (Scale & Proportion exercise).

6	2	• Construct volumetric form compositions and geometric connections. • Articulate form edges, surface treatments, and corner intersections.	• Architectural composition • types of geometric forms' connections articulation of forms and corners and their application in art and architecture	Exemplar analysis & graphic drafting workshop.	Project / Lab work assessment.
7	2	• Compare major artistic movements (Art Nouveau, Cubism) and their influence on architectural design. • Present critical analyses of historical movement case studies.	Architectural trends and movements in art and architecture, (art nouveau, cubism).	Student-led seminars & comparative critique.	Seminar presentation / Assignment 3.
8	2	• Demonstrate comprehensive theoretical and practical knowledge of design principles, composition, and drawing fundamentals.	<u>Mid Term Exam</u>	Written and visual examination session.	Midterm Exam (10 Marks).
9	2	• Explain principles of color theory and color harmony in spatial contexts. • Select color palettes to evoke specific psychological and emotional spatial qualities.	• 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.	Physical & digital representation workshop.	Quiz 2 (10 Marks share).
10	2	• Categorize historical and contemporary architectural styles and their defining characteristics. • Perform comparative visual analyses of landmark historical structures.	• 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	Interactive visual analysis & digital exploration.	Practical Exam / Style Analysis Test (10 Marks).
11	2	• Integrate lighting, furniture layouts, and material	• Introduction to Interior Design	Exemplar analysis & visual lecture.	Assignment 4 (Interior Design analysis).

		selection within architectural interiors. • Evaluate interior spaces for functional efficiency and aesthetic appeal.	• 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		
12	2	• Formulate site planning concepts that harmoniously connect buildings with natural surroundings. • Apply basic landscape design principles to architectural projects.	• Landscape Design and Site Planning • Introduction to landscape design principles • Understanding the relationship between buildings and their surroundings • Case studies of landscape architecture projects	Visual analysis & site planning case studies.	Project / Lab exercise assessment.
13	2	• Construct physical scale models and produce digital visual renderings. • Effectively communicate architectural spatial ideas to diverse audiences.	• 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	Physical & digital representation workshop.	Physical model / Visualization submission.
14	2	• Identify sustainable materials and passive energy-efficient strategies in building design. • Analyze sustainable architectural features in modern green building exemplars.	• 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	Exemplar analysis & guided reading research.	Classwork critique & assignment review.
15	2	• Evaluate the impact of smart technology, adaptive reuse, and	• Future Trends in Architecture	Student-led discussions & digital exploration.	Portfolio review & Final Exam preparation.

		future innovations on architectural practice. • Articulate upcoming challenges and opportunities in contemporary design.	• 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		
11. Course Evaluation					
Evaluation type			Degree		
2 Quizzes			10		
4 Assignments			10		
1 Projects / Lab.			10		
1 Exam			10		
1 Midterm Exam			10		
Final Exam			50		
Total			100		
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			• Architecture, Form, Space and Order / Francis Ching/1996 • The Art of Color and Design / Maitland Graves/1951 • Launching Imagination / Mary Stewart/2006 • 1985/مبادئ في الفن والعمارة /شيرين احسان شيرزاد		
Main references (sources)					
Recommended books and references (scientific journals, reports...)			• "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)		
Electronic References, Websites			• The Artstor Digital Library (www.artstor.org) for high-quality images of artworks, architectural drawings, 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.		

Course Description Form

1.Course Name:					
Mathematics (1)					
2.Course Code:					
ARC 114					
3.Semester / Year:					
First/ 2025–2026					
4.Description Preparation Date:					
1/6/2025					
5.Available Attendance Forms:					
Lectures in the classroom					
6.Number of Credit Hours (Total) / Number of Units (Total)					
100hours/ 4 ECTS credits					
7.Course administrator's name (mention all, if more than one name)					
Tuqa Waleed Ahmed new.matrix242@uomosul.edu.iq					
8.Course Objectives					
Course Objectives		• Provide the fundamental concepts for elementary mathematics. • Use the mathematical functions like trigonometric functions and application of derivatives to solve some Engineering problems			
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	2	• Identify special matrix types (square, diagonal, symmetric). • Perform fundamental matrix operations including addition, scalar, and matrix multiplication.	Matrices types (square, diagonal, symmetric) and operations (addition, scalar multiplication, matrix multiplication).	Classroom lecture & interactive tutorial exercises.	Assignment 1 & practice problems.
2	2	• Compute determinants for 2×2 and 3×3 matrices accurately. • Determine matrix adjoints and calculate matrix inverses.	Determinants (2×2 , 3×3), the adjoint and the inverse of matrix,	Classroom lecture & problem-solving tutorial.	Assignment 2 & quiz review.
3	2	• Apply Cramer's Rule to solve systems of linear equations. • Execute Gaussian	Solving linear systems (Cramer's Rule, Gaussian elimination).	Classroom lecture & worked example	Quiz 1 (10 Marks share).

		elimination to solve multi-variable linear systems.		tutorial.	
4	2	- Plot coordinate systems and interpret linear graphical relationships. - Derive straight-line equations using slope-intercept and point-slope forms.	Coordinates, graphs, line equations (slope-intercept, point-slope).	Interactive tutorial & graphing exercises.	Assignment 3 & in-class practice.
5	2	- Analyze domain, range, and behavior of polynomial, piecewise, and trigonometric functions. - Graph standard algebraic and trigonometric functions accurately.	Functions (polynomial, piecewise, trigonometric) and their graphs.	Classroom lecture & interactive visual tutorial.	Quiz 2 (10 Marks share).
6	2	- Apply vertical/horizontal shifts, scaling, and symmetry transformations to graphs. - Formulate equations and sketch graphs of circles and parabolas.	(Shifts, scaling and symmetry), circles and parabolas.	Practical classroom tutorial & visual graphing session.	Assignment 4 & problem sheet review.
7	2	- Estimate limit values numerically via tables and visually through graphs. - Utilize GeoGebra software for interactive limit explorations and curve behavior.	Introduction to limits (tables/graphs), GeoGebra: Interactive limit explorations.	Classroom lecture & GeoGebra interactive laboratory session.	Midterm Exam preparation & lab check.
8	2	- Apply the Sandwich (Squeeze) Theorem to evaluate bounded limits. - Solve trigonometric limits using standard limit identities.	The sandwich theorem	Theoretical lecture & step-by-step problem-solving.	Midterm Exam (10 Marks).
9	2	- Evaluate limits at infinity and determine horizontal/vertical asymptotes. - Assess function continuity and apply the Intermediate Value Theorem (IVT).	Limits at infinity, continuity (Intermediate Value Theorem).	Classroom lecture & analytical tutorial.	Assignment 5 & concept assessment.
10	2	- Calculate rates of change using the limit definition of the derivative. - Determine slopes and equations of tangent lines to curves.	Definition of derivatives (slope, tangent lines).	Classroom lecture & graphical derivative practice.	Quiz 3 (10 Marks share).
11	2	Apply fundamental power, product, and	Differentiation rules and Trigonometric	Practical classroom	Report assignment

		quotient rules for differentiation. • Compute derivatives of all basic trigonometric functions.	derivatives.	tutorial & drill exercises.	allocation & practice review.
12	2	• Differentiate composite functions using the Chain Rule. • Calculate derivatives of implicitly defined algebraic and trigonometric equations.	The chain rule, implicit differentiation.	Classroom lecture & guided tutorial.	Mathematics Report submission (5 Marks).
13	2	• Formulate and solve real-world problems involving related rates of change. • Apply derivative principles to solve practical engineering problems.	Applications of derivatives and related rates of change.	Interactive problem-solving tutorial & application exercises.	Classwork evaluation & problem sheet review.
14	2	• Identify local and absolute extrema using first and second derivative tests. • Sketch rational functions by identifying asymptotes, concavity, and inflection points.	Extrema (first/second derivative tests), Rational functions graphing and Asymptotes.	Classroom lecture & curve sketching workshop.	Final exam preparation & assignment evaluation.
15	2	• Solve geometric and engineering optimization problems. • Calculate fundamental antiderivatives and indefinite integrals.	Optimization and Antiderivatives.	Interactive tutorial & comprehensive course review.	Comprehensive portfolio review & Final Exam preparation.

11.Course Evaluation

Evaluation type	Degree
3 Quizzes	30
5 Assignments	5
1 Report	5
1 Midterm Exam	10
Final Exam	50
Total	100

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Thomas__Calculus_Addison–Wesley; 11th edition (January 1, 2004)
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Calculus and Analytic Geometry 1 by Purcell,1972.
Electronic References, Websites	

Course Description Form

1. Course Name:					
Arabic Language (1)					
2. Course Code:					
UOM 1011					
3. Semester / Year:					
First/ 2025-2026					
4. Description Preparation Date:					
10/11/2025					
5. Available Attendance Forms:					
Lectures in the classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
50 hours/ 2 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Asst. Prof. Dr. Khalid Faris Khalil Ali khalid.faris.k@uomosul.edu.iq					
8. Course Objectives					
Course Objectives	- Understanding the history of the Arabic language: its origins, related hypotheses, and the specific tribe to which it belongs. - Learning the rules for writing numbers and applying gender agreement (masculine/feminine forms). - Understanding primary and secondary grammatical case markers (i'rab). - Identifying nouns in the nominative case (*al-marfu'at*). - Learning the rules for writing *Hamzat al-Wasl* and *Hamzat al-Qat*. - Identifying nouns in the accusative case (*al-mansubat*). - Learning the rules for writing *Ta' Marbuta* and *Ta' Maftuha*. - Understanding *Inna* and its sisters (particles that modify the subject and predicate). - Identifying and correcting grammatical errors. - Distinguishing between the letters *Za'* (ظ) and *Dad* (ض). - Understanding punctuation marks. - Understanding the subject (*fa'il*) and the passive subject (*na'ib al-fa'il*). - Distinguishing between *Alif Mamduda* and *Alif Maqsura*. - Studying a poem from the pre-Islamic era. - Understanding the importance and characteristics of the Arabic language.				
9. Teaching and Learning Strategies					
Strategy	The primary strategy adopted for delivering this module is to encourage students to engage in speaking and writing Arabic correctly, while simultaneously enhancing and broadening their critical thinking skills. This will be achieved through interactive classes and tutorials, as well as by examining simple experiments that involve sampling activities of interest to the students.				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understand the origins, historical development, and tribal linguistic roots	History of the Arabic Language	Interactive classroom lecture & group discussion.	Direct participation & introductory assessment.

		of the Arabic language. • Recognize the general importance and unique characteristics of Arabic.			
2	2	• Apply rules governing numbers and numerical gender agreement (masculine/feminine). • Write numerical expressions correctly in Arabic prose.	Numbers: Masculine and Feminine Forms	Interactive lecture & writing tutorial exercises.	Assignment 1 (Number Rules Exercise).
3	2	• Identify common linguistic, orthographic, and expression mistakes in everyday Arabic. • Formulate correct phrasing and standard usage.	Common Errors	Interactive tutorial & practical language analysis.	Quiz 1 (15 Marks total share).
4	2	• Analyze the semantic function and context-dependent meanings of prepositions. • Construct sentences using prepositions accurately.	Meanings of Prepositions	Classroom lecture & text analysis.	Assignment 2 (Preposition Analysis Sheet).
5	2	• Distinguish orthographically and phonetically between <i>Hamzat al-Wasl</i> and <i>Hamzat al-Qat'</i> . • Apply spelling rules for <i>Hamza</i> in initial word positions.	Hamzat al-Qat' and Hamzat al-Wasl	Interactive class & dictation exercises.	Quiz 2 (15 Marks total share).
6	2	• Differentiate between <i>Ta' Marbutah</i> (ة) and <i>Ta' Maftuhah</i> (ت) in writing. • Apply correct orthographic conventions across nouns and verbs.	Rules for Writing *Ta' Marbutah* and *Ta' Maftuhah*	Interactive class & dictation exercises.	Assignment 3 (Orthography Practice).
7	2	• Synthesize knowledge of Arabic origins, basic orthography, and fundamental grammar rules covered.	Review and Exam	Comprehensive review session & written examination.	Midterm Exam (10 Marks).
8	2	• Master advanced contextual application and	Writing *Hamzat al-Wasl* and *Hamzat al-Qat'*	Practical writing workshop & proofreading	Dictation check & classwork review.

		writing rules of both types of <i>Hamza</i> . • Correct orthographic errors related to <i>Hamza</i> in written texts.		exercises.	
9	2	• Analyze complex grammatical errors (<i>i'rab</i>) in written administrative and general contexts. • Apply case markers (<i>al-marfu'at</i> and <i>al-mansubat</i>) correctly.	Grammatical Errors and Their Correction	Interactive tutorial & proofreading drills.	Quiz 3 (15 Marks total share).
10	2	• Distinguish phonetically and orthographically between <i>Zha'</i> (ظ) and <i>Dad</i> (ض). • Avoid phonetic confusion and spelling mistakes involving <i>Zha'</i> and <i>Dad</i> .	The Difference Between *Zha'* (ظ) and *Dad* (ض)	Phonetic/orthographic lecture & vocabulary exercises.	Written drill assessment & in-class practice.
11	2	• Structure formal administrative letters, memos, and official correspondence using standard Arabic protocols. • Apply clear, concise, and error-free professional language.	Formal Aspects of Administrative Correspondence	Practical writing workshop & template drafting.	Report assignment allocation (10 Marks).
12	2	• Identify the instances requiring the Distinguishing <i>Alif</i> (<i>Alif Fariqah</i>) following plural <i>Waw</i> . • Differentiate between root <i>Waw</i> , verb-suffix <i>Waw</i> , and plural <i>Waw</i> .	The Distinguishing *Alif* (*Alif Fariqah*) and Its Usage	Interactive class & morphological analysis.	Arabic Language Report submission (10 Marks).
13	2	• Utilize standard punctuation marks (commas, periods, quotation marks, colons) accurately in written text. • Enhance text readability and logical structure through correct punctuation placement.	Punctuation Marks	Text editing tutorial & practical exercises.	Classwork proofreading evaluation.
14	2	• Categorize Arabic literary history into major historical eras (Pre-Islamic, Islamic,	Types of Literary Eras	Classroom lecture & literary analysis session.	Final exam preparation & assignment review.

		Abbasid, Modern). • Analyze selected literary samples and pre-Islamic poetry.			
15	2	• Synthesize key historical milestones, linguistic evolution, and contemporary challenges of Arabic. • Review core grammatical, orthographic, and stylistic skills acquired.	History of the Arabic Language	Interactive review seminar & open discussion.	Comprehensive portfolio review & Final Exam preparation.

11. Course Evaluation

Evaluation type	Degree
3 Quizzes	15
3 Assignments	15
1 Report	10
1 Midterm Exam	10
Final Exam	50
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Bin Dhurayl, Adnan, *Language and Style: A Study*, 2nd edition, 2006.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Buhayri, Sa'id Hasan, *Fundamentals of Arabic Philology*, 2000.
Electronic References, Websites	

Course Description Form

1. Course Name:	
Democracy and Human Rights	
2. Course Code:	
UOM 1040	
3. Semester / Year:	
First/ 2025–2026	
4. Description Preparation Date:	
1/6/2025	
5. Available Attendance Forms:	
Lectures in the classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
50 hours/ 2 ECTS credits	
7. Course administrator's name (mention all, if more than one name)	
Abdullah Fathi Abdullah.fathi@uomosul.edu.iq	
8. Course Objectives	
Course Objectives	- 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.
9. Teaching and Learning Strategies	
Strategy	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.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	The student should know an introduction to rights(v)	Definition of human rights and sources of rights (international sources / regional sources / national sources / religious sources).	Theoretical lecture	
2	2	The student must know the correct language and terminology (v)	Characteristics of human rights.	Theoretical lecture	
3	2	The student should know the definition of a human being(v)	The emergence and evolution of human rights.	Theoretical lecture	
4	2	That the student understands the concept of legal personality and its feature(iv)	Types of human rights / civil and political rights. Economic and social rights. Environmental, cultural, and developmental rights.	Theoretical lecture	Daily exam + H.W
5	2	The student should enumerate the historical development of rights and freedoms(v)	Guarantees to prevent human rights violations / guarantees of human rights in Islam.	Theoretical lecture	
6	2	The student should know Eastern civilizations(iv)	Guarantees for the protection of human rights at the national level.	Theoretical lecture	
7	2	The student should know Western civilizations(v)	Guarantees of human rights at the international level.	Theoretical lecture	
8	2	The student should know the rights of the ages(v)	The concept of democracy.	Theoretical lecture	Mid exam
9	2	The student should enumerate the heavenly laws(v)	Characteristics of a democratic system.	Theoretical lecture	
10	2	The student should know the rights in the Christian religion(v)	Forms of democratic governance (direct democracy / semi-direct	Theoretical lecture	

			democracy / indirect democracy).		
11	2	That the student understands the rights and freedoms in the Islamic religion(iv)	Digital democracy / definition and advantages and disadvantages of digital democracy / manifestations of digital democracy.	Theoretical lecture	Daily exam
12	2	To talk about human rights throughout the modern era(v)	The Islamic stance on democracy.	Theoretical lecture	H.W
13	2		Critique of the democratic system.	Theoretical lecture	
14	2	The student should enumerate the modern trends in rights and freedom (v)	Administrative corruption / definition and types.	Theoretical lecture	
15	2		Methods to combat administrative corruption.	Theoretical lecture	Discuses

11. Course Evaluation

Evaluation type	Degree
3 Quizzes	15
3 Assignments	15
1 Report	10
1 Midterm Exam	10
Final Exam	50
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Human Rights Guarantees and Protection under International Law and National Legislation / Nabil Abdul Rahman Nasser al-Din
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Democracy and Human Rights / Dr. Amir Abdul Aziz
Electronic References, Websites	

Course Description Form

1. Course Name:	
Architecture Design and Graphics (2)	
2. Course Code:	
ARC 121	
3. Semester / Year:	
second/ 2025-2026	
4. Description Preparation Date:	
1/6/2025	
5. Available Attendance Forms:	
Lectures in the classroom and Studio	
6. Number of Credit Hours (Total) / Number of Units (Total)	
300 hours/ 12 ECTS credits	
7. Course administrator's name (mention all, if more than one name)	
Ahmed A. Alfakhry ahmed.alfakhry@uomosul.edu.iq Nasma M. Thabet Maha A. Sadella Luma M. Yahya Russul S. Aloabidi Marwa Isam Farah Jalo Surour N. Thamer Ghofran Mohammad Sara Mohammed	
8. Course Objectives	
Course Objectives	- 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
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.
- 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.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	8	analyze, assess, record, and comparatively evaluate relevant information	Human scale	Group discussion	Assignments
2	8	analyze, assess, record, and comparatively evaluate relevant information	Architectural scale	Group discussion	Assignments
3	8	analyze, assess, record, and comparatively evaluate relevant information	Residential furniture standards	Group discussion	Assignments
4	8	Apply critical and imaginative thinking	Residential furniture standards		Class Exam
5	8	Apply knowledge to solve design problem	Residential furniture standards	Guiding feedback	Continuous evaluation
6	8	Ability to communicate design idea	Residential unit design		Jury assessment system
7	8	Apply knowledge to solve design problem	Residential unit design	Guiding feedback	Continuous evaluation
8	8	Apply knowledge to solve design problem	Residential unit design	Guiding feedback	Continuous evaluation
9	8	Apply knowledge to solve design problem	Residential unit design	Guiding feedback	Continuous evaluation
10	8	Ability to communicate and design	Residential unit design		Jury assessment system
11	8	Develop imaginative and thinking in design	Residential unit design	Guiding feedback	Continuous evaluation
12	8	Apply critical and imaginative thinking	Residential unit design	Group discussion	Class Exam
13	8	Ability to	Residential unit design	Group	Jury assessment

		communicate design		discussion	system
14	8	Ability to consider diverse points of view, and reach well-reasoned conclusions	Residential unit design	Group discussion	Continuous evaluation
15	8	Ability to communicate design	Residential unit design		Jury assessment system

11. Course Evaluation

Evaluation type	Degree
2 Quizzes	8
1 Assignments	4
6 Projects / Lab.	24
1 Report	4
1 Midterm Exam	10
Final Exam	50
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Time saver standard
Main references (sources)	Architecture, Form, Space and Order, Francis Ching, Van Nostrand Reinhold Company, New York, 1996
Recommended books and references (scientific journals, reports...)	Neufert
Electronic References, Websites	

Course Description Form

1. Course Name:	
Free Hand Drawing (1)	
2. Course Code:	
ARC 122	
3. Semester / Year:	
second/ 2025-2026	
4. Description Preparation Date:	
1/6/2025	
5. Available Attendance Forms:	
Lectures in the Studio	
6. Number of Credit Hours (Total) / Number of Units (Total)	
125 hours/ 5 ECTS credits	
7. Course administrator's name (mention all, if more than one name)	
Ahmed Yaroub Ghanem Tohala ahmadtohala@uomosul.edu.iq Rawia Marwan Dabdoob rawia.dabdoob@uomosul.edu.iq	
8. Course Objectives	
Course Objectives	- 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
9. Teaching and Learning Strategies	
Strategy	- 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. - Diversifying the shapes and configurations of the model and the gradation in the degree of complexity from simple to complex
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Assess baseline freehand drawing skills and visual perception.	Introductory test for diagnostic aptitude.	Studio practical test.	Diagnostic evaluation.
2	4	Master hand-eye coordination and line stroke precision.	Training for drawing lines in different directions.	Studio drafting practice.	Classwork review.
3	4	Apply perspective principles and basic proportions to cubic forms.	Simple model consisting of cubes – stage 1.	Studio practice & critique.	Classwork assessment.
4	4	Render complex cubic arrangements with light and shadow values.	Advanced model consisting of cubes – stage 1.	Studio practice & critique.	Lab Project 1.
5	4	Evaluate visual expression, media techniques, and color values.	General discussion on drawing and media/paint.	Interactive studio critique.	Quiz 1 (10 Marks share).
6	4	Construct accurate circular geometries and cylindrical outlines.	Simple model consisting of circular shapes & cylinders – Stage 1.	Studio practice.	Classwork review.
7	4	Render curved surfaces using tonal values, shade, and shadow.	Simple model consisting of circular shapes & cylinders – Stage 2.	Studio practice & critique.	Lab Project 2.
8	4	Master foreshortening and proportional accuracy in cylindrical models.	Simple model consisting of circular shapes & cylinders – Stage 3.	Studio practical exam.	Midterm Exam (15 Marks).
9	4	Draw angled volumes using multi-point perspective rules.	Simple model consisting of oblique cubes – stage 1.	Studio practice.	Classwork review.
10	4	Express complex angled forms and projected shadows.	Simple model consisting of oblique cubes – stage 2.	Studio practice & critique.	Lab Project 3.
11	4	Capture organic curvatures, proportions, and surface textures.	Simple models consisting of pottery.	Studio practice.	Quiz 2 (10 Marks share).
12	4	Deconstruct complex	Simple models	Studio	Main Assignment

		irregular objects into basic spatial components.	consisting of irregular forms – Stage 1.	practice.	(30 Marks share).
13	4	Render intricate surface details, texture, and spatial depth.	Advanced model consisting of irregular forms – Stage 2.	Studio practice & critique.	Lab Project 4.
14	4	Refine portfolio work and improve graphic composition balance.	General discussion on drawing, painting, and portfolio review.	Studio critique session.	Classwork critique.
15	4	Demonstrate comprehensive mastery in freehand architectural rendering.	Final submission.	Final portfolio review.	Final Exam / Jury (15 Marks).

11. Course Evaluation

Evaluation type	Degree
2 Quizzes	10
1 Assignments	30
4 projects / Lab.	20
1 Midterm Exam	15
Final Exam	15
Total	100

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:					
Construction and Building Materials					
2. Course Code:					
ARC 123					
3. Semester / Year:					
Second/ 2025–2026					
4. Description Preparation Date:					
1/7/2025					
5. Available Attendance Forms:					
Lectures in Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
100 hours/ 4 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Roaa suhail Adil Khalil Qasim adil.khalil@uomosul.edu.iq					
8. Course Objectives					
Course Objectives	- 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				
9. Teaching and Learning Strategies					
Strategy	- Analytical thinking - Brainstorming - Video-based observations (visual learning method) - Problem-solving - Critical thinking				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Identify essential building materials and primary structural components. Understand overall construction stages in building projects.	Introduction to building materials, construction stages, and building components (foundations, walls, roofs, floors).	Lecture & video-based visual observation.	Classroom participation.
2	3	• Classify brick types and apply	Brick materials, brickwork	Interactive lecture &	Homework Assignment.

		masonry bonding rules. • Interpret standard constructional symbols in technical drawings.	masonry, and construction symbols.	visual problem-solving.	
3	3	• Categorize natural stone types and stone construction methods. • Identify gypsum properties and architectural applications.	Stone types, stone masonry, and Gypsum.	Analytical lecture & sample observation.	Homework Assignment.
4	3	• Explain cement types and concrete mix proportions. • Evaluate mechanical and physical properties of fresh/hardened concrete.	Cement types and properties; Concrete types, components, and properties.	Classroom lecture & brainstorming.	Quiz 1
5	3	• Relate theoretical material properties to laboratory testing and active field practices.	Field visit to testing laboratories and active construction sites.	Field trip & laboratory observation.	Site Visit Report
6	3	• Differentiate lightweight aggregates, hollow blocks, and Thermostone. • Select suitable lightweight masonry for thermal and structural applications.	Lightweight and hollow concrete, Thermostone (manufacturing, components, uses).	Interactive lecture & case study review.	Homework Assignment.
7	3	• Identify structural and non-structural uses of steel and aluminum. • Analyze plastic	Metals (Steel, Aluminum) and Plastic materials.	Lecture & video-based observation.	Classwork review.

		materials and polymers in construction.			
8	3	• Demonstrate theoretical mastery of building materials, masonry, and concrete.	Term Exam 1st.	Written examination session.	Midterm Exam
9	3	• Classify shallow/deep foundations and load-bearing wall systems. • Apply structural principles to wall and foundation selection.	Foundations and load-bearing walls.	Lecture & structural detailing session.	Homework Assignment.
10	3	• Identify structural roof types and floor framing systems. • Understand waterproofing and load transfer in horizontal assemblies.	Roofs and Floors.	Lecture & visual detailing analysis.	Homework Assignment.
11	3	• Calculate dimensional ratios for comfortable stairs and ramps. • Detail structural components of staircases.	Vertical circulation elements: Stairs and Ramps (Part 1).	Lecture & calculation exercises.	Homework Assignment.
12	3	• Integrate mechanical circulation (elevators, escalators) into architectural plans. • Understand spatial and structural shaft requirements.	Vertical circulation elements: Escalators and Lifts (Part 2).	Problem-solving & case study analysis.	Main Assignment submission
13	3	• Differentiate door and window types, frames, and hardware.	Openings: Doors and Windows.	Interactive lecture & construction detailing.	Quiz 2

		• Detail lintels, sills, and installation jointing.			
14	3	• Select thermal, acoustic, and moisture insulation materials. • Apply interior and exterior wall/floor finishing techniques.	Finishing and Insulation Materials.	Interactive lecture & sample inspection.	Classwork review.
15	3	• Evaluate field execution of finishes, insulation, and building systems. • Synthesize overall course concepts for architectural application.	Field visit to active construction sites & course synthesis.	Field site visit & practical observation.	Field review & Report & Final Exam prep.

11. Course Evaluation

Evaluation type	Degree
2 Quizzes	15
1 Assignments	15
1 Report	10
1 Midterm Exam	20
Final Exam	40
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• Building Constructions- By Zuhair M. Saco • Building Constructions, Walls and It's Details – By Anees Juaad • Civil Engineering for Architects (Poland)
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:					
Mathematics (2)					
2. Course Code:					
ARC 124					
3. Semester / Year:					
Second/ 2025–2026					
4. Description Preparation Date:					
5/7/2025					
5. Available Attendance Forms:					
Lectures in Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
100 hours/ 4 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Tuqa Waleed Ahmed new.matrix242@uomosul.edu.iq					
8. Course Objectives					
Course Objectives		- Provide the fundamental concepts of elementary mathematics for integration. - Use the mathematical integration to find the areas, volumes and the length of the curves.			
9. Teaching and Learning Strategies					
Strategy		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.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	- Understand principles of definite and indefinite integrals. - Evaluate basic antiderivatives using standard formulas.	Definite integrals and indefinite integrals.	Classroom lecture & tutorial.	Assignment 1.
2	4	Calculate bounded areas	Integrating and finding the area	Interactive worked	Quiz 1 (10 Marks share).

		relative to x and y axes. • Set up integral limits for single-curve areas.	with respect to x and y axes.	examples.	
3	4	• Compute areas bounded between intersecting curves. • Apply definite integrals to geometric problems.	Application of definite integrals and areas between curves.	Problem-solving tutorial.	Assignment 2.
4	4	• Apply disk and washer methods for revolution volumes. • Formulate volume integrals around coordinate axes.	Volumes of solids of revolution: disks and washers methods.	Visual classroom lecture.	Classwork practice.
5	4	• Calculate revolution volumes using cylindrical shells. • Select optimal integration methods for rotational solids.	Cylindrical shells method.	Step-by-step tutorial.	Quiz 2 (10 Marks share).
6	4	• Formulate arc length integrals for planar curves. • Solve arc length equations algebraically.	Length of curves in the plane.	Classroom lecture.	Assignment 3.
7	4	• Calculate surface areas generated by revolution. • Apply surface integral formulas accurately.	Areas of surfaces of Revolution.	Visual tutorial session.	Classwork assessment.
8	4	• Evaluate derivatives and integrals of transcendental functions.	The calculus of transcendental functions and inverse functions.	Analytical lecture.	Midterm review & practice.

		Analyze inverse function calculus principles.			
9	4	- Differentiate and integrate logarithmic and exponential functions. - Apply logarithmic differentiation techniques.	logarithmic differentiation, and Midterm Exam.	Examination session & tutorial.	Midterm Exam (10 Marks).
10	4	- Integrate general exponential and logarithmic forms. - Solve exponential growth and decay models.	General exponential and logarithmic functions.	Classroom lecture.	Assignment 4.
11	4	- Integrate inverse trigonometric expressions. - Evaluate indeterminate limits using L'Hôpital's Rule.	Inverse trigonometric functions and L'Hôpital's rule.	Interactive tutorial.	Quiz 3 (10 Marks share).
12	4	- Select effective integration techniques for complex expressions. - Apply standard integration reduction formulas.	Techniques of integration and basic integration formulas.	Drill exercise tutorial.	Report assignment allocation.
13	4	- Apply integration by parts to product functions. - Solve repeated and cyclic integration problems.	Integration by parts.	Worked-example workshop.	Mathematics Report (5 Marks).
14	4	- Evaluate powers of trigonometric functions. - Decompose rational functions	Trigonometric integrals, Rational functions, and partial fractions.	Lecture & guided problem-solving.	Classwork evaluation.

		into partial fractions for integration.			
15	4	• Apply trigonometric substitutions ($\sin$, $\tan$, $\sec$) to radical integrals. • Synthesize integration methods for final evaluation.	Trigonometric substitution.	Comprehensive review tutorial.	Portfolio review & Final Exam prep.

11. Course Evaluation

Evaluation type	Degree
3 Quizzes	30
4 Assignments	5
1 Report	5
1 Midterm Exam	10
Final Exam	50
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• Thomas_Calculus_Addison-Wesley; 11th edition (January 1, 2004)
Main references (sources)	
Recommended books and references (scientific journals, reports...)	• Calculus and Analytic Geometry 1 Purcell, 1972.
Electronic References, Websites	

Course Description Form

1. Course Name:					
Computer (1)					
2. Course Code:					
UOM 1031					
3. Semester / Year:					
Second/ 2025–2026					
4. Description Preparation Date:					
5/7/2025					
5. Available Attendance Forms:					
Lectures in Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
75 hours/ 3 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Ebtisam Sameer Al Sawaf ebtisamalsawaf@uomosul.edu.iq					
8. Course Objectives					
Course Objectives		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.			
9. Teaching and Learning Strategies					
Strategy		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.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	- Identify basic computer architecture, history, and terminology. - Understand fundamental data processing concepts.	Introduction to Computer.	Classroom lecture & lab orientation.	Practical lab participation.
2	4	- Differentiate CPU, memory, and secondary storage devices. - Identify standard hardware input and output peripherals.	Computer Components.	Interactive lecture & hardware demo.	Lab exercise 1 (10 Marks share).

