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

Academic Program and Course Description Guide

2025

Introduction:

The educational program is a structured set of courses designed to develop students' skills, preparing them for labor market requirements. This program is reviewed and evaluated annually through internal or external audit procedures.

The academic program description provides a summary of the program's content and its courses, outlining the skills students acquire in alignment with its academic objectives. This description is a fundamental component in obtaining program accreditation and is prepared by faculty members under the supervision of the department's scientific committees.

This guide includes updates to the academic description based on recent developments in the Iraqi educational system. It encompasses the description of traditional programs (semester-based, Courses) in addition to adopting the description of academic programs according to the Bologna Process, as stated in the directive of the Directorate of Studies No. T.M.3/2906 dated 3/5/2023.

In this context, we emphasize the importance of accurately documenting academic program and course descriptions to ensure the continuous improvement of the educational process.

Concepts and terminology:

Academic Program Description: Provides a brief summary outlining the program's vision, mission, and objectives, including a precise description of the intended learning outcomes based on specific learning strategies.

Course Description: Highlights the key features of the course and the expected learning outcomes that students should achieve. This helps assess the extent of their benefit from available learning opportunities and is derived from the program description.

Program Vision: An ambitious depiction of the program's future, making it progressive, inspiring, realistic, and feasible.

Program Mission: Defines the objectives and activities required to achieve them while outlining the program's development paths and directions.

Program Objectives: Statements describing what the program aims to accomplish within a specific timeframe. These objectives must be measurable and observable.

Curriculum Structure: Includes all courses within the academic program according to the adopted learning system (semester-based, annual, Bologna Process). It encompasses ministry, university, college, and department requirements, specifying the number of credit hours for each course.

Learning Outcomes: The knowledge, skills, and values that students acquire upon successfully completing the academic program. Learning outcomes must be defined for each course to align with the program's objectives.

Teaching and Learning Strategies: The methods employed by faculty members to enhance student learning. These include all in-class and extracurricular activities designed to achieve the desired learning outcomes.

Academic Program Description Form

University Name: University of Mosul
Faculty/Institute: College of Engineering.
Scientific Department: Civil Engineering
Academic or Professional Program Name: Bachelor of Science in Civil Engineering

Final Certificate Name: Bachelor of Science in Civil Engineering
Academic system: Bologna Process (First and Second Year), Semester System (Third Year), Courses System (Fourth Years)

Description Preparation Date: 4/11/2024
File Completion Date: 14/11/2024

Signature
Head of Department Name:
Date:25 03/2025

Signature
Scientific Assistant Name: Dr. Ayman Jalib Hameed
Date: 6 / 4/2025

The file has been checked by: Department of Quality Assurance and University Performance
Name of the Director of the Quality Assurance and University Performance Division:
Signature
Date: 6 /4 /2025

Approval of the Dean
Date: / /2025

1. Program Vision

Developing engineering education in the field of civil engineering to achieve excellence and deliver innovative, high-quality educational programs.

2. Program Mission

Preparing specialized civil engineers with a high level of scientific excellence to keep up with advancements in curricula and scientific research, utilizing these capabilities to serve the community and develop public and private institutions while adhering to human, ethical, and professional values.

3. Program Objectives

- Acquiring fundamental knowledge and skills in civil engineering, specializing in structures, geotechnics, and transportation, to serve the community and facilitate membership in professional associations.
- Establishing engineering practice in civil engineering to meet societal needs.
- Engaging in continuous learning to ensure professional development.
- Gaining creative knowledge that enables graduates to acquire problem solving skills and adapt to rapid and emerging technologies in structural engineering, geotechnics, and transportation, in addition to continuing lifelong learning activities.

4. Program Accreditation

The program is under review by the National Council for the Accreditation of Engineering Education (ICAEE).

5. Other external influences

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	9	20	0.092	There are three academic systems in the department: Bologna, Semester-based, and Course-based.
College Requirements	2	4	0.018	
Department Requirements	51	192 216	0.89	
Summer Training	1	Met or Not Met		
Other				

* This can include notes whether the course is basic or optional.

7. Program Description

Year/Level		Course Code	Course Name	Credit Hours	
1		CE101	Mathematics I	75	6.00
2		CE102	Engineering Mechanics I	75	6.00
3		CE103	Engineering Drawing I	30 30	5.00
4		CE104	Geology	30 30	6.00
5		CE105	Statistics I	30	3.00
6		UOM104	Democracy and Human Rights	30	2.00
7	The first year	UOM102	English Language 1	30	2.00
8		CE106	Mathematics II	75	7.00
9		CE107	Engineering Mechanics II	75	7.00
10		CE108	Engineering drawing II	30 30	6.00
11		UOM103	Computer 1	15 30	3.00
12		CE109	Statistics II	30	3.00
13		CE110	Electrical Engineering	30	2.00
14		UOM101	Arabic Language 1	30	2.00
15		CE201	Engineering Mathematics I	60	5.00
16		CE202	Mechanics of Materials I	60	5.00
17	The second year	CE203	Fluid mechanics	30 30	5.00
18		CE204	Concrete technology I	30 30	5.00
19		CE205	Engineering surveying I	30 45	6.00

No.	Year	Code	Course		
20		UOM2050	The crimes of the Baath regime in Iraq	30	2.00
21		UOM2012	Arabic Language 2	30	2.00
22		CE206	Engineering Mathematics II	60	5.00
23		CE207	Mechanics of Materials II	75	6.00
24		CE208	Building construction and damages assessment	45	3.00
25		CE209	Concrete technology II	30 / 30	5.00
26		CE210	Engineering surveying II	30 / 45	6.00
27		UOM2032	Computer 2	15 / 30	3.00
28		UOM2022	English Language 2	30	2.00
29		CE301	Engineering analysis	30 / 30	3
30		CE302	Theory of structures I	75	3
31		CE303	Soil mechanics I	45 / 30	3
32		CE304	Reinforced concrete I	60	3
33		CE305	Highway Engineering I	45 / 30	3
34		CE306	Environmental engineering I	30 / 30	3
35		CE307	Engineering management	30	2
36	The third year	CE308	Hydrology	30	2
37		CE309	Numerical analysis	30 / 30	3
38		CE310	Theory of structures II	75	3
39		CE311	Soil mechanics II	45 / 30	3
40		CE312	Reinforced concrete II	60	3
41		CE313	Highway Engineering II	45 / 30	3
42		CE314	Environmental engineering II	30 / 30	3
43		CE315	Engineering economy	30	2
44		CE316	Hydraulic structures	30	2
45			English language- Upper Intermediate	30	2
46		CIV401	Fundamentals of Steel Structures	30	2
47		CIV402	Reinforced Concrete Design	30	2
48		CIV403	Fundamentals of Foundation Engineering	45	3
49		CIV404	Graduation Project I	30	2
50	fourth year	CIV405	Computer Applications	0 / 30	1
51		CIV406	Special Topics in Design of Reinforced Concrete Structures	30	2
52		CIV408	Special Topics in Geotechnical Engineering	30	2
53		CIV410	Flexible Pavement Design	30	2
54		ENGG425	Engineering Management	30	2

55		ENGG426	Engineering Economics	30	2
56		CIV412	Graduation Project I I	30	2
57		CIV413	Quantity Survey	30	2
58		CIV414	Sanitary and Environmental Engineering Construction Drawing Steel Structure Design Analysis and Design of Deep Foundations Special Topics in Traffic Engineering Sanitary and Environmental Engineering	45	3
59		CIV415	Construction Drawing	30	1
60		CIV416	Steel Structures Design	30	2
61		CIV419	Analysis and Design of Deep Foundations	30	2
62		CIV421	Special Topics in Traffic Engineering	30	2

8. **Expected learning outcomes of the program**

Knowledge	
Learning Outcomes (A)	A1. The ability to distinguish, identify, define, formulate, and solve engineering problems by applying engineering principles, science, and mathematics. GOs(i) A2. The ability to produce engineering designs which meet the desired needs within certain constraints by applying both analysis and synthesis in the design process. GOs (ii) A3. The ability to perceive the continual necessity for professional knowledge growth and how to find, assess, assemble, and apply it properly. GOs (vi)
Skills	
Learning Outcomes (B)	B1. The ability to create and carry out proper measurements and tests with quality assurance, analyze and interpret the results, and utilize engineering judgment to make inferences. GOs (iii) B2. The ability to skillfully communicate orally with others and in writing with various managerial levels. GOs (iv) B3. The ability to perceive the continual necessity for professional knowledge growth and how to find, assess, assemble, and apply it properly. GOs (vi)
Ethics	

| Learning Outcomes (C) | C1. The ability to perceive ethical and professional responsibilities in engineering cases and make brilliant judgments considering the consequences in worldwide financial, ecological and societal considerations. GOs (v) |
| | C2. The ability to work adequately in teams, set up objectives, plan activities, meet due dates and manage risk and uncertainty. GOs (vii) |

9. Teaching and Learning Strategies

Strategies and Teaching Methods Adopted for Program Implementation:

1. Delivering theoretical lectures using PowerPoint.
2. Conducting laboratory experiments to apply concepts practically.
3. Utilizing computer labs for training on software and applications.
4. Presenting video lectures to support educational content.
5. Assigning group projects to enhance collaborative work.