3	4	• Explain system buses, motherboards, and expansion slots. • Distinguish between system and application software.	Computer Components (Cont.).	Lab practical session & hardware review.	Lab exercise 2.
4	4	• Understand operating system functions and GUI navigation. • Manage files, folders, and desktop environments.	Operating System and Graphical User Interface GUI.	Hands-on OS lab workshop.	Assignment 1 (5 Marks).
5	4	• Perform file management, searching, and shortcuts. • Configure system preferences and utility settings.	Operating System and Graphical User Interface GUI (Cont.).	Guided hands-on lab practice.	Lab exercise 3.
6	4	• Create, format, and edit word processing documents. • Apply typography, paragraph formatting, and layouts.	Word Processing.	Interactive lab tutorial.	Practical Quiz (20 Marks).
7	4	• Insert tables, images, headers/footers, and references. • Use advanced tools like mail merge and index creation.	Word Processing (Cont.).	Practical lab exercise.	Lab exercise 4.
8	4	• Construct worksheets, format cells, and structure tables. • Apply basic arithmetic formulas and built-in functions.	Spread Sheet.	Interactive spreadsheet lab.	Lab exercise 5.
9	4	• Generate charts, graphs, and conditional formatting. • Execute data sorting, filtering, and summary functions.	Spread Sheet (Cont.).	Hands-on spreadsheet workshop.	Computer Report allocation (5 Marks).
10	4	• Design slide layouts and structured visual presentations. • Insert multimedia, shapes, and	Presentation Software.	Interactive presentation lab.	Practical lab review.

		formatted text.			
11	4	• Apply custom slide transitions, animations, and timings. • Deliver effective slide-based technical presentations.	Presentation Software (Cont.).	Presentation workshop & peer review.	Computer Report submission (5 Marks).
12	4	• Demonstrate practical proficiency in OS, Word, and Excel.	Monthly Exam.	Practical & theoretical exam session.	Midterm Exam (10 Marks).
13	4	• Understand network concepts, internet protocols, and browsers. • Utilize web search engines for efficient data retrieval.	Introduction to Internet and Web Browsers.	Lecture & web search lab.	In-class search exercise.
14	4	• Conduct structured online research and academic searches. • Evaluate web security, privacy, and source reliability.	Introduction to Internet and Web Browsers (Cont.).	Research lab workshop.	Web research exercise evaluation.
15	4	• Manage email communications and file attachments. • Utilize cloud storage and online collaborative tools.	Communications and Emails, Introduction to Cloud Computing and Services.	Hands-on cloud & email lab.	Portfolio review & Final Exam prep.

11. Course Evaluation

Evaluation type	Degree
1 Quizzes	20
1 Assignments	5
5 Lab.	10
1 Report	5
1 Midterm Exam	10
Final Exam	50
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. Graham Brown, David Watson, "Cambridge IGCSE Information and Communication Technology", 3rd Edition (2020) 2. Microsoft Office 2019 Step by Step 1st Edition by Curtis Frye & Joan Lambert 3. الخضر على الخضر بحث " أساسيات الحاسوب " 2016
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:					
English language (1)					
2. Course Code:					
UOM 1021					
3. Semester / Year:					
Second/ 2025–2026					
4. Description Preparation Date:					
5/7/2025					
5. Available Attendance Forms:					
Lectures in Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
50 hours/ 2 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Tuqa Waleed Ahmed new.matrix242@uomosul.edu.iq					
8. Course Objectives					
Course Objectives	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.				
9. Teaching and Learning Strategies					
Strategy	- 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.				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	• Apply present, past, and future tense forms in communication.	Unit 1: Getting to know you (Present, past, future tenses; social expression).	Interactive lecture & discussion.	Classwork participation.

		• Use standard social expressions in daily interactions.			
2	2	• Master simple vs. continuous present tenses. • Discuss personal preferences and hobbies fluently.	Unit 2: Whatever makes (Present tenses, hobbies, conversation skills).	Interactive discussion & partner practice.	Quiz 1 (25 Marks total share).
3	2	• Differentiate regular and irregular past tense verbs. • Narrate past events and news stories accurately.	Unit 3: What's in the news? (Past tenses; regular and irregular verbs).	Lecture & news reading analysis.	Assignment 1 (10 Marks total share).
4	2	• Express quantity accurately (much/many/some/any). • Apply conversational phrases for dining and invitations.	Unit 4: Eat, drink, and be merry! (Quantifiers, food, dinner expressions).	Interactive dialogue & role-play.	Classwork exercise review.
5	2	• Apply verb patterns and common phrasal verbs. • Express degrees of doubt and certainty in speech.	Unit 5: Looking forward (Verb patterns, phrasal verbs, doubt/certainty).	Lecture & grammar tutorial.	Quiz 2 (25 Marks total share).
6	2	• Describe appearance and character using "What.. like?". • Expand vocabulary using contextual synonyms.	Unit 6: The way I see it ("What.. like?", synonyms, descriptions).	Visual discussion & vocabulary exercises.	Classwork practice.
7	2	• Use present perfect tense for life experiences. • Apply correct word stress and agreement expressions.	Unit 7: Living history (Present perfect, word stress, agreement).	Audio listening & speaking tutorial.	Assignment 2 (10 Marks total share).
8	2	• Express obligation, advice, and necessity using modal verbs. • Communicate effectively in health/medical contexts.	Unit 8: Girls and boys (Modals: have to/should/must, doctor's office).	Role-play & grammar practice.	Midterm review & practice.
9	2	• Demonstrate proficiency in Units 1–8 grammar, vocabulary, and speaking skills.	Midterm Exam.	Written examination session.	Midterm Exam (10 Marks).
10	2	• Sequence narrative events using past perfect and conjunctions. • Use exclamations and feeling words for storytelling.	Unit 9: Time of a story (Past perfect, narrative tenses, conjunctions).	Narrative reading & writing workshop.	Quiz 3 (25 Marks total share).
11	2	• Form and use passive voice in technical/architectural contexts.	Unit 10: Our interactive world (Passive voice, collocations).	Lecture & technical text analysis.	Classwork evaluation.

		• Apply natural word collocations accurately.			
12	2	• Distinguish present perfect simple from continuous. • Express past habits and state changes using "used to".	Unit 11: Life's what you make it! (Present perfect continuous, "used to").	Interactive discussion & writing practice.	Report assignment allocation.
13	2	• Form first and second conditional sentences correctly. • Use modal "might" and prepositions accurately.	Unit 12: Conditionals (1st & 2nd conditionals, "might", prepositions).	Lecture & conditional problem-solving.	Classwork practice.
14	2	• Form indirect questions and short conversational answers. • Express tentative opinions and possibilities fluently.	Unit 12 (Cont.): Questions, short answers, "might", opinion expressions.	Conversational workshop & speaking practice.	Classwork check.
15	2	• Structure and compose a concise architectural English report. • Consolidate four core language skills for academic accreditation standards.	Writing report & course synthesis.	Writing workshop & course review.	English Language Report (5 Marks).

11. Course Evaluation

Evaluation type	Degree
3 Quizzes	25
2 Assignments	10
1 Report	5
1 Midterm Exam	10
Final Exam	50
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	John and Liz Soars (2016) New Headway Pre-Intermediate Student's Book Fourth Edition. OXFORD University Press. ISBN : 978-0-19-476966-2
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

MODULE DESCRIPTION FORM

Bologna track

Second Level

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module Code
UGII	Three	1	ARC 211	Architecture Design (1)	التصميم المعماري (1)	English	2				8		1	153	147	300	12.00	C	
		2	ARC 212	History of Ancient Architecture	تاريخ العمارة القديمة	English	2						3	33	42	75	3.00	C	
		3	ARC 213	Building Construction	البناء الإنشائي	English	2		2				3	63	37	100	4.00	B	
		4	ARC 214	Graphic and Architectural Presentation	الرسم المعماري	English	1			3			3	63	12	75	3.00	S	
		5	ARC 215	Computer Architectural Drawing 2D	الرسم المعماري بالحاسوب 2D	English	1		3				3	63	37	100	4.00	C	
		6	UOM 2050	Crimes of Ba'ath Regime in Iraq	جرائم نظام البعث في العراق	Arabic	2						3	33	17	50	2.00	B	
		7	UOM2022	English Language (2)	اللغة الإنجليزية (2)	Arabic	2						3	33	17	50	2.00	B	
				Total		12	0	5	11	0	1	21	441	309	750	30.00			
	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module Code
	Four	1	ARC 221	Architecture Design (2)	التصميم المعماري (2)	English	2				8		1	153	147	300	12.00	C	
		2	ARC 222	Free Hand Drawing (2)	الرسم اليدوي الحر (2)	English	1				4		3	63	12	75	3.00	S	
		3	ARC 223	Physics (1)	الفيزياء (1)	English	2		2				3	63	37	100	4.00	C	
		4	ARC 224	Computer Architectural Drawing 3D	الرسم المعماري بالحاسوب 3D	English	1		3				3	63	12	75	3.00	B	ARC 215 Computer Architectural Drawing 2D
		5	ARC 225	Science of Mechanics	علم الميكانيك	English	2						3	33	42	75	3.00	C	
		6	UOM 2032	computer(2)	حاسوب (2)	English	2		2				3	63	12	75	3.00	B	
		7	UOM 2012	Arabic Language (2)	اللغة العربية (2)	Arabic	2						3	33	17	50	2.00	B	
				Total		11	0	7	12	0	1	21	471	279	750	30.00			

Course Description Form

1. Course Name:					
Architecture Design (1)					
2. Course Code:					
ARC 211					
3. Semester / Year:					
First / 2025–2026					
4. Description Preparation Date:					
August 15, 2025					
5. Available Attendance Forms:					
Lectures in the classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
300 hours/ 12 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Name: Lect. Dr. Muzahim Muhammed Mustafa Email: Mozahim.hadidi@uomosul.edu.iq 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					
8. Course Objectives					
Course Objectives		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			
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	10	- Understand the overall architectural design process and project scope (Villa design). - Identify project	General Introduction.	Theoretical lecture & studio orientation.	Daily classroom participation.

		requirements, functional program, and studio expectations.			
2	10	• Define sequential design stages: data collection, analysis, and synthesis. • Analyze iterative design workflows and problem-solving techniques.	Definition and characteristics of the design process.	Interactive lecture & studio discussion.	Examples analysis review (2 Marks).
3	10	• Define architectural problems graphically using sketch techniques. • Express preliminary design intentions through architectural drawings.	The design problematic and how to define it using architectural graphics and drawings.	Studio sketching session & tutorial.	Weekly desk critique.
4	10	• Conduct contextual, functional, and site-specific analysis. • Relate spatial requirements to 2D/3D visual composition.	Analysis as an interpreting tool clarifying the problem in relation to the composition.	Analytical studio workshop.	Site analysis submission (3 Marks).
5	10	• Formulate functional relationship matrices for spatial programs. • Analyze degree of proximity and functional connections between spaces.	Analysis using matrices.	Interactive tutorial & matrix exercises.	Matrix report review.
6	10	• Determine spatial adjacency rules and movement circulation. • Categorize private, semi-private, and public zones in floor plans.	Architectural spaces adjacency criteria.	Studio tutorial & layout exercises.	Weekly progress critique.
7	10	• Execute rapid architectural design solutions within set studio hours. • Synthesize design concept and spatial layout under timed conditions.	Day sketch.	Intensive studio day-sketch session.	Day Sketches evaluation (30 Marks total share).
8	10	• Translate functional matrices	Synthesis – representing matrices	Studio practical	Concept evaluation (5

		into 2D bubble diagrams. • Abstract functional relationships into geometric spatial diagrams.	using geometrical shapes (the bubble diagram).	session & desk critique.	Marks).
9	10	• Refine bubble diagrams into preliminary floor plan layouts. • Integrate access, orientation, and circulation paths into spatial diagrams.	Synthesis – representing matrices using geometrical shapes (the bubble diagram) (Cont.).	Interactive studio desk critique.	Diagram & layout review.
10	10	• Develop site-zoning plans integrating environmental and contextual factors. • Allocate building masses relative to site boundaries, sun, and wind.	Synthesis - Zoning.	Studio workshop & site-zoning exercise.	Site zoning critique.
11	10	• Identify primary geometric forms and volumetric composition principles. • Manipulate architectural form in response to internal functions.	Architectural form and its types.	Theoretical lecture & form-generation tutorial.	Architectural plans review (10 Marks).
12	10	• Combine and interlock additive and subtractive volumetric forms. • Create dynamic spatial intersections and volumetric transitions.	Interlocking architectural forms.	3D model-making & studio tutorial.	Elevation & Section review (10 Marks).
13	10	• Apply scale, proportion, rhythm, and facade articulation techniques. • Incorporate local architectural identity and character into building elevation.	Treatment of architectural form.	Facade design workshop & studio critique.	Secondary jury presentation.
14	10	• Balance solid mass and void spaces for natural light and ventilation. • Detail indoor-outdoor spatial	Solid and void.	Studio desk critique & 3D visualization.	Prefinal submission review (25 Marks share).

		transitions and courtyard integration.			
15	10	- Utilize base, elevated, and overhead horizontal planes to define space. - Synthesize overall design concept, drawings, and models for final submission.	Horizontal elements defining space.	Final studio presentation & jury session.	Prefinal (25 Marks) & Final Submission (15 Marks).

11. Course Evaluation

Evaluation type	Degree
Day sketches	30
Examples analysis	2
Site analysis	3
Concept	5
plans	10
Elevation and section	10
Prefinal submission	25
Final submission	15
Total	100pt

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Architecture, form space & order by Francis D. K. Ching Methods of systematic analysis of design in architecture, By D. Mohamed A. Shihab
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
History of Ancient Architecture	
2. Course Code:	
ARC212	
3. Semester / Year	
First/ 2025–2026	
4. Description Preparation Date:	
15–8– 2025	
5. Available Attendance Forms:	
Lecture in the Classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
75 hours/ 3 ECTS credits	
7. Course administrator's name (mention all, if more than one name)	
Ashraf Ibrahim Mahmood Email: ashraf.ibrahim@uomosul.edu.iq Marwah Isam Mohammed Email: marwah.isam@uomosul.edu.iq	
8. Course Objectives	
Course Objectives	1. Increasing the visual knowledge store about the history of architecture, its stages of development, its characteristics, and advantages. 2. 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.
9. Teaching and Learning Strategies	
Strategy	The course includes lecture discussions and teaching and learning strategies for students to learn about ancient architecture. The course begins with an introduction to ancient Iraqi architecture, followed by a detailed survey of Sumerian, Babylonian, Assyrian, ancient Egyptian, and Greek architecture. Topics are discussed weekly, and lessons are 2-6 hours per week. This lecture provides general characteristics of each architectural style and specific details of temples, palaces, gates, and other structures. In addition to lectures, students are required to participate in discussions on topics covered in class. These discussions give students an opportunity to ask questions and share insights about the architecture being studied. Finally, students are expected to write a report on a specific topic related to ancient architecture. These reports allow students to delve deeper into specific aspects of a topic and demonstrate their understanding of the topic. In general, the teaching and learning strategies of this course are designed to provide students with a comprehensive understanding of ancient architecture through lectures, discussion, and independent study., sustainable designs that respond to

complex social and environmental contexts.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	- Identify core concepts, cultural, and environmental influences in ancient Iraqi architecture. - Understand foundational historical stages and visual architectural language.	Introduction to ancient Iraqi architecture.	Theoretical lecture & visual media presentation.	Classroom participation.
2	2	- Analyze Sumerian architectural characteristics, mud-brick construction, and temple forms. - Practice hand-sketching historical Sumerian structures.	Sumerian architecture (Part 1).	Lecture & hand-drawing exercise.	Onsite Assignment 1 (5 Marks total share).
3	2	- Examine ziggurat structural evolution, spatial layouts, and early Mesopotamian city planning. - Perform technical analysis of Sumerian structural elements.	Sumerian architecture (Part 2: Ziggurats and Urban Planning).	Visual lecture & class discussion.	Online Assignment 1 (10 Marks total share).
4	2	- Describe characteristics of Old Babylonian palaces, temples, and city fortifications. - Trace architectural continuity and evolution from Sumerian models.	Old Babylonian architecture.	Theoretical lecture & visual analysis.	Quiz 1 (15 Marks total share).
5	2	- Analyze imperial Assyrian architecture, fortified palaces, and relief stone carvings. - Evaluate structural combinations of stone orthostats and brick walls.	Assyrian architecture (Part 1).	Lecture & visual media analysis.	Onsite Assignment 2 (5 Marks total share).
6	2	- Detail spatial organization of major Assyrian citadels (Khorsabad, Nimrud, Nineveh). - Examine architectural symbolism, gateways, and lamassu figures.	Assyrian architecture (Part 2: Citadel Complexes).	Interactive lecture & guided discussion.	Quiz 2 (15 Marks total share).
7	2	- Analyze vaulting, drainage systems, and defensive wall engineering in Assyria. - Document historical heritage elements through critical sketching.	Assyrian architecture (Part 3: Structural Innovations).	Tutorial & hand-drawing workshop.	Online Assignment 2.
8	2	- Study Neo-Babylonian monuments (Ishtar Gate, Processional Way, Etemenanki). - Understand glazed brick techniques and monumental urban planning.	Neo-Babylonian architecture.	Lecture & comparative style analysis.	History Research Report allocation (10 Marks).

9	2	• Identify Egyptian architectural periods and tomb evolution (Mastabas to Pyramids). • Demonstrate theoretical mastery of Mesopotamian architecture in the midterm exam.	Ancient Egyptian architecture (Part 1: Tombs and Pyramids).	Theoretical lecture & examination session.	Midterm Exam (10 Marks).
10	2	• Analyze Egyptian temple typologies (Hypostyle halls, Pylons, Rock-cut temples). • Examine stone masonry, column orders, and axial symmetry.	Ancient Egyptian architecture (Part 2: Temples and Monolithic Construction).	Visual lecture & plan analysis.	Quiz 3 (15 Marks total share).
11	2	• Understand social and religious impacts on Egyptian mortuary architecture. • Connect ancient climate-responsive designs to modern sustainable practices.	Ancient Egyptian architecture (Part 3: Cultural Context & Sustainability).	Interactive lecture & class discussion.	Online Assignment 3.
12	2	• Explain origins, proportions, and characteristics of Classical Orders (Doric, Ionic, Corinthian). • Analyze Greek temple layouts and optical refinements.	Greek Architecture (Part 1: Classical Orders & Temples).	Interactive lecture & proportion tutorial.	Onsite hand-sketching submission.
13	2	• Evaluate civic building types (Agora, Stoa, Theater, Bouleuterion). • Analyze Hellenic grid planning and public spatial organization.	Greek Architecture (Part 2: Civic Architecture & Urban Planning).	Case study analysis & discussion.	Research Report submission (10 Marks).
14	2	• Detail masterworks of the Athenian Acropolis (Parthenon, Erechtheion, Propylaea). • Draw design inspiration from ancient structural features for contemporary projects.	Greek Architecture (Part 3: Acropolis & Design Legacy).	Seminar discussion & presentation.	Online Assignment 4.
15	2	• Present and critically debate research reports on ancient architectural history. • Synthesize historical architectural knowledge for professional design application.	Student Reports Discussion & Course Synthesis.	Student presentations & open discussion.	Report Presentation (10 Marks) & Final Exam prep.

11. Course Evaluation

Evaluation type	Degree
Quizzes	15
Online assignments	10
Onsite Assignments	5
Reports	10

Midterm exam	10
Final exam	50
Total	100
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	• Living in Ancient Mesopotamia, Bancroft-Hunt, Norman (2009) <i>Available in the Library?:</i> 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) <i>Available in the Library?:</i> 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
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Journal of Ancient Architecture. (n.d.). Ancient Architecture Studies. Retrieved from https://ancientarchitecturejournal.org
Electronic References, Websites	Ach net

Course Description Form

1. Course Name:					
Building Construction					
2. Course Code:					
ARC 213					
3. Semester / Year:					
First/ 2025-2026					
4. Description Preparation Date:					
1/6/2025					
5. Available Attendance Forms:					
Lectures in the classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
100 hours/ 4 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Name: Lect. Roaa Suhail Asst. Lect. Adil Khalil Asst. Lect. Eman Khalid					
8. Course Objectives					
Course Objectives	- 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				
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	4	- Determine functional dimensions and scope for a residential project. - Establish structural grid networks for load-bearing wall systems.	Project 1: Load-bearing wall residential house project – dimensions, function, and structural grid setup.	Theoretical lecture & drafting studio session.	Classroom participation & desk review.
2	4	Identify strip footings and foundation types for	Detailed drafting of foundations with reinforcement details	Studio drafting session & tutorial.	Assignment 1 (6 Marks total share).

		load-bearing walls. • Draft structural section details and rebar layout for continuous footings.	(Load-bearing system).		
3	4	• Detail masonry load-bearing wall thicknesses, openings, and bonding rules in plan view. • Apply technical drawing standards for wall materials and structural symbols.	Drafting load-bearing walls in floor plan layout.	Practical drafting studio & desk critique.	Quiz 1 (30 Marks total share).
4	4	• Calculate and detail stair risers, treads, landings, and structural connections. • Detail wet room waterproofing layers, wall chases, and sanitary layouts.	Drafting service spaces: staircases and bathrooms.	Interactive studio drafting tutorial.	Assignment 2.
5	4	• Detail reinforced concrete slab systems for load-bearing structures. • Specify main and distribution steel reinforcement bars, beam lintels, and edges.	Drafting concrete ceilings and roof slabs with reinforcement.	Technical drafting workshop.	Quiz 2 (30 Marks total share).
6	4	• Draft architectural exterior elevations displaying material textures and window/door openings. • Detail facade finishing layers, coping, and damp-proof courses.	Drafting building façades and architectural exterior details.	Facade detailing studio session.	Assignment 3.
7	4	• Synthesize a complete set of working construction drawings for a load-bearing house. • Present technical architectural drawings according to standard drafting conventions.	Final submission and presentation of Project 1 (Load-bearing Residential House).	Studio submission & jury presentation.	Project 1 Working Drawing Review & Report (4 Marks).
8	4	• Demonstrate rapid construction drafting and problem-solving skills under timed conditions. • Solve structural	Day Sketch Exam.	Timed practical drafting exam.	Midterm Exam / Day Sketch (10 Marks).

		construction details and layouts independently.			
9	4	• Understand skeleton frame structures and column grid systems for commercial spaces. • Establish column grid layouts and primary structural frame modules.	Project 2: Commercial Shopping Mall – column and beam (bridge) structural frame system.	Lecture & framed-structure studio workshop.	Assignment 4.
10	4	• Detail isolated, combined, or raft footings for reinforced concrete columns. • Draft rebar schedules, footings, and column starter bar connections.	Detailed drafting of isolated/combined foundations with reinforcement.	Technical drafting tutorial & desk critique.	Quiz 3 (30 Marks total share).
11	4	• Detail reinforced concrete column sections, tie beams, and joint connections. • Differentiate structural load-bearing columns from non-structural infill partitions.	Drafting reinforced concrete columns and non-bearing partition walls.	Practical drafting studio session.	Assignment 5.
12	4	• Detail commercial vertical circulation cores (reinforced stairs, elevator shafts, escalators). • Design public sanitary facilities, plumbing chases, and wall details.	Drafting service core spaces: commercial stairs, elevators, and sanitary blocks.	Interactive studio tutorial.	Classwork review.
13	4	• Detail ribbed, waffle, or beam-supported slab ceiling systems with reinforcement. • Detail horizontal expansion joints, beam-to-slab connections, and partition head details.	Drafting floor/roof slabs and partition wall reinforcement details.	Advanced structural detailing workshop.	Quiz 4 (30 Marks total share).
14	4	• Detail commercial exterior facades, glazed curtain walls, and cladding attachments. • Integrate thermal insulation, vapor barriers, and weatherproofing layers	Drafting commercial building façades and cladding systems.	Facade studio session & desk critique.	Classwork evaluation.

		into facade sections.			
15	4	• Finalize and present a comprehensive working drawing package for a framed commercial building. • Master comparative construction techniques across load-bearing and framed structural systems.	Final submission and presentation of Project 2 (Framed Commercial Mall).	Final studio submission & technical review.	Project 2 Final Review & Final Exam prep (50 Marks).

11. Course Evaluation

Evaluation type	Degree
4 Quizzes	30
5 Assignments	6
Report	4
Midterm Exam	10
Final Exam	50
Total	100pt

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	-Chudley, R., & Greeno, R. <i>Building Construction Handbook</i> . Routledge. -McKay, W. B. <i>Building Construction</i> . Longman. - Allen, E., & Iano, J. <i>Fundamentals of Building Construction: Materials and Methods</i> . Wiley. -Barry, R. <i>The Construction of Buildings</i> . Wiley-Blackwell. -Neville, A. M., & Brooks, J. J. <i>Concrete Technology</i> . Pearson.
Electronic References, Websites	-----

Course Description Form

1. Course Name:					
Graphic and Architectural Presentation					
2. Course Code:					
ARC 214					
3. Semester / Year:					
First/ 2025–2026					
4. Description Preparation Date:					
5/7/2025					
5. Available Attendance Forms:					
Lectures in the classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
75 hours/ 3 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Lect. Anwar Meshal shareef Email: anwar.meshal@uomosul.edu.iq Asst. Lect. Mafaz Tareq, Aseel Ibrahim Rusul saad					
8. Course Objectives					
Course Objectives		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.			
9. Teaching and Learning Strategies					
Strategy		• 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.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	evaluation method
1	4	• Understand foundational principles of perspective visual projection and station points. • Construct 2D/3D cubical forms manually using central ray projection.	Definition of perspective drawing of cubical forms using the rays method.	Demonstration & theoretical explanation.	Studio participation & preliminary setup.
2	4	• Apply ray projection rules to complex inclined planes and staircases.	Drawing perspective of stairs and sloping surfaces using the rays	Learning by doing & hands-on	Project 1 submission (24 Marks)

		• Determine vanishing points for non-horizontal architectural lines.	method.	drafting.	total share for 6 projects).
3	4	• Master the measuring points method for precise scale perspective drawings. • Transfer true dimensions accurately onto angled perspective picture planes.	Definition of perspective drawing using the measuring points method.	Studio-based learning & guided tutorial.	Quiz 1 (8 Marks total share).
4	4	• Define cone of vision boundaries to eliminate perspective distortion. • Select optimal station points and picture plane positions for natural visual framing.	Definition of perspective drawing using a circle of vision.	Project-based learning & studio exercise.	Project 2 submission.
5	4	• Construct circular elements and cylindrical geometry in perspective using ellipse rules. • Draw cylindrical architectural masses and arches manually without computer aid.	Drawing perspective for circles and cylinders.	Practical drafting exercises.	Assignment 1 submission (8 Marks total).
6	4	• Construct interior and exterior architectural spaces using one-point perspective. • Represent depth, eye level, and central vanishing points effectively.	Definition of one-point perspective drawing.	Individual & group studio work.	Project 3 submission.
7	4	• Understand light ray angles (45° convention) and shadow casting mechanics. • Construct shade and cast shadows on 2D orthographic projections and 3D isometric masses.	Principles of drawing shade and shadow for cubical forms (isometric and projections).	Lecture presentation, discussion & critique.	Midterm review & practice.
8	4	• Calculate and construct cast shadows falling across step risers, treads, and sloped planes. • Demonstrate theoretical and visual mastery of preliminary perspective and shadow techniques.	Drawing shade and shadow for stairs and inclined surfaces (isometric and projections).	Practical drafting & examination session.	Midterm Exam (10 Marks).
9	4	• Project cast shadows produced by recessed windows, doors, and cantilevered balconies. • Enhance spatial depth and relief on facade elevation drawings using shadow values.	Drawing shade and shadow for balconies and wall openings.	Studio drafting tutorial & desk critique.	Project 4 submission.
10	4	• Construct curved shadow boundaries and shade transitions on cylindrical forms. • Render smooth tonal gradients on curved surfaces	Drawing shade and shadow for circles and cylinders.	Practical studio workshop.	Quiz 2 (8 Marks total share).

		in orthographic and 3D views.			
11	4	- Combine perspective vanishing rules with sciography (shadow casting) techniques. - Render light and shadow on complex 3D perspective cubical compositions.	Drawing shade and shadow for cubical perspectives.	Studio-based learning & desk critique.	Project 5 submission.
12	4	- Construct detailed cast shadows from freestanding columns, pilasters, and window frames. - Distinguish between intrinsic shade (form shadow) and projected cast shadow.	Drawing window and column shadows.	Visual demonstration & practical exercises.	Classwork review.
13	4	- Detail multi-level shadow projections across overlapping architectural elements. - Refine manual drafting quality for architectural presentation standards.	Advanced shade and shadow for balconies and architectural openings.	Studio drafting & peer critique.	Project 6 submission.
14	4	- Construct cast shadows falling onto sloped roofs, ramps, and angled ground planes. - Integrate line-weight control and tonal rendering into technical graphics.	Shade and shadow on complex inclined surfaces (isometric and projections).	Project-based workshop.	Classwork evaluation.
15	4	- Construct a complete, fully rendered residential house perspective with realistic shade and shadow. - Document architectural design proposals professionally using hand-drawing techniques.	Drawing shade and shadow for comprehensive house perspectives & course synthesis.	Final studio portfolio review & presentation.	Final Portfolio review & Final Exam prep (50 Marks).

11. Course Evaluation

Evaluation type	Degree
2 Quizzes	8
1 Assignments	8
6 Projects	24
Midterm Exam	10
Final Exam	50
Total	100pt

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	A methodological book: Shadow and Perspective - Author: Imad Al-Bakri
Main references (sources)	Architectural Graphics by Ching, 1996
Recommended books and references (scientific journals, reports...)	-----
Electronic References, Websites	-----

Course Description Form

1. Course Name:					
Computer Architectural Drawing 2D					
2. Course Code:					
ARC 215					
3. Semester / Year:					
First/2025–2026					
4. Description Preparation Date:					
5/7/2025					
5. Available Attendance Forms:					
Lectures in the classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
100 hours/ 4 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Lect. Luma Abdulwahab Dr. Lect. Ebtisam Sameer Al Sawaf					
8. Course Objectives					
Course Objectives	- Develop an understanding of the principles and fundamentals of two-dimensional architectural drawing. - Develop practical skills in drawing for exterior and interior architectural design. - Teach computer projection using drawing programs. - Instilling an understanding of logical thinking using a sequential drawing process.				
9. Teaching and Learning Strategies					
Strategy	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.				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	- Configure basic CAD drawing environment, units, limits, and grid settings. - Understand Cartesian and polar coordinate systems and UI navigation.	Introduction, Drawing Settings, Elements, Coordinates, Grid, etc.	Blended lecture & CAD software demonstration.	Classroom CAD setup & participation.
2	4	Execute fundamental drawing commands (Line, Polyline, Circle, Arc).	General Commands for Engineering	Interactive lab exercise & peer	Practical lab exercise.

		• Apply precision drafting aids like Object Snaps (OSNAP) and Ortho mode.	Drawing (with application).	collaborati on.	
3	4	• Construct complex 2D geometric shapes accurately. • Apply primary modification tools (Move, Copy, Rotate, Scale).	Commands Related to Lines and 2D Shapes (with application).	Hands-on CAD lab tutorial.	Project 1 submission (24 Marks total share across 6 projects).
4	4	• Utilize modification commands (Offset, Trim, Extend, Fillet, Chamfer). • Draft precise 2D architectural wall layouts and geometric profiles.	Commands Related to Lines and 2D Shapes (Cont.) (with application).	Project-based lab exercise.	Quiz 1 (8 Marks total share).
5	4	• Apply advanced modification tools (Array, Mirror, Stretch, Break). • Construct repetitive architectural components and symmetrical layouts.	Commands Related to Lines and 2D Shapes 1 (with application).	Guided CAD lab workshop.	Project 2 submission.
6	4	• Demonstrate proficiency in core 2D drafting and editing commands. • Complete speed and accuracy drafting tasks under practical exam conditions.	Commands Related to Lines and 2D Shapes 2 & First Practical Exam.	Practical examination session & review.	First Practical Exam.
7	4	• Utilize secondary draw/modify commands (Hatch, Gradient, Region, Boundary). • Apply architectural hatch patterns for material representation.	Drawing Commands for Group 2 (with application).	Hands-on lab workshop.	Assignment 1 submission (8 Marks total).
8	4	• Insert, scale, and align external raster image references and graphics. • Vectorize raster architectural site plans and sketches into 2D CAD.	Manipulating Ready-Made Shapes and Images (with application).	Project-based learning & image manipulation tutorial.	Project 3 submission.
9	4	• Create, insert, and edit reusable architectural Blocks (doors, windows, furniture). • Organize drawing symbol libraries for architectural floor plans.	Manipulating Ready-Made Shapes and Blocks (with application).	Collaborative CAD lab tutorial.	Project 4 submission.
10	4	• Establish structured layer management systems (lineweight, linetype, color). • Assign architectural standard properties to plan, section, and elevation layers.	Layers and 2D Shape Settings 1 (with application).	Hands-on lab session.	Quiz 2 (8 Marks total share).
11	4	• Master advanced layer control (freeze/thaw, lock, isolate) and object properties.	Layers and 2D Shape Settings 2 & Semester	Theoretical examination session &	Midterm Theory Exam (10 Marks).

		• Demonstrate theoretical knowledge of 2D CAD principles and logic.	Theory Exam.	CAD lab review.	
12	4	• Create and customize Dimension Styles according to architectural standards. • Apply linear, aligned, angular, and continuous dimensions to floor plans.	Dimensions and Measurements (with application).	Guided lab exercises & tutorial.	Project 5 submission.
13	4	• Format single/multiline text styles, callouts, and room labels. • Perform area calculations and distance measurements in CAD model space.	Dimensions, Text, and Annotations (with application).	Interactive CAD workshop.	Classwork review.
14	4	• Set up paper space layouts, viewports, and custom architectural drawing scales. • Compose title blocks, sheet layouts, and multi-view presentation drawing sets.	Advanced Main Tools 2 & Layout Viewports.	Layout design & presentation studio.	Project 6 submission.
15	4	• Configure plotters, page setups, plot styles (CTB), and export PDF drawing sets. • Present final architectural poster output and execute complete 2D CAD project drawing.	Main Project Printing Final Output & Second Practical Exam.	Practical exam session & poster presentation review.	Second Practical Exam & Final Exam prep (50 Marks).

11. Course Evaluation

Evaluation type	Degree
2 Quizzes	8
1 Assignments	8
6 Projects	24
Midterm Exam	10
Final Exam	50
Total	100pt

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	-Omura, G. <i>Mastering AutoCAD</i> . Wiley. -Shih, R. H. <i>AutoCAD 2024 Tutorial</i> . SDC Publications. - Finkelstein, E. <i>AutoCAD 2024 and AutoCAD LT 2024: Essentials</i> . Wiley.
Recommended books and references (scientific journals, reports...)	-----
Electronic References, Websites	-----

Course Description Form

1. Course Name:					
Crimes of Ba'ath Regime in Iraq					
2. Course Code:					
UOM2050					
3. Semester / Year:					
First/ 2025–2026					
4. Description Preparation Date:					
5/7/2025					
5. Available Attendance Forms:					
Lectures in the classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
50 hours/ 2 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Asst. Prof. Dr. Khalid Faris Khalil Ali khalid.faris.k@uomosul.edu.iq					
8. Course Objectives					
Course Objectives		To introduce students to the major crimes committed during the Ba'ath regime in Iraq, their historical context, causes, consequences, and impact on Iraqi society.			
9. Teaching and Learning Strategies					
Strategy		- Lectures and presentations - Historical case studies - Group discussions - Documentary materials - Critical analysis of historical sources			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	- Identify major historical factors and context surrounding the rise of the Ba'ath Party in Iraq. - Understand foundational party ideology and political power consolidation.	Introduction to the Ba'ath Party and its political rise in Iraq.	Interactive lecture & case-study analysis.	Classroom participation & attendance (3 Marks total share).
2	2	- Explain state security apparatus, surveillance mechanisms, and political censorship. - Analyze social and humanitarian impacts of authoritarian rule on Iraqi society.	Mechanics of authoritarian rule and systematic political repression.	Historical case study & group discussion.	Homework Assignment 1 (27 Marks total share across 9 assignments).
3	2	- Analyze historical evidence, phases, and human rights violations of the Anfal Campaign. - Evaluate humanitarian,	Genocide and military campaigns: The Anfal Campaign.	Lecture & documentary source analysis.	Quiz 1 (10 Marks total share across 2 quizzes).

		demographic, and economic consequences on rural northern Iraq.			
4	2	• Examine the sequence of events and non-conventional weapon deployment at Halabja. • Assess long-term medical, environmental, and intergenerational impacts on survivors.	Chemical warfare: The Halabja chemical attack.	Critical analysis of historical sources & discussion.	Homework Assignment 2.
5	2	• Identify targeted geographic regions, land confiscations, and forced population transfers. • Critically evaluate state-engineered demographic manipulation policies.	Demographic engineering: Forced displacement and Arabization policies.	Interactive lecture & historical map analysis.	Homework Assignment 3.
6	2	• Examine engineering projects used to drain the southern Mesopotamian marshes. • Analyze environmental destruction, loss of indigenous heritage, and displaced Marsh communities.	Ecocide and cultural destruction: The Marsh Arabs and draining of the Iraqi Marshes.	Case study & video presentation.	Quiz 2 (10 Marks total share).
7	2	• Explain root causes, geographical scope, and dynamics of the 1991 popular uprisings. • Document military response, civilian casualty figures, and subsequent suppression.	Popular uprisings: The 1991 Sha'aban Uprisings and government suppression.	Interactive lecture & primary source analysis.	Homework Assignment 4.
8	2	• Investigate judicial persecution, collective punishment, and executions following the Dujail event. • Contrast formal judicial structures with extrajudicial actions under state control.	Judicial repression and targeted punishment: The Dujail Case.	Legal case study & document analysis.	Homework Assignment 5.
9	2	• Categorize systematic detention practices, interrogation methods, and political disappearances. • Analyze victim testimonies and international human rights reporting.	Systemic human rights abuses: Detention, torture, disappearance, and extrajudicial killing.	Documentary examination & group discussion.	Homework Assignment 6.
10	2	• Demonstrate theoretical mastery of historical context, causes, and impacts of regime crimes. • Synthesize analytical insights on state repression, Anfal, Halabja, and human rights violations.	Midterm Examination.	Written theoretical exam session.	Midterm Exam (10 Marks).
11	2	• Examine forensic methodologies and exhumation efforts for mass grave documentation. • Evaluate social, psychological, and legal challenges for families of missing persons.	Forensic and humanitarian evidence: Mass graves and missing persons.	Lecture & forensic report review.	Homework Assignment 7.
12	2	• Classify crimes against	Legal	Legal document	Homework

		humanity, genocide, and war crimes under international law. • Evaluate procedures for preserving, archiving, and verifying historical legal evidence.	accountability: International law and documentation of state crimes.	analysis & discussion.	Assignment 8.
13	2	• Evaluate transitional justice frameworks, special tribunal trials, and reparation programs. • Discuss the role of collective memory and national reconciliation in post-regime Iraq.	Post-conflict justice: Victims, memory, justice, and transitional processes.	Interactive lecture & peer discussion.	Homework Assignment 9.
14	2	• Present student research findings on documented historical crimes objectively. • Synthesize key course themes regarding humanitarian impact and historical lessons.	Course review and student research presentations.	Student presentations & class debate.	Student presentation evaluation.
15	2	• Formulate and finalize a comprehensive research report using critical historical evidence. • Synthesize course learning outcomes in preparation for the final comprehensive exam.	Writing report & course conclusion.	Report writing workshop & final review.	Research Report submission & Final Exam prep (50 Marks).

11. Course Evaluation

Evaluation type	Degree
2 Quizzes	10
9 Homework assignments	27
Discussions& Attendance	3
Midterm Exam	10
Final Exam	50
Total	100pt

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:					
English language (2)					
2. Course Code:					
UOM2022					
3. Semester / Year:					
First/ 2025–2026					
4. Description Preparation Date:					
1–6–2025					
5. Available Attendance Forms:					
Lectures in the classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
50 hours/ 2 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Name: Lect. Dr. Sabreen Ali					
Email: sabreen.abed@uomosul.edu.iq					
8. Course Objectives					
Course Objectives	- 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. - upgrading the quality of architectural educational aiming to obtain academic accreditation.				
9. Teaching and Learning Strategies					
Strategy	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: - Lectures and presentations: the notes and the instructors are delivered through presentations introducing fundamental knowledge of English grammar and skills. - 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. 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.				
10. Course Structure					
Week	Ho	Required Learning Outcomes	Unit or subject	Learning	Evaluation

	urs		name	method	method
1	2	• Understand and contrast basic present, past, and future tense structures. • Develop initial speaking and listening skills for educational contexts.	Unit 1: Getting to know you – Present, past, and future tenses review.	Interactive lecture & blended e-learning presentation.	Classroom participation & attendance (3 Marks total share).
2	2	• Differentiate between state and dynamic verbs in present tenses. • Express daily routines and active architectural workspace contexts.	Unit 2: Whatever makes – Present Simple and Present Continuous.	Interactive discussion & grammar practice.	Homework Assignment 1 (27 Marks total share across 9 assignments)
3	2	• Apply Past Simple and Past Continuous to describe past events. • Practice listening comprehension to extract main points from clear speech.	Unit 3: What's in the news? – Past tenses and news narrative.	Interactive listening session & discussion.	Quiz 1 (10 Marks total share across 2 quizzes).
4	2	• Master count/uncount nouns, quantifiers, and food vocabulary. • Construct polite social dialogues and requests ("Can you come for dinner?").	Unit 4: Eat, drink, and be merry! – Quantifiers, food, and polite invitations.	Pair/group work & interactive practice.	Homework Assignment 2.
5	2	• Identify infinitive vs. -ing verb patterns and basic phrasal verbs. • Express future plans, intentions, doubt, and certainty in professional contexts.	Unit 5: Looking forward – Verb patterns, phrasal verbs, doubt and certainty.	Guided lecture & communicative exercises.	Homework Assignment 3.
6	2	• Use "What... like?" for describing physical architectural spaces and places. • Expand architectural and general vocabulary using synonyms.	Unit 6: The way I see it – Descriptions ("What... like?"), synonyms, and social expressions.	Group discussion & vocabulary workshop.	Homework Assignment 4.
7	2	• Apply Present Perfect to discuss life experiences and unfinished time. • Discuss historical architectural heritage and personal achievements.	Unit 7: Living history – Present Perfect Simple and duration.	Interactive lecture & reading passage analysis.	Homework Assignment 5.
8	2	• Apply modal verbs of obligation, permission, and advice (have to, should, must). • Describe clothing materials, physical attributes, and medical dialogues.	Unit 8: Modals of obligation – Have to, should, must, and situational vocabulary.	Role-play exercises & grammar practice.	Homework Assignment 6.
9	2	• Construct complex narrative structures using Past Perfect. • Read and analyze architectural and historical stories with proper cohesion.	Unit 9: Time of a story – Past Perfect and narrative tenses.	Reading comprehension & narrative writing tutorial.	Homework Assignment 7.
10	2	• Demonstrate theoretical mastery of grammar, vocabulary, and reading skills (Units 1–9). • Apply written English rules	Midterm Examination.	Theoretical written exam session.	Midterm Exam (10 Marks).

		accurately under timed conditions.			
11	2	- Construct Present and Past Passive voice forms accurately. - Describe technical, technological, and architectural building processes.	Unit 10: Our interactive world – Passives and technical processes.	Interactive lecture & technical translation exercise.	Quiz 2 (10 Marks total share).
12	2	- Differentiate Present Perfect Continuous from Present Perfect Simple. - Express ongoing activities, project durations, and personal goals.	Unit 11: Life's what you make it! – Present Perfect Continuous.	Group discussion & communicative tasks.	Homework Assignment 8.
13	2	- Formulate real and hypothetical conditional sentences (First vs. Second Conditional). - Express future possibilities and speculate on design scenarios using "might".	Unit 12: Just wondering – First and Second Conditionals, might.	Interactive grammar tutorial & scenario exercise.	Homework Assignment 9.
14	2	- Read basic architectural topics and extract core terminology. - Understand main points of clear speech in extended educational contexts.	Architectural Reading and Listening Practice.	Interactive reading & listening laboratory session.	Formative classwork assessment.
15	2	- Write a clear, structured report on a familiar or architectural topic. - Synthesize overall language skills in preparation for the final exam.	Writing Report & Course Synthesis.	Writing workshop & final course review.	Report submission & Final Exam prep (50 Marks).

11. Course Evaluation

Evaluation type	Degree
2 Quizzes	10
9 Homework assignments	27
Discussions& Attendance	3
Midterm Exam	10
Final Exam	50
Total	100pt

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	John and Liz Soars (2016) New Headway Pre-Intermediate Student's Book Fourth Edition. OXFORD University Press. ISBN : 978-0-19-476966-2
Main references (sources)	
Recommended books and references (scientific journals, reports...)	-----
Electronic References, Websites	-----

Course Description Form

1. Course Name:	
Architecture Design (2)	
2. Course Code:	
ARC 221	
3. Semester / Year:	
Second/2025-2026	
4. Description Preparation Date:	
5/7/2025	
13. Available Attendance Forms:	
Lectures in Classroom	
14. Number of Credit Hours (Total) / Number of Units (Total)	
300 hours/ 12 ECTS credits	
5. Course administrator's name (mention all, if more than one name)	
Lect. Dr. Muzahim Muhammed Mustafa Mozahim.hadidi@uomosul.edu.iq 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	
6. Course Objectives	
Course Objectives	- 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.
7. Teaching and Learning Strategies	
Strategy	- 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. - 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. - Contact hours: 8 hours weekly. - 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.

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.

8. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	10	- Understand course objectives, project typologies (health center, shopping center, kindergarten), and spatial standards. - Analyze similar project examples and conduct initial site analysis and program formulation.	Introduction to architectural design, standards, case studies, and site analysis.	Theoretical lecture, case study analysis & studio introduction.	Report 1 allocation (10 Marks total share for 2 reports) & participation.
2	10	- Practice fast-paced problem solving and rapid design synthesis under studio conditions. - Generate preliminary spatial concepts, bubble diagrams, and quick sketches independently.	Day Sketch 1: Rapid architectural concept generation.	Timed studio design exercise & critique.	Day Sketch 1 evaluation / Assignment share (3 Marks total).
3	10	- Analyze functional and visual characteristics of wall openings, windows, and entryways. - Integrate natural lighting, ventilation, and indoor-outdoor threshold relationships into design.	Architectural openings, fenestration, and light quality.	Studio drafting, visual presentation & desk review.	Quiz 1 (21 Marks total share across 3 quizzes).
4	10	- Apply core spatial relationships: spaces within a space, interlocking spaces, and adjacent spaces. - Resolve functional spatial transitions within small to medium building programs.	Spatial relationships and spatial interlocking.	Project-based learning & individual desk critique.	Project 1 progress review (6 Marks total share across 2 projects).
5	10	- Differentiate between centralized, linear, radial, clustered, and grid spatial organizations. - Select and apply appropriate spatial arrangement systems suited to specific project functions.	Types of spatial organization.	Interactive whiteboard lecture & studio work.	Quiz 2 (21 Marks total share).
6	10	Design effective horizontal and vertical	Circulation, movement patterns,	Studio drafting	Elevation and section submission

		circulation systems and accessible movement paths. • Integrate universal accessibility standards, stairways, and egress corridors into floor plans.	and accessibility.	session & peer critique.	(10 Marks).
7	10	• Synthesize comprehensive architectural design principles under timed examination conditions. • Resolve architectural, structural, and aesthetic requirements into a cohesive preliminary design.	Day Sketch 2 / Midterm design exercise.	Timed practical design examination.	Midterm Exam / Day Sketch 2 (10 Marks).
8	10	• Analyze entrance sequences, approach pathways, and building entry thresholds. • Design inviting, functional, and articulated architectural entrances and transition zones.	Movement patterns, approach, and entrance design.	Studio workshop & photo/video analysis.	Report 2 allocation.
9	10	• Apply human scale and visual scale concepts to interior volumes and exterior building masses. • Adjust spatial heights and proportions relative to human ergonomics and activities.	Architectural scale and human perception.	Project-based studio & model building review.	Project 2 progress review.
10	10	• Master proportioning systems, structural grids, and dimensional relationships. • Harmonize building massing, structural grids, and facade openings through proportion.	Architectural proportion and modular systems.	Interactive tutorial & layout critique.	Quiz 3 (21 Marks total share).
11	10	• Implement structural and visual axes to organize spatial compositions and building elements. • Utilize ordering principles to establish spatial clarity and directional flow in design.	Ordering principles: Axial alignment and primary axes.	Studio desk critique & drafting review.	Assignment evaluation.
12	10	• Apply spatial hierarchy to emphasize major functional spaces over secondary support zones. • Use linear, planar, or volumetric datums to unify complex architectural assemblies.	Spatial hierarchy and unifying datums.	Studio design review & critique.	Prefinal submission review (25 Marks).
13	10	• Balance symmetrical and asymmetrical compositions in building plans and elevations.	Symmetry, balance, and visual dominance.	Studio drafting & peer analysis.	Desk review & classwork evaluation.

		• Create focal architectural features and dominant masses within spatial compositions.			
14	10	• Integrate structural rhythm, repetitive module patterns, and dynamic variation into facades. • Enhance visual texture and coherence across building elevations and interior spaces.	Architectural rhythm, pattern, and repetition.	Presentation review & studio refinement.	Preliminary board review.
15	10	• Master manual rendering techniques, shade, shadow, and material expression on drawings. • Deliver a complete, professional architectural presentation package including plans, sections, elevations, and models.	Architectural graphic rendering, presentation, and final synthesis.	Final studio jury, project presentation & critique.	Final Project submission (15 Marks) & course review.

9. Course Evaluation

Evaluation type	Degree
3 Quizzes	21
Assignments	3
2 Projects	6
2 Report	10
Elevation and section	10
Prefinal submission	25
Midterm Exam	10
Final submission	15
Total	100

10. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. Methods of systematic analysis of design in architecture, By D. Mohamed A. Shihab 2. "ARCHITECTURE, Form, Space, & Order Third 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.
Main references (sources)	1. "ARCHITECTURE, Form, Space, & Order Third Edition", Francis D.K. Ching 2. Neufert Architects Data Fourth Edition - By Wiley Blackwell
Recommended books and references (scientific journals, reports...)	-----
Electronic References, Websites	-----

Course Description Form

1. Course Name:	
Free Hand Drawing (2)	
2. Course Code:	
ARC 222	
3. Semester / Year:	
Second/ 2025–2026	
4. Description Preparation Date:	
5/7/2025	
5. Available Attendance Forms:	
Lectures in Classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
75 hours/ 3 ECTS credits	
7. Course administrator's name (mention all, if more than one name)	
Dr. Ahmad Yarob Tohalla Email: ahmadtohala@uomosul.edu.iq Lect. Dr. Omar Adil Mafaz Tareq	
8. Course Objectives	
Course Objectives	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.
9. Teaching and Learning Strategies	
Strategy	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.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	• Understand eye level, horizon, angles, and vanishing points in freehand perspective. • Link sight perception with perspective theory to conceptualize form.	Introduction to perspective, drawing angles, and vanishing points.	Demonstration & theoretical explanation.	Studio participation & setup review.
2	4	• Assess baseline freehand drawing ability and eye-hand coordination. • Practice measuring proportions and dimensions using hand, pen, and sight.	Preliminary test to assess student ability.	Learning by doing & diagnostic studio exercise.	Diagnostic freehand assessment.
3	4	• Master freehand line quality, stroke control, parallel lines, and directional hatching. • Develop harmonious coordination between eye, brain, and hand.	Practice drawing lines in different directions.	Studio-based learning & line technique drills.	Quiz 1 (8 Marks total share across 2 quizzes).
4	4	• Construct simple 3D cubic compositions in perspective manually. • Analyze line, form, and basic light/shade values on planar block surfaces.	Simple model made of cubes – Stage 1.	Project-based learning & silent model drawing.	Project 1 submission (24 Marks total share across 6 projects).
5	4	• Render complex multi-cube assemblies with overlapping volumetric forms. • Express light, cast shadow, and tonal values on multi-faceted models.	Advanced model made of cubes – Stage 1.	Practical exercises & advanced cube studio.	Project 2 submission.
6	4	• Critically evaluate visual composition, line weight, and color rendering techniques. • Apply feedback to refine artistic taste and balanced vision of shapes.	General discussion with the student about drawing and coloring.	Individual and group work & critique session.	Assignment 1 submission (8 Marks total).
7	4	• Draw cylindrical forms, ellipses, and curved surfaces in perspective. • Understand tonal shading gradients across curved	Simple model made of circles and cylinders – Stage 1.	Discussion, critique & cylinder drafting.	Project 3 submission.

		geometric volumes.			
8	4	• Demonstrate freehand visual perception, proportion control, and shading under timed conditions. • Synthesize perspective, line control, and model representation.	Monthly drawing exam (Midterm Exam).	Practical drawing exam session.	Midterm Exam / Monthly Drawing Exam 1 (10 Marks).
9	4	• Render complex cylindrical compositions combined with rectangular forms. • Capture core shadow, reflected light, and highlight variations.	Simple model made of circles and cylinders – Stage 2.	Practical studio exercises & silent model analysis.	Project 4 submission.
10	4	• Advance freehand technique for multi-cylindrical and curved geometric compositions. • Apply medium techniques (pens/colors) for surface texture expression.	Simple model made of circles and cylinders – Stage 3.	Studio-based learning & desk review.	Quiz 2 (8 Marks total share).
11	4	• Construct inclined and rotated cubic masses in two-point and three-point perspective. • Determine vanishing points for auxiliary inclined planes manually.	Simple model made of slanted cubes – Stage 1.	Demonstration & studio exercise.	Project 5 submission.
12	4	• Render complex dynamic compositions of rotated, canted, and intersecting blocks. • Master precise sight-sighting proportion measurements.	Simple model made of slanted cubes – Stage 2.	Practical studio workshop & peer review.	Desk review & portfolio progress.
13	4	• Render organic ceramic, pottery, and fluid vessel forms with realistic surface textures. • Balance artistic composition, highlights, and continuous curved shading.	Simple models made of pottery.	Still life studio drawing from pottery models.	Project 6 submission.
14	4	• Execute rapid freehand rendering of complex multi-geometric still-life	Monthly drawing exam 2.	Timed practical drawing examination.	Practical Drawing Assessment / Classwork review.

		setups under exam conditions. • Display mature artistic judgment, proportion accuracy, and shading skill.			
15	4	• Synthesize drawing skills to capture irregular, non-standard visual forms accurately. • Assemble a complete freehand drawing portfolio demonstrating mature architectural sight perception.	Simple models made of irregular shapes 1 & Course Synthesis.	Final studio portfolio review & practical exam prep.	Final Portfolio review & Final Exam prep (50 Marks).

11. Course Evaluation

Evaluation type	Degree
2 Quizzes	8
1 Assignments	8
6 Projects	24
Midterm Exam	10
Final Exam	50
Total	100pt

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:					
Physics (1)					
2. Course Code:					
ARC 223					
3. Semester / Year:					
Second/ 2025–2026					
4. Description Preparation Date:					
5/7/2025					
5. Available Attendance Forms:					
Lectures in Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
100 hours/ 4 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Dr. Reem Ali Talib Alothman Email: reemalothman@uomosul.edu.iq					
8. Course Objectives					
Course Objectives		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.			
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 types 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	4	• Define, calculate, and distinguish between distance and displacement, speed, velocity, and acceleration. • Differentiate scalar and vector quantities and	Introduction to physics, standards of measurement, scalar/vector quantities, and basic kinematics.	Theoretical lecture & tutorial exercise.	Classroom participation & tutorial practice.

		apply units of length, mass, and time.			
2	4	• State, explain, and apply Newton's three laws of motion to physical systems. • Calculate gravitational force, weight, and net acceleration in force systems.	Forces and motion, mass, gravity force, and Newton's laws of motion.	Theoretical lecture & problem-solving tutorial.	Assignment 1 (15 Marks total share across 3 assignments).
3	4	• Calculate spring forces, friction, work, kinetic energy, potential energy, and mechanical power. • Apply the work-kinetic energy theorem and conservation of total mechanical energy.	Spring forces, Hooke's law, friction, circular motion, work, mechanical energy, and power.	Interactive lecture & simple experimental demonstration.	Quiz 1 (20 Marks total share across 2 quizzes).
4	4	• Apply the law of conservation of linear momentum and impulse-momentum relationship. • Analyze oscillating systems, restoring forces, and frequency in Simple Harmonic Motion.	Linear momentum, impulse, rate of momentum change, conservation laws, and Simple Harmonic Motion (SHM).	Problem-solving tutorial & interactive discussion.	Homework / Classwork review.
5	4	• Solve gravitational force problems using Newton's law of universal gravitation. • Calculate free-fall acceleration and gravitational field strength for different locations.	Universal gravitation, Newton's law of gravitation, and free-fall acceleration.	Theoretical lecture & mathematical problem-solving.	Assignment 2.
6	4	• Understand fluid properties, density variations, and hydrostatic pressure principles. • Calculate static fluid pressure at varying depths in containers and physical structures.	Fluid mechanics fundamentals, fluid density, and hydrostatic pressure at depth.	Interactive lecture & fluid calculation tutorial.	Practical classwork assessment.
7	4	• Explain Pascal's principle and force transmission through enclosed fluids. • Calculate mechanical advantage and pressure distribution in hydraulic lifts.	Pascal's principle and hydraulic system mechanics.	Case-study demonstration & tutorial exercise.	Quiz 2 (20 Marks total share).
8	4	• Calculate buoyant forces and submerged volumes using Archimedes's principle. • Apply the equation of	Fluid dynamics: Buoyant forces, Archimedes's principle, continuity equation, and	Interactive tutorial & fluid dynamics workshop.	Assignment 3.

		continuity and Bernoulli's equation to fluid flow dynamics.	Bernoulli's equation.		
9	4	• Define fundamental thermodynamic principles, temperature, and heat capacity. • Understand basic thermal behavior and thermal properties of physical matter.	Introduction to Thermodynamics and thermal concepts.	Theoretical lecture & interactive demonstration.	Midterm exam preparation.
10	4	• Demonstrate quantitative mastery of kinematics, dynamics, gravitation, and fluid mechanics. • Analyze general heat transfer processes through physical materials.	Heat, heat transfer mechanisms in materials, and Midterm Examination.	Theoretical examination session & lecture.	Midterm Exam (10 Marks).
11	4	• Analyze thermal conductivity factors and heat energy conduction through solid matter. • Evaluate thermal properties and insulation characteristics of building construction materials.	Thermal conductivity and thermal behavior of architectural materials.	Technical tutorial & sampling experiment.	Report allocation (5 Marks total share).
12	4	• Quantify conductive heat transfer rates through homogeneous and composite material layers. • Calculate thermal resistance and conductive heat loss through structural walls and slabs.	Thermal conductivity by Conduction in building envelopes.	Guided problem-solving studio & tutorial.	Classwork tutorial submission.
13	4	• Understand natural and forced convective heat transfer mechanisms between surfaces and air. • Apply convective heat exchange principles to architectural interior environments.	Thermal conductivity by Convection and fluid motion.	Interactive lecture & visual media presentation.	Classwork evaluation.
14	4	• Apply radiant heat transfer equations and emissivity principles to architectural surfaces. • Analyze solar radiation absorption, reflection, and radiation heat gains on building facades.	Thermal conductivity by Radiation and solar radiation mechanics.	Problem-solving workshop & case study.	Physics Research Report submission (5 Marks).
15	4	• Identify environmental criteria for human	Thermal comfort, environmental	Interactive review	Final Exam prep (50 Marks total

		thermal comfort in architectural spaces. • Synthesize overall physical principles (mechanics, fluids, thermodynamics) for design applications.	physics synthesis, and course review.	session & student discussion.	share) & course review.
--	--	---	---------------------------------------	-------------------------------	-------------------------

11. Course Evaluation

Evaluation type	Degree
2 Quizzes	20
3 Assignments	15
Report	5
Midterm Exam	10
Final Exam	50
Total	100

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:					
Computer Architectural Drawing 3D					
2. Course Code:					
ARC 224					
3. Semester / Year:					
Second 2025–2026					
4. Description Preparation Date:					
5/7/2025					
5. Available Attendance Forms:					
Lectures in Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
75 hours/ 3 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Lect. Luma Abdulwahab aldabbagh Email: Luma.a.aldabbagh@uomosul.edu.iq Asst. Lect. Waleed sami					
8. Course Objectives					
Course Objectives		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.			
9. Teaching and Learning Strategies					
Strategy		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.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	- Review fundamental 2D drafting principles, object snaps, and precision settings. - Establish accurate 2D CAD floor plans as base geometries for 3D extrusion.	Review of commands related to 2D drawing.	Practical lecture & computer lab demonstration.	Baseline CAD setup review & attendance.
2	4	- Navigate 3D viewports, User Coordinate Systems (UCS), and 3D visual styles. - Apply basic 3D orientation commands to establish workspace setups.	General commands for 3D engineering drawing.	Hands-on CAD lab & pre-drawn illustrative examples.	Quiz 1 (30 Marks total share across 4 quizzes).
3	4	Construct 3D solid primitives (box, cylinder, cone, sphere, wedge, torus) accurately.	Commands related to primary 3D	Interactive CAD workshop &	Practical lab exercise submission.