10. Evaluation methods

i. Midterm and Final Exams

ii. Quizzes

iii. Reports and Assignments

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)	Number of the teaching staff	
	General	Special		Staff	Lecture
Professor	Civil Engineering	Highway Engineering		2	
		Geotechnical Engineering		2	

		Structural Engineering		1	
Assistant Professor	Civil Engineering	Highway Engineering		2	
		Geotechnical Engineering		3	
		Structural Engineering		8	
		Water		1	
	Mathematic	Functional Analysis		1	
Lecturer	Civil Engineering	Highway Engineering		2	
		Geotechnical Engineering		6	
		Structural Engineering		14	
Assistant Lecturer	Civil Engineering	Highway Engineering		1	
		Geotechnical Engineering		3	
		Structural Engineering		2	
	Management and Economics	Business Administration		1	
	Architecture Engineering	Architectural Design		1	

Professional Development

Mentoring new faculty members

Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.

Professional development of faculty members

Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

12. Acceptance Criterion

The department's capacity is determined within the admission plan based on the department's

intake capacity. This is then sent to the college, the university, and the ministry for official approvals. After the central student admissions are issued by the Ministry of Higher Education and Scientific Research, students are accepted by the ministry based on their grades and their preferences. Afterwards, students apply to the college through the registration office in the Engineering College Deanship, submit the required official documents, and are distributed to the college's departments based on their capacity and the student's preferences, including the possibility of transferring from other departments to the department. Once the student is accepted into the Environmental Engineering Department, registration is completed, and the student begins attending classes in this department.

13.   **The most important sources of information about the program**

- College Website:

https://uomosul.edu.iq/engineering/%d9%82%d8%b3%d9%85-%d8%a7%d9%84%d9%87%d9%86%d8%af%d8%b3%d8%a9-%d8%a7%d9%84%d9%85%d8%af%d9%86%d9%8a%d8%a9-3/

- University Website:

https://uomosul.edu.iq/

14.   Program Development Plan

Enhance the quality of education, raise graduate outcomes, and meet the required competencies, the department has adopted the Bologna system for education. This system includes the European Transfer and Accumulation System (ECTS).

| | | | | Required program Learning outcomes | | | | | | | | | |
| | | | | Knowledge | | | Skills | | | Ethics | | | |
Year/Level	Course Code	Course Name	Basic or optional	A1	A2	A3	B1	B2	B3	C1	C2	C3	
First	CE101	Mathematics I	Basic	*									
	CE102	Engineering Mechanics I	Basic	*									
	CE103	Engineering Drawing I	Basic	*									
	CE104	Geology	Basic	*	*								
	CE105	Statistics I	Basic	*									
	UOM104	Democracy and Human Rights	Basic							*			
	UOM102	English Language	Basic					*					
	CE106	Mathematics II	Basic	*									
	CE107	Engineering Mechanics II	Basic	*									
	CE108	Engineering Drawing II	Basic	*									
	UOM103	Computer Science	Basic						*				
	CE109	Statistics II	Basic	*									
	CE110	Electrical Engineering	Basic	*									
	UOM101	Arabic Language	Basic					*					

Program Skills Outline

	Code	Course	Type	1	2	3	4	5	6	7	8	9	10
Second	CE201	Engineering Mathematics I	Basic	*									
	CE202	Mechanics of Materials I	Basic	*									
	CE203	Fluid mechanics	Basic	*									
	CE204	Concrete technology I	Basic	*			*						
	CE205	Engineering surveying I	Basic	*			*						
	UOM2050	The crimes of the Baath regime in Iraq	Basic							*			
	UOM2012	Arabic Language 2	Basic						*				
	CE206	Engineering Mathematics II	Basic	*									
	CE207	Mechanics of Materials II	Basic	*									
	CE208	Building construction and damages assessment	Basic	*						*			
	CE209	Concrete technology II	Basic	*			*		*			*	
	CE210	Engineering surveying II	Basic	*			*		*			*	
	UOM2032	Computer 2	Basic	*	*		*		*				
	UOM2022	English Language 2	Basic						*				

Year	Code	Course	Type	1	2	3	4	5	6	7	8	9
Third	CE301	Engineering analysis	Basic	*								
	CE302	Theory of structures I	Basic	*								
	CE303	Soil mechanics I	Basic	*			*			*		
	CE304	Reinforced concrete I	Basic	*	*							
	CE305	Highway Engineering I	Basic	*	*		*					
	CE306	Environmental engineering I	Basic	*			*					
	CE307	Engineering management	Basic	*						*		
	CE308	Hydrology	Basic	*								
	CE309	Numerical analysis	Basic	*								
	CE310	Theory of structures II	Basic	*								
	CE311	Soil mechanics II	Basic	*			*			*	*	
	CE312	Reinforced concrete II	Basic	*	*							
	CE313	Highway Engineering II	Basic	*	*		*				*	
	CE314	Environmental engineering II	Basic	*			*					
	CE315	Engineering economy	Basic	*						*		
	CE316	Hydraulic structures	Basic	*	*							

Year	Code	Course	Type									
Fourth	-	English Language – Upper Intermediate	Basic					*				
	CIV401	Fundamentals of Steel Structures	Basic	*	*							
	CIV402	Reinforced Concrete Design	Basic	*	*							
	CIV403	Fundamentals of Foundation Engineering	Basic	*	*							
	CIV404	Graduation Project I	Basic	*	*	*	*	*	*	*	*	
	CIV405	Computer Applications	Basic						*			
	CIV406	Special Topics in Design of Reinforced Concrete Structures	Basic	*	*							
	CIV408	Special Topics in Geotechnical Engineering	Basic	*	*							
	CIV410	Flexible Pavement Design	Basic	*	*							
	ENGC425	Engineering Management	Basic	*						*		
	ENGC426	Engineering Economics	Basic	*						*		
	CIV413	Quantity Surveying	Basic	*						*		
	CIV414	Sanitary and Environmental Engineering	Basic	*	*							
	CIV415	Construction Drawing	Basic						*			
	CIV416	Steel Structure Design	Basic	*	*							
	CIV419	Analysis and Design of Deep Foundations	Basic	*	*							
	CIV421	Special Topics in Traffic Engineering	Basic	*								
	CIV412	Graduation Project II	Basic	*	*	*	*	*	*	*	*	

Please tick the boxes corresponding to the individual program learning outcomes under evaluation.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