		Combine primary geometric forms with accurate dimensional constraints.	shapes.	peer collaboration.	
4	4	- Generate 3D volumetric solids from 2D profiles using Extrude and Revolve commands. - Resolve profile continuity constraints during 2D to 3D transformations.	Modification commands for the first group (Extrude, Revolve).	Guided CAD application & simulation.	Assignment 1 (5 Marks total share across assignments).
5	4	- Construct complex architectural forms using path-based Sweep and cross-section Lofting. - Model continuous moldings, structural columns, and organic building masses.	Modification commands for the first group (Sweep, Loft).	Studio drafting & collaborative peer discussion.	Quiz 2 (30 Marks total share).
6	4	- Apply Union, Subtract, and Intersect operations to synthesize complex 3D volumes. - Carve wall openings, courtyards, and spatial voids into solid building forms.	Modification commands for the second group (Boolean operations).	Hands-on CAD lab & instructor demonstration.	Practical classwork evaluation.
7	4	- Demonstrate speed, accuracy, and constraint resolution under timed modeling conditions. - Synthesize 3D solid primitives and modification commands into a complete project.	First practical test (3D modeling application).	Timed practical computer laboratory examination.	First Practical Exam / Classwork assessment.
8	4	- Refine 3D geometry using Presspull, Shell, Slice, Fillet Edge, and Chamfer Edge tools. - Modify existing solid assemblies to incorporate structural and design details.	Modification and editing of 3D models.	Hands-on CAD workshop & exercise execution.	Report allocation (5 Marks total share).
9	4	- Construct planar and curved 3D surfaces, planar meshes, and complex roof geometries. - Differentiate between solid modeling and surface modeling applications in architecture.	Shaping 3D surfaces and mesh modeling.	Practical studio application & illustrative examples.	Quiz 3 (30 Marks total share).
10	4	- Demonstrate theoretical understanding of 3D CAD tools, coordinate systems, and workflows. - Resolve written and technical modeling scenarios within formal exam constraints.	Semester theoretical test (Midterm Exam).	Written theoretical examination session.	Midterm Exam (10 Marks).
11	4	- Manipulate, orient, and pattern 3D architectural components precisely in space. - Align complex assemblies along angled vectors and architectural grid structures.	Operations on 3D models (3D Move, 3D Rotate, 3D Align, 3D Array).	Project-based CAD studio & peer simulation.	Assignment 2.
12	4	- Position perspective cameras, adjust focal lengths, and define architectural view angles. - Configure visual styles, wireframe overlays, and	Architectural rendering fundamentals and camera views.	Guided rendering tutorial & studio practice.	Quiz 4 (30 Marks total share).

		perspective presentation views.			
13	4	- Assign, map, scale, and adjust architectural materials (stone, glass, concrete, wood). - Edit material reflectance, roughness, and bump maps for realistic surface texture.	Materials and surface modifications.	Practical computer lab & material assignment exercise.	Assignment 3.
14	4	- Configure geographic location, time of day, direct sun positioning, and sky background. - Place artificial point, spot, and web lights to achieve realistic interior illumination.	Architectural lighting, sun studies, and scenery.	Interactive rendering laboratory session.	Report submission (5 Marks).
15	4	- Output high-resolution rendered digital images with optimized anti-aliasing and ray-tracing. - Produce a complete 3D digital architectural presentation portfolio.	Final high-resolution rendering and presentation synthesis.	Final project presentation & computer studio critique.	Final Exam (50 Marks) & course review.

11. Course Evaluation

Evaluation type	Degree
4 Quizzes	30
Assignments	5
Report	5
Midterm Exam	10
Final Exam	50
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	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.
Main references (sources)	Al-Alaf, Imad Hani, Computer-Aided Architectural and Engineering Drawing, Principles of 2D® Drawing in AutoCAD 2018
Recommended books and references (scientific journals, reports...)	https://static.sdcpublications.com/pdfsamples/978-1-63057-339-3-1-cw77gw9lwo.pdf Randy H. Shih, Videos by Luke Jumper AutoCAD 2021 Tutorial ® First Level 2D Fundamentals , 2021
Electronic References, Websites	-----

Course Description Form

1. Course Name:					
Science of Mechanics					
2. Course Code:					
ARC 225					
3. Semester / Year:					
Second/ 2025–2026					
4. Description Preparation Date:					
5/7/2025					
5. Available Attendance Forms:					
Lectures in Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
75 hours/ 3 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
lect. Tuqa Waleed Email: new.matrix242@uomosul.edu.iq					
8. Course Objectives					
Course Objectives		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.			
9. Teaching and Learning Strategies					
Strategy		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.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	- Understand force vectors, line of action, and basic principles of engineering mechanics. - Solve engineering mechanics problems and calculate resultant forces of coplanar force systems.	Resultant of Force Systems.	Theoretical lecture & problem-solving tutorial.	Classroom participation & tutorial practice.
2	2	- Resolve concurrent forces into rectangular components along coordinate axes. - Determine the magnitude, direction, and resultant of concurrent force systems.	Resultant of Concurrent Force Systems.	Interactive lecture & force resolution exercise.	Quiz 1 (30 Marks total share across 3 quizzes).

3	2	• Calculate moments of forces about specified points and reference axes. • Determine equivalent force-couple systems and moments of couples acting on structural members.	Moment of Force, Couple.	Guided tutorial & interactive demonstration.	Assignment 1 (6 Marks total share across 2 assignments).
4	2	• Analyze general non-concurrent coplanar force systems acting on structural elements. • Reduce complex non-concurrent force systems to a single equivalent force and moment.	Resultant of Non-Concurrent Force Systems.	Problem-solving tutorial & structural analysis exercise.	Classwork review & practice submission.
5	2	• Apply 2D equations of equilibrium to rigid bodies. • Solve for unknown reaction forces in statically determinate structural systems.	Equilibrium of Force Systems, Equilibrium equations.	Theoretical lecture & step-by-step problem-solving.	Quiz 2 (30 Marks total share).
6	2	• Construct accurate Free-Body Diagrams (FBD) isolating structural systems from environments. • Model roller, pin, and fixed supports alongside point, distributed, and moment loadings.	Free Body Diagram, Types of Supports, Types of Loadings.	Interactive studio exercise & support modeling workshop.	Assignment 2.
7	2	• Determine the centroid and center of gravity for basic geometric shapes and areas. • Apply geometric formulas to locate centers of mass in structural cross-sections.	Centroids and Centers of Areas.	Theoretical lecture & mathematical tutorial.	Midterm exam preparation & classwork.
8	2	• Calculate centroids for complex composite structural cross-sections. • Demonstrate quantitative mastery of statics, force resultants, and equilibrium under exam conditions.	Centroids of Composite Figures & Midterm Examination.	Theoretical examination session & tutorial.	Midterm Exam (10 Marks).
9	2	• Define second moment of area (moment of inertia) for primary structural profiles. • Calculate area moments of inertia and radius of gyration.	Moments of inertia.	Guided problem-solving tutorial & demonstration.	Report allocation (4 Marks total share).
10	2	• Apply the Parallel Axis Theorem to determine moments of inertia for composite structural sections. • Evaluate structural resistance to bending across built-up architectural beams.	Moments of Inertia of Composite Figures.	Interactive tutorial & composite section calculation.	Quiz 3 (30 Marks total share).
11	2	• Calculate normal (axial), shearing, and bearing stresses in structural connections and columns. • Evaluate structural material safety under direct tensile, compressive, and shear loads.	Simple Stresses, Axial Stress, Shearing Stress, Bearing Stress.	Theoretical lecture & sampling experiment demonstration.	Practical classwork evaluation.
12	2	• Interpret stress-strain curves, elastic limits, yield points, and	Simple Strain, Stress-Strain	Interactive lecture &	Report submission (4

		ultimate strength. • Apply Hooke's law to calculate axial deformation and elastic strain in materials.	Diagram, Hook's Law.	material behavior analysis.	Marks).
13	2	• Determine internal shear forces (V) and bending moments (M) along beam spans. • Formulate shear and moment functions for concentrated and distributed beam loads.	Shear and Moment in Beams.	Problem-solving tutorial & structural beam analysis.	Homework / beam analysis assignment review.
14	2	• Draw complete Shear Force Diagrams (SFD) and Bending Moment Diagrams (BMD). • Calculate flexural bending stresses in beams using the flexure formula	Shear Force Diagram, Bending Moment Diagram, Stresses in Beams.	Guided calculation workshop & diagramming studio.	Comprehensive beam diagramming review.
15	2	• Understand beam deflection mechanisms, slope curvature, and serviceability limits. • Synthesize static mechanics and strength of materials principles for structural architectural design.	Deflection in beams & Course Synthesis.	Interactive review session & problem review.	Final Exam prep (50 Marks) & course review.

11. Course Evaluation

Evaluation type	Degree
3 Quizzes	30 pt
2 Assignments	6 pt
Report	4 pt
Midterm Exam	10
Final Exam	50
Total	100pt

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Pytel and J. Kiusalaas, Engineering Mechanics, 4th edition, 2017, Library of Congress. Pytel and J. Kiusalaas, Mechanics of Materials, 2nd edition, 2012, Library of Congress.
Main references (sources)	Engineering Mechanics 14th by Hibbeler, 2016.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	-----

Course Description Form

1. Course Name:					
computer(2)					
2. Course Code:					
UOM 2032					
3. Semester / Year:					
Second/ 2025–2026					
4. Description Preparation Date:					
5/7/2025					
5. Available Attendance Forms:					
Lectures in Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
75 hours/ 3 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Name: Lubna Muzahim Bak Email: Lubna.Muxahim@uomosul.edu.iq					
8. Course Objectives					
Course Objectives		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.			
9. Teaching and Learning Strategies					
Strategy		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.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	• Understand computer hardware/software fundamentals, computing concepts, and digital environments. • Apply computer applications and digital tools in architectural project workflows.	Introduction to Computer Applications in Architecture	Lectures, demonstrations & laboratory orientation.	Attendance & computer laboratory setup review.
2	4	• Organize, structure, and back up architectural project files, directories, and data formats. • Master digital workflows for file sharing, storage, and	File Management, Data Organization and Digital Workflows	Laboratory practice & data organization exercises.	Lab practical assessment 1 (15 Marks total share for Lab).

		cross-platform file compatibility.			
3	4	• Create, structure, and format technical architectural reports and academic papers using Microsoft Word. • Insert and format tables, figures, cross-references, automated table of contents, and citations.	Advanced Word Processing and Technical Document Preparation	Hands-on laboratory workshop & document formatting.	Quiz 1 (20 Marks total share across 2 quizzes).
4	4	• Utilize spreadsheet applications (Microsoft Excel) for data organization, formulas, and functions. • Perform numerical calculations, data sorting, conditional formatting, and filtering.	Advanced Spreadsheets and Data Organization	Practical laboratory exercises & guided problem-solving.	Assignment 1 (5 Marks total share across assignments).
5	4	• Apply spreadsheets to architectural space programming, area schedule calculations, and cost estimation. • Generate clear data charts, graphs, and visual schedules for architectural data presentation.	Spreadsheet Applications in Architectural Projects	Project-based laboratory exercises & spreadsheet modeling.	Lab practical evaluation.
6	4	• Master visual communication principles, typography, slide layouts, and graphic balance in PowerPoint. • Prepare professional digital presentations tailored for architectural project proposals.	Presentation Design and Visual Communication	Interactive laboratory demonstration & visual critique.	Quiz 2 (20 Marks total share).
7	4	• Embed multimedia, high-resolution architectural images, diagrams, and CAD drawings into presentations. • Construct interactive slide navigation and smooth transition sequences for design reviews.	Advanced Presentation Techniques for Architecture	Hands-on laboratory practice & peer critique.	Presentation layout review.
8	4	• Demonstrate practical and theoretical mastery of file management, word processing, spreadsheets, and presentations. • Solve timed digital computer tasks and	Monthly Examination (Midterm Exam)	Practical computer laboratory examination session.	Midterm Exam (10 Marks).

		theoretical assessment questions.			
9	4	• Understand underlying Internet technologies, search algorithms, and web communication protocols. • Conduct efficient web research to retrieve architectural standards, case studies, and material data.	Internet Technologies and Architectural Web Sourcing	Laboratory search exercises & critical analysis.	Research classwork submission.
10	4	• Use cloud storage (Google Drive, OneDrive) and online collaboration suites for multi-user project co-authoring. • Apply digital sharing permissions, real-time comment tracking, and cloud backup workflows.	Online and Cloud-Based Tools for Architectural Collaboration	Collaborative group laboratory exercise.	Group lab evaluation.
11	4	• Navigate 2D CAD interface settings, drawing grids, precision snaps, and basic drawing commands. • Create basic architectural schematics, floor plans, and vector geometries digitally.	Introduction to CAD Tools for Architectural Drafting	Demonstration & hands-on CAD lab drafting.	Practical CAD lab exercise review.
12	4	• Integrate text, quantitative spreadsheet data, and CAD graphic visuals into a single presentation package. • Organize and present architectural information digitally for professional review.	Digital Presentation Assembly and Project Integration	Project-based laboratory work & digital presentation studio.	Digital presentations and assignments submission.
13	4	• Conduct specialized external web research on emerging computer technologies in architecture. • Summarize technical findings into a structured digital research report with proper citation.	Advanced Web Research and Technology Sampling	External research activity & laboratory synthesis.	Laboratory report submission.
14	4	• Compile all term project deliverables (reports, spreadsheets, presentation slides, drawings) into a digital portfolio. • Polish visual hierarchy, formatting consistency, and digital file export standards (.pdf/.pptx).	Digital Portfolio Assembly and Project Compilation	Laboratory review, troubleshooting & peer critique.	Lab portfolio submission review.

15	4	• Review comprehensive computing concepts, internet fundamentals, office applications, and digital CAD tools. • Synthesize hardware, software, and online collaboration skills for architectural projects.	Course Synthesis and Final Examination Preparation	Interactive review session & student Q&A.	Final Exam prep (50 Marks) & course review.
----	---	---	--	---	---

11. Course Evaluation

Evaluation type	Degree
2 Quizzes	20 pt
Assignments	5 pt
Lab.	15 pt
Midterm Exam	10
Final Exam	50
Total	100pt

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	1. Graham Brown, David Watson, "Cambridge IGCSE Information and Communication Technology", 3rd Edition (2020) 2. Microsoft Office 2019 Step by Step 1st Edition by Curtis Frye & Joan Lambert 3. الخضر على الخضر بحاث "أساسيات الحاسوب" 2016
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	-----

Course Description Form

1. Course Name:					
Arabic Language (2)					
2. Course Code:					
UOM2012					
3. Semester / Year:					
Second/ 2025–2026					
4. Description Preparation Date:					
10 -2- 2025					
5. Available Attendance Forms:					
Lectures in the classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
50 hours/ 2 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Dr. Khalid faris Email: khalid.faris.k@uomosul.edu.iq					
8. Course Objectives					
Course Objectives	-Understand the history and origins of the Arabic language. -Learn number writing and grammatical gender. -Identify common language errors and their correct usage. -Understand the meanings and uses of prepositions. -Learn the rules of Hamzat al-Wasl and Hamzat al-Qat'. -Understand Arabic grammatical abrogators (Al-Nawasikh). - Learn the rules for writing Ta' Marbuta and Ta' Maftuha.				
9. Teaching and Learning Strategies					
Strategy	The main strategy is to encourage students to use spoken and written Arabic correctly while developing their critical thinking skills through interactive classes, educational activities, and simple practical exercises relevant to students' interests.				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	• Understand the historical evolution, origins, and foundational linguistic heritage of the Arabic language. • Relate literary concepts, textual history, and cultural terminology to architectural expression and design.	History of the Arabic Language	Classroom lecture, interactive discussion & literary text analysis.	Classroom participation & introductory discussion.
2	2	• Apply correct grammatical gender rules for cardinal/ordinal numbers and counted nouns (العدد والمعدود). • Express numerical dimensions, quantities, and specifications accurately in written Arabic.	Numbers: Masculine and Feminine Forms	Interactive lecture & practical grammar exercises.	Quiz 1 (15 Marks total share across 3 quizzes).
3	2	• Identify common vocabulary, structural, and stylistic errors in modern written Arabic. • Apply correct linguistic	Common Language Errors	Interactive workshop & sentence correction	Homework Assignment 1 (15 Marks total share)

		alternatives in general and technical architectural writing.		exercises.	across 3 assignments).
4	2	- Analyze semantic functions, contextual meanings, and proper usages of Arabic prepositions. - Construct grammatically sound sentences avoiding prepositional misuse in descriptive texts.	Meanings and Uses of Prepositions	Theoretical lecture & text parsing exercises.	Classwork review & practice submission.
5	2	- Differentiate between Hamzat al-Wasl and Hamzat al-Qat' in reading, dictation, and formal writing. - Apply precise orthographic rules to eliminate common spelling mistakes in initial hamzas.	Hamzat al-Wasl and Hamzat al-Qat'	Classroom lecture & practical dictation exercises.	Quiz 2 (15 Marks total share).
6	2	- Distinguish between Ta' Marbuta (ة), Ta' Maftuha (ت), and Ha' (هـ) based on grammatical position and pronunciation. - Ensure orthographic precision when drafting technical architectural reports and descriptions.	Rules of Ta' Marbuta and Ta' Maftuha	Guided practical exercises & writing tutorial.	Homework Assignment 2.
7	2	- Synthesize knowledge of language history, orthography, grammar rules, and language error corrections. - Demonstrate written precision and critical textual interpretation under formal examination conditions.	Review and Midterm Examination	Midterm examination session & practical writing assessment.	Midterm Exam (10 Marks).
8	2	- Understand the rules and functions of Arabic grammatical abrogators (النواسخ: كان وأخواتها، إن وأخواتها). - Analyze nominal sentence transformations and correct case endings in formal Arabic texts.	Arabic Grammatical Abrogators (Al-Nawasikh) & Advanced Hamza Rules	Interactive lecture & sentence parsing workshop.	Report allocation (10 Marks total share).
9	2	- Detect and rectify complex grammatical, syntactic, and agreement errors in extended writing. - Refine sentence structures to convey architectural ideas and textual messages clearly.	Grammatical Errors and Correction	Practical editing workshop & peer review.	Homework Assignment 3.
10	2	- Master phonetic and orthographic distinctions between Ḍād (ض) and Zā' (ظ). - Memorize and apply rules for key vocabulary to prevent phonetic-spelling confusion.	Difference between Ḍād and Zā'	Classroom tutorial & dictation drills.	Quiz 3 (15 Marks total share).
11	2	- Compose formal administrative letters, memos, technical reports, and professional correspondence. - Utilize appropriate Arabic professional terminology, salutations, and structural conventions.	Formal Aspects of Administrative Writing	Practical administrative drafting workshop & template review.	Classwork evaluation & draft submission.
12	2	- Understand orthographic rules governing Alif al-Fāriqa (الألف الفارقة) after Waw al-Jama'a. - Distinguish between original Waw,	Alif al-Fāriqa and Its Uses	Interactive lecture & practical exercises.	Classwork exercise review.

		Waw of plural nouns, and Waw of verbs in written contexts.			
13	2	• Apply standard Arabic punctuation marks (commas, periods, semicolons, quotes, colons) accurately. • Structure architectural essays and technical descriptions for enhanced readability and clarity.	Punctuation Marks	Text editing exercise & guided writing tutorial.	Report submission (10 Marks).
14	2	• Differentiate between major literary eras and their stylistic features in Arabic literature. • Interpret architectural metaphors, semiotics, repetition, and parallelism within literary texts.	Types of Literary Eras	Literary text analysis & critical reading discussion.	Classwork participation & textual analysis submission.
15	2	• Synthesize comprehensive grammar, orthography, administrative writing, and literary analysis skills. • Present architectural ideas and visual messages clearly using polished Arabic terminology.	History of the Arabic Language Synthesis & Course Review	Interactive course review, student Q&A & review session.	Final Exam prep (50 Marks) & course review.

11. Course Evaluation

Evaluation type	Degree
3 Quizzes	15
3 Homework assignments	15
Report	10
Midterm Exam	10
Final Exam	50
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Bin Dhurayl, Adnan, *Language and Style: A Study*, 2nd edition, 2006.
Main references (sources)	Buhayri, Sa'id Hasan, *Fundamentals of Arabic Philology*, 2000.
Recommended books and references (scientific journals, reports...)	-----
Electronic References, Websites	-----

MODULE DESCRIPTION FORM

Bologna track

Third Level

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module Code	Prerequisite Module Code
UGIII	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	12	75	3.00	C		
		3	ARC 313	Computer Rendering Techniques	تقنيات الإظهار بالحاسوب	English	1			2			3	48	27	75	3.00	C	ARC 225 Computer Architecture Drawing 3	
		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	S		
		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 الأوروبية	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 المادة الدراسية	Language	CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module Code	Prerequisite Module Code
	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	المساحة والتوثيق المعماري	English	2			2			3	63	37	100	4.00	S		
		3	ARC 323	Physics Laboratory	مختبر 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	S		
		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	S		
				Total		10	0	2	13	0	1	18	393	357	750	30.00				

Course Description Form

1. Course Name:	
Architectural design 3	
2. Course Code:	
ARC311	
3. Semester / Year	
First/ 2025-2026	
4. Description Preparation Date:	
5/7/2025	
5. Available Attendance Forms:	
Lectures in Classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
300 hours/ 12 ECTS credits	
7. Course administrator's name (mention all, if more than one name)	
Raed Salim / Email: raeedalnumman@uomosul.edu.iq Ashraf Ibrahim/ Meyssa Muafaq/ Eman Khalid/ Sheymma Kheeraldeen/ Aseel Ibrahim/ Faris atallah	
8. Course Objectives	
Course Objectives	*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. •Design Development Skills for Different Building TypesAbility 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.
9. Teaching and Learning 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 practically 1. Practical application of design skills in real-life projects that simulate professional challenges 2. : Direct analysis of public and private spaces and evaluation of the design approach followed 3. : Promoting an interactive studio environment to display designs and exchange constructive feedback 4. Focus on environmental design strategies and sustainability in the selection of materials and the use of natural resources 5. Analysis of contemporary and historical architectural designs to extract lessons and enhance architectural understanding.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	10	- Understand fundamental principles, history, and current practices in designing public building typologies (schools, cultural centers, shopping centers, Islamic complexes). - Identify project requirements, spatial standards, client needs, and functional scope	Introduction to architectural design project typologies	Interactive lecture, project briefing & studio discussion.	Attendance & preliminary studio engagement.
2	10	- Gather, record, and assess relevant spatial standards and functional space requirements. - Conduct comparative research on international case studies for complex community and public projects.	Data gathering, programmatic formulation, and precedent research	Applied research, precedent analysis & guided studio tutorial.	Examples analysis submission (2 Marks total share).
3	10	- Critically evaluate existing project case studies and extract key functional and aesthetic design lessons. - Present comparative architectural analyses using digital diagrams and functional matrix layouts.	Examples analysis presentation and spatial program zone	Student presentation, interactive studio workshop & peer feedback.	Examples analysis evaluation & presentation review.
4	10	- Analyze physical, environmental, urban, and social contexts through direct site observations. - Evaluate site topography, microclimate, solar orientation, access points, and surrounding urban fabric.	Field study, site visit, and contextual site analysis	Field trip/site visit, site survey & contextual mapping exercise.	Site analysis submission (3 Marks total share).
5	10	- Synthesize site constraints and program data into a cohesive preliminary architectural design concept. - Demonstrate rapid problem-solving, sketch visualization, and conceptual design presentation.	Site analysis report, Day Sketch 1, and concept generation	Timed Day Sketch exercise, studio design defense & concept critique.	Concept evaluation (5 Marks) & Day Sketch 1 share (30 Marks total share for Day Sketches).
6	10	- Translate conceptual ideas into functional spatial relationships and horizontal zoning diagrams. - Resolve circulation paths, public-private separation, and functional adjacencies based on critique.	Design development Functional zoning, bubble diagrams, and spatial flow	Project-based studio learning & individual desk critique.	Desk review & studio progress feedback.
7	10	- Integrate building massing with site landscape, vehicular/pedestrian access, and parking systems. - Apply sustainable design strategies regarding building orientation, daylighting, and	Design development Master planning, site integration, and volumetric massing	Studio drafting, 3D spatial modeling & interactive critique.	Design development review & studio feedback.

		outdoor spaces.			
8	10	• Draft detailed ground floor plans incorporating structural grids, entry lobbies, and main functional spaces. • Ensure functional efficiency, universal accessibility, and clear horizontal movement paths.	Floor plan development: Ground floor and primary spatial layouts	Studio CAD drafting, physical modeling & desk review.	Plans submission review (10 Marks total share for Plans).
9	10	• Finalize multi-level plan integration, vertical circulation cores (stairs, elevators), and service zones. • Refine structural alignment, wall thicknesses, and room proportions across all floor levels.	Floor plan refinement: Upper levels, circulation cores, and service zones	Practical CAD studio, digital simulation & peer review.	Plans progress evaluation.
10	10	• Construct detailed longitudinal/transverse sections and exterior architectural elevations. • Demonstrate structural height logic, interior volume relationships, and facade material expression.	Vertical design articulation (Section & Elevations) and Day Sketch 2	Timed Day Sketch 2 exercise & studio section/elevation drafting.	Elevation and section submission (10 Marks) & Day Sketch 2 share.
11	10	• Compile a complete preliminary design package (site plan, floor plans, sections, elevations, 3D renderings). • Articulate and defend architectural proposals before a preliminary review panel.	Pre-final project submission and preliminary jury presentation	Preliminary jury exhibition, digital presentation & academic defense.	Pre-final submission evaluation (25 Marks total share).
12	10	• Analyze jury feedback to identify critical design weaknesses and technical shortcomings. • Formulate concrete strategies to refine architectural massing, spatial layouts, and graphic presentation.	Pre-final evaluation critique review and design modification	Interactive studio review workshop & group discussion.	Post-prefinal revision review & studio feedback.
13	10	• Refine architectural details, facade systems, daylighting mechanisms, and environmental features. • Integrate structural grids and building services seamlessly into final technical drawings.	Design refinement: Structural integration, daylighting, and facade detailing	Hands-on studio refinement, CAD/3D modeling & desk review.	Desk review & final board progress check.
14	10	• Produce high-resolution 3D digital renderings, VR visualizations, and physical architectural models. • Synthesize architectural drawings into a cohesive, professional presentation board layout.	Advanced representation: CAD/3D rendering, physical modeling, and board layout	Practical computer lab studio, model crafting & layout workshop.	Preliminary board review & physical model inspection.
15	10	• Deliver a complete digital and physical architectural presentation portfolio. • Defend the final architectural design proposal before a formal jury.	Final project submission, studio jury presentation, and course synthesis	Final studio jury presentation, formal project defense & critique.	Final project submission (15 Marks total share) & course

		panel.			review.
11. Course Evaluation					
Evaluation type			Degree		
Day sketches			30pt		
Examples analysis			2pt		
Site analysis			3pt		
Concept			5pt		
plans			10pt		
Elevation and section			10pt		
Prefinal submission			25pt		
Final submission			15pt		
Total			100pt		
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)			1. Joseph De Chiara, Julius Panero, Time-Saver Standards for Housing and Residential Development 2. Dutt, I. (2012) 'School Design and Students' Relationships with the Natural World', Children, Youth and Environments		
Recommended books and references (scientific journals, reports...)			Architectural record AD.		
Electronic References, Websites			Ach net		

Course Description Form

1. Course Name:					
Working Drawings (1)					
2. Course Code:					
ARC312					
3. Semester / Year:					
First/ 2025-2026					
4. Description Preparation Date:					
5/7/2025					
5. Available Attendance Forms:					
Lectures in Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
75 hours/ 3 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Talat Ibrahim Al-Ani Email: talaat.alaane@uomosul.edu.iq Meyssa Muafaq/ Eman Khalid/ Sheymma Kheeraldeen					
8. Course Objectives					
Course Objectives	- Enhance critical thinking and problem-solving skills, identifying characteristics, constraints, and opportunities. - Develop skills for architectural solutions linked to the structural framework of a building. - Appreciate the contextual implications of architectural design ideas and their potential linkage to real-world engineering project solutions. - To teach students the principles of designing concrete structures, as well as to identify the types of concrete structures and how to deal with them as an essential part of architectural design. - To implement clear practical programs that address the technical details of concrete structures, without neglecting the standards of architectural beauty. Keeping pace with the developments taking place in developed countries by offering an architectural education program that establishes a foundation based on modern technologies linked - to recent developments in engineering and technical fields, particularly with regard to architectural constructions and building structures. To 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.				
9. Teaching and Learning Strategies					
Strategy	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 structural 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.				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Understand fundamental principles, codes, and terminology of working drawings and executive	Introduction, Definitions, and Architectural	Interactive lecture, reference document review & studio	Attendance & introductory studio review.

		construction documents. • Identify structural characteristics, constraints, and contextual opportunities in architectural projects.	Working Drawing References	discussion.	
2	4	• Analyze structural frameworks as the primary foundation for architectural working drawings. • Establish initial structural grid alignments and load-bearing logic for concrete building systems.	How to Start a Project Design from its Structural Structure	Practical studio tutorial & drafting exercise.	Quiz 1 (10 Marks total share across 2 quizzes).
3	4	• Master standard graphic symbols, line weights, dimensioning systems, and annotation callouts in CAD. • Apply executive drawing standards to floor plans, wall types, and structural openings.	Basics of Executive Drawing for Architectural Projects	CAD laboratory workshop & guided drafting exercise.	Assignment 1 (12 Marks total share across 2 assignments).
4	4	• Design and lay out structural column grids, beam networks, and structural expansion joints. • Coordinate structural column positioning with architectural floor plans and spatial functions.	Design of Structural Networks for Projects	Applied CAD studio exercise & grid modeling.	Project / Lab 1 submission (13 Marks total share across 2 projects).
5	4	• Define engineering specifications for structural concrete elements, slabs, beams, and foundations. • Evaluate dimensional tolerances and spatial requirements for reinforced concrete structures.	Structural Spaces and Their Engineering Specifications	Theoretical lecture & technical specification exercises.	Lab progress evaluation.
6	4	• Understand reinforced concrete construction principles, formwork, and reinforcement layouts. • Develop executive architectural solutions integrated with concrete structural skeletons.	Concrete Structural Systems and Building Details	Interactive studio workshop & structural detail drafting.	Assignment 2 (12 Marks total share).
7	4	• Ensure design proposals comply with constructability, real-world engineering constraints, and building codes. • Refine executive drawings to reflect realistic material assemblies and structural connections.	Designing Buildings with Realism in Consistency with Executive Designs	Studio desk critique & peer review.	Midterm Exam preparation & report allocation.
8	4	• Demonstrate practical and theoretical mastery of structural grids, executive drawings, and concrete detailing. • Draft timed executive details	Midterm Examination	Practical computer laboratory examination session.	Midterm Exam (10 Marks).

		and answer theoretical assessment questions.			
9	4	• Construct detailed executive drawings for structural footings, column-beam joints, and slab connections. • Apply technical detailing standards ensuring balance between architectural aesthetics and structural safety.	Design of Executive Details for Projects Under Study	Practical CAD laboratory session & detail drafting.	Quiz 2 (10 Marks total share).
10	4	• Detail executive drawings for outdoor site structures, retaining walls, paved surfaces, and exterior stairs. • Address environmental exposure, drainage, and material durability in outdoor detailing.	Details of Outdoor Spaces and Exterior Structural Elements	Live analysis of structural details & studio drafting.	Project / Lab 2 submission (13 Marks total share).
11	4	• Analyze international working drawing precedent packages, detailing methods, and graphic standards • Extract best practices in structural detailing and modern building technology applications.	Review of International Structural and Working Drawing Projects	Comparative case study analysis & group discussion.	Site visit / live detail analysis review.
12	4	• Coordinate structural working drawings with mechanical, electrical, plumbing, and HVAC service paths. • Eliminate spatial conflicts between structural beams/slabs and service shafts/conduits.	Structural and Building Services (MEP) Integration	Multidisciplinary coordination workshop & CAD review.	Lab 2 progress check.
13	4	• Present comprehensive technical reports on concrete structural detailing and executive drawing methods. • Defend structural design choices, technical details, and engineering specifications.	Discussion of the Report	Student presentation, report discussion & peer review.	Report Discussion & Evaluation (5 Marks).
14	4	• Compile a full executive working drawing package (plans, structural grids, sections, elevations, and details). • Apply quality control, sheet layout standards, and digital export protocols.	Final Working Drawing Sheet Set Compilation	Studio sheet review, CAD layout polishing & quality assurance.	Final sheet set pre-check.
15	4	• Synthesize structural engineering principles, working drawing execution, and concrete construction detailing. • Demonstrate comprehensive competency in producing professional executive	Course Synthesis and Final Examination	Interactive review session & student Q&A.	Final Exam (50 Marks) & course review.

		drawing packages.			
11. Course Evaluation					
Evaluation type		Degree			
2 Quizzes		10			
2 Assignments		12			
2 Projects / Lab.		13			
1 Report		5			
1 Midterm Exam		10			
Final Exam		50			
Total		100			
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)		nothing			
Main references (sources)		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 books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

1. Course Name:	
Computer Rendering Techniques	
2. Course Code:	
ARC313	
3. Semester / Year:	
First/ 2025-2026	
4. Description Preparation Date:	
5/6/2025	
5. Available Attendance Forms:	
Lectures in Classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
75 hours/ 3 ECTS credits	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Reem Ali Talib Email: reemalothman@uomosul.edu.iq	
8. Course Objectives:	
Course Objectives	1. Providing students with the knowledge and skills necessary to use computers to draw and visualize architectural projects. Developing practical skills in designing and visualizing architectural projects in a realistic manner. Promoting innovation and creativity and developing students' artistic taste by learning various visualization techniques and employing them in architectural compositions. Using 3ds Max: - Creating 3D Models: Learn how to create 3D architectural models. - Mastering Modeling Techniques: Develop skills in using advanced modeling tools and techniques to design architectural elements in detail. 2. Using Corona Renderer: - Applying Lighting and Material Techniques: Learn how to set up realistic lighting and apply advanced materials using Corona Renderer. - Producing Photorealistic Images: Develop skills in producing high-quality photorealistic images of architectural projects using Corona Renderer. 3. Using Lumion: - Adding Environmental Effects: Learn how to add environmental effects such as water, plants, sky, and weather to give designs a more realistic appearance. - Producing Virtual Scenes: Learn how to create interactive virtual scenes to dynamically present architectural ideas. 4. Promoting Innovation and Creativity: - Innovative Design: Encouraging innovative thinking in the design of architectural projects using modern visualization techniques. - Personal Development: Developing personal and professional skills in using modern tools and programs in the field of architectural visualization.
9. Teaching and Learning Strategies	
Strategy	Project-based learning: Students can work on real projects or simulate the architectural design process. This allows them to apply theoretical concepts in real-life contexts and gain the necessary practical experience. Critique and problem-solving: Students are presented with real-life problems or case studies for them to solve using their acquired skills and knowledge. This enhances critical thinking and problem-solving abilities Application 1. Providing interactive lectures that include open discussions and questions aimed at stimulating critical thinking among students.