<table>
<tr><td colspan="3" align="center">Module Information
معلومات المادة الدراسية</td></tr>
<tr><td>Module Title</td><td>Electrical Engineering</td><td>Module Delivery</td></tr>
<tr><td>Module Type</td><td>Support</td><td rowspan="4">☒ Theory
☒ Lecture
☐ Lab
☐ Tutorial
☐ Practical
☐ Seminar</td></tr>
<tr><td>Module Code</td><td>CE110</td></tr>
<tr><td>ECTS Credits</td><td>2</td></tr>
<tr><td>SWL (hr./sem)</td><td>50</td></tr>
<tr><td>Module Level</td><td>UGI</td><td>Semester of Delivery 2</td></tr>
<tr><td>Administering Department</td><td></td><td>College</td></tr>
<tr><td>Module Leader</td><td>Mr. Yehia Rehab hamdy</td><td>e-mail Yehia.rehab@uomosul.edu.iq</td></tr>
<tr><td>Module Leader's Acad. Title</td><td></td><td>Module Leader's Qualification</td></tr>
<tr><td>Module Tutor</td><td></td><td>e-mail</td></tr>
<tr><td>Peer Reviewer Name</td><td></td><td>e-mail</td></tr>
<tr><td>Scientific Committee Approval Date</td><td>2025</td><td>Version Number 1.1</td></tr>
</table>

<table>
<tr><td colspan="4" align="center">Relation with other Modules
العلاقة مع المواد الدراسية الأخرى</td></tr>
<tr><td>Prerequisite module</td><td>None</td><td>Semester</td><td></td></tr>
<tr><td>Co-requisites module</td><td>None</td><td>Semester</td><td></td></tr>
</table>

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

Module Aims أهداف المادة الدراسية	Learn protection from electric shock when working with electricity, constructing electric map of a house and residential building , making good grounding for a building and house, how to distribute electrical appliances inside the house, constructing electric bell circuits, fluorescent lamp, tester circuit...etc.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Learn how to connect circuit on series and parallel. 2- Learn how to measure current, voltage and power. 3- Distribution of electrical appliances and equipment within residential buildings, laboratories, government departments...etc 4- How to properly ground electrical equipment and buildings. 5- Protection and prevention from electric lightning. 6- An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, andmathematics. 7- An ability to acquire and apply new knowledge and using appropriate learning strategies. 8- An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. **Part A - Circuit Components and values** DC circuits, Current and voltage definitions, Passive sign convention and circuit elements, Resistive networks, real and ideal elements, voltage and current sources. [10 hrs.] **Part B- Circuit reduction** combining sources, Combining resistive elements in series and parallel, delta and star transformation. [10 hrs.] **Part C- Materials and Electrical installation** Conductors, Insulators, and Semiconductors. Lambs, Circuit breakers, bell (buzzer). [10 hrs.]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

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

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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2

Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation					
		تقييم المادة الدراسية			
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	24% (24)	4,8,12	LO #1, 5, 8 and 9
	Assignments	2	8% (8)	2 to 12	LO #1, 2, 4, 6 7, 8 and 9
	Projects / Lab.	1	4% (4)		
	Report	1	4% (4)	----	LO #1, 2, 4, 6 7, 8 and 9
Summative assessment	Midterm Exam	2 hr.	10% (10)	7	LO # 1-5
	Final Exam	3hr	50% (50)	16	All
Total assessment		100% (100 Marks)			

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Basic Concept & Units: Electricity & atomic structure of substance, current and current density, current flow, electric circuit, E.M. F& potential difference
Week 2	international system of unit, abbreviation for multiples & sub-multiples, quantities derived from SI units, units of force-energy-torque and power, relation between energy and heat, electric units, efficiency & percentage efficiency, electromechanical equivalent of element
Week 3	Ohm's law, resistivity & conductivity
Week 4	temperature affect, internal resistance of a source, open circuit & short circuit
Week 5	equivalent resistance: Series-parallel-circulating current method-floating source method & grouping of E.M.F. sources, double subscript
Week 6	power calculation in D.C circuit
Week 7	Energy calculation in D.C circuit
Week 8	Mid-term Exam
Week 9	General rules for the prevention of electric shock
Week 10	Grounding resistor calculation
Week 11	Grounding installation for houses and buildings
Week 12	Protection and prevention from electric lightning
Week 13	Distribution of electrical appliances and equipment within residential buildings

Week 14	Conducting inspections of electrical devices
Week 15	Voltage drop calculations for transmission lines
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

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

Learning and Teaching Resources

مصادر التعلم و التدريس

	Text	Available in the Library?
Required Texts	Engineering Circuit Analysis 7th Edition by William Hayt , Jack Kemmerly , Steven Durbin	Yes
Recommended Texts	Schaum's Outline of Basic Circuit Analysis, Second Edition (Schaum's Outlines) 2nd Edition, by John O'Malley	No
Websites	DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2017.	

Grading Scheme

مخطط الدرجات

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

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

أ.د. معتز عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
Module Title	Democracy and Human Rights	**Module Delivery**	
Module Type	basic	☐ **Theory**	
Module Code	UOM1040	☒ **Lecture**	
ECTS Credits	2	☐ **Lab**	
SWL (hr/sem)	50	☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Level	1	**Semester of Delivery**	three
Administering Department		**College**	
Module Leader	Ali Abdulmutalib	**e-mail**	
Module Leader's Acad. Title		**Module Leader's Qualification**	MSc
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	2025	**Version Number**	1.1

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

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

Module Aims أهداف المادة الدراسية	The aim of studying the democracy and human rights topics is to: 1. **Understand** the concept of human rights and explore their sources, including international, regional, national, and religious sources. 2. **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. 3. **Trace** the historical development and evolution of human rights, examining key milestones and movements that have shaped the modern understanding of human rights. 4. **Differentiate** between different categories of human rights, including civil and political rights, economic and social rights, and environmental, cultural, and developmental rights. 5. **Explore** legal, institutional, and societal guarantees to prevent human rights violations, including guarantees of human rights in Islam, national-level protections, and international safeguards. 6. **Comprehend** the concept of democracy, including its principles, values, and various forms of democratic governance such as direct, semi-direct, indirect, and digital democracy. Overall, studying these topics aims to develop a comprehensive understanding of human rights, democracy, and combating corruption, empowering individuals to actively promote and protect human rights and democratic values in society.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	After these module aims, students should be able to: 1. Demonstrate a comprehensive understanding of the concept of human rights and their sources, including international, regional, national, and religious sources. 2. Identify and explain the fundamental characteristics of human rights, such as universality, indivisibility, interdependence, and inalienability. 3. Analyze the historical emergence and evolution of human rights, including key milestones and movements that have shaped their development. 4. Differentiate between different categories of human rights, including civil and political rights, economic and social rights, and environmental, cultural, and developmental rights. 5. Evaluate and apply legal, institutional, and societal guarantees to prevent human rights violations, considering guarantees in Islam, at the national level, and within the international framework. 6. Understand and discuss the concept of democracy, including its principles, values, and different forms of democratic governance. 7. Evaluate the Islamic stance on democracy and engage in critical analysis of the strengths and weaknesses of the democratic system. 8. Recognize and assess the impact of administrative corruption on society and propose methods to combat and prevent corruption in administrative systems. 9. Demonstrate critical thinking skills by analyzing and evaluating different

	perspectives on human rights, democracy, and corruption.
	10. Apply acquired knowledge and skills to promote and protect human rights, democracy, and good governance in personal, professional, and civic contexts.
	Overall, students should have a solid understanding of democracy and human rights, democracy, and corruption issues, and be able to apply this knowledge to contribute to the advancement of human rights and democratic values in society.
Indicative Contents المحتويات الإرشادية	The indicative content includes: 1. Definition and sources of democracy and human rights (international, regional, national, religious). [3h] 2. Characteristics of democracy and human rights: universality, indivisibility, interdependence, inalienability. [3h] 3. Emergence and evolution of human rights: historical development, key milestones, influential movements. [3h] 4. Types of human rights: civil and political, economic and social, environmental, cultural, and developmental. [3h] 5. Guarantees to prevent human rights violations: legal, institutional, societal safeguards, Islamic guarantees, national and international levels. [3h] 6. Concept of democracy: principles, values, forms of governance (direct, semi-direct, indirect). [3h] 7. Islamic stance on democracy: compatibility, strengths, weaknesses. [3h] 8. Critique of the democratic system: analysis of strengths and weaknesses. [3h] 9. Administrative corruption: definition, types, societal impact. [3h] 10. Methods to combat administrative corruption. [3h]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	When it comes to learning and teaching strategies for a human rights module, there are several approaches can be taken to enhance understanding and engagement. Here are some effective strategies: 1. 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. 2. 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. 3. Research Projects: Assign research projects on specific human rights topics or

issues. This encourages independent learning, critical analysis, and the development of research skills.
4. Collaborative Learning: Foster collaboration among students through group projects or assignments. This encourages teamwork, peer learning, and the exchange of diverse perspectives.
5. Assessment Variety: Use a variety of assessment methods, including essays, presentations, debates, and quizzes, to assess students' understanding of human rights concepts and their ability to apply them to real-world situations.

| Student Workload (SWL) | | | |
الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

| Module Evaluation | | | | |
تقييم المادة الدراسية				
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #2, 4, 6 and 8
	Assignments	2	20% (20)	3, 5, 8, 11, 13	LO # 1, 3, 7, 6, 9 and 10
	Projects / Lab.		10% (10)		
	Report	1	10% (10)	13	LO # 2,4,5,7,9and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

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

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

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

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	ضمانات حقوق الانسان وحمايتها وفقا للقانون الدولي والتشريع الوطني / نبيل عبد الرحمن ناصر الدين	No
Recommended Texts	الديمقراطية وحقوق الانسان / د. أمير عبد العزيز	No
Websites		

Grading Scheme
مخطط الدرجات

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

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

أ.د. معين عبد الجبار محمد
رئيس قسم الهندسة المدنية

MODULE DESCRIPTION FORM
نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		
Module Title	**ENGINEERING DRAWING I**	**Module Delivery**
Module Type	**C**	☐ **Theory**
Module Code	CE103	☒ **Lecture**
ECTS Credits	**5**	☒ **Lab**
		☐ **Tutorial**
SWL (hr/sem)	**125**	☐ **Practical**
		☐ **Seminar**

Module Level	UGI	**Semester of Delivery**	1
Administering Department	Type Dept. Code	**College**	Type College Code
Module Leader	Ibtesam hazem/sura abd-alrazaaq	**e-mail**	ibtesam_alzubady_b-s@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	MSc
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	امينة احمد خليل	**e-mail**	amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date	2025	**Version Number**	1.0

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

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

Module Aims أهداف المادة الدراسية	1. To know about different types of lines & use of different types of pencils in an Engineering Drawing 2. To know how to represents letters & numbers in drawing sheet. 3. To know how to draw graphic geometry. 4. To know about different types of projection 5. To know projection of points ,straight lines, solids etc. 6. To know development of different types of surfaces.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Identify and use of different grades of pencils and other drafting instruments which are used in engineering field . 2- Draw free hand sketches of various kinds of objects. 3- Utilize various types of lines used in engineering drawing. 4- Read and apply different dimensioning methods on drawing of objects. 5- Use different types of scales and their utilization in reading and reproducing drawings of objects and maps. 6- Draw 2 - dimensional view of different objects viewed from different angles (orthographic views) . 7- Draw and interpret complete inner hidden details of an object which are otherwise not visible in normal view. 8- An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, andmathematics. 9- An ability to acquire and apply new knowledge and using appropriate learning strategies. 10- An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: Introduction about tools drawings and types of lines[4], Basic graphic &types of scales[6], graphic geometry , drwaing polygons and ellipps ,reverse curve [12] , Orthographic Projection [18], Surface States[6] , Projection on Inclined Surfaces[8] , Tangent points [6].

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

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

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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150	

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	3	15% (15)	4, 13	LO #3, 4, 5,6 and 7
	H.W & C.W	12	24% (24)	1, 13	LO #3, 4, 5,6 and 7
	Projects / Lab.				
	Report	1	1%(1)		LO #3, 4, 5,6- 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي	
	Material Covered
Week 1	Introduction to drawing instruments, materials, layout and sizes of drawing sheets and drawing boards.
Week 2	Different types of lines in Engineering drawing & Practice of vertical, horizontal and inclined lines.
Week 3	Basic Graphic
Week 4	Types of scales
Week 5	Graphic Geometry: how to draw to parallel , perpendicular & divide line.
Week 6	Geometrical figures such as triangles, rectangles, circles, ellipses and curves, hexagonal, pentagon with the help of drawing instruments
Week 7	Reverse Curve or Ogee Curve
Week 8	Theory of orthographic projections
Week 9	Types of projection
Week 10	Projection with parallel and perpendicular rays
Week 11	Three views of orthographic projection of different objects. (At least one sheet in 3rd angle)
Week 12	Surface States

Week 13	Projection of cylinders
Week 14	Projection on Inclined Surfaces
Week 15	Tangent points in projection
Week 16	Final Exam

	Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered	
Week 1	Teaching students to use tools in the studio	
Week 2	Teaching students how to draw H.W. No. 1 and how to draw angles correctly	
Week 3	Application to engineering operations by giving several homework questions	
Week 4	Apply the drawing scale by giving a class work	
Week 5	A practical application on drawing parallel and perpendicular lines and learning how to draw polygons,ellipse.	
Week 6		
Week 7	Teach students to draw an reverse curves and give examples	
Week 8	Practical application to various issues related to the theory of orthographic projection through class assignments and giving homework	
Week 9		
Week 10		
Week 11		
Week 12	Solve examples of surface states	
Week 13	Solve examples of projection of cylinders	
Week 14	A practical application of projection on inclined surfaces and teaching the student how to find points of tangent in the projections	
Week 15		

	Learning and Teaching Resources مصادر التعلم والتدريس	
	Text	**Available in the Library?**
Required Texts	Engineering Drawing and Graphic Technology, By French & Vierk , Twelve edition	yes
Recommended Texts	Technical drawing with engineering	No
Websites		

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

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أ.د. معتز عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

<table>
<tr><td colspan="4" align="center">Module Information
معلومات المادة الدراسية</td></tr>
<tr><td>Module Title</td><td colspan="2"><strong style="color:red">ENGINEERING DRAWING II</td><td>Module Delivery</td></tr>
<tr><td>Module Type</td><td colspan="2">core</td><td rowspan="4">☐ Theory
☒ Lecture
☒ Lab
☐ Tutorial
☐ Practical
☐ Seminar</td></tr>
<tr><td>Module Code</td><td colspan="2" style="color:red">CE108</td></tr>
<tr><td>ECTS Credits</td><td colspan="2">6</td></tr>
<tr><td>SWL (hr/sem)</td><td colspan="2"><strong style="color:red">150</td></tr>
<tr><td>Module Level</td><td>UGI</td><td>Semester of Delivery</td><td>2</td></tr>
<tr><td>Administering Department</td><td>Type Dept. Code</td><td>College</td><td>Type College Code</td></tr>
<tr><td>Module Leader</td><td>Ibtesam hazem/sura abd-alrazaaq</td><td>e-mail</td><td>ibtesam_alzubady_b-s@uomosul.edu.iq</td></tr>
<tr><td>Module Leader's Acad. Title</td><td>Lecturer</td><td>Module Leader's Qualification</td><td>MSc</td></tr>
<tr><td>Module Tutor</td><td>Name (if available)</td><td>e-mail</td><td>E-mail</td></tr>
<tr><td>Peer Reviewer Name</td><td>امينة احمد خليل</td><td>e-mail</td><td style="color:red">amina.alshumam@uomosul.edu.iq</td></tr>
<tr><td>Scientific Committee Approval Date</td><td>2025</td><td>Version Number</td><td>1.0</td></tr>
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<table>
<tr><td colspan="4" align="center">Relation with other Modules
العلاقة مع المواد الدراسية الأخرى</td></tr>
<tr><td>Prerequisite module</td><td>None</td><td>Semester</td><td></td></tr>
<tr><td>Co-requisites module</td><td>None</td><td>Semester</td><td></td></tr>
</table>

<table>
<tr><td colspan="3" align="center">Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية</td></tr>
<tr>
<td>Module Aims
أهداف المادة الدراسية</td>
<td colspan="2">
1. To know about isometric projection.
2. Different lines used for representation of different Engineering Sections.
3. To know how to estimate missing view.
4. Qualifying students to use Autocad for engineering drawings efficiently in order to help them in their designs & projects.
</td>
</tr>
<tr>
<td>Module Learning Outcomes