2. Students can work on real projects or simulate the architectural design process. This helps them apply theoretical concepts in a practical setting and develop their architectural visualization skills.
3. Workshops or practical sessions can be organized where students experiment with different programs and tools themselves. This enhances their understanding of the techniques and software used in architectural visualization.
4. Evaluating students based on their performance on practical projects and the quality of the designs they submit. This provides a more accurate assessment of students' skills and practical abilities.
5. Using educational videos and interactive presentations to help students understand complex concepts more easily. Virtual reality can also be used to enable students to interact with 3D architectural models.
6. Interactive Lectures
7. Project-Based Learning
8. Experiential Learning
9. Performance-Based Assessment
10. Use of Multimedia

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	• Navigate the 3ds Max interface, viewports, main menu systems, and core panel settings. • Understand overall digital modeling workflows for architectural visualization projects.	Introduction to 3ds Max, Drawing Panel, Basic Settings, and Main Menus	Interactive demonstration & software interface navigation.	Attendance & introductory studio review.
2	2	• Master essential selection, movement, rotation, scaling, and alignment commands • Work with coordinate systems and precision grid snaps for 3D spatial setups.	Basic Commands, Transformations, and Controls in 3ds Max	Guided lab tutorial & hands-on transformation exercises.	Quiz 1 (10 Marks total share across 2 quizzes).
3	2	• Draw and edit 2D geometric shapes, splines, and complex curved vector paths. • Import 2D CAD floor plans/elevations into 3ds Max for accurate 3D tracing.	2D Splines, Curved Line Editing, and AutoCAD File Importing	Computer lab workshop & CAD file import demonstration.	Practical lab exercise evaluation.
4	2	• Generate extended 3D primitives and pre-built architectural elements (doors, windows, stairs, foliage). • Construct detailed structural components using AEC Extended tools.	Advanced 3D Primitives and Architectural Objects (AEC Extended)	Step-by-step lab tutorial & object assembly exercise.	Projects / Lab exercise submission (5 Marks total share).

5	2	• Apply Edit Poly modifiers to manipulate vertices, edges, borders, polygons, and elements. • Model custom 3D architectural details, facades, and interior features.	Edit Poly Applications and Polygon Modeling Techniques	Hands-on laboratory exercise & 3D poly modeling.	Lab progress check.
6	2	• Utilize core modifiers (Extrude, Bevel, Sweep, Lathe, Shell) for architectural forms. • Convert imported 2D AutoCAD line-work into full 3D building geometry.	Modifier Stack Operations and 2D-to-3D CAD Conversion	Interactive computer lab tutorial & CAD-to-3D execution.	Quiz 2 (10 Marks total share).
7	2	• Model a complete exterior architectural project (villa design) using 3D commands and modifiers. • Organize complex scenes with layer management, group structures, and pivot adjustments.	Exterior Villa Design Modeling and Composition	Guided project modeling session & desk critique.	Poster layout progress review.
8	2	• Construct detailed interior architectural spaces with custom openings and fixtures. • Demonstrate timed competency in 3D modeling, modifier usage, and CAD conversion under exam conditions.	Interior Space Modeling & Midterm Practical Examination	Timed practical computer laboratory examination session.	Midterm Exam (20 Marks).
9	2	• Install and configure Corona Renderer within the 3ds Max engine environment. • Set up Corona Physical Cameras, exposure settings, focal length, and architectural frame composition.	Corona Renderer Setup, Camera Positioning, and Composition	Engine configuration tutorial & camera framing workshop.	Lab practical assessment.
10	2	• Configure Corona display/render settings, frame buffer options, and interactive rendering. • Apply Corona Sun/Sky systems and artificial Corona lights to establish realistic scene illumination.	Corona Lighting Systems and Environmental Daylight Setup	Interactive lighting workshop & shadow analysis.	Poster progress review (15 Marks total share for Poster).
11	2	• Create custom materials (glass, wood, concrete, metal) using the Corona Material Editor and Material Library. • Import high-poly 3D asset blocks with intact texture maps from external	Corona Materials, Material Editor, and 3D Asset Import	Material creation workshop & texture mapping exercise.	Projects / Lab work evaluation.

		repositories.			
12	2	• Navigate Lumion's user interface, movement controls, and viewport options. • Export 3D models from 3ds Max and import them into Lumion without geometry loss.	Introduction to Lumion: Interface, Navigation, and Scene Import	Software integration demonstration & live navigation lab.	Lumion import assignment review.
13	2	• Assign and customize Lumion materials, terrain profiles, water bodies, and weather conditions. • Populate architectural scenes with digital assets (plants, trees, people, vehicles, urban props).	Lumion Materials, Environmental Effects, and Landscape Setup	Hands-on Lumion environment creation & asset placement.	Practical scene setup evaluation.
14	2	• Configure high-resolution rendering settings, photo/movie effects, and ray-tracing parameters. • Generate orthographic renders (plans, elevations, sections) and interactive virtual scenes.	Final Rendering Engine Settings and Orthographic Projections	High-resolution rendering lab & virtual camera workshop.	Poster Submission (15 Marks).
15	2	• Perform digital post-production in Adobe Photoshop (color correction, depth of field, sky replacement). • Compile and present professional interior and exterior architectural visualization posters.	Post-Production in Photoshop and Final Project Presentation	Post-production tutorial & final poster exhibition.	Final Exam prep (50 Marks) & course review.

11. Course Evaluation

Evaluation type	Degree
2 Quizzes	10
1 Poster	15
1 Projects / Lab.	5
1 Midterm Exam	20
Final Exam	50
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	nothing
Main references (sources)	- Autodesk 3D Max Design- The Designer's Handbook. By Marcello Femi, AIA - Corona Render 1.3. By Giao Trinh - Mastering Lumion 3D. By Ciro Cardoso
Recommended books and references (scientific journals, reports...)	- A Fascinating journey into the world of 3D Graphics with 3ds Max. By Iftikhar Abbasov
Electronic References, Websites	https://lumion.com/ https://www.autodesk.com/

Course Description Form

1. Course Name:					
Principles of Housing					
2. Course Code:					
ARC 314					
3. Semester / Year:					
First/ 2025–2026					
4. Description Preparation Date:					
5/7/2025					
5. Available Attendance Forms:					
Lectures in Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
75 hours/ 3 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Mazin Jaber Omar mazinjaber@uomosul.edu.iq					
Assist. Lect. Esraa Malallah esraa malallah@uomosul.edu.iq					
8. Course Objectives					
Course Objectives	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.				
9. Teaching and Learning Strategies					
Strategy	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				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	- Understand the concept of housing across psychological, social, economic, and urban dimensions. - Recognize the dwelling unit as an integral urban component within the broader city fabric.	Introduction to Science of Housing	Theoretical classroom lecture, guided discussion & interactive overview.	Classroom participation & introductory discussion.
2	2	- Analyze basic principles of residential environment design and residential typology. - Examine the role of housing in shaping sustainable urban development.	Basics of Housing	Classroom lecture, visual presentation & case study analysis.	Quiz 1 (18 Marks total share across 2 quizzes).

3	2	• Master essential housing terminology (dwelling unit, tenure, urban fabric, housing stock). • Apply standardized housing definitions to empirical urban studies.	Definitions of Important Terms	Interactive lecture & terminology workshop.	Assignment 1 (12 Marks total share across 4 assignments).
4	2	• Identify qualitative and quantitative indicators of housing need based on demographic trends. • Assess living conditions and housing adequacy across urban populations.	Housing Need	Theoretical lecture & analytical case exercises.	Classwork exercise evaluation.
5	2	• Evaluate economic, social, and population factors influencing housing demand in cities. • Differentiate between effective economic demand and social housing requirements.	Housing Demand	Interactive lecture & analytical problem-solving.	Assignment 2.
6	2	• Calculate housing supply-demand balances and quantify urban housing deficits. • Analyze underlying causes and socio-economic effects of housing shortages.	Housing Balance and Housing Shortage	Applied research lecture & analytical calculations.	Quiz 2 (18 Marks total share).
7	2	• Understand gross vs. net residential densities, floor area ratios, and building coverage. • Calculate occupancy and population densities across different housing layouts.	Housing Densities: Definitions	Theoretical and practical lecture & density calculation tutorial.	Assignment 3.
8	2	• Evaluate how density correlates with urbanization levels and infrastructure capacity. • Examine planning policies, land-use zoning, and regulatory tools for controlling density.	Housing Densities & Urbanization Relationship; Methods of Controlling Densities	Interactive lecture & urban zoning policy case study.	Midterm Exam preparation & report allocation.
9	2	• Demonstrate theoretical understanding of housing needs, demands, shortages, and densities. • Examine national housing policies, public sector initiatives, and housing programs.	Midterm Examination & Housing Policies and Programs	Midterm examination session followed by housing policy lecture.	Midterm Exam (10 Marks).
10	2	• Analyze public and private housing market dynamics, land pricing, and real estate forces. • Identify market mechanisms shaping housing availability and affordability.	The Housing Market and Factors of Market Forces	Interactive lecture & market force analytical workshop.	Assignment 4.
11	2	• Understand housing finance models, mortgage systems, subsidies, and capital investments. • Evaluate financial mechanisms	The Importance of Financing Policy	Theoretical lecture & economic case review.	Report progress review (10 Marks total share for

		that enable affordable housing development.			Report).
12	2	- Analyze elements of residential urban fabric, including block layouts and plot sub-divisions. - Relate neighborhood unit design to social cohesion and urban livability.	Components of the Residential Urban Fabric	Morphological analysis workshop & group discussion.	Report draft evaluation.
13	2	- Consolidate principles of residential planning and refine ongoing field research reports. - Integrate urban infrastructure and community space concepts into housing studies.	Mid-Semester Review / Special Study Break	Guided self-study, research revision & consultation session.	Classwork review & feedback.
14	2	- Design road network hierarchies, pedestrian systems, and open space networks in housing areas. - Integrate movement channels with public space nodes within residential developments.	Movement Networks and Urban Space Network	Interactive lecture & spatial mapping workshop.	Report Submission (10 Marks).
15	2	- Synthesize housing theories, financial policies, urban fabric, and movement networks. - Critically debate modern housing challenges and defend research solutions.	Course Discussion, Synthesis, and Final Examination Preparation	Student research discussion, group debate & course synthesis.	Final Exam prep (50 Marks) & discussion evaluation.

11. Course Evaluation

Evaluation type	Degree
2 Quizzes	18
4 Assignments	12
1 Report	10
1 Midterm Exam	10
Final Exam	50
Total	100

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:					
Reinforced Concrete Design					
2. Course Code:					
ARC315					
3. Semester / Year:					
First/ 2025-2026					
4. Description Preparation Date:					
5/6/2025					
5. Available Attendance Forms:					
Lectures in Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
75 hours/ 3 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
fahad akram saeed fahad.akram@uomosul.edu.iq					
8. Course Objectives					
Course Objectives	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.				
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 some challenging problems to motivate students.				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	• Understand mechanical properties of concrete and steel reinforcement, composite action, and stress-strain relationships. • Apply ACI building code safety factors, load combinations, and strength reduction factors (ϕ).	Introduction to Reinforced Concrete	Theoretical classroom lecture, interactive tutorial & introductory problem solving.	Classroom participation & attendance.
2	2	• Analyze flexural behavior of rectangular RC beam sections under bending moments.	Design of Singly Reinforced	Interactive lecture, step-by-step	Quiz 1 (15 Marks total share across 4

		• Calculate equivalent rectangular stress block parameters and ultimate moment capacity (M_n).	Beams	structural calculations & guided exercises.	quizzes).
3	2	• Differentiate between tension-controlled, compression-controlled, and transition flexural failures. • Determine minimum ($\rho_{\min}$) and maximum ($\rho_{\max}$) steel reinforcement ratios for singly reinforced beams.	Design of Singly Reinforced Beams	Interactive numerical tutorial & structural engineering problem-solving.	Assignment 1 (20 Marks total share across 10 assignments).
4	2	• Identify structural advantages and necessity of compression reinforcement in rectangular beams. • Calculate stress and strain states in both compression and tension steel bars.	Design of Doubly Reinforced Beams	Lecture session & structural calculation workshop.	Assignment 2.
5	2	• Compute design flexural strength (ϕM_n) for doubly reinforced rectangular beam sections. • Design longitudinal steel areas (A_s and A'_s) to satisfy architectural depth constraints.	Design of Doubly Reinforced Beams	Interactive problem-solving tutorial & structural drafting exercises.	Quiz 2 & Assignment 3.
6	2	• Demonstrate analytical mastery of singly and doubly reinforced beam flexural designs. • Execute timed structural design calculations complying with ACI code provisions.	First Assessment Exam (Beams Flexure)	Classroom examination session.	First Assessment Exam (Part of Midterm / Quizzes).
7	2	• Analyze diagonal tension and shear stress distribution in reinforced concrete beams. • Design web reinforcement (vertical stirrups) and determine stirrup spacing requirements.	Design of Doubly Reinforced Beams & Shear Design	Interactive lecture & shear calculation workshop.	Assignment 4.
8	2	• Apply structural principles to design continuous and simple one-way reinforced concrete slabs under uniform loads. • Calculate slab flexural steel requirements per unit width (1-meter strip).	Design of One-Way Slabs	Theoretical lecture & practical structural design examples.	Quiz 3 & Assignment 5.
9	2	• Determine minimum slab thickness for deflection control per ACI standards. • Design temperature and shrinkage reinforcement perpendicular to primary flexural steel.	Design of One-Way Slabs	Practical design tutorial & slab detailing exercise.	Assignment 6.
10	2	• Synthesize design concepts for beam flexure, shear stirrups, and one-way concrete slabs. • Verify structural safety,	Second Assessment Exam / Midterm	Midterm written examination session.	Midterm Exam (10 Marks).

		serviceability, and code compliance under exam conditions.	Examination		
11	2	• Differentiate between tied and spiral column cross-sections and tie detailing rules. • Calculate pure axial compressive strength (P_n) and design axial capacity ($\phi P_{n,max}$).	Design of Short Columns Subject to Axial Load and Bending	Interactive lecture & column design tutorial.	Assignment 7.
12	2	• Analyze short columns subjected to combined axial compressive force and uniaxial bending moment. • Evaluate balanced failure state, tension-controlled, and compression-controlled column limits.	Design of Short Columns Subject to Axial Load and Bending	Practical structural calculation session & group problem solving.	Quiz 4 & Assignment 8.
13	2	• Utilize column strength interaction diagrams (P_n-M_n) for structural analysis and design. • Select optimal cross-sectional dimensions and longitudinal reinforcement for eccentric columns.	Design and Analysis of Eccentrically Loaded Columns Using Interaction Diagrams	Interactive workshop utilizing design charts & interaction curves.	Assignment 9 & Structural Report Allocation (5 Marks).
14	2	• Review safety considerations, serviceability requirements, crack control, and development length. • Evaluate practical structural layouts for real-world architectural building frames.	Structural Safety Considerations & Code Synthesis	Case study analysis, structural report review & class discussion.	Assignment 10 & Structural Report Evaluation (5 Marks).
15	2	• Integrate structural design procedures for beams, one-way slabs, and short columns. • Refine critical thinking skills in solving challenging structural engineering problems.	Comprehensive Course Synthesis & Final Exam Review	Comprehensive course review, student Q&A & interactive problem solving.	Final Exam prep (50 Marks) & course synthesis.

11. Course Evaluation

Evaluation type	Degree
4 Quizzes	15
10 Assignments	20
1 Report	5
1 Midterm Exam	10
Final Exam	50
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Calculus I By: Darwin, David, Charles William Dolan, and Arthur H. Nilson. Design of concrete structures. New York, NY, USA: McGraw-Hill Education, 2020.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Aghayere, A. O., Limbrunner, George F. (2014) "DESIGN OF REINFORCED CONCRETE" 8th ed. Library Congress, USA.
Electronic References, Websites	

Course Description Form

1. Course Name:	
Physics (2)	
2. Course Code:	
ARC316	
3. Semester / Year:	
First/ 2025-2026	
4. Description Preparation Date:	
5/6/2025	
5. Available Attendance Forms:	
Lectures in Classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
75 hours/ 3 ECTS credits	
7. Course administrator's name (mention all, if more than one name)	
Dr. Reem Ali Talib Alothman reemalothman@uomosul.edu.iq	
8. Course Objectives	
Course Objectives	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.

9. Teaching and Learning Strategies

Strategy	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.
-----------------	---

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	- Understand the dynamic relationship between architecture and climatic factors. - Evaluate the historical context, key milestones, and significance of climate-responsive design.	Introduction to Architecture and Climate	Classroom lecture, interactive discussion & historical case study review.	Classroom participation & introductory discussion.

2	2	- Analyze characteristics of different climate zones and interpret meteorological data. - Evaluate microclimatic influences on site planning and architectural design decisions.	Climate Fundamentals & Microclimatic Impacts	Interactive lecture, climate data analysis workshop & analytical exercise.	Homework / Classwork 1 (10 Marks total share across 2 assignments).
3	2	- Apply core passive design principles for energy efficiency, building orientation, and solar access. - Implement effective shading devices and natural daylighting techniques.	Passive Design Strategies	Theoretical lecture, shading analysis workshop & solar path tutorial.	Quiz 1 (15 Marks total share across 2 quizzes).
4	2	- Define human thermal comfort indices and building performance metrics. - Examine energy-efficient HVAC controls and building envelope insulation strategies.	Thermal Comfort and Building Performance	Lecture, thermal simulation software demonstration & class discussion.	Classwork exercise evaluation.
5	2	- Optimize building airflow patterns and cross-ventilation mechanisms. - Design passive cooling strategies, including thermal stack effect and evaporative cooling.	Natural Ventilation and Passive Cooling Techniques	Interactive workshop, airflow modeling & hands-on design exercise.	Homework / Classwork 2 (10 Marks total share).
6	2	- Select appropriate thermal insulation materials based on physical properties and performance. - Calculate heat transfer rates (U-values) to minimize unwanted heat loss/gain.	Building Envelope and Thermal Insulation	Lecture, material sampling workshop & thermal calculation exercise.	Quiz 2 (15 Marks total share).
7	2	- Integrate active solar harvesting systems and photovoltaic (PV) modules into building envelopes. - Apply principles of net-zero energy buildings and energy-positive design strategies.	Solar Energy, Photovoltaic Systems, and Net-Zero Design	Interactive lecture & renewable energy integration case study review.	Midterm Exam preparation & report allocation.
8	2	- Demonstrate theoretical mastery of climate fundamentals, passive cooling, and thermal performance. - Design rainwater collection systems, greywater reuse, and water-saving fixtures.	Midterm Examination & Water Efficiency & Rainwater Harvesting	Midterm examination session followed by water conservation lecture.	Midterm Exam (10 Marks).
9	2	Evaluate ecological and thermal performance	Green Roofs, Vertical Gardens, and Green	Hands-on workshop, site	Report progress review (10

		benefits of green roofs and living walls. • Master structural, irrigation, and plant selection requirements for green infrastructure.	Infrastructure	visit / case analysis & green system drafting.	Marks total share for Report).
10	2	• Conduct Life Cycle Assessment (LCA) and evaluate embodied energy in construction materials. • Apply Cradle-to-Cradle design principles in material specification.	Sustainable Materials and Life Cycle Assessment (LCA)	Analytical lecture, LCA tool demonstration & materials workshop.	Report draft submission.
11	2	• Analyze impacts of climate change on built environments and urban microclimates. • Develop resilient architectural design strategies for extreme weather events.	Resilient Design and Climate Change Adaptation	Group activity, climate resilience case study & disaster mitigation workshop.	Discussions & Analysis team's work evaluation (5 Marks).
12	2	• Extract passive heating and cooling lessons from global vernacular architecture. • Adapt regional bioclimatic building solutions to contemporary sustainable design.	Bioclimatic Design and Vernacular Architecture	Guest lecture / video presentation, vernacular case studies & comparative analysis.	Report Submission (10 Marks).
13	2	• Calculate daylight factors and design light-shelves/top-lighting strategies. • Integrate energy-efficient artificial lighting to maintain visual comfort and reduce energy consumption.	Daylighting Optimization and Lighting Design	Daylighting simulation workshop & photometric analysis tutorial.	Classwork presentation & daylighting exercise review.
14	2	• Analyze factors causing the Urban Heat Island (UHI) effect and develop urban mitigation models. • Apply sustainable urban planning principles to foster climate-resilient cities.	Urban Design, Climate, and Urban Heat Island Effect	Interactive lecture & urban heat island mapping exercise.	Group research review & team analysis check.
15	2	• Evaluate cutting-edge innovations and emerging technologies in climate-conscious architecture. • Present collaborative team research analyzing climate-responsive architectural projects.	Exemplary Case Studies, Emerging Trends, and Course Synthesis	Student team presentations, interactive Q&A & final course synthesis.	Final Exam prep (50 Marks) & course review.

11. Course Evaluation

Evaluation type	Degree
2 Quizzes	15
2 Homework/ classwork	10

1 Report	10
1 Discussions& Analysis team's work	5
1 Midterm Exam	10
Final Exam	50
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Textbooks and Reference Materials: - "Sustainable Architecture: Principles, Paradigms, and Case 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
Main references (sources)	
Recommended books and references (scientific journals, reports...)	- "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
Electronic References, 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

Course Description Form

1. Course Name:					
History of European Architecture					
2. Course Code:					
ARC 317					
3. Semester / Year:					
First/ 2025-2026					
4. Description Preparation Date:					
5/6/2025					
5. Available Attendance Forms:					
Lectures in Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
75 hours/ 3 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Dr. Hassan Mahmood Kasim hassan.kasim@uomosul.edu.iq					
8. Course Objectives					
Course Objectives	- 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.				
9. Teaching and Learning Strategies					
Strategy	Understanding and analyzing by in depth discussion and observing the architectural samples visually				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	- Understand the chronological evolution and timeline of European architecture from antiquity through the Renaissance and 17th-century Baroque. - Identify foundational architectural methodologies and visual analysis techniques for historical monuments.	Introduction to the History of European Architecture	Theoretical classroom lecture, visual slide presentations & introductory discussion.	Classroom participation & introductory discussion.

2	2	• Master the structural features, proportions, and aesthetic principles of classical Greek Orders (Doric, Ionic, Corinthian). • Apply free-hand sketching techniques to analyze column capitals, entablatures, and classical proportions.	Greek Architecture: Architectural Characters & Orders	Interactive lecture, architectural slide analysis & free-hand sketch workshop.	Assignment 1 (6 Marks total share across 5 assignments).
3	2	• Analyze classical Greek temple typologies, spatial layouts (naos, pronaos), and site planning principles (e.g., the Acropolis). • Evaluate optical corrections, entasis, and structural proportions through free-hand analytical sketches.	Greek Architecture: Temples	Visual analysis, comparative temple study & free-hand sketch exercise.	Quiz 1 (30 Marks total share across 4 quizzes).
4	2	• Understand Roman structural innovations, including concrete construction (pozzolana), true arches, vaults, and domes. • Contrast Roman monumental engineering and spatial ordering principles with Greek classical precedents.	Roman Architecture: Architectural Characters	Theoretical lecture, visual structural analysis & group discussion.	Assignment 2.
5	2	• Analyze Roman temple design evolution, spatial geometry, and structural achievements of the Pantheon. • Create analytical free-hand sectional and plan sketches detailing dome construction and coffered ceilings.	Roman Architecture: Temples & Pantheon	Interactive lecture, 3D visual study of the Pantheon & free-hand sketch tutorial.	Quiz 2.
6	2	• Examine the spatial organization, circulation systems, and social functions of public civic buildings (Basilicas, Baths, Colosseum). • Analyze complex vaulting systems and large-scale public space planning in Roman urban environments.	Roman Architecture: Basilicas, Thermae, Theatre & Sports	Case study analysis, visual presentations & comparative architectural discussion.	Assignment 3.
7	2	• Evaluate monumentality, symbolic decoration, and spatial hierarchies in Roman palaces, funerary monuments, and triumphal arches. • Produce analytical free-hand sketches of Roman ornamental and commemorative structures.	Roman Architecture: Palaces, Tombs & Triumphal Arches	Interactive lecture, free-hand sketch workshop & visual observation.	Quiz 3 & Report allocation (4 Marks total share for Report).
8	2	• Analyze cross-cultural architectural interactions and material exchanges between	Interaction Between Roman and Eastern	Comparative historical analysis,	Assignment 4 & Midterm examination

		Roman and Eastern/Arab-Islamic civilizations. • Evaluate how Eastern structural traditions and decorative motifs influenced late Roman and provincial architectural developments.	Architecture	interactive discussion & visual sample observation.	preparation.
9	2	• Demonstrate theoretical understanding and visual analysis skills regarding Greek and Roman architectural history. • Produce accurate analytical free-hand sketches of classical architectural elements under exam conditions.	Mid Term Exam	Midterm written and free-hand sketch examination session.	Midterm Exam (10 Marks).
10	2	• Analyze the adaptation of Roman civic basilica forms into early Christian liturgical spaces and religious structures. • Identify structural and spatial features of early basilican plans, timber truss roofs, and atrium arrangements.	Early Christian Architecture	Historical lecture, visual analysis of early basilicas & free-hand plan sketching.	Assignment 5.
11	2	• Understand structural mechanics and spatial concepts of pendentive and squinch dome support systems (e.g., Hagia Sophia). • Analyze centralized spatial planning, mosaic decoration, and light integration in Byzantine church design.	Byzantine Architecture	Lecture, structural diagramming workshop & visual case study analysis.	Quiz 4.
12	2	• Examine structural innovations of the Gothic system: pointed arches, ribbed vaults, flying buttresses, and structural skeletonization. • Analyze verticality, dematerialization of walls through stained glass, and regional variations in European cathedrals.	Gothic Architecture	Interactive lecture, structural load-path analysis & cross-sectional sketch study.	Draft Report review.
13	2	• Identify the revival of classical antiquity, humanism, mathematical proportion, and geometric symmetry in 15th-century Italy. • Compare Renaissance spatial clarity and rational order with Gothic structural complexity.	Renaissance Architecture	Visual lecture, comparative layout analysis & in-depth discussion.	Report Submission (4 Marks).
14	2	• Analyze key developmental phases (Early, High, Mannerism) and master	Renaissance Periods and Architects	Architect monograph analysis, visual	Pre-final sketch portfolio evaluation.

		architects (Brunelleschi, Alberti, Bramante, Palladio). • Produce detailed free-hand sketch analyses of landmark Renaissance facades, domes, and villas.		slide study & free-hand architectural sketching.	
15	2	• Synthesize the historical continuum of European architecture from Classical Greek times through the Renaissance and Baroque. • Debate architectural interactions with Arab-Islamic traditions and reflect on design concepts learned throughout the semester.	General Discussion & Course Synthesis	Interactive roundtable discussion, visual review session & comprehensive synthesis.	Final Exam prep (50 Marks) & discussion evaluation.

11. Course Evaluation

Evaluation type	Degree
4 Quizzes	30
5 Assignments	6
1 Report	4
1 Midterm Exam	10
Final Exam	50
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	History of Architecture, handbook
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Architecture Design (4)	
2. Course Code:	
ARC 321	
3. Semester / Year:	
Second/ 2025-2026	
4. Description Preparation Date:	
5/6/2025	
5. Available Attendance Forms:	
Lectures in Classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
300 hours/ 12 ECTS credits	
7. Course administrator's name (mention all, if more than one name)	
Raed salim alnumman raedalnumman@uomosul.edu.iq Hussen salman Ashraf Ibrahim Meyssa Muafaq isra malallah Sheymma Kheeraldeen Aseel Ibrahim mousabe yaarub noor yasar syra alhan abudulla abed alrahmman	
8. Course Objectives	
Course Objectives	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.
9. Teaching and Learning Strategies	
Strategy	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

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	- Gather, analyze, assess, and record contextual site data, climate orientation, and urban access. - Apply site research to inform architectural zoning for complex building typologies (school, cultural center, shopping mall, Islamic complex).	Site Analysis	Field visits, site analysis studio workshop & applied research case studies.	Studio desk check & Quiz 1 (20 Marks total share across 12 quizzes).
2	2	- Formulate primary architectural design concepts addressing functional, aesthetic, and social needs. - Synthesize spatial programming, bubble diagrams, and functional adjacencies for selected building types.	Design Concept and Primary Idea Formulation for Different Building Types (School, Culture Center, Shopping Center, and Islamic Complex)	Interactive studio discussion, concept presentation & practical design exercises.	Concept sketch review & Assignment 1 allocation (10 Marks total share).
3	2	- Refine preliminary schematic layouts, spatial hierarchies, and circulation paths based on desk critiques. - Integrate structural grids and initial environmental considerations into spatial planning.	Feedback (Initial Layouts & Spatial Organization)	Individual studio desk critiques, peer discussions & CAD drafting workshop.	Studio progress review & Quiz 2.