مخرجات التعلم للمادة الدراسية</td>
<td colspan="2">
1- Identify and use of different grades of pencils and other drafting instruments which are used in engineering field .
2- Draw free hand sketches of various kinds of objects.
3- Generate isometric (3D) drawing from different 2D (orthographic) views/sketches.
4- Identify conventions for different engineering materials, symbols, sections of regular objects and general fittings used in Civil and Electrical household appliances.
5- Find the missing views.
6- students will be able to use Autocad commands to make drawings, create annotations, create & insert symbols, dimension a drawing, create blocks, and plot drawings with certain scales.
7- An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, andmathematics.
8- An ability to acquire and apply new knowledge and using appropriate learning strategies.
9- An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
</td>
</tr>
<tr>
<td>Indicative Contents
المحتويات الإرشادية</td>
<td colspan="2">
Indicative content includes the following:

Introduction in in Isometric drawing then explain its type , Circles Isometric [10] , Inclined Surfaces in Isometric [4] , Missing View [6] , Sectional Views, Parts not sectioned [10] , Autocad commands [30].
</td>
</tr>
<tr><td colspan="3" align="center">Learning and Teaching Strategies
استراتيجيات التعلم والتعليم</td></tr>
<tr>
<td>Strategies</td>
<td colspan="2">
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.
</td>
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<table>
<tr><td colspan="4" align="center">Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا</td></tr>
<tr>
<td align="center">Structured SWL (h/sem)
الحمل الدراسي المنتظم للطالب خلال الفصل</td>
<td align="center">63</td>
<td align="center">Structured SWL (h/w)
الحمل الدراسي المنتظم للطالب أسبوعيا</td>
<td align="center">4</td>
</tr>
</table>

Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل		150	

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	1	12% (12)	4, 13	LO #3, 4, 5 and 6
	H.W &	1	8% (8)	1, 13	LO #3, 4, 5 and 6
	Autocad	1	10%(10)	8,15	LO #6
	C.W	1	10%		
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-6
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي	
	Material Covered
Week 1	Pictorial Drawing- Isometric drawing
Week 2	Circles Isometric
Week 3	Inclined Surfaces in Isometric
Week 4	Missing View
Week 5	Dimensions and Notes
Week 6	Sectional Views
Week 7	Parts not sectioned
Week 8	Getting started: 1- Start a new drawing. 2- User Interface. 3- Drafting settings I (Snap, Rectangular & Isometric grid). 4- Limits. 5- Units. 6- Absolute & Relative coordinate system. 7- Ortho.
Week 9	Drawing I 1- 2- Line, Arc, Circle, Ellipse, Polygon, Rectangle,
Week 10	Drawing II, View. 1- Zoom, Pan, 2- Drafting settings II.(Osnap, Polar snap). 3- Pline, Pedit. 4- Erase. 5- Selecting objects. 6- Ltype, Ltscale.awing II, View. 1- Zoom, Pan, 2- Drafting settings II.(Osnap, Polar snap). 3- Pline, Pedit. 4- Erase. 5- Selecting objects. 6- Ltype, Ltscale.
Week 11	Modify I, Drawing III: 1-Copy, Rotate, Move, Scale, Stretch. 2- Undo, U, Redo. 3-, Lweight. 4- Divide, Measure.5- Point (DDPTYPE).
Week 12	Layers, Modify II: 1- Working with Layers. 2- Properties (Mo, Ch). 4- Working with Grips.
Week 13	**Modify III.** 1- Array, Offset, Fillet, Chamfer, Trim, Extend, Lengthen, Mirror,Break, Join, Explode.
Week 14	Annotation I, Modify IV, Inquiry: 1-Style, Text, Mtext, Ddedit,. 2- ID, Dist, Area, Massprop

Week 15	Annotation II: 1- Dimensions & Leaders.
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الإسبوعي للمختبر

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

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Engineering Drawing and Graphic Technology, By French & Vierk , Twelve edition Autodesk Autocad 2020 online Help	yes
Recommended Texts	Technical drawing with engineering	No
Websites		

Grading Scheme

مخطط الدرجات

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

أ.د. معان عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

4

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
Module Title	**English Language**	**Module Delivery**	
Module Type	Basic	☐ **Theory**	
Module Code	UOM1021	☒ **Lecture**	
ECTS Credits	2	☐ **Lab**	
		☐ **Tutorial**	
SWL (hr/sem)	50	☐ **Practical**	
		☐ **Seminar**	
Module Level	UGI	**Semester of Delivery**	1
Administering Department	Type Dept. Code	**College**	Type College Code
Module Leader	Mohammed Kamil Faris	**e-mail**	Mohammed.kamil@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	Ph.D.
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	2025	**Version Number**	1.1

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

	Module Aims, Learning Outcomes and Indicative Contents
	أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية
Module Aims أهداف المادة الدراسية	The objective of the English class is to develop vocabulary and speaking skills, focusing on personal introductions and basic conversation topics. Students will learn to express personal information, talk about their world, discuss family and friends, describe their preferences, and communicate about sports, food, and drinks. The class aims to enhance reading and listening skills through engaging texts and audio materials while improving writing skills through various writing tasks. Additionally, students will practice proper pronunciation and expand their vocabulary by learning adjectives, question words, and basic language structures. By the end of the course, students will have gained confidence in using English for everyday communication, improved their language proficiency in speaking, reading, writing, and listening, and developed a broader range of vocabulary.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The outcome of the English class is 1. Developed a strong vocabulary and improved speaking skills for basic conversation and personal introductions. 2. Acquired knowledge about different countries, their cultures, and improved reading and speaking abilities to discuss them. 3. Gained proficiency in using personal pronouns (he/she/they) and possessive pronouns (his/her/their). 4. Enhanced reading and listening skills by understanding and responding to texts on topics such as jobs, personal information, and social expressions. 5. Strengthened reading and writing skills through activities focused on family, possessive forms, and the alphabet. 6. Expanded vocabulary related to sports, food, drinks, languages, nationalities, numbers, and prices, while improving pronunciation. 7. Developed the ability to ask questions using question words, use pronouns (me/him/us/them), and express preferences using adjectives. 8. Improved overall vocabulary and communication skills in both speaking and listening through various activities and exercises. 9. An ability to acquire and apply new knowledge and using appropriate learning strategies. 10. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A - Reading and Writing: -Developing reading comprehension skills through texts and passages related to various topics. -Practicing writing skills through activities such as summarizing, paragraph writing, and essay writing. [30 hrs] Part B -Vocabulary: -Building vocabulary related to different themes and contexts, including greetings, personal information, occupations, sports, food, drinks, etc. -Expanding word knowledge through exercises, word associations, and contextual usage [10 hrs]

	Part C -Listening and Speaking: -Enhancing listening skills through audio materials, dialogues, and conversations. -Engaging in speaking activities to improve fluency, pronunciation, and communication skills.
	-Participating in discussions, role-plays, and presentations to develop oral proficiency. [7 hrs]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

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

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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	18% (18)	5, 10	LO #3, 4, 5, and 6
	Assignments	3	18% (18)	2, 12	LO #1, 2, 5, and 6
	Projects / Lab.				
	Report	1	4%(4)		LO # 1-10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Unit 1- Hello.
Week 2	Vocabulary and speaking.
Week 3	Unit 2- your world. Countries • he/she/they, his/her • Where's he from?
Week 4	Reading and Speaking.
Week 5	Unit 3- All about you. Jobs • am/are/is • Negatives and questions • Personal information • Social expressions.
Week 6	Reading and Listening.
Week 7	**Mid-term Exam**
Week 8	Unit 4- Family and friends. our/their • Possessive 's • The family • has/have • The alphabet
Week 9	Reading and Writing.
Week 10	Unit 5- The way I live. Sports/ Food/ Drinks • Present Simple - l/you/we/they • a/ an Languages and nationalities • Numbers and prices.
Week 11	Vocabulary and Pronunciation.
Week 12	Unit 6- My favorites. Question words • me/him/us/them • this/that Adjectives • Can I ... ?
Week 13	Vocabulary -Adjectives
Week 14	Reading and Writing
Week 15	Speaking and Listening.
Week 16	**A preparatory week before the Final Exam**