4	2	• Evaluate 3D spatial massing, site access, and building footprint integration using CAD and graphics tools. • Incorporate sustainable design strategies into architectural massing forms.	Feedback (Master Planning & Massing)	Interactive desk critiques, digital 3D modeling workshop & group review.	Quiz 3 & Midterm Exam 1 preparation (10 Marks total share across 4 Midterm Exams).
5	2	• Present preliminary architectural design schemes, master plans, and site strategies using advanced graphic representation. • Articulate design concepts and functional integration clearly before a studio jury.	First Submission	Formal studio jury presentation, interactive peer evaluation & panel feedback.	First Submission Assessment / Midterm Exam 1 (10 Marks total share across 4 Midterms).
6	2	• Develop detailed architectural floor plans, dimensioning, structural grid alignment, and core vertical circulation. • Ensure plan development complies with architectural standards (e.g., Neufert, Time-Saver Standards).	Details of Plans	Practical CAD studio drafting tutorial & architectural case study research.	Assignment 1 Submission (10 Marks) & Quiz 4.
7	2	• Incorporate jury feedback to optimize plan efficiency, life safety/egress, and accessibility. • Resolve functional conflicts within complex building spaces.	Feedback (Plan Optimization & Egress)	Individual desk critiques, studio guidance & practical design development.	Studio progress check & Quiz 5.
8	2	• Construct detailed building sections illustrating structural systems, floor heights, and multi-level spaces. • Integrate environmental daylighting and passive ventilation into sectional geometry.	Feedback (Building Sections & Vertical Spaces)	Interactive desk critiques, CAD sectional modeling & group feedback.	Midterm Exam 2 / Studio progress review.
9	2	• Produce rapid, comprehensive hand sketches and architectural solutions under timed studio conditions. • Synthesize design concept, functional layout, and visual presentation within a limited timeframe.	Day Sketch	Timed studio design charrette & hand-sketching representation workshop.	Day Sketch Evaluation / Quiz 6 & Midterm Exam 3.
10	2	• Develop exterior building elevations, facade treatments, material choices, and aesthetic proportions. • Express internal spatial logic and environmental controls on exterior building skins.	Elevations and Visual Aspect	Studio tutorial, 3D digital rendering demonstration (CAD/VR) & facade exercise.	Quiz 7 & Report allocation (10 Marks total share for Report).
11	2	• Refine facade detailing, sun-shading elements, and 3D digital model renderings. • Apply advanced graphic design and presentation techniques to project sheets.	Feedback (Facade Refinement & 3D Modeling)	One-on-one desk critiques, 3D visual review & studio guidance.	Quiz 8 & Project / Lab progress check (10 Marks total share for Project/Lab).

12	2	• Achieve holistic design integration combining site plans, floor plans, sections, elevations, and 3D views. • Finalize research report documentation accompanying the architectural project.	Feedback (Visualization & Design Integration)	Interactive studio desk critiques, VR model walkthroughs & drafting review.	Quiz 9 & Midterm Exam 4 / Report draft review.
13	2	• Present a complete pre-final set of architectural drawings, 3D renders, site plans, and report documentation. • Defend architectural solutions and technical execution before studio faculty.	Pre-Final Submission	Pre-final studio jury presentation, peer review & comprehensive panel critique.	Pre-Final Jury Review / Midterm Exam 4 & Report Submission (10 Marks).
14	2	• Incorporate pre-final jury revisions to refine board layouts, line weights, graphic hierarchy, and 3D models. • Prepare final high-resolution digital sheets and presentation models.	Feedback (Final Portfolio Refinement)	Final studio consultation, graphic layout polishing & portfolio review.	Quizzes 10–12 & Project / Lab Submission (10 Marks).
15	2	• Submit and exhibit complete, high-quality architectural presentation boards, 3D renders, and project models. • Professionally defend final architectural design solutions before the formal evaluation committee.	Final Submission	Formal studio jury exhibition, digital walkthroughs & oral defense.	Final Submission Jury Examination (50 Marks).

11. Course Evaluation

Evaluation type	Degree
12 Quizzes	20
1 Assignments	10
1 Report	10
1 project / lab	10
4 Midterm Exam	10
Final Exam	50
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. Joseph De Chiara, Julius Panero, Time-Saver Standards Housing and Residential Development 2. Dutt, I. (2012) 'School Design and Students' Relationships with the Natural World', Children, Youth and Environments
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Francis D.K. Ching (2014). Architecture: Form, Space, and Order. Wiley. Christopher Alexander (1977). A Pattern Language. Oxford University Press. Hershberger, R. G. (2015). Architectural Programming and Pre-Design Manager. McGraw-Hill. Neufert, E. (2012). Architects' Data. Wiley-Blackwell. Architectural record AD.
Electronic References, Websites	Ach net , PINTREST , AGA AHAN

Course Description Form

1. Course Name:					
Survey and Architectural Documentation					
2. Course Code:					
ARC 322					
3. Semester / Year:					
Second/ 2025-2026					
4. Description Preparation Date:					
5/6/2025					
5. Available Attendance Forms:					
Lectures in Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
100hours/ 4 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Dr. Emad Hani Ismaeel emad.hani.ismaeel@uomosul.edu.iq					
8. Course Objectives					
Course Objectives		The semester seeks to present and discuss 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.			
9. Teaching and Learning Strategies					
Strategy		The strategy is achieved through lectures, e-learning platforms, and giving home and class assignments.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	- Understand the history, objectives, and international charters governing heritage conservation (e.g., Venice Charter, UNESCO). - Analyze Iraqi conservation experiments and historical documentation of traditional urban cities.	Conservation History, Process, Objectives, International Charters, and Heritage of Iraq	PowerPoint and electronic lecture, visual case analysis & classroom discussion.	Daily exam / Quiz 1 (10 Marks total share across 12 quizzes).
2	2	Evaluate modern digital technologies, 3D modeling frameworks, and multi-source information management in urban preservation.	Modern Documentation Technologies, 3D Representation, and Digital Engineering	PowerPoint and electronic lecture & case study demonstration.	Daily exam / Quiz 2 & Assignment allocation (5 Marks total share).

		Classify digital engineering models and their operational advantages in heritage conservation.	Models		
3	2	- Identify contact techniques for direct 3D spatial data acquisition and physical dimensional measurement. - Determine accuracy limits and physical constraints of direct tactile measurement tools on historic structures.	Contact Techniques for 3D Information Acquisition	PowerPoint and electronic lecture & tactile survey workshop.	Daily exam / Quiz 3 & Homework review.
4	2	- Master principles of architectural photogrammetry, image rectification, and 3D mesh generation from overlapping photography. - Process photographic survey data to create orthophotos and accurate elevations of historic facades.	Photogrammetry	PowerPoint and electronic lecture & digital photogrammetry software tutorial.	Daily exam / Quiz 4 & Homework review.
5	2	- Analyze Terrestrial Laser Scanning (TLS) mechanisms, point cloud generation, and spatial resolution parameters. - Convert raw point cloud data into precise 3D digital architectural models for heritage documentation.	Laser Scanning	PowerPoint and electronic lecture & point cloud processing demonstration.	Daily exam / Quiz 5 & Homework review.
6	2	- Understand non-destructive testing (NDT) methods for heritage diagnostic analysis. - Utilize Infrared Thermography (IRT) to detect sub-surface structural defects, moisture pockets, and thermal bridges.	Non-Destructive Techniques & Infrared Thermography (IR)	PowerPoint and electronic lecture & thermal image analysis exercise.	Daily exam / Quiz 6 & Report allocation (5 Marks total share).
7	2	- Apply Global Positioning System (GPS) technologies for geospatial referencing of heritage sites. - Establish accurate spatial coordinates and site boundaries for historic urban documentation.	Global Positioning System (GPS)	PowerPoint and electronic lecture & GPS survey tutorial.	Daily exam / Quiz 7 & 1st Term Exam preparation.
8	2	- Demonstrate theoretical and technical competency in survey tools, photogrammetry, TLS, and heritage charters under exam conditions. - Execute timed	1st Term Examination	Classroom examination session.	1st Term Exam (Part of 4 Midterm Exams: 20 Marks total share).

		assessments evaluating diagnostic documentation methodologies.			
9	2	• Create immersive 360-degree panoramic virtual tours for historical building documentation. • Process panoramic imagery datasets and evaluate case study applications in heritage presentation.	360 Degrees Panorama Software, Benefits, Creation, and Case Studies	PowerPoint and electronic lecture & 360 panoramic software tutorial.	Daily exam / Quiz 8 & Assignment Submission (5 Marks).
10	2	• Understand Virtual Reality (VR) hardware/software requirements, spatial interaction types, and immersive environments. • Design interactive VR frameworks for virtual architectural exploration and heritage education.	Virtual Reality (VR): Aims, Requirements, and Interaction Types	PowerPoint and electronic lecture & VR hardware/software demonstration.	Daily exam / Quiz 9 & Report draft review.
11	2	• Evaluate benefits, limitations, and system architectures of VR in urban heritage modeling. • Construct 3D virtual city models and digital environments for virtual heritage museums.	VR Benefits, Limitations, Systems, 3D Virtual City, and Virtual Museums	PowerPoint and electronic lecture & 3D virtual environment workshop.	Daily exam / Quiz 10 & Homework review.
12	2	• Utilize Geographic Information Systems (GIS) for spatial mapping, historical data layering, and urban heritage management. • Integrate attribute data and spatial maps into GIS platforms for heritage conservation planning.	Geographic Information Systems (GIS)	PowerPoint and electronic lecture & GIS mapping laboratory exercise.	Daily exam / Quiz 11 & Report Submission (5 Marks).
13	2	• Examine advanced documentation tools: Unmanned Aerial Vehicles (UAVs/drones), robotics, and underwater heritage documentation systems. • Deploy aerial photogrammetry and remote sensing for inaccessible or submerged historic structures.	Unmanned Aerial Vehicles (UAVs), Robots, and Underwater Heritage Documentation	PowerPoint and electronic lecture & remote sensing case study review.	Daily exam / Quiz 12 & Homework evaluation.
14	2	• Understand additive manufacturing processes and 3D printing technologies for physical scale-model fabrication. • Fabricate physical scale models of documented	3D Printers	PowerPoint and electronic lecture & 3D printing workshop.	Practical model evaluation & 2nd Term Exam preparation.

		heritage elements from digital 3D models.			
15	2	• Synthesize advanced documentation techniques, spatial VR/GIS integration, and 3D survey methods. • Demonstrate comprehensive mastery of digital heritage preservation workflows during the second term exam.	2nd Term Examination & Course Synthesis	Classroom examination session & final course synthesis.	2nd Term Exam (Part of 4 Midterm Exams: 20 Marks total share) / Final Exam Prep (60 Marks).

11. Course Evaluation

Evaluation type	Degree
12 Quizzes	10
1 Assignments	5
1 Report	5
4 Midterm Exam	20
Final Exam	60
Total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• Al-Allaf, Emad Hani, Representation Technologies of the Built Heritage, 2018. • Al-Allaf, Emad Hani, Information modeling and management technology for historical sites and urban heritage buildings, 2018.
Main references (sources)	• Al-Allaf, Emad Hani, Representation Technologies of the Built Heritage, 2018. • Al-Allaf, Emad Hani, Information modeling and management technology for historical sites and urban heritage buildings, 2018.
Recommended books and references (scientific journals, reports...)	Al-Rafidain Engineering Journal
Electronic References, Websites	

Course Description Form

1. Course Name:	
Physics Laboratory	
2. Course Code:	
ARC 323	
3. Semester / Year:	
Second/ 2025-2026	
4. Description Preparation Date:	
5/6/2025	
5. Available Attendance Forms:	
Lectures in Classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
100 hours/ 4 ECTS credits	
7. Course administrator's name (mention all, if more than one name)	
Dr. Reem Ali Alothman reemalothman@uomosul.edu.iq	
8. Course Objectives	
Course Objectives	Module Aims for the curriculum on using computers to study the behavior of air and fluid dynamics in the field of architecture: 1. Provide students with a comprehensive understanding of the application of Computational Fluid Dynamics (CFD) in architectural design and analysis. 2. Familiarize students with the principles and fundamentals of fluid mechanics and their relevance to architectural systems. 3. Develop students' proficiency in using CFD software to model and simulate airflow, thermal conditions, and other fluid dynamics phenomena in architectural environments. 4. Enable students to evaluate and optimize architectural designs based on their understanding of air and fluid dynamics. 5. Enhance students' ability to analyze and interpret simulation results to inform design decisions and improve building performance. 6. 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. 7. Foster collaboration and communication skills through group discussions, project presentations, and case study analysis. 8. Encourage students to critically assess the limitations and uncertainties associated with CFD simulations and recognize the importance of validation and verification. 9. Stimulate students' awareness of emerging trends and advancements in the field of CFD and its potential impact on architectural design and sustainability. 10. 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.

9. Teaching and Learning Strategies

Strategy	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.
-----------------	--

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	- 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.	Practical Lesson 1: Introduction to Computational Fluid Dynamics (CFD) Software	Practical lab session, hands-on CFD software tutorial & interactive lecture.	Practical lab check & Quiz 1 (10 Marks total share across 12 quizzes).
2	3	- 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.	Practical Lesson 2: Modeling Airflow in Building Interiors	Interactive CFD lab workshop, 3D modeling session & simulation demonstration.	Lab simulation evaluation & Quiz 2.
3	3	- Simulate the temperature distribution in an indoor space. - Evaluate thermal comfort parameters, such as PMV and PPD. - Explore design modifications to improve thermal comfort.	Practical Lesson 3: Thermal Comfort Analysis	Hands-on thermal simulation laboratory, case analysis & parameter calculation.	Quiz 3 & Assignment allocation (5 Marks total share).
4	3	- Model a building and its surroundings in CFD software. - Simulate wind flow patterns and analyze	Practical Lesson 4: Wind Flow Analysis around Buildings	CFD wind modeling workshop, pressure mapping exercise & group discussion.	Quiz 4 & Midterm Exam 1 preparation (20 Marks total share across 4

		pressure distribution. • Assess wind effects on building facades and outdoor comfort.			Midterms).
5	3	• 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.	Practical Lesson 5: Natural Ventilation Design Optimization	Practical ventilation optimization lab, configuration testing & multimedia demonstration.	Midterm Exam 1 & Quiz 5.
6	3	• 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.	Practical Lesson 6: Indoor Air Quality Assessment	Pollutant dispersion simulation exercise & practical air quality analysis.	Quiz 6 & Report allocation (5 Marks total share).
7	3	• Simulate a fire scenario and smoke movement in a building. • Assess the effectiveness of fire safety measures. • Analyze evacuation routes and smoke control strategies.	Practical Lesson 7: Fire and Smoke Simulation	Smoke modeling lab session, safety analysis & evacuation route mapping.	Quiz 7 & Assignment Submission (5 Marks).
8	3	• 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.	Practical Lesson 8: Urban Microclimate Analysis	Microclimate CFD simulation laboratory & outdoor comfort case studies.	Midterm Exam 2 & Quiz 8.
9	3	• Simulate rainwater penetration in a building facade. • Analyze potential areas of water ingress and moisture damage. • Explore design modifications for improved waterproofing.	Practical Lesson 9: Rain Penetration Analysis	Rain penetration simulation workshop & facade waterproofing analysis.	Quiz 9 & Report draft review.
10	3	• Set up an optimization study using CFD software. • Define design parameters and performance metrics. • Use optimization algorithms to find the optimal design solution.	Practical Lesson 10: Optimization of Building Performance	Algorithm-based CFD optimization tutorial & practical simulation exercise.	Quiz 10 & Midterm Exam 3.
11	3	• Perform a sensitivity analysis on a building design.	Practical Lesson 11: Sensitivity Analysis	Parameter variation laboratory,	Quiz 11 & Report Submission (5

		• Vary input parameters and assess their impact on performance. • Identify the most influential design factors for further optimization.		sensitivity modeling & result comparison.	Marks).
12	3	• 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.	Practical Lesson 12: Parametric Design Exploration	Parametric CFD modeling lab & design variation trade-off workshop.	Quiz 12 & Midterm Exam 4 preparation.
13	3	• Learn techniques for efficient simulation of large-scale models. • Utilize parallel computing and distributed processing methods. • Run simulations on high-performance computing platforms.	Practical Lesson 13: Large-Scale Simulation Techniques	High-performance computing lab, parallel processing demonstration & large-scale modeling.	Midterm Exam 4 (Part of 20 Marks total share across 4 Midterms).
14	3	• 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.	Practical Lesson 14: Validation and Verification of CFD Simulations	Comparative data analysis workshop, experimental validation study & critical review.	Lab project validation review & pre-final assessment.
15	3	• 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.	Practical Lesson 15: Case Studies and Project Presentations	Student project presentations, interactive group discussion & case study review.	Project presentation defense & Final Exam preparation (60 Marks).

11. Course Evaluation

Evaluation type	Degree
2 Quizzes	10
4 Assignments	40
4 Report	20
1Midterm Exam	10
Final Exam	20
Total	

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	-"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
Main references (sources)	-"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
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	"Introduction to Computational Fluid Dynamics" - Online course offered by Cornell University on 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

Course Description Form

1. Course Name:					
Physics (3)					
2.Course Code:					
ARC 324					
3.Semester / Year:					
Second/ 2025-2026					
4.Description Preparation Date:					
5/6/2025					
5.Available Attendance Forms:					
Lectures in Classroom					
6.Number of Credit Hours (Total) / Number of Units (Total)					
75 ours/ 3 ECTS credits					
7.Course administrator's name (mention all, if more than one name)					
Rawia Marwan Dabdoob rawia.dabdoob@uomosul.edu.iq					
8.Course Objectives					
Course Objectives	• 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.				
9.Teaching and Learning Strategies					
Strategy	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.				
10.Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	• Understand the fundamental principles, objectives, and scope of sanitary water supply and building drainage systems. • Define essential plumbing terminology, regulatory standards, and health codes for architectural installations.	Introduction, Definitions of the Scope of Sanitary Supply and Drainage Works	Theoretical lecture, interactive studio introduction & discussion on professional challenges.	Classroom participation & Quiz 1 (15 Marks total share across 5 quizzes).
2	2	• Describe and specify standard sanitary fixtures, fittings, and	Sanitary Equipment,	Interactive lecture, fixture	Quiz 2 & Assignment

		equipment for architectural spaces. • Analyze spatial layouts, fixture clearances, and ergonomics for residential and commercial sanitary rooms.	Sanitary Spaces	catalog review & spatial layout sketching assignment.	1 allocation (20 Marks total share).
3	2	• Analyze public municipal water supply infrastructure and building connection methods. • Design building cold/hot water distribution networks, pressure zones, and piping layouts.	Public Water Distribution System and Building Water Distribution Network	Studio presentation, water distribution network diagramming & system layout discussion.	Network diagram review & Quiz 3.
4	2	• Calculate daily average water consumption and peak water demand based on fixture units and occupancy. • Determine required pipe flow rates ($Q = A \cdot v$), pressure losses, and storage tank capacities.	Building Water Requirements Calculations	Problem-solving strategy workshop, calculation exercise & cooperative learning session.	Calculation worksheet evaluation & Term Exam 1 prep.
5	2	• Demonstrate theoretical understanding and mathematical proficiency in water demand and pipe sizing calculations. • Solve realistic hydraulic problems and draft code-compliant water supply schematics.	Term Exam 1	Written term examination session.	Term Exam 1 (Part of 4 Midterm Exams: 10 Marks total share).
6	2	• Evaluate material properties, durability, and applications of various pipes (PVC, PPR, copper, cast iron). • Select appropriate piping materials, fittings, and joining methods for specific building conditions.	Types of Supply and Drainage Network Pipes	Interactive lecture, material sample inspection & technical specification review.	Quiz 4 & Report allocation (5 Marks total share for Report).
7	2	• Differentiate between municipal sewer infrastructure and private building drainage systems. • Design gravity drainage networks, traps, soil/waste stacks, and building venting systems.	Public Drainage System and Building Drainage Network	Schematic design lecture, drainage layout drawing exercise & cooperative system review.	Assignment 1 progress check (20 Marks total share).
8	2	• Calculate discharge unit (DU) values, minimum slopes, flow velocities, and sewer pipe diameters. • Determine optimal lengths, slopes, and sizing for horizontal drains, stacks, and sewer connections.	Calculating Sewer Pipe Sizes and Lengths	Problem-solving tutorial, practical sewer calculation workshop & layout exercise.	Sewer calculation evaluation & Quiz 5.
9	2	• Synthesize building drainage network design principles, code	Monthly Exam	Written monthly	Monthly Exam /

		requirements, and sizing formulas. • Execute complete drainage network calculations and draw technical plumbing schematics under exam conditions.		examination session.	Midterm Exam 2 (10 Marks total share).
10	2	• Design roof drainage systems, gutters, scuppers, downspouts, and site stormwater networks. • Calculate peak rainfall run-off volumes and required storm drain pipe diameters.	Rainwater Drainage System	Interactive lecture, roof drainage calculation exercise & real-life case study analysis.	Assignment 1 Submission (20 Marks).
11	2	• Analyze greywater vs. blackwater separation, grease traps, and waste disposal systems. • Design septic tanks, soakaway pits, and eco-friendly waste disposal units for un-sewered sites.	Waste Pipe System	Technical lecture, waste disposal diagramming session & discussion on sustainable systems.	Report draft review.
12	2	• Present research on modern plumbing technologies, smart fixtures, and international sanitary code compliance. • Critique real-life project implementations reflecting current job market requirements.	Seminars (Modern Plumbing Innovations & Code Standards)	Student seminar presentations, peer Q&A & faculty panel discussion.	Seminar presentation evaluation & Report Submission (5 Marks).
13	2	• Evaluate sustainable water conservation techniques, rainwater harvesting, and greywater reuse. • Present technical case studies detailing eco-friendly building service integration.	Seminars (Sustainable Water Systems & Greywater Recycling)	Student seminar presentations & group discussion on eco-friendly building services.	Seminar performance evaluation & Midterm Exam 3 assessment.
14	2	• Examine specialized plumbing systems for high-rise buildings, booster pumps, and pressure valves. • Analyze complex architectural engineering solutions for large-scale sanitary installations.	Seminars (High-Rise Plumbing & Complex Building Services)	Student seminar presentations, project reviews & interactive critiques.	Seminar performance evaluation & Midterm Exam 4 assessment.
15	2	• Synthesize all water supply, drainage, rainwater, and waste disposal principles studied in the course. • Comprehensive review of plumbing schematics, sizing formulas, and final examination requirements.	Seminars & Course Synthesis	Final student presentations, course review & comprehensive Q&A session.	Final seminar evaluation & Final Exam preparation (50 Marks).

11.Course Evaluation

Evaluation type	Degree
5 Quizzes	15

1 Assignments	20
1 Report	5
4 Midterm Exam	10
Final Exam	50
Total	100
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Plumbing Complete: Expert Advice from Start to Finish, Book by Rex Cauldwell.
Main references (sources)	• Ultimate Guide: Plumbing, Updated 5th Edition, Book
Recommended books and references (scientific journals, reports...)	
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

Course Description Form

1. Course Name:					
Working Drawings (2)					
2. Course Code:					
ARC325					
3. Semester / Year:					
Second / 2024-2025					
4. Description Preparation Date:					
5/6/2025					
5. Available Attendance Forms:					
Lectures in Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
100 hours/ 4 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Roua Suhail Mohammad rouasuhail@uomosul.edu.iq Maysaa moffeq maysaa.moffeq@uomosul.edu.iq Shaimaa aldabbagh Shaimaa.aldabbagh@uomosul.edu.iq Alhan faris alhan.faris@uomosul.edu.iq Esraa maallah Esraa.malallah@uomosul.edu.iq Fahad akram fahad.akram@uomosul.edu.iq					
8. Course Objectives					
Course Objectives	- 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.				
9. Teaching and Learning Strategies					
Strategy	- 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				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	- Understand fundamental concepts, definitions, and international standards in executive drawing and structural detailing. - Identify core project references, working drawing conventions, and multidisciplinary coordination principles.	Introduction, Definitions, References, and Basics of Executive Drawing	Interactive classroom discussion, CAD introduction workshop & visual project presentation.	Daily check, studio attendance & introductory exercise.
2	4	Analyze international architectural projects to understand structural	Review of International Projects &	Visual learning via video observations,	Weekly report & daily oral/practical

		solutions and construction execution. • Evaluate existing structural detailing and design proposals through critical analytical thinking.	Structural Integration	case study review & interactive studio discussion.	evaluation.
3	4	• Link architectural design concepts directly to feasible structural systems and load-bearing logic. • Establish baseline structural grids and primary vertical/horizontal load paths for assigned projects.	Starting Project Design from Structural Systems	Practical project studio, structural drafting tutorial & group design brainstorming.	Studio progress desk review & daily drawing check.
4	4	• Master standard conventions, line weights, dimensioning, and annotations for executive working drawings. • Prepare preliminary technical architectural plans, sections, and elevation layouts.	Basics of Executive Drawing for Architectural Projects	Practical CAD drafting session, hands-on workshop & teacher feedback.	Preliminary presentation review & daily assignment grade.
5	4	• Formulate comprehensive structural grids, column modules, and structural wall layouts for complex floor plans. • Align architectural space planning with structural module constraints and engineering efficiency.	Design of Structural Networks for Projects	Practical project design, CAD structural network exercise & peer critique.	Daily practical check & structural grid drawing submission.
6	4	• Define structural spans, clearance heights, and technical engineering specifications for large architectural spaces. • Detail structural connection zones and spatial transitions between varied building materials.	Structural Spaces and Engineering Specifications	Interactive lecture, specification code review & technical drafting exercise.	Weekly report evaluation & studio desk critique.
7	4	• Integrate realistic construction techniques, material tolerances, and structural integrity into executive drawings. • Resolve discrepancies between schematic architectural designs and practical engineering execution.	Designing Buildings with Realism and Executive Consistency	Practical project work, site visit observation / case analysis & digital CAD modeling.	Intermediate presentation submission & progress assessment.
8	4	• Synthesize structural grid layouts, working plans, and preliminary details into a unified executive drawing package. • Defend structural and architectural design solutions before studio reviewers.	Midterm Assessment & Executive Drawing Review	Studio jury presentation, individual desk critique & panel evaluation.	Midterm Examination / Secondary presentation defense.

9	4	• Design executive details for outdoor spaces, site retaining structures, paving assemblies, and exterior levels. • Integrate landscape structural elements with main building foundations and site drainage.	Details of Outdoor Spaces & Landscape Integration	Field trip / study visit observation, landscape drafting tutorial & visual media analysis.	Weekly report on site details & practical drawing check.
10	4	• Develop technical construction details for foundation connections, core walls, and substructure elements. • Communicate material assemblies using multi-layered detail callouts and scale drawings.	Design of Executive Details for Projects (Substructure & Core)	Hands-on CAD drafting workshop, construction detail analysis & group review.	Detail sheet evaluation & daily check.
11	4	• Produce working details for facade envelopes, expansion joints, roofing assemblies, and waterproofing systems. • Evaluate thermal, moisture, and structural performance requirements at critical building junctions.	Design of Executive Details for Projects (Enclosure & Joints)	Practical project workshop, digital CAD detail drafting & peer feedback.	Practical assignment grading & weekly report check.
12	4	• Coordinate architectural working drawings with structural, MEP, and HVAC service routing. • Collaborate in multidisciplinary team settings to resolve spatial conflicts and service penetrations.	Multidisciplinary Services & Engineering Coordination	Multidisciplinary team workshop, overlay analysis & interactive group discussion.	Coordination drawing assessment & daily evaluation.
13	4	• Present and discuss detailed technical reports analyzing structural solutions and executive drawing sets. • Conduct cross-checking and quality control audits on peer working drawing packages.	Report Discussion & Technical Drawing Audit	Student report presentations, interactive class debate & peer feedback session.	Report Discussion Grade & peer review assessment.
14	4	• Finalize and refine complete set of executive working drawings, title blocks, schedules, and detail sheets. • Ensure full alignment between executive plans, sections, elevations, and structural details.	Working Drawings Refinement & Portfolio Compilation	Studio consultation, digital CAD polishing session & portfolio review.	Pre-final presentation review & working drawing set audit.
15	4	• Present and defend complete, professional working drawing packages and technical report documentation. • Demonstrate comprehensive mastery of structural integration and executive architectural detailing.	Final Examination & Portfolio Defense	Formal final presentation, portfolio exhibit & examination session.	Final Examination & Complete Working Drawings Set Defense.

11. Course Evaluation

Evaluation type		Degree
1 Quizzes		5
1 Assignments		20
1 Projects / Lab.		10
1 Report		5
1 Midterm Exam		10
Final Exam		50
total		100
12. Learning and Teaching Resources		
Required textbooks (curricular books, if any)	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 .	
Main references (sources)		
Recommended books and references (scientific journals, reports...)		
Electronic References, Websites		

Course Description Form

1. Course Name:					
Principles of Planning					
2. Course Code:					
ARC 326					
3. Semester / Year:					
Second / 2025-2026					
4. Description Preparation Date:					
5/6/2025					
5. Available Attendance Forms:					
Lectures in Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total)					
76 hours/ 3 ECTS credits					
7. Course administrator's name (mention all, if more than one name)					
Dr. Hussein Salman Abdullah hussein.salman@uomosul.edu.iq					
8. Course Objectives					
Course Objectives	- 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				
9. Teaching and Learning Strategies					
Strategy	- Lecture strategy - Discussion strategy - Problem-solving strategy				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	- Define fundamental urban planning concepts, terminology, and historical evolution. - Understand the multi-faceted role of architects and urban planners in shaping sustainable built environments.	Introduction, Definitions of the Development of Urban Planning Concepts and Principles, and the Role of the Architect	Theoretical lecture, interactive classroom discussion & problem-solving strategy.	Attendance, classroom discussion & Quiz 1 (15 Marks total share across 5 quizzes).
2	2	- Analyze spatial organization, social structures, and site selection criteria of early human settlements. - Examine urban grid systems and infrastructure in ancient Mesopotamian, Nile Valley, and Indus Valley cities.	The Emergence of Human Settlements in Ancient Civilizations	Comparative visual lecture, historical urban map analysis & interactive discussion.	Classroom participation & Quiz 2.
3	2	- Identify spatial morphology, organic street patterns, and cul-de-sacs in medieval European and traditional Islamic cities. - Evaluate cultural, socio-religious, and environmental determinants of traditional	Medieval and Islamic Cities	Case study analysis, interactive lecture & morphological diagramming discussion.	Quiz 3 & Assignment 1 allocation (20 Marks total share).

		Islamic urban fabric.			
4	2	• Critique key 19th and 20th-century urban planning theories (e.g., Garden City, Radiant City, Broadacre City). • Understand modern land-use zoning principles and urban growth models.	Modern Theories and Ideas of Urban Planning	Lecture presentation, theoretical comparative study & group discussion.	Theoretical assignment check & Term Exam 1 preparation.
5	2	• Demonstrate comprehensive knowledge of urban planning history, ancient/medieval settlement models, and modern planning theories under exam conditions. • Analyze urban spatial patterns and articulate architectural/planning roles.	Term Exam 1	Written examination session.	Term Exam 1 (Part of Midterm Exam evaluation: 10 Marks total share).
6	2	• Evaluate contemporary sustainable urbanism frameworks, ecological design principles, and smart growth strategies. • Identify constraints and opportunities in mitigating urban environmental impacts.	Sustainable and Contemporary Cities	Theoretical lecture, case study analysis of eco-cities & problem-solving discussion.	Quiz 4 & Report allocation (5 Marks total share for Report).
7	2	• Identify components defining urban spaces, plazas, street corridors, building enclosures, and public realms. • Analyze human scale, spatial proportion, and socio-cultural interactions in urban streets.	Elements of Urban Spaces and Streets	Interactive lecture, urban spatial mapping exercise & visual analysis.	Assignment 1 progress check (20 Marks total share).
8	2	• Master technical guidelines for street hierarchy, cross-sectional design, right-of-way, and traffic circulation. • Integrate utility corridors, stormwater runoff, and street furniture into urban roadway design.	Technical Aspects of Street Planning	Technical lecture, street section drafting exercise & problem-solving workshop.	Quiz 5 & Term Exam 2 preparation.
9	2	• Evaluate student proficiency in sustainable city concepts, urban space elements, and technical street design principles. • Solve realistic street network layout and urban design problems under timed conditions.	Term Exam 2	Written examination session.	Term Exam 2 (Part of Midterm Exam evaluation: 10 Marks total share).
10	2	• Design pedestrian-friendly walkways, sidewalks, and pedestrian zones incorporating accessibility standards. • Calculate pedestrian level of service, walkway capacities, and safety buffers.	Technical Aspects of Walkway Planning	Technical presentation, pedestrian movement mapping exercise & discussion.	Assignment 1 Submission (20 Marks).
11	2	• Calculate vehicular parking requirements, bay dimensions, aisle widths, and circulation ramps.	Planning Aspects of Parking Garages	Lecture, parking layout design exercise & practical	Report draft review (5 Marks total share).