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	

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

	Learning and Teaching Resources مصادر التعلم والتدريس	
	Text	Available in the Library?
Required Texts	New headway, beginner student's book. John and Liz Soars.	Yes
Recommended Texts		
Websites		

Grading Scheme
مخطط الدرجات

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

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

أ.د. معين عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

-MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
Module Title	**Geology**	**Module Delivery**	
Module Type	**Core**	☒ Theory	
Module Code	**CE104**	☒ Lecture	
ECTS Credits	**6**	☒ Lab	
SWL (hr/sem)	**150**	☒ Tutorial ☐ Practical ☐ Seminar	
Module Level	UGIV	**Semester of Delivery**	1
Administering Department	Type Dept. Code	**College**	Type College Code
Module Leader	Dr. Mohammed N. Jaro	**e-mail**	m.jaro@uomosul.edu.iq
Module Leader's Acad. Title	lecture	**Module Leader's Qualification**	
Module Tutor	Zeena Ahmed Kazzaz	**e-mail**	zeena.kazzaz@uomosul.edu.iq
Peer Reviewer Name	امينة احمد خليل	**e-mail**	amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date	2025	**Version Number**	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The Module aims including the following:
	1 Importance of engineering geology for civil engineer
	2 Learning types of minerals and their engineering properties, in addition to clay minerals which have great importance in civil engineering
	3 Understand basic relation in soil and rocks
	4 Effect of geological structures on engineering facilities built above and under the earth surface.
	5 Learning methods of drawing and reading geological, topographic and contour maps, and calculating the amounts of backfill and cut.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**1** Learning types of minerals and their engineering properties, in addition to clay minerals which have great importance in civil engineering
	2 Understand basic relation in soil and rocks
	3 Effect of geological structures on engineering facilities built above and under the earth surface.
	4 Learning methods of drawing and reading geological, topographic and contour maps, and calculating the amounts of backfill and cut.
	5. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, andmathematics.
	6. An ability to acquire and apply new knowledge and using appropriate learning strategies.
	7. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following.
	1- Definition of engineering geology
	2- The relationship between geology and civil engineering [4]
	3- Definition of natural minerals and their engineering properties Clay Mineralogy [4]
	4- Introduction to rocks and their types in the Earth's crust
	5- Definition of sedimentary, igneous and metamorphic rocks, their types and geological characteristics [4]
	6- Weathering, erosion and soil formation [4]
	7- Geological structures - folds, faults and joints in rocks and their impact on engineering structures [4]
	8- Engineering properties of rocks - physical and mechanical [4]
	9- Midterm examination [4]
	10- Topographical and geological maps and the purpose of their study [4]
	11- Soil engineering properties - physical, mechanical, and hydraulic properties of the soil [4]
	12- Ground water - storage and movement of ground water, factors affecting groundwater movement and ground water qualityR [4]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The main strategy that will be adopted in delivering this module is to:
	1 Importance of engineering geology for civil engineer
	2 Learning types of minerals and their engineering properties, in addition to clay minerals which have great importance in civil engineering
	3 Understand basic relation in soil and rocks
	4 Effect of geological structures on engineering facilities built above and under the earth surface.
	5 Learning methods of drawing and reading geological, topographic and contour maps, and calculating the amounts of backfill and cut.

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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	87	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	63	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation
تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Definition of engineering geology
Week 2	Definition of engineering geology The relationship between geology and civil engineering
Week 3	Definition of natural minerals and their engineering properties Clay Mineralogy
Week 4	Introduction to rocks and their types in the Earth's crust Definition of sedimentary, igneous and metamorphic rocks, their types and geological characteristics
Week 5	Introduction to rocks and their types in the Earth's crust Definition of sedimentary, igneous and metamorphic rocks, their types and geological characteristics
Week 6	Weathering, erosion and soil formation
Week 7	Geological structures - folds, faults and joints in rocks and their impact on engineering structures
Week 8	Engineering properties of rocks - physical and mechanical
Week 9	Engineering properties of rocks - physical and mechanical
Week 10	Midterm examination
Week 11	Topographical and geological maps and the purpose of their study
Week 12	Soil engineering properties - physical, mechanical, and hydraulic properties of the soil
Week 13	Soil engineering properties - physical, mechanical, and hydraulic properties of the soil
Week 14	Ground water - storage and movement of ground water,
Week 15	factors affecting groundwater movement and ground water qualityR
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Definition of laboratory apparatus
Week 2	Types and properties of minerals
Week 3	Study of the types and composition of igneous rocks
Week 4	Study of the types and composition of metamorphic rocks
Week 5	Study of the types and composition of sedimentary rocks
Week 6	Midterm examination
Week 7	Some tests on rocks

Week 9	Preparatory week before the final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Basic of geology for engineers	Yes
Recommended Texts	Engineering Geology Soil mechanic and foundation engineer	No
Websites		

Grading Scheme
مخطط الدرجات

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

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

أ.د. ....
رئيس قسم الهندسة المدنية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		
Module Title	**Mathematics I**	**Module Delivery**
Module Type	Core	☒ Theory
Module Code	**CE101**	☒ Lecture
ECTS Credits	**6**	☐ Lab
		☒ Tutorial
SWL (hr/sem)	**150**	☐ Practical
		☐ Seminar

Module Level	UGI	**Semester of Delivery**		1
Administering Department	Type Dept. Code	**College**	Type College Code	
Module Leader	Mohammed Th. Al-Neima Ahmad Ibrahim	**e-mail**	mohammedmth@uomosul.edu.iq	
Module Leader's Acad. Title	Lecture Assistant lecture	**Module Leader's Qualification**		Ph.D. M.SC.
Module Tutor		**e-mail**		
Peer Reviewer Name	Amina A Khaleel	**e-mail**	amina.alshumam@uomosul.edu.iq	
Scientific Committee Approval Date	2025	**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Provide the fundamental base for elementary mathematics. 2. Use mathematical functions like trigonometric functions and application of derivatives to solve some Engineering problems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Basic 2D Curves drawing using shifting properties. 2. Apply mathematic techniques to find the limits. 3. Apply differential calculus and higher order to solve Engineering problems. 4. Find velocity, acceleration with application of derivatives. 5. Apply determinants properties and Crammer`s rule to solve Engineering problems. 6. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Chapter 1 Prerequisites for calculus, coordinates and Graphs in the plane,. Slope and Equations for lines, functions and their graphs.Shifts, Cirrcles and parabolas , A review of trigonometric functions. [15 hrs] Chapter 2 Limits and continuity, introduction to limit, The sandwich theorem and $\frac{\sin\theta}{\theta}$, Limits involving infinity, continuous functions [15 hrs] Chapter 3 Derivatives, slopes, Tangent lines and derivatives. Differentiations Rules, Derivatives of Trigonometric functions. The chain rule, implicit differentiation and fractional powers [15 hrs] Chapter 4 Applications of derivatives, Related rates of change. Maxima, minima, curve sketching with y' and y''. Graphing Rational functions, Asymptotes, Optimization [15 hrs] Chapter 5 Types of Matrices, operations sum, multiplication by scalar, multiplication between two matrices, Determinants, The adjoin of Matrix, inverse of Matrix, Solving systems of linear equation using Matrices. [15 hrs]

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

	classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	24% (24)	5, 10,11	LO #1, 2, 3
	On line Assignments	4	4% (4)	2, 4,6,8	LO # 1-4
	Onsite Assignments	4	4% (4)	3,5,7,9	LO # 1-4
	Projects / Lab.				
	Report	1	3%(3)	13	LO # 1-6
	Seminars	1	5%(5)		LO # 1-6
Summative assessment	Midterm Exam	2 hr	10% (10)	8	LO # 1-3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

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Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Prerequisites for calculus, coordinates and Graphs in the plane,
Week 2	Slope and Equations for lines, functions and their graphs
Week 3	Shifts, Cirrcles and parabolas , A review of trigonometric functions.
Week 4	Limits and continuity, introduction to limit.