		Integrate multi-level parking structures and surface lots into broader urban transportation networks.		problem-solving.	
12	2	- Present research on contemporary urban issues, master planning challenges, and local case studies. - Engage in critical philosophical and technical discussions on urban planning solutions.	Seminars (Contemporary Urban Issues & Master Planning)	Student seminar presentations, peer Q&A & faculty discussion.	Seminar presentation evaluation & Report Submission (5 Marks).
13	2	- Analyze urban revitalization techniques and preservation strategies for historical city cores. - Synthesize cultural and social determinants in urban planning proposals.	Seminars (Urban Regeneration & Historical Contexts)	Student seminar presentations & open group discussion.	Seminar performance assessment.
14	2	- Evaluate transit-oriented development (TOD), smart mobility systems, and urban infrastructure planning. - Assess innovative technical solutions for future urban growth.	Seminars (Smart Cities & Transportation Planning)	Student seminar presentations & problem-solving debate.	Seminar performance assessment.
15	2	- Synthesize all urban planning principles, historical frameworks, and technical street/walkway/parking standards. - Prepare for the final written examination through comprehensive case discussions.	Seminars & Comprehensive Course Review	Final student presentations, course summary session & Q&A.	Final seminar grading & Final Exam preparation (50 Marks).

11. Course Evaluation

Evaluation type	Degree
5 Quizzes	15
1 Assignments	20
1 Report	5
1 Midterm Exam	10
Final Exam	50
total	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	"Ecological Design and Planning" – George F. Thompson and Frederick R. Steiner offer insights into incorporating sustainability principles into the design and planning of outdoor spaces. - Gallion, Arthur B., *The Urban Pattern*, Van Nostrand Reinhold Co. - Chapin, F. Stewart, *Urban Land Use Planning*, University of Illinois..
Main references (sources)	
Recommended books and references (scientific journals, reports...)	- Simonds – A book covering various theoretical and practical aspects of environmental planning and design. *Urban Planning* – A scholarly journal publishing research and studies on city planning, urban design, and urbanism. "Ecological Design and Planning" by George F. Thompson and Frederick R. Steiner – The book offers a perspective on integrating sustainability principles into urban design and planning
Electronic References, Websites	

MODULE DESCRIPTION FORM

Semesters System

Fourth Level

Semester I					
#	Course Code	Course Title	Theoretical Hours	Practical Hours	Credit Hours
1	ARC411	Architectural Design (4)	2	10	7
2	ARC414	Theory of Architecture (1)	2		2
3	ARC415	Interior Design	1	4	3
4	ARC416	Theories of Urban Design	2		2
5	ARC417	Architectural Spaces Programming	2		2
6	ARC418	Physics (6)	2		2
7	STR 417	Steel Structures	2		2
			27		20

Semester 2					
#	Course Code	Course Title	Theoretical Hours	Practical Hours	Credit Hours
1	ARC411	Architectural Design (4)	2	10	7
2	ARC4 22	Physics (7)	2		2
3	ARC4 24	Theory of Architecture (2)	2		2
4	ARC4 25	Contemporary Regional Architecture	2		2
5	ARC4 26	Landscape Architecture	1	4	3
6	ARC4 27	Safety of Architectural Structural	2		2
7	ARC4 28	Advanced Construction Techniques	2		2
			27		20

Course Description Form

1. Course Name:	
Architectural Design (4)	
2. Course Code:	
ARC 411	
3. Semester / Year:	
Annual/2025-2026	
4. Description Preparation Date:	
1-6-2025	
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

Wee k	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	

Course Description Form

1. Course Name:					
Theory of Architecture (1)					
2. Course Code:					
ARC 414					
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					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Sinan mohammed					
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 Objectivitisim	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 Ludwig Mies	A lecture in the classroom	Direct exam
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	The Architecture of	A lecture in the	Direct

		deferent approaches, and to compare between them	Brutalism, Archigram & Metabolism	classroom	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	-----

Course Description Form

1. Course Name / Level					
Interior Design					
2. Course Code:					
ARC 415					
3. Semester / Year:					
First/2025- 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 • Homestylar – https://www.homestylar.com • Canva - Interior Design AI – https://www.canva.com • OPPOLIA – https://www.oppoliahome.com			

Course Description Form

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 student interactive participation and raising questions and comments about the topic.	- 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 characteristics that determine the quality of the public realm	Quality of public realm		
5	2	Understanding the characteristics of connections and their properties in urban areas	Making connections		
6	2	Identifying the characteristics	Distinctive-ness		

		of distinctiveness, character, and identity in urban design			
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
Term Exam	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

Course Description Form

1. Course Name:					
Architectural Spaces Programming					
2. Course Code:					
ARC417					
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 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
1	2	• Understand fundamental definitions, scope, and key considerations of architectural programming in modern practice. • Analyze the role of programming as an essential pre-design phase.	Introduction, Definition, and Programming Considerations	Theoretical lecture, interactive classroom discussion & visual media presentation.	Daily preparation check & Quiz 1 (5 Marks total share across Quizzes).
2	2	• Identify key domains of architectural programming (functional, social, environmental, spatial). • Master techniques for identifying, defining, and generating architectural design problems	Domains of Architectural Programming and Generating Design Problems	Theoretical lecture, real-world project analysis & analytical problem-solving discussion.	Daily preparation & Quiz 2.
3	2	• Outline the sequential steps of the architectural design process using	Steps of the Design Process	Interactive lecture,	Daily preparation &

		modern scientific methods. • Evaluate site, regulatory, physical, and financial constraints impacting project goals.	and Design Constraints	constraint mapping workshop & group discussion.	Report topic allocation (10 Marks total share for Report).
4	2	• Examine modern scientific methodologies and frameworks governing the design process • Apply systematic analytical approaches to structure complex design problems.	Design Process Methodology	Methodological lecture, process review & analytical class exercise.	Daily preparation & Quiz 3.
5	2	• Define core theoretical concepts of architectural programming. • Analyze the Bina model for structuring architectural programming workflows and spatial requirements.	The Concept of Architectural Programming and the Bina Model	Theoretical lecture, Bina model diagram analysis & interactive session.	Daily preparation & Term Exam preparation (20 Marks total share for Term Exam).
6	2	• Explore concept formation mechanisms bridging programming data and architectural design. • Understand and apply the Doric framework for programming and design synthesis.	Concept Formation in Programming and Design & The Doric Framework	Interactive lecture, Doric framework exercise & class discussion.	Daily preparation & Quiz 4.
7	2	• Demonstrate theoretical and methodological knowledge of programming concepts, design process steps, and analytical models under exam conditions. • Evaluate programming scenarios and solve design problem formulations.	Midterm / Term Exam	Written examination session.	Term Exam (20 Marks total share).
8	2	• Translate user activities into quantitative functional programming steps. • Analyze and map functional and spatial relationships, adjacencies, and zoning schemes.	Functional Program Steps, Activities, Relationships, and Zoning	Practical programming workshop, functional bubble diagramming & group work.	Daily preparation & Quiz 5.
9	2	• Construct spatial interaction matrices, adjacency charts, and functional bubble diagrams. • Utilize advanced graphic representations to communicate spatial programs clearly.	Architectural Programming Representations, Diagrams, and Matrices	Technical diagramming exercise, matrix drafting tutorial & peer critique.	Daily preparation & Report draft review.
10	2	• Execute structured site analysis steps within the programming framework. • Evaluate design alternatives against programmed performance requirements & goals	Site Analysis Steps and Evaluation of Alternatives	Site programming lecture, comparative matrix exercise & case analysis.	Daily preparation & Report progress check.
11	2	• Differentiate programming thinking modes across linear, iterative, and participatory design processes. • Adapt programming techniques to various building typologies and	Architectural Programming Thinking in Relation to Types of Design	Theoretical lecture, comparative process analysis & class	Daily preparation evaluation.

		performance criteria.	Process	discussion.	
12	2	- Analyze real-world architectural case studies to discover programming objectives and application contexts. - Formulate design concepts directly derived from programmed functional data.	Programming Case Study and Design Concept Formulation	Real-world case study presentation, concept synthesis workshop & group critique.	Daily preparation & Report submission check.
13	2	- Present and defend comprehensive architectural programming reports for selected projects. - Articulate functional programs, matrices, & spatial zoning clearly before peers and faculty.	Programming Report Discussion and Presentations	Student report presentations, peer Q&A & faculty discussion panel.	Programming Report Submission & Defense (10 Marks).
14	2	- Synthesize programming outcomes, site constraints, and spatial relationship matrices. - Critique performance requirements, goal setting, and evaluation parameters in pre-design sets.	Synthesis of Programming and Pre-Design Development	Interactive synthesis workshop, project review & peer feedback.	Daily preparation evaluation & final review.
15	2	- Comprehensive review of all architectural programming models, diagramming matrices, and design process methodologies. - Synthesize theoretical knowledge in preparation for the final examination.	Final Exam Preparation & Course Synthesis	Comprehensive review lecture, Q&A session & final exam prep.	Final Examination (60 Marks).

11. Course Evaluation

Evaluation type	Degree
Quizzes	5
Term Exam points	20
Report	10
Daily Preparation	5
Final exam	60
Total	100%

12. 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	

Course Description Form

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	
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. - 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.
9. Teaching and Learning Strategies	
Strategy	- Lecture strategy - Discussion strategy - Problem-solving strategy - Cooperative learning strategy
Strategy: 1. Use of visual	Application Providing an interactive learning studio environment that allows for lectures and

media and technology	lively discussions, simulating real-life professional challenges.				
2. Classroom assignments	• Supporting students' practical understanding through classroom assignments that include calculations and illustrations of water supply and sewage networks and waste disposal systems.				
3. Discussion groups	• Consolidating knowledge through the implementation of real-life projects inspired by the needs and requirements of the labor market.				
10. Course Structure					
We ek	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	• Learn basic principles of environmental engineering and foundations of sustainability. • Apply core environmental concepts to real-world engineering and construction projects.	Introduction to Environmental and Sustainability Engineering	Interactive studio lecture, visual media & classroom discussion simulating professional challenges.	Classroom participati on & Quiz 1 (15 Marks total share across Quizzes).
2	2	• Analyze different types of environmental pollution and their social and environmental impacts. • Propose sustainable architectural and urban design solutions.	Environmental Pollution and Design Impacts on the Environment and Society	Lecture presentation, discussion group & case study analysis.	Daily preparatio n check & Quiz 2.
3	2	• Develop effective waste management plans and promote recycling strategies. • Integrate sustainable resource management and waste disposal systems into design.	Waste Management and Recycling Promotion	Interactive lecture, classroom assignment & waste network calculations.	Classroom assignmen t evaluation & Quiz 3.
4	2	• Evaluate the importance of biodiversity and natural ecosystem conservation. • Apply environmental engineering practices to protect ecosystems in architectural contexts.	Biodiversity Protection and Ecosystem Conservation	Discussion groups, visual media & cooperative learning session.	Quiz 4 & Report topic allocation (10 Marks total share for Report).
5	2	• Apply industrial pollution control techniques to engineering projects. • Adopt green building principles and sustainable construction techniques.	Industrial Pollution Control and Green Building Technologies	Interactive studio lecture, green technology demonstratio n & visual media.	Quiz 5 & Term Exam preparatio n (15 Marks total share for Term Exam).
6	2	• Design effective strategies for natural resource management using modern technologies. • Enhance resource conservation and efficiency	Natural Resource Management and Conservation Technologies	Problem-solving workshop, group discussion & cooperative	Quiz 6 & practical assignmen t check.

		within built environments.		learning.	
7	2	• Identify advanced water and air treatment technologies. • Evaluate treatment effectiveness in improving environmental quality and public health.	Water and Air Treatment Technologies	Interactive lecture, network illustration exercise & visual media.	Quiz 7 & Term Exam preparation.
8	2	• Demonstrate theoretical understanding of environmental engineering, pollution, and green design under exam conditions. • Develop environmental response plans for natural disaster management.	Term Exam & Natural Disaster Management	Written examination session followed by problem-solving workshop.	Term Exam (15 Marks total share) & Quiz 8.
9	2	• Evaluate renewable energy sources and clean energy systems. • Apply clean energy technologies in engineering design to achieve sustainability.	Renewable Energy and Clean Energy Technologies	Interactive lecture, visual media presentation & discussion groups.	Quiz 9 & Report draft review.
10	2	• Apply Environmental Impact Assessment (EIA) methodologies to engineering projects. • Prepare environmental impact reports and analyze sustainable design alternatives.	Environmental Impact Assessment (EIA)	EIA methodology workshop, real-life project analysis & discussion.	Quiz 10 & Report progress check.
11	2	• Design development plans for sustainable cities integrating environmental principles. • Apply sustainability standards in urban planning and architectural design.	Sustainable City Planning and Environmental Design	Cooperative learning session, urban case study review & discussion.	Quiz 11 & classroom assignment check.
12	2	• Interpret national and international environmental policies and regulations. • Analyze the impact of environmental legislation on development projects.	Environmental Policies and Legislation	Interactive lecture, legislative review & discussion groups.	Quiz 12 & Report submission check.
13	2	• Conduct applied and innovative research in environmental sustainability. • Formulate advanced technical solutions addressing local and global environmental issues.	Research and Innovation Projects in Environmental and Sustainability Engineering	Applied research workshop, group discussion & problem-solving strategy.	Quiz 13 & Report Submission (10 Marks).
14	2	• Deliver specialized seminars on contemporary environmental topics. • Demonstrate scientific research, communication, and	Seminars (Contemporary Environmental Topics - Part 1)	Student seminar presentations, visual media & peer Q&A	Seminar presentation evaluation & Quiz 14.

		visual presentation skills.		session.	
15	2	• Promote critical thinking through interactive environmental seminar discussions. • Synthesize environmental protection policies, EIA standards, and clean energy concepts.	Seminars (Contemporary Environmental Topics - Part 2) & Course Synthesis	Student seminar presentations, interactive discussion panel & final course review.	Seminar defense / Quiz 15 & Final Exam preparation (60 Marks).
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		

Course Description Form

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	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	A lecture in the classroom	HW, CW, exam

		expressions. Computing combined loads with ASD expressions.	expressions. Computing combined loads with ASD expressions.		
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, 5 th edition, 2012.
Main references (sources)	AISC Construction Manual, 14 th Edition.
Recommended books and references (scientific journals, reports...)	-----
Electronic References, Websites	-----

Course Description Form

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	- Understand fundamental concepts, scope, and principles of engineering construction services in modern architecture. - Analyze spatial and structural relationships between architectural design and MEP (Mechanical, Electrical, Plumbing) engineering systems.	Introduction to Engineering Services & Relationship Between Architecture and Engineering Services	Theoretical lecture updated with current technology, interactive classroom discussion & educational video observation.	Classroom participation & Quiz 1 / Descriptive homework check.

2	2	- Identify components of building electrical distribution, panel boards, transformers, and circuit routing. - Coordinate structural and spatial requirements for electrical rooms, risers, and cable trays in architectural designs.	Electrical Installations and Electrical Services Systems	Interactive lecture, electrical diagram review & practical classroom assignment on student projects.	Daily preparation check & Quiz 2.
3	2	- Master basic principles of interior lighting design, color temperature, and luminous flux calculations - Evaluate interior lighting quality, daylight integration, and energy-efficient lighting strategies.	Interior Lighting Designs (Part 1: Fundamentals & Illumination Principles)	Theoretical lecture, light measuring device demonstration (lux meters) & calculation workshop.	Descriptive homework assessment & Quiz 3.
4	2	- Select appropriate luminaires, lamps, and lighting control systems for diverse architectural spaces. - Apply interior lighting design software/tools (e.g., DIALux, ERCO, Zumtobel resources) to student design proposals.	Interior Lighting Designs (Part 2: Fixture Selection & Spatial Layouts)	Practical project studio, software demonstration & group interaction on lighting layouts.	Interior lighting design assignment check & peer feedback.
5	2	- Design exterior lighting applications for building facades, outdoor spaces, and architectural accents. - Evaluate light pollution, dark-sky compliance, and environmental sustainability in outdoor lighting.	Exterior Lighting Designs (Part 1: Architectural Facade & Site Lighting)	Visual lecture featuring video observations, fixture sample demonstration & outdoor lighting case analysis.	Quiz 4 & Report allocation (Applied Services Project).
6	2	- Integrate landscape, pedestrian walkway, and site safety lighting into outdoor master planning. - Select weather-resistant fixtures, IP-rated enclosures, and exterior wiring systems.	Exterior Lighting Designs (Part 2: Landscape & Public Realm Illumination)	Studio workshop, site lighting calculation exercise & interactive review of student designs.	Applied project progress check & descriptive homework evaluation.
7	2	- Identify fire alarm control panels, smoke, heat, and flame detectors, and emergency notification devices. - Determine spatial layout, coverage radii, and code compliance for life safety detection networks.	Fire Alarm and Detection Systems	Interactive lecture, fire & smoke sensor demonstration tools & schematic layout exercise.	Quiz 5 & Term Exam preparation.
8	2	- Demonstrate theoretical and practical knowledge of electrical, lighting, and fire alarm systems under exam conditions. - Design active fire suppression systems (sprinklers, standpipes, fire pumps, hose reels) and structural clearance zones.	Term Exam & Fire Suppression and Fighting Systems	Written Term Examination session followed by technical lecture on suppression systems.	Term Exam grade & Fire suppression layout check.

9	2	• Differentiate between natural ventilation, forced air heating, and mechanical ventilation networks. • Calculate required duct sizes, air change rates, and spatial clearances for ventilation ductwork.	HVAC Systems (Part 1: Heating & Ventilation Systems)	Theoretical lecture, educational video analysis & HVAC layout drafting exercise.	Quiz 6 & practical assignment evaluation.
10	2	• Evaluate split systems, VRF/VRV, package units, and central chilled water plant configurations. • Integrate chiller plants, cooling towers, air handling units (AHUs), and mechanical shafts into architectural plans.	HVAC Systems (Part 2: Air Conditioning & Chilled Water Layouts)	Interactive studio lecture, mechanical layout case study & multidisciplinary coordination discussion.	HVAC integration project check & Quiz 7.
11	2	• Calculate elevator quantity, capacity, speed, and handling capacity for commercial and residential buildings. • Design elevator shafts, machine rooms, pit depths, and structural hoistway requirements.	Transportation Systems: Elevators	Technical presentation, elevator calculation workshop & site visit / field trip observation.	Field visit report & elevator calculation worksheet evaluation.
12	2	• Determine spatial dimensions, angles of inclination, structural support, and pit requirements for escalators and moving walks. • Integrate mass pedestrian circulation systems into complex public and commercial buildings.	Transportation Systems: Escalators & Moving Walks	Interactive lecture, video-based observation of heavy transit installations & drafting tutorial.	Descriptive homework check & Quiz 8.
13	2	• Coordinate vertical and horizontal service routing (lighting, fire fighting, HVAC, transportation) into ceiling and floor plenums. • Resolve structural and spatial conflicts between MEP services and architectural building envelopes.	Integration of Engineering Services with Architectural Design	Multidisciplinary design workshop, overlay analysis on student architectural projects & group critiques.	Applied engineering services project submission & review.
14	2	• Present recent scientific research on advanced engineering services and smart building technologies. • Defend applied engineering services layouts within student architectural design projects before peers.	Recent Research & Applied Project Seminars	Student seminar presentations, project defense & panel discussion on modern technology advances.	Seminar presentation evaluation & Applied Project Report grade.
15	2	• Comprehensive review of all electrical, lighting, HVAC, fire safety, and transportation service systems. • Demonstrate complete qualification in integrating engineering construction	General Course Review & Final Examination	Final course synthesis, Q&A discussion session & comprehensive written final examination.	Final Examination.

		services into architectural design.			
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, FCIQB, 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			

Course Description Form

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, 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 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 approaches, and to compare between them	Architectural Design Theories	A lecture in the classroom	Direct exam
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	-----

Course Description Form

1. Course Name:					
Contemporary Regional Architecture					
2. Course Code:					
ARC 425					
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)					
2hr / Total Units = 2					
7. Course administrator's name (mention all, if more than one name)					
Name: Rana Mahfoodh Email: rana.mahfoodh@uomosul.edu.iq Asst. Prof. Baedaa' Hanna					
8. 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.				
9. 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.				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	• Recognize the importance of heritage in shaping cultural and architectural identity. • Analyze fundamental concepts of heritage and explain its relationship to modern architecture.	Introduction to Contemporary Regional Architecture & Concepts of Heritage	Theoretical lecture, Problem-Based Learning (PBL) on identity & classroom discussion.	Daily preparation check (5% total share) & Quiz 1 (5% total share across Quizzes).
2	2	• Analyze climatic, social, cultural, and economic factors influencing regional	Architectural Heritage and its	Theoretical lecture,	Daily preparation &

		architecture. • Understand local specificity and environmental determinants in traditional built forms.	Relationship to Contemporary Architecture	comparative visual study & group discussion.	Quiz 2.
3	2	• Distinguish between rejectionist, traditionalist, and developmental intellectual approaches. • Critically evaluate each approach's contribution to contemporary design.	Intellectual Positions Toward Heritage	Theoretical lecture, critical debate & Problem-Based Learning (PBL).	Daily preparation & Report topic allocation (10% total share for Report).
4	2	• Understand the impact of globalization and international architectural trends on local contexts. • Analyze architectural transformations and the tension between universality and local identity.	The Impact of Globalization on Regional Architecture	Analytical learning (case study), theoretical lecture & classroom discussion.	Daily preparation & Quiz 3.
5	2	• Identify the evolution of architectural roots in Iraq prior to WWI. • Analyze political, economic, and traditional building influences on early modern settlements.	Architecture in Iraq Before World War I	Comparative learning, historical map/photo analysis & theoretical lecture.	Daily preparation & Term Exam preparation (20% total share for Term Exam).
6	2	• Understand the emergence of modern architecture in 1920s Iraq. • Perform critical architectural readings and project analysis on pioneer examples.	Architecture of the 1920s in Iraq & Selected Example Analysis	Case study analysis of 1920s pioneer buildings, visual lecture & discussion.	Daily preparation & Quiz 4.
7	2	• Analyze the transition from traditionalism to early modernism during the 1930s. • Evaluate political and socio-economic drivers shaping mid-century Iraqi urban fabric.	Architecture of the 1930s in Iraq	Comparative learning across time periods (1920s vs. 1930s) & theoretical lecture.	Daily preparation & Term Exam review.
8	2	• Demonstrate critical understanding of heritage theoretical positions, globalization, and historical Iraqi architecture under exam conditions. • Analyze regional project examples and intellectual positions.	Midterm / Term Exam	Written examination session.	Term Exam (20% total share).
9	2	• Analyze modern architectural trends and international style applications in 1950s Iraq. • Evaluate the interaction between international master plans/architects and local heritage.	Architecture of the 1950s in Iraq	Analytical case study learning (1950s landmark projects in Baghdad), lecture & discussion.	Daily preparation & Report draft review.
10	2	• Understand architectural maturity, identity formation, and stylistic diversity in the 1960s–1970s. • Analyze key works by regionalist masters (e.g., Mohamed Makiya, Rifat	Architecture of the 1960s and 1970s in Iraq	Comparative learning, visual case study analysis & theoretical	Daily preparation & Report progress check.

		Chadirji).		lecture.	
11	2	- Analyze late 20th and contemporary 21st-century architectural developments in Iraq. - Critique current design trends in balancing modern technologies with local cultural identity.	Contemporary Iraqi Architecture	Problem-Based Learning (PBL), analytical learning & classroom discussion.	Daily preparation & Quiz 5.
12	2	- Study critical regionalism concepts (Frampton, Curtis, Norberg-Schulz) and global applications - Analyze landmark contemporary regional projects (e.g., Grand Mosque in Riyadh).	Modern Architectural Trends and Regional Applications	Applied learning, case study project reading & theoretical lecture.	Daily preparation & Report submission check.
13	2	- Present and defend comprehensive research reports analyzing selected regional projects. - Formulate critical intellectual arguments on heritage integration in contemporary work.	Discussion of Research / Programming Report	Student report presentations, peer debate & faculty discussion panel.	Report Submission & Defense (10% total share).
14	2	- Link theoretical knowledge of heritage, identity, and regionalism directly to design studio practice. - Enhance critical thinking in integrating historical context into contemporary design.	Integration of Heritage into Contemporary Design Practice	Applied learning studio, design project critique & comparative discussion.	Daily preparation evaluation (5% total share) & project review.
15	2	- Comprehensive synthesis of heritage concepts, globalization impacts, and historical Iraqi architectural evolution. - Demonstrate complete mastery of regional architectural analysis and critical evaluation.	Final Examination & Course Synthesis	Final course synthesis, Q&A session & comprehensive written final examination.	Final Examination (60% total share).

11. Course Evaluation

Evaluation type	Degree
Quizzes	5 %
Term Exam points	20 %
Report	10%
Daily Preparation	5%
Final exam	60%
Total	100%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Arabic References - Books on Arab and Islamic architecture - Studies on modern Iraqi architecture - Lectures for the Contemporary Regional Architecture course (primary source) Foreign References - Frampton, Kenneth – Critical Regionalism - Curtis, William – Modern Architecture Since 1900 - Norberg-Schulz – Genius Loci
Electronic References, Websites	

Course Description Form

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)					
Assist Prof Dr Oday Qusay Abdulqader Alchalabi odaychalabi@uomosul.edu.iq 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 between students and instructors.	Theoretical and practical lectures with daily and monthly exams, weekly reports, and preliminary, midterm, and final presentations.
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. Collaboration and teamwork: The ability to work within multidisciplinary teams and collaborate effectively with engineers, planners, and other specialists.	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.	

11. Course Evaluation

Evaluation type	Degree
-----------------	--------

report	5
Day sketches	10
Concept submission	10
Mid-course submission	20
Final submission	25
Final exam	30
Total	100
12. 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.

Course Description Form

1. Course Name:					
Architectural Structures Safety					
2. Course Code:					
ARC427					
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: 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	Alarm and detection	Interactive	

		systems	systems	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	

Course Description Form

1. Course Name:					
Advanced Structures Techniques					
2. Course Code:					
ARC428					
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 = 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	Understanding Basic Concepts: Develop a deep understanding of the fundamental concepts and principles of building design.	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		Design of tall buildings		
3	2		Types of building structures		
4	2		Deconstructive architecture		
5	2	Practical Design Skills: Develop the ability to design complex architectural projects.	Folded architecture techniques		
6	2		Sustainable architecture		
7	2		Architecture of the future		
8	2		Bioarchitecture techniques		
9	2	Critical Evaluation and Analytical Thinking: Enhance the ability to critically and effectively analyze and evaluate	Smart architecture technologies		
10	2		Mud architecture		
11	2		Concepts related to		

		existing projects and design proposals.	construction techniques		
12	2		Cortical structures		
13	2		Inflatable structures		
14	2	Communication Skills:	Domes and vaults		
15	2	Improve the ability to communicate effectively, both written and verbally, and the ability to clearly present designs and ideas to various audiences.	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

Requirement Category	Course Code	Course Title (English)	Course Title (Arabic)	Requirement Type	Theoretical Hours	Practical Hours	Credit Units	Prerequisite	Notes
College Requirements College Requirements	ENG525	Engineering Management	الإدارة الهندسية	Compulsory	2	-	2	-	
	ENG526	Engineering Economy	الاقتصاد الهندسي	Compulsory	2	-	2	-	
Department Requirements	ARC 541	Graduation Project (1)	مشروع التخرج (1)	Compulsory	2	6	5	Architectural Design (7)	
	ARC 542	Urban Design	التصميم الحضري	Compulsory	2	6	5	Theories of Urban Design	
	ARC 543	Estimation and Specifications	التخمين والمواصفات	Compulsory	2	-	2	-	
	ARC 544	Computer Aided Design	التصميم بمساعدة الحاسوب	Compulsory	1	2	2	-	
	ARC 561	Building Safety Requirements	متطلبات السلامة في المباني	Elective	2	-	2	-	Student chooses 1 course out of the electives (Required = 2 Units)
	ARC 562	Computer Applications	تطبيقات حاسوبية		1	2	2	-	
	ARC 563	Architectural Details	التفاصيل المعمارية		1	2	2	-	
	ARC 564	Theories of Architecture Criticism	نظريات النقد المعماري		2	-	2	-	
		Total Hours & Units for First Semester Level 5			11	18	20		
Requirement Category	Course Code	Course Title (English)	Course Title (Arabic)	Requirement Type	Theoretical Hours	Practical Hours	Credit Units	Prerequisite	Notes
College Requirements	ENGE536	Environmental Engineering and Sustainability	هندسة البيئة والاستدامة	Elective	3	-	3	-	Compulsory for Department Students
	ENGE539	Smart Building Systems	أنظمة البناء الذكي	Elective	3	-	3	-	Compulsory for Department Students
Department Requirements	ARC 545	Graduation Project (2)	مشروع التخرج (2)	Compulsory	1	14	8	Graduation Project (1)	-
	ARC 546	Professional Practice	السلوك وممارسة المهنة	Compulsory	2	-	2	-	-
		Total Hours & Units for Second Semester Level 5			9	14	16		

Course Description Form

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 management 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	- Understand basic concepts, characteristics, and fundamental components of engineering project management. - Differentiate between general management and specialized engineering project management approaches.	Introduction to Engineering Project Management & Management Components	Interactive theoretical lecture, classroom discussion & introductory group activity.	Daily assessment check & daily exam preparation (part of 40 Marks annual effort).

2	2	- Analyze basic organizational functions within engineering project management frameworks. - Apply system concepts and holistic thinking to project organization.	Organizational Functions & System Concepts in Project Management	Interactive classroom lecture, system diagramming exercise & group discussion.	Daily assessment & weekly report topic allocation.
3	2	- Develop essential soft skills required in engineering project management, focusing on communication skills. - Apply organizational skills to structure project workflows and team interaction.	Engineering Management Soft Skills I: Communication & Organizational Skills	Practical interactive exercise, communication simulation workshop & classroom discussion.	Daily exercise evaluation & weekly report check.
4	2	- Cultivate leadership skills, adaptive skills, and negotiation skills in engineering scenarios. - Enhance collaboration, teamwork, and conflict resolution capabilities.	Engineering Management Soft Skills II: Leadership, Adaptive & Negotiation Skills	Interactive group activities, negotiation role-play exercises & peer discussions.	Daily exam / assessment check & group exercise review.
5	2	- Identify key success factors for engineering projects and critical causes of project failure. - Apply critical evaluation and analytical thinking to mitigate project risks.	Success Factors and Causes of Engineering Project Failure	Case study analysis of real-life engineering projects, interactive presentation & discussion.	Daily assessment check & monthly exam preparation.
6	2	- Master vocabulary and knowledge areas related to project management according to PMBOK standards. - Align project workflows with globally recognized project management methodology.	PMBOK Framework & Project Management Knowledge Areas	Theoretical lecture, PMBOK framework breakdown & digital learning exercises.	Monthly Exam 1 / Daily test (part of 40 Marks annual effort).
7	2	- Analyze Scope, Quality, Cost, and Time (SQCT) objectives in engineering project management. - Evaluate trade-offs between SQCT parameters during project execution.	SQCT Objectives & Performance Metrics	Problem-solving workshop, SQCT calculation exercises & classroom discussion.	Daily exercise submission & report progress review.
8	2	Demonstrate mastery of basic management concepts, PMBOK knowledge areas, and soft skills under exam	Term Exam & Stakeholder Analysis Matrix	Written term examination session followed by stakeholder	Term Exam / Monthly Exam (part of 40 Marks annual effort).

		conditions. Construct and evaluate a Stakeholder Analysis Matrix for project governance.		matrix analysis workshop.	
9	2	- Develop Work Process Frameworks (WPS) and hierarchical work breakdown structures for engineering projects. - Decompose complex project scopes into manageable work packages.	Work Process Framework (WPS / WBS) Development	Practical exercise, WPS drafting workshop & digital tool application.	Weekly report check & WPS exercise grading.
10	2	- Construct project network diagrams establishing logical sequence and activity dependencies. - Utilize scheduling tools and techniques for project timeline formulation.	Project Scheduling & Network Diagramming	Hands-on network diagramming exercise, interactive lecture & digital software demonstration.	Daily test / practical exercise evaluation.
11	2	- Calculate critical path, early/late start and finish times, and total float within project schedules. - Optimize project timelines and manage schedule constraints effectively.	Critical Path Method (CPM) & Schedule Optimization	Problem-solving exercise, critical path calculation workshop & peer feedback.	Monthly Exam 2 / Daily assessment check.
12	2	- Apply various project management tools and control techniques to real-life project scenarios. - Monitor project progress, resources, and performance metrics.	Engineering Project Management Tools & Techniques	Digital learning tools demonstration, technology integration & interactive discussion.	Report draft review & daily exercise check.
13	2	- Apply practical engineering management skills in a virtual project simulation. - Establish project goals, stakeholder roles, WPS, and schedules in team settings.	Practical Exercise in Managing a Virtual Project (Part 1: Setup & Planning)	Project-based learning, collaborative group work, virtual project simulation & coaching.	Team exercise progress check & daily participation assessment.
14	2	- Manage virtual project uncertainties, risk, and schedule updates. - Communicate project reports and management decisions effectively.	Practical Exercise in Managing a Virtual Project (Part 2: Control & Defense)	Collaborative group presentation, virtual project discussion & instructor feedback.	Practical Virtual Project Report Submission & Group Defense (part of 40 Marks annual effort).