Week 5	The sandwich theorem and $\frac{\sin\theta}{\theta}$
Week 6	Limits involving infinity, continuous functions
Week 7	Derivatives, slopes, Tangent lines and derivatives
Week 8	Differentiations Rules, Derivatives of Trigonometric functions
Week 9	The chain rule, implicit differentiation and fractional powers
Week 10	Applications of derivatives, Related rates of change.
Week 11	Maxima, minima, curve sketching with y' and y''
Week 12	Graphing Rational functions, Asymptotes, Optimization
Week 13	Types of Matrices, operations sum, multiplication by scalar, multiplication between two matrices.
Week 14	Determinants, The adjoin of Matrix, inverse of Matrix
Week 15	Solving systems of linear equation using Matrices
Week 16	**Preparatory week before the final Exam**

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Thomas' Calculus by Finney and Thomas.	Yes
Recommended Texts	**Calculus by Ron Larson, Bruce Edwards.**	no
Websites		

Grading Scheme
مخطط الدرجات

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

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

أ.د. معين عبد الجبار محاعون
رئيس قسم الهندسة المدنية

5

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		
Module Title	**Mathematics II**	**Module Delivery**
Module Type	Core	☒ Theory
Module Code	**CE106**	☒ Lecture
ECTS Credits	**7**	☐ Lab
SWL (hr/sem)	**175**	☒ Tutorial
		☐ Practical
		☐ Seminar

Module Level	UGI	Semester of Delivery	2
Administering Department	Type Dept. Code	**College**	Type College Code
Module Leader	Ahmad Ibrahim	**e-mail**	
Module Leader's Acad. Title	Assistant lecture	**Module Leader's Qualification**	M.SC.
Module Tutor		**e-mail**	
Peer Reviewer Name	Amina A Khaleel	**e-mail**	amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date		**Version Number**	1.0

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

	Module Aims, Learning Outcomes and Indicative Contents
	أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية
Module Aims أهداف المادة الدراسية	1. Provide the fundamental base for elementary mathematics about integraltion. 2. Use mathematical integration to find the area, length of the curve and volume.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Integral some functions. 2. Apply integral information to find the area between tow curves. 3. Apply integral information to find the volume generated by revolving the area. 4. Know the inverse functions. 5. Apply the technique of integration to solve integral problems. 6. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, andmathematics. 7. An ability to acquire and apply new knowledge and using appropriate learning strategies. 8. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Chapter 1 Integrating , finding the area with x-axis, Definite integrals, indefinite integrals [10 hrs] Chapter 2 Application of definite integrals, Areas between Curves, Volumes of solids of revolution, Disks and Washers. Cylindrical shells, length of curves in the plane, Areas of surfaces of Revolution. [20 hrs] Chapter 3 The calculus of transcended functions, inverse functions, $\ln x, e^x$ and logarithmic differentiation, General exponential and logarithmic function. Indeterminate forms and l'Hopital's Rules, The inverse of trigonometric functions. [20 hrs] Chapter 4 Techniques of integration, basic integration formulas, Integration by parts, Trigonometric integrals, Trigonometric substitution, Rational functions and partial fractions [25 hrs]

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

<table>
<tr><td colspan="4">Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا</td></tr>
<tr><td>Structured SWL (h/sem)
الحمل الدراسي المنتظم للطالب خلال الفصل</td><td>78</td><td>Structured SWL (h/w)
الحمل الدراسي المنتظم للطالب أسبوعيا</td><td>5</td></tr>
<tr><td>Unstructured SWL (h/sem)
الحمل الدراسي غير المنتظم للطالب خلال الفصل</td><td>97</td><td>Unstructured SWL (h/w)
الحمل الدراسي غير المنتظم للطالب أسبوعيا</td><td>6</td></tr>
<tr><td>Total SWL (h/sem)
الحمل الدراسي الكلي للطالب خلال الفصل</td><td colspan="3">175</td></tr>
</table>

<table>
<tr><td colspan="6">Module Evaluation
تقييم المادة الدراسية</td></tr>
<tr><td></td><td></td><td>Time/Number</td><td>Weight (Marks)</td><td>Week Due</td><td>Relevant Learning Outcome</td></tr>
<tr><td rowspan="4">Formative assessment</td><td>Quizzes</td><td>3</td><td>30% (30)</td><td>5, 10</td><td>LO #1, 2, 3-8</td></tr>
<tr><td>Onlie assignments</td><td>1</td><td>4% (4)</td><td>2, 12</td><td>LO # 1-8</td></tr>
<tr><td>Onsite assignments</td><td>1</td><td>4% (4)</td><td>2, 12</td><td>LO # 1-8</td></tr>
<tr><td>Report</td><td>1</td><td>2% (2)</td><td>2, 12</td><td>LO # 1-8</td></tr>
<tr><td rowspan="2">Summative assessment</td><td>Midterm Exam</td><td>2 hr</td><td>10% (10)</td><td>8</td><td>LO # 1-3</td></tr>
<tr><td>Final Exam</td><td>3hr</td><td>50% (50)</td><td>16</td><td>All</td></tr>
<tr><td colspan="2">Total assessment</td><td></td><td>100% (100 Marks)</td><td></td><td></td></tr>
</table>

<table>
<tr><td colspan="2">Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري</td></tr>
<tr><td></td><td>Material Covered</td></tr>
<tr><td>Week 1</td><td>Integrating , finding the area with x-axis</td></tr>
<tr><td>Week 2</td><td>Definite integrals, indefinite integrals</td></tr>
<tr><td>Week 3</td><td>Application of definite integrals, Areas between Curves</td></tr>
<tr><td>Week 4</td><td>Volumes of solids of revolution, Disks and Washers</td></tr>
</table>

Week 5	Cylindrical shells,
Week 6	length of curves in the plane
Week 7	Areas of surfaces of Revolution
Week 8	The calculus of transcended functions, inverse functions,
Week 9	$\ln x, e^x$ and logarithmic differentiation
Week 10	General exponential and logarithmic function
Week 11	Indeterminate forms and l'Hopital's Rules, The inverse of trigonometric functions
Week 12	Techniques of integration, basic integration formulas
Week 13	Integration by parts
Week 14	Trigonometric integrals, Trigonometric substitution
Week 15	Rational functions and partial fractions
Week 16	**Preparatory week before the final Exam**

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Thomas' Calculus by Finney and Thomas.	Yes
Recommended Texts	**Calculus by Ron Larson, Bruce Edwards.**	no
Websites		

Grading Scheme
مخطط الدرجات

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

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

أ.د. معتز عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

<table>
<tr><td colspan="4" align="center">Module Information
معلومات المادة الدراسية</td></tr>
<tr><td>Module Title</td><td colspan="2" align="center">Arabic Language</td><td>Module Delivery</td></tr>
<tr><td>Module Type</td><td colspan="2" align="center">Basic</td><td rowspan="4">☒Theory
☒Lecture
☐ Lab
☒ Tutorial
☐Practical
☐Seminar</td></tr>
<tr><td>Module Code</td><td colspan="2" align="center">Uom1011</td></tr>
<tr><td>ECTS Credits</td><td colspan="2" align="center">2</td></tr>
<tr><td>SWL (hr/sem)</td><td colspan="2" align="center">50</td></tr>
<tr><td>Module Level</td><td align="center">2</td><td>Semester of Delivery</td><td>3</td></tr>
<tr><td>Administering Department</td><td></td><td>College</td><td></td></tr>
<tr><td>Module Leader</td><td>Abeer Turki</td><td>e-mail</td><td></td></tr>
<tr><td>Module Leader's Acad. Title</td><td>Lecturer</td><td>Module Leader's Qualification</td><td>Ph.D.</td></tr>
<tr><td>Module Tutor</td><td></td><td>e-mail</td><td></td></tr>
<tr><td>Peer Reviewer Name</td><td></td><td>e-mail</td><td></td></tr>
<tr><td>Scientific Committee Approval Date</td><td>2025</td><td>Version Number</td><td>1.1</td></tr>
</table>

<table>
<tr><td colspan="4" align="center">Relation with other Modules
العلاقة مع المواد الدراسية الأخرى</td></tr>
<tr><td>Prerequisite module</td><td>None</td><td>Semester</td><td></td></tr>
<tr><td>Co-requisites module</td><td>None</td><td>Semester</td><td></td></tr>
</table>

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

Module Objectives أهداف المادة الدراسية	1- التعرف على الكلام العربي: من ناحية تعريفة، اقسامة، الى علامات كل قسم منه. 2- معرفة الجملة العربية واقسام الجملة العربية والجمل الاسمية والجمل الفعلية 3- التعرف على حركات الاعراب: سواء كانت اصلية او فرعية 4- معرفة الطالب بالعفل العربي: من حيث الصحة والاعلال 5- معرفة الطالب الفعل العربي من حيث اللزوم والتعدي 6- معرفة لطالب الفعل العربي من حيث الزمن 7- طرق كتابة العدد و تذكرة وتانيثه 8- معرفة علامات الترقيم في الكلام 9- تعلم قواعد رسم الهمزة 10- التعرف على طريقة كتابة التاء المربوطة، والمبسوطة 11- قل ولا تقل: الأخطاء الشائعة لدى المتكلمين والكتاب 12- معرفة ماهو الأسلوب الخبري، 13- معرفة ماهو الأسلوب الانشائي، 14- تعلم مهارات لغوية: تنمية الذوق اللغوي، وتحسين الأسلوب لدى المتعلمين
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- ان يعرف الطالب الكلام العربي: من ناحية تعريفة، اقسامة، الى علامات كل قسم منه. 2- ان يتعلم الطالب الجملة العربية واقسام الجملة العربية والجمل الاسمية والجمل الفعلية 3- التعرف على حركات الاعراب: سواء كانت اصلية او فرعية 4- ان يعرف الطالب العفل العربي: من حيث الصحة والاعلال 5- ان يتعلم الطالب الفعل العربي من حيث اللزوم والتعدي 6- معرفة الطالب الفعل العربي من حيث الزمن 7- معرف الطالب طرق كتابة العدد و تذكرة وتانيثه 8- معرفة الطالب لعلامات الترقيم في الكلام 9- ان يتعلم الطالب قواعد رسم الهمزة 10- معرف الطالب على طريقة كتابة التاء المربوطة، والمبسوطة 11- قل ولا تقل: الأخطاء الشائعة لدى المتكلمين والكتاب 12- التعرف على الأسلوب الخبري، 13- معرفة ماهو الأسلوب الانشائي، 14- التعلم على مهارات لغوية: تنمية الذوق اللغوي، وتحسين الأسلوب لدى المتعلمين
Indicative Contents المحتويات الإرشادية	1- التعرف على الكلام العربي: من ناحية تعريفة، اقسامة، الى علامات كل قسم منه[ساعه 2] 2- معرفة الجملة العربية واقسام الجملة العربية والجمل الاسمية والجمل الفعلية، ساعه 2 3- التعرف على حركات الاعراب: سواء كانت اصلية او فرعية، ساعه 2 4- معرفة الطالب بالعفل العربي: من حيث الصحة والاعلال، ساعه 2 5- معرفة الطالب الفعل العربي من حيث اللزوم والتعدي، ساعه 2 6- معرفة لطالب الفعل العربي من حيث الزمن، ساعه 2 7- طرق كتابة العدد و تذكرة وتانيثه، ساعه 2 8- معرفة علامات الترقيم في الكلام، ساعه 2 9- تعلم قواعد رسم الهمزة، ساعه 2 10- التعرف على طريقة كتابة التاء المربوطة، والمبسوطة، ساعه 2 11- قل ولا تقل: الأخطاء الشائعة لدى المتكلمين والكتاب ، ساعه 2 12- معرفة ماهو الأسلوب الخبري، ساعه 2 13- معرفة ماهو الأسلوب الانشائي، ساعه 2

14- التعلم مهارات لغوية: تنمية الذوق اللغوي، وتحسين الأسلوب لدى المتعلمين، ساعه 2	

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	الإستراتيجية الرئيسية التي سيتم تبنيها في تقديم هذه الوحدة هي تشجيع الطلاب على المشاركه في الكلام الفربي وكتبابته بالصورة الصحيحه ، مع تحسين مهارات التفكير النقدي وتوسيعها في نفس الوقت. سيتم تحقيق ذلك من خلال الفصول والبرامج التعليمية التفاعلية ومن خلال النظر في أنواع التجارب البسيطة التي تتضمن بعض أنشطة أخذ العينات التي تهم الطلاب.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل		**50**	

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Assignments	1	5% (5)	2 and 12	LO #3, #4 and #6, #7
	Report	5	5% (5)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered

Week 1	الكلام العربي: تعريفة، اقسامة، وعلامات كل قسم.
Week 2	الجملة العربية: تعريفها ، اقسامها : الاسمية والفعلية
Week 3	حركات الاعراب: اصلية، فرعية
Week 4	العفل العربي: من حيث الصحة والاعلال
Week 5	الفعل العربي من حيث اللزوم والتعدي
Week 6	الفعل العربي من حيث الزم
Week 7	امتحان
Week 8	العدد: تذكرة، وتانيثه
Week 9	علامات الترقيم في الكلام
Week 10	قواعد رسم الهمزة
Week 11	التاء المربوطة، والمبسوطة
Week 12	قل ولا تقل: الأخطاء الشائعة لدى المتكلمين والكتاب
Week 13	الأسلوب الخبري،
Week 14	والأسلوب الإنشائي
Week 15	مهارات لغوية: تنمية الذوق اللغوي، وتحسين الأسلوب لدى المتعلمين
Week 16	امتحان نهاية الفصل

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

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

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	جامع الدروس العربية: الشيخ مصطفى الغلاييني	no

Recommended Texts	الجملة العربية: تأليفها وأقسامها د. فاضل السامرائي	No
Websites	https://www.almrsal.com/post/923401	

Grading Scheme
مخطط الدرجات

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

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أ.د. معتز عبد الهادي محمد عون
رئيس قسم الهندسة المدنية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

<table>
<tr><td colspan="4" align="center">Module Information
معلومات المادة الدراسية</td></tr>
<tr><td>Module Title</td><td colspan="2" align="center"><strong style="color:red">Engineering Mechanics I</td><td>Module Delivery</td></tr>
<tr><td>Module Type</td><td colspan="2" align="center">Core</td><td rowspan="4">☒ Theory
☐ Lecture
☐ Lab
☒ Tutorial
☐ Practical
☐ Seminar</td></tr>
<tr><td>Module Code</td><td colspan="2" align="center"><strong style="color:red">CE102</td></tr>
<tr><td>ECTS Credits</td><td colspan="2" align="center">6</td></tr>
<tr><td>SWL (hr/sem)</td><td colspan="2" align="center"><strong style="color:red">150</td></tr>
<tr><td>Module Level</td><td>UGI</td><td>Semester of Delivery</td><td>1</td></tr>
<tr><td>Administering Department</td><td>Type Dept. Code</td><td>College</td><td>Type College Code</td></tr>
<tr><td>Module Leader</td><td>Nuha Hameedi Jasim
Dr. Mohammed S. Al Jawahery</td><td>e-mail</td><td>nuhahamedi.nh@uomosul.edu.iq
mohammed .aljawahery@uomosul.edu.iq</td></tr>
<tr><td>Module Leader's Acad. Title</td><td>Lecturer</td><td>Module Leader's Qualification</td><td>MSc</td></tr>
<tr><td>Module Tutor</td><td>Nuha Hameedi Jasim
Dr. Mohammed S. Al Jawahery</td><td>e-mail</td><td>nuhahamedi.nh@uomosul.edu.iq
mohammed .aljawahery@uomosul.edu.iq</td></tr>
<tr><td>Peer Reviewer Name</td><td><em style="color:green">Dr. Suhaib Y