15	2	• Synthesize modern management concepts, PMBOK standards, SQCT goals, and scheduling techniques. • Demonstrate complete proficiency in engineering project management principles.	Course Synthesis & Final Examination	Comprehensive course review, final discussion session & written final examination.	Final Examination (60 Marks total share).
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					

Course Description Form

1. Course Name:					
Engineering Economics					
2. Course Code:					
ENGC526					
3. Semester / Year:					
First / 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 engineering economics course. 2- Introducing the student to the importance of controlling costs Engineering projects. 3- Training students to conduct economic studies Comparisons and 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 return	Learning and discussion	Home works
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					

Course Description Form

1. Course Name:					
Graduation Project (1)					
2. Course Code:					
ARC541					
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 theoretical + 6 practical (8) / number of units (5)					
7. 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					
8. Course Objectives					
Course Objectives	• The ability to identify, define, formulate, and solve engineering problems by applying the 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, and manage 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	2 hours 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		Ability to establish and perform appropriate measurements and tests with quality assurance, analyze and interpret results, and exercise engineering judgment to reach conclusions.	Career programme	Collect information	Discussion
5				Analyze examples	Discussion
6			Surveying programme	Data collection	Submit a report
7				Review and evaluation	
8			Project website	Data collection	Presentation, display and
0					

10		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	discussion of results
11				Evaluation	
12				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	

11. 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%

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...)

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

Course Description Form

1. Course Name:					
Urban Design					
2. Course Code:					
ARC542					
3. Semester / Year					
First/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	10	Understanding Key Concepts: Develop a deep understanding of key concepts and principles	Introduction to Urban Design	Interactive learning: This approach	Theoretical lectures with

Second		in urban design	Collect data related to the project	includes the use of	daily and monthly exams, class assignments, reports and discussions with students.
Third		Practical design skills: Develop the ability to design realistic and implementable urban projects. Critical	Project data analysis	Classroom discussions, workshops, and group activities to promote interaction between students and teachers.	
Fourth		Evaluation and Analytical Thinking: Enhance the ability to critically and effectively analyze and evaluate existing projects and design proposals.	Evaluation of data, standards and metrics		
Fifth		Communication skills: Improving the ability to communicate effectively with other disciplines of services and details of projects.	Initial idea concepts to present design proposal	Scientific reports help students expand their perceptions through research	
Sixth			A comprehensive model of proposed design alternative(1)	Use of technology through research and development	
Seventh		Collaborations and teamwork: Ability to work in multidisciplinary teams and collaborate effectively with engineers, architects, and other specialists (constructionists).	A comprehensive model of the proposed design alternative(2)	Assessment and feedback: Provide regular assessments and constructive feedback by teachers and peers, helping students continuously improve their work	
Eighth			Land use model for the proposed design alternative		
Ninth			The initial idea of the proposed design alternative(1)		
Tenth					
Eleventh					
Twelfth			The initial idea of the proposed design alternative(2)		
Thirteenth			Elevations models for the proposed design alternative		
Fourteenth					
Fifteenth			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

Course Description Form

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 to estimate the initial cost of architectural and construction projects, based on a range of factors such as materials used, labor, and required tools. - Teaching Technical Specification Preparation: Introducing students to the methods of preparing detailed technical specifications for projects, including identifying technical 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 of classroom discussions and group activities that promote interaction between students and teachers.	Theoretical and practical lectures with daily and monthly exams and reports.
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		
4		With the necessary knowledge to estimate the initial	Construction Materials and Unit Measurements /		

		cost of architectural and construction projects.	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 projects.	Specifications and Bills of Quantities		
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	Bills of Quantities and Prices		

		stages.		
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				

Course Description Form

13. Course Name:					
Computer Aided Design					
14. Course Code:					
ARC 544					
15. Semester / Year:					
First/ 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 computational design: types and function	Lecture and discussion	none
2	3	Acquiring new knowledge	Generative Design Method	Lecture and discussion	none
3	3	Understanding digital design thinking and methods	Generative Design Method Shape grammars	Lecture and discussion	none
4	3	Understanding digital design thinking and	Generative Design Method Genetic Algorithms	Lecture and discussion	Quiz

		methods			
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 technique 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/

Course Description Form

1. Course Name:					
Building Safety Requirements					
2. Course Code:					
ARC 561					
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: 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 behavior during emergencies	User behavior in emergencies	Class discussions	
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	Code compliance	Interactive	

		compliance with codes	review	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. Klotz & 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	

Course Description Form

1. Course Name:					
Computer Applications					
2. Course Code:					
ARC 562					
3. Semester / Year:					
First/ 2025-2026					
4. Description Preparation Date:					
2026					
5. Available Attendance Forms:					
In-person lectures classroom and lab					
6. Number of Credit Hours (Total) / Number of Units (Total)					
3 hrs / 2 units					
7. Course administrator's name (mention all, if more than one name)					
Dr. Eqbal Salim younis ekbal.alsoofee@uomosul.edu.iq					
8. 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.			
9. Teaching and Learning Strategies					
Strategy		• 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. • Interactive lectures • Hands-on learning • Project-Based Learning • Collaborative learning • Case studies • Simulation and digital experiments • Presentations • Self-learning • Continuous feedback			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	• Understand the principles of digital architecture and mathematical theories contributing to its development.	Introduction to Digital Architecture & Mathematical Theories	Interactive lecture, classroom discussion, software demonstration & lab introduction.	Daily preparation check, classroom participation & lab attendance.

		• Compare historical computing applications with contemporary digital architectural workflows.			
2	3	• Evaluate differences between traditional design processes and digital design processes. • Differentiate computer-aided drafting from computer-aided digital design tools.	Traditional Design Process vs. Digital Design Process & CAD vs. CADD	Interactive theoretical presentation, comparative design analysis & hands-on CAD/CADD lab exercise.	In-class practical assignment evaluation & daily test.
3	3	• Master core concepts of Building Information Modeling (BIM) and parametric data management. • Select and apply effective BIM software for digital architectural drawing.	Building Information Modeling (BIM) Principles & Software Systems	Hands-on lab application, software modeling demonstration (e.g., Revit) & collaborative discussion.	Daily practical exercise & modeling task check.
4	3	• Produce accurate digital models at the representational level using BIM software tools. • Integrate architectural components into unified digital building models.	BIM Workflows at the Representational Level	Hands-on computer lab modeling, real project case study analysis & instructor feedback.	Homework practical application check & daily test.
5	3	• Apply Heritage Building Information Modeling (HBIM) concepts to historical architectural analysis. • Utilize digital models to capture, analyze, and document heritage structures.	Heritage Building Information Modeling (HBIM) & Digital Conservation	Case study analysis of heritage buildings, lab modeling exercise & group discussion.	Report topic allocation (Project modeling report) & practical lab evaluation.
6	3	• Understand parametric boundary levels and algorithmic logic in computational design. • Develop algorithmic procedures for flexible and adaptive geometric modeling.	Parametric Boundary Level & Algorithmic Thinking	Interactive computer lab, parametric modeling exercise (e.g., Grasshopper/Dynamo) & discussion.	In-class parametric modeling assignment check & daily quiz.
7	3	• Apply generative design strategies to explore complex architectural forms and spatial configurations. • Evaluate digital tools for generative optimization and algorithmic modeling.	Generative Design Level & Form-Finding Strategies	Generative design lab simulation, interactive lecture & group modeling exercises.	Daily exam & project modeling progress review.
8	3	• Demonstrate mastery of digital architecture concepts, BIM, and parametric design under	Term Exam & Performance Evaluation / Simulation Level	Written/electronic midterm exam session followed by energy/environmental	Term Exam (Monthly Exam) & simulation exercise check.

		exam conditions. • Evaluate architectural performance using performance simulation tools.		simulation lab exercise.	
9	3	• Simulate and evaluate design performance (daylighting, energy, thermal) using computational tools. • Compare traditional design performance against digital simulation outputs.	Building Performance Simulation & Environmental Analysis	Simulation software lab, digital performance experiments & comparative analysis.	Practical lab simulation report check & continuous feedback.
10	3	• Understand digital fabrication technologies (3D printing, CNC milling, laser cutting) and fabrication workflows. • Prepare digital design files for automated physical production.	Digital Fabrication & Physical Materialization	Interactive lab demonstration, digital fabrication file setup & project modeling execution.	In-class digital fabrication file review & practical assignment.
11	3	• Integrate Virtual Reality (VR) and Augmented Reality (AR) into architectural design visualization. • Utilize immersive virtual environments to evaluate spatial decisions and communicate design intent.	Virtual Reality (VR) & Augmented Reality (AR) in Architecture	VR/AR headset simulation lab, immersive visual experiment & peer presentation.	Practical VR/AR presentation review & daily evaluation.
12	3	• Apply advanced digital design and modeling tools to a fully integrated architectural project. • Demonstrate student freedom in software selection and modeling strategy execution.	Integrated Architectural Project Modeling (Hands-on Lab)	Project-based learning studio lab, individual project coaching & continuous feedback.	Preliminary project modeling audit & homework evaluation.
13	3	• Work in collaborative engineering groups to accomplish complex BIM/digital modeling tasks. • Develop teamwork and interdisciplinary communication skills within digital environments.	Collaborative Digital Workflows & Team Modeling Execution	Collaborative group modeling lab, team workflow simulation & peer interaction.	Group modeling task evaluation & practical submission check.
14	3	• Deliver accurate and professional digital design outputs and project modeling reports. • Present, discuss, and defend digital design decisions before peers and	Project Modeling Report Presentation & Design Defense	Student presentations, visual digital model defense & open classroom discussion.	Modeling Report Submission & Digital Presentation Defense.

		instructor.			
15	3	• Synthesize theories, BIM workflows, simulation tools, generative strategies, and digital fabrication concepts. • Demonstrate complete proficiency in computer applications for architecture.	Comprehensive Course Synthesis & Final Examination	Course review session, final project synthesis discussion & comprehensive written/electronic final exam.	Final Examination.

11. 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.

12. Learning and Teaching Resources

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

Course Description Form

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	
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. 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
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. • 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. • Learning through projects: • Field visits • Design evaluation and feedback

• Use of visual media and technology

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	• Develop a deep understanding of fundamental concepts and principles in architectural detailing. • Understand structural and functional detailing frameworks for engineering projects.	Introduction, Definitions, Course References & Detailing Concepts	Interactive lecture, classroom discussion, reference review & group intro activity.	Daily preparation check, attendance & daily exam preparation.
2	3	• Enhance detailed architectural thinking and problem-solving skills across various functions. • Analyze design projects based on their level of architectural detail.	Review of Design Projects through Fine-Grained Functional Details	Live analysis of architectural details, project reviews & peer feedback.	Daily test check & project detail review.
3	3	• Begin design thinking through detailed composition and structural logic. • Appreciate design contexts and link abstract ideas to realistic engineering solutions.	Detailed Composition Strategy & Architectural Thinking Process	Interactive studio discussion, detailed composition analysis & workshop.	Weekly report check & classroom discussion evaluation.
4	3	• Master the basics of executive drawing for architectural projects. • Utilize drawing and CAD tools to develop specialized architectural details.	Basics of Executive Drawings & Specialized Architectural Detailing	Practical CAD drafting workshop, executive drawing exercises & study of technical standards.	Preliminary presentation review & daily drawing assessment.
5	3	• Develop practical design skills to create functional details tailored to specific design levels. • Ensure architectural details are realistic and feasible for construction.	Design of Architectural Details for Varied Project Design Levels	Studio coaching, CAD software drafting & case study project analysis.	Weekly report submission & detail drawing check.
6	3	• Design architectural details addressing moisture infiltration and water protection. • Resolve functional envelope problems within building components.	Functional Architectural Details I: Moisture Infiltration & Water Proofing Control	Interactive lecture, live detail breakdown, CAD drafting & field study examples.	Monthly exam 1 / Quiz & weekly detail report check.
7	3	• Design environmental comfort treatments mitigating heat transfer within building envelopes. • Integrate thermal performance solutions into functional architectural details.	Functional Architectural Details II: Thermal Insulation & Heat Transfer Mitigation	Problem-based studio exercise, live analysis of insulation details & CAD drafting.	Secondary presentation review & daily preparation check.
8	3	• Demonstrate theoretical and practical knowledge of functional details under exam	Term Exam & Functional Details III: Acoustic	Midterm written/practical exam session	Term / Monthly Exam &

		conditions. • Design details addressing passive sound transmission and acoustic comfort.	Isolation & Passive Sound Control	followed by acoustic detailing lecture & studio review.	acoustic detail exercise evaluation.
9	3	• Design and modify architectural details for structural components, including building foundations. • Coordinate architectural details with structural engineering requirements.	Structural Details I: Building Foundations & Substructure Connections	Theoretical lecture, structural detail drafting & multidisciplinary discussion.	Weekly report submission & structural detail drawing check.
10	3	• Address structural movements and expansion joints in the general building structure. • Treat architectural and structural design as an integrated, unified system.	Structural Details II: Expansion Joints & Structural Movements	Case study analysis, site visit / field trip, visual media & CAD drafting.	Preliminary presentation & expansion joint drawing assessment.
11	3	• Formulate engineering specifications aligned with specialized architectural details. • Improve communication skills with technical and engineering disciplines.	Architectural Details & Engineering Specifications	Workshop on technical specifications, material sample analysis & interactive discussion.	Weekly report check & technical specification assignment review.
12	3	• Align realistic design solutions with executive working drawings and construction standards. • Enhance critical evaluation of detailed architectural solutions.	Alignment of Realistic Architectural Design with Executive Designs	Practical project review, live detail critique & multidisciplinary team collaboration.	Secondary presentation review & daily preparation check.
13	3	• Design complete executive details for selected projects under study. • Work in multidisciplinary team settings simulating real-life project challenges.	Executive Details Development for Selected Case Projects	Practical project-based studio, CAD drawing integration & group activity.	Monthly exam 2 / practical evaluation & detail portfolio check.
14	3	• Communicate detailed design concepts effectively through presentations and working reports. • Offer and integrate constructive peer and instructor criticism.	Presentation & Discussion of Architectural Details Working Report	Student presentations, working report defense, peer discussion & instructor critique panel.	Working Report Submission & Oral/Visual Defense Discussion.
15	3	• Comprehensive synthesis of functional, structural, environmental, and executive architectural details. • Demonstrate mastery in detailed problem-solving and executive drawing synthesis.	Comprehensive Course Synthesis & Final Examination	Comprehensive course synthesis review session, Q&A & final written/practical exam.	Final Examination.

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	

Course Description Form

1. Course Name:					
Theory of Architectural Criticism					
2. Course Code:					
ARC 564					
3. Semester / Year:					
First/ 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	Structuralism	A lecture in the	Direct exam

		deferent methodologies		classroom	
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	-----

Course Description Form

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 husein.salman@uomosul.edu.iq	
8. Course Objectives	
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. • 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.
9. Teaching and Learning Strategies	
Strategy	• Lecture strategy • Discussion strategy • Problem-solving strategy • Cooperative learning strategy
Strategy: 1. Use of visual media	Application • Providing an interactive learning studio environment that allows for lectures

and technology		and lively discussions, simulating real-life professional challenges.			
2. Classroom assignments		• Supporting students' practical understanding through classroom assignments that include calculations and illustrations of water supply and sewage networks and waste disposal systems.			
3. Discussion groups		• 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
1	3	• Learn basic principles of environmental engineering and foundations of sustainability. • Apply core environmental concepts to engineering projects.	Introduction to Environmental and Sustainability Engineering	Interactive studio lecture, visual media & classroom discussion simulating professional challenges.	Classroom participation & Quiz 1 (15 Marks total share across Quizzes).
2	3	• Analyze different types of environmental pollution and their social and environmental impacts. • Propose sustainable architectural and urban design solutions.	Environmental Pollution and Design Impacts on the Environment and Society	Interactive lecture, visual media, discussion group & case study analysis.	Daily preparation check & Quiz 2.
3	3	• Develop effective waste management plans and promote recycling strategies. • Integrate sustainable resource management and waste disposal systems into design.	Waste Management and Recycling Promotion	Interactive lecture, classroom assignment & waste disposal network calculations.	Classroom assignment evaluation & Quiz 3.
4	3	• Evaluate the importance of biodiversity and natural ecosystem conservation. • Apply environmental engineering practices to protect ecosystems.	Biodiversity Protection and Ecosystem Conservation	Discussion groups, visual media & cooperative learning session.	Quiz 4 & Report topic allocation (10 Marks total share for Report).
5	3	• Apply industrial pollution control techniques to engineering projects. • Adopt green building principles and sustainable construction techniques.	Industrial Pollution Control and Green Building Technologies	Interactive studio lecture, green technology demonstration & visual media.	Quiz 5 & Term Exam preparation (15 Marks total share for Term Exam).
6	3	• Design effective strategies for natural resource management using modern technologies. • Enhance resource conservation and efficiency within built environments.	Natural Resource Management and Conservation Technologies	Problem-solving workshop, group discussion & cooperative learning.	Quiz 6 & practical assignment check.
7	3	• Identify advanced water and air treatment technologies. • Evaluate treatment effectiveness in improving environmental quality and public health.	Water and Air Treatment Technologies	Interactive lecture, water supply & sewage network illustration	Quiz 7 & Term Exam preparation.

				exercise, visual media.	
8	3	• Demonstrate theoretical understanding of environmental engineering, pollution, and green design under exam conditions. • Develop environmental response plans for natural disaster management.	Term Exam & Natural Disaster Management and Environmental Response	Written Term Examination session followed by problem-solving workshop.	Term Exam (15 Marks total share) & Quiz 8.
9	3	• Evaluate renewable energy sources and clean energy systems. • Apply clean energy technologies in engineering design to achieve sustainability.	Renewable Energy and Clean Energy Technologies	Interactive lecture, visual media presentation & discussion groups.	Quiz 9 & Report draft review.
10	3	• Apply Environmental Impact Assessment (EIA) methodologies to engineering projects. • Prepare environmental impact reports and analyze sustainable design alternatives.	Environmental Impact Assessment (EIA)	EIA methodology workshop, real-life project analysis & discussion.	Quiz 10 & Report progress check.
11	3	• Design development plans for sustainable cities integrating environmental principles. • Apply sustainability standards in urban planning and architectural design.	Sustainable City Planning and Environmental Design	Cooperative learning session, urban case study review & discussion.	Quiz 11 & classroom assignment check.
12	3	• Interpret national and international environmental policies and regulations. • Analyze the impact of environmental legislation on development projects.	Environmental Policies and Legislation	Interactive lecture, legislative review & discussion groups.	Quiz 12 & Report submission check.
13	3	• Conduct applied and innovative research in environmental sustainability. • Formulate advanced technical solutions addressing local and global environmental issues.	Research and Innovation Projects in Environmental and Sustainability Engineering	Applied research workshop, group discussion & problem-solving strategy.	Quiz 13 & Report Submission (10 Marks).
14	3	• Deliver specialized seminars on contemporary environmental topics. • Demonstrate scientific research, communication, and visual presentation skills.	Seminars (Contemporary Environmental Topics - Part 1)	Student seminar presentations, visual media & peer Q&A session.	Seminar presentation evaluation & Quiz 14.
15	3	• Promote critical thinking through interactive environmental seminar discussions.	Seminars (Contemporary Environmental Topics - Part 2)	Student seminar presentations, interactive	Seminar defense / Quiz 15 & Final Exam preparation (60

		• Synthesize environmental protection policies, EIA standards, and clean energy concepts.	& Course Synthesis	discussion panel & final course review.	Marks).
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.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			

Course Description Form

1. Course Name:					
Smart building systems					
2. Course Code:					
ENGE 539					
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)					
3 hours/ 3 ECTS credits					
7. 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					
8. 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.			
9. 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.			
10. 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 and teachers.	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
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	Second and third generation smart	A lecture in the classroom	Theoretical lectures with daily

		the use of class discussions, workshops, and group activities that promote interaction between students and teachers.	buildings and their features The impact of smart architecture on the design process Daily quiz		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 group activities that promote interaction between students and teachers.	Smart envelopes: characteristics, importance, and types	A lecture in the classroom	Theoretical lectures with daily and monthly exams, reports and discussions with students
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	Smart cities	A lecture in the classroom	HW, CW, exam

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

11. Course Evaluation

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

12. 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	

Course Description Form

1. Course Name:					
Graduation project II					
2. Course Code:					
ARC545					
3. Semester / Year:					
Second/ 2025-2026					
4. Description Preparation Date:					
2026					
5. Available Attendance Forms:					
Lectures in the classroom and studio					
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 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, and manage 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	15	- Identify, define, formulate, and solve architectural design problems by applying principles of engineering, science, and spatial analysis. - Synthesize project data and user requirements into a coherent design concept.	Building the Design Idea & Conceptual Formulation	Interactive studio feedback, desk discussion & SWOT analysis strategy.	Daily preparation check (10% total share) & concept discussion.
2	15	- Formulate context-sensitive site design solutions addressing orientation, access points, traffic circulation, and environmental factors. - Evaluate site constraints and opportunities using analytical frameworks.	Site Design Solutions & Contextual Analysis	Studio feedback, interactive site layout discussion & SWOT analysis review.	Desk discussion evaluation & daily check.
3	15	Integrate architectural building masses seamlessly into site topography, landscape, zoning, and surrounding urban fabric.	Project Integration into the Site & Master Planning	Studio feedback, master plan diagramming & site layout review.	Diagram submission check & desk feedback.

		• Establish spatial relationships between indoor and outdoor functions.			
4	15	• Translate functional program requirements into three-dimensional massing models and spatial zoning schemes. • Resolve circulation bottlenecks and programmatic adjacencies.	Functional Massing & Spatial Zoning Development	Studio feedback, physical/digital 3D massing review & group discussion.	Regular assessment check (20% total share for progress reviews).
5	15	• Establish appropriate spatial measurements, functional relationships, and entrance lobbies on ground level. • Implement quality assurance standards and spatial ergonomics in plan layout.	Ground Floor Plans Design & Spatial Layouts	Studio feedback, plan drafting workshop & interactive discussion.	Daily exam / daily check (10% total share for daily exams) & plan critique.
6	15	• Refine ground floor plan, main public entrances, service zones, and primary structural grid alignment. • Apply engineering judgment to optimize spatial efficiency	Ground Floor Plans Refinement & Structural Grids	Studio desk feedback, detailed plan analysis & group discussion.	Desk discussion evaluation & daily check.
7	15	• Design upper floor layouts aligning with vertical structural grids, spatial zoning, and egress routes. • Ensure functional continuity across multi-level floor plans.	Upper Floor Plans Design & Spatial Standardization	Studio feedback, architectural floor drafting & diagram presentation.	Floor plan diagram presentation & progress review.
8	15	• Optimize vertical and horizontal circulation networks, emergency exits, elevator cores, and service shafts. • Resolve complex spatial transitions across intermediate floor levels.	Floor Plans Comprehensive Refinement & Circulation Cores	Studio desk feedback, interactive floor plan review & peer discussion.	Regular Assessment 1 (Mid-Studio Desk Review / Preliminary Assessment: 20% total share).
9	15	• Analyze vertical spatial proportions, floor-to-floor heights, structural spans, and section profiles • Establish vertical volume connections, light wells, and atrium spaces	Building Sections ("Clips") & Vertical Spatial Relationships	Studio feedback, technical section drafting & presentation/discussion of plans.	Presentation and discussion of section plans.
10	15	• Integrate structural foundation details, floor slab assemblies, and roof enclosures within building section cuts. • Exercise engineering judgment to ensure structural stability and height compliance.	Building Sections Refinement & Structural Integration	Studio desk feedback, structural section overlay analysis & interactive discussion.	Daily preparation check & section drawing review.

11	15	• Coordinate HVAC ductwork, electrical risers, lighting, fire safety, and plumbing systems within plans and sections. • Apply sustainable design and environmental control principles.	Engineering Services & Environmental Systems Integration	Studio feedback, MEP systems overlay review & group discussion.	Desk discussion evaluation & technical systems check.
12	15	• Produce architectural facade designs that meet required functional needs and aesthetic goals within technical constraints. • Express design identity, material selection, and fenestration logic in elevations.	Facades & Exterior Architectural Design	Studio feedback, elevation drafting, visual rendering & presentation/discussion of plans.	Presentation and discussion of elevation drawings.
13	15	• Detail building envelopes, solar shading elements, cladding systems, and material transitions • Ensure environmental performance and daylighting optimization on exterior surfaces.	Facades & Building Envelope Detail Refinement	Studio desk feedback, 3D elevation modeling & material selection review.	Regular Assessment 2 (Pre-Jury Evaluation: 20% total share).
14	15	• Work effectively under project deadlines to assemble complete architectural plans, sections, elevations, and 3D visualizations. • Synthesize all design decisions into a cohesive presentation package.	Comprehensive Design Package & Portfolio Assembly	Studio desk consultation, digital portfolio polishing & mock presentation session.	Pre-final presentation review & portfolio audit.
15	15	• Defend architectural design solutions before an academic/professional jury, presenting analytical process and conclusions. • Demonstrate complete mastery of architectural problem-solving and technical synthesis	Final Evaluation & Project Jury Defense (Part 1: Exhibition & Defense)	Formal jury defense, visual board exhibition & panel evaluation session.	Final Project Submission and Discussion (60% total share - Part 1).
16	15	• Manage risk and uncertainty during final Q&A examination panel discussions. • Present complete engineering calculations, functional matrices, site plans, and final project models.	Final Evaluation & Comprehensive Defense (Part 2: Jury Assessment)	Formal panel review, portfolio examination & final jury Q&A session.	Final Project Submission and Jury Defense (60% total share - Part 2).

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%

Evaluating type	Degree
Daily preparation	10
Daily exams	10
Regular assessments	20
Final project submission and discussion	60
Total	100
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

Course Description Form

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)					
Raeed salim 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 of 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
1	2	- Understand general definitions, basic concepts, and the conceptual framework of professional architectural practice. - Facilitate the transition from academic/vocational education to professional practice.	General Definitions & Conceptual Framework of Professional Practice	Interactive classroom discussion, introductory lecture & group activities.	Classroom participation & Quiz preparation (20 Marks total share for Quiz).
2	2	- Define the fundamental role, main duties, and societal responsibilities of the architect. - Understand the rights and obligations of the architect toward clients and society.	The Architect and Their Main Duties	Interactive theoretical lecture, discussion group on professional role & case analysis.	Daily preparation check & oral evaluation.
3	2	Analyze professional qualification requirements and	The Formation of the Architect and Their Obligations	Theoretical presentation, interactive	Daily preparation & Report topic allocation (10 Marks total share)

		standard training for architects. • Evaluate legal, professional, and ethical obligations in architectural practice.		discussion on professional conduct & case review.	for Report).
4	2	• Identify key stakeholders, elements, and structural relationships within the construction field. • Differentiate roles between owners, architects, contractors, consultants, and regulatory bodies.	Elements of the Construction Field	Interactive lecture, stakeholder mapping workshop & group debate.	Quiz 1 (20 Marks).
5	2	• Differentiate between various classifications, employment structures, and roles of architects (consulting, project management, site supervision, institutional). • Understand institutional work structures and engineering office management principles.	Classification of Architects & Practice Models	Theoretical presentation, practice model case studies & class discussion.	Daily preparation & Report draft check.
6	2	• Familiarize with professional licensing requirements and local professional engineering bodies (e.g., Iraqi Engineers Syndicate, Architects Association). • Evaluate local and international standards for professional architectural practice.	Professional Organizations & Syndicate Regulations	Interactive lecture, review of syndicate laws and internal systems & group discussion.	Daily preparation check & Report progress review.
7	2	• Master legal and regulatory frameworks governing architecture, including building codes, urban planning laws, and environmental legislation. • Apply professional ethics codes and social responsibility guidelines to practice scenarios.	Law and Regulations of Professional Practice and Conduct	Legal code review, problem-solving strategy & interactive class discussion on ethics.	Daily test/preparation & Term Exam preparation (10 Marks total share for Term Exam).

8	2	• Demonstrate comprehensive theoretical knowledge of practice laws, ethics, and architect duties under exam conditions. • Evaluate legal and regulatory professional scenarios accurately.	Semester Exam (Midterm / Term Exam)	Written examination session.	Term Exam / Semester Exam (10 Marks).
9	2	• Define standard basic and supplementary professional services across project design and construction phases. • Articulate scope of work deliverables from schematic design to project handover.	The Architect and Their Services	Theoretical lecture, scope-of-services analysis & interactive discussion.	Daily preparation check & practical report review.
10	2	• Evaluate standard selection methods for architectural consultants (direct selection, qualification-based, fee-based). • Calculate professional fee structures, percentage fees, lump sum, and hourly rate arrangements.	Methods of Selecting the Architect and Fee Calculation	Interactive presentation, fee calculation workshop & practical problem-solving.	Daily preparation & fee calculation assignment check.
11	2	• Understand guidelines, regulations, and types of local and international architectural design competitions. • Evaluate competition briefs, jury processes, and ethical participation guidelines.	Architectural Competitions	Interactive lecture, competition case study analysis & class debate.	Daily preparation check & Report review.
12	2	• Draft and analyze standard professional service contracts and agreements between architects and clients. • Define contractual clauses, scope of work, liabilities, and intellectual property rights.	Architectural Professional Services Agreement	Practical contract analysis workshop, agreement drafting exercise & group review.	Contract drafting assignment evaluation & Report final review.
13	2	• Differentiate between various engineering and construction contract types (lump	Types of Contracts & Legal Conditions	Theoretical lecture, analysis of general contracting	Report Submission (10 Marks).

		sum, unit price, cost-plus). • Analyze general conditions for contracting, legal responsibilities, and dispute resolution.		conditions & discussion.	
14	2	• Manage engineering office operations, project timelines, and economic feasibility assessments. • Enhance multidisciplinary teamwork skills with structural, mechanical, electrical, and urban planning engineers.	Office Management, Economic Feasibility, Timelines & Interdisciplinary Teamwork	Project-based learning workshop, interdisciplinary team simulation & feasibility exercise.	Practical teamwork exercise check & Final Exam prep.
15	2	• Synthesize theoretical knowledge, legal regulations, contract types, professional ethics, and office management. • Demonstrate readiness to transition into active professional architectural practice.	Course Synthesis & Final Examination Review	Comprehensive course review session, Q&A discussion & final written examination.	Final Examination (60 Marks).

11. Course Evaluation

Evaluation type	Degree
1 report	10
1 Quiz	20
1 Term Exam	10
1 Final Exam	60
Total	100

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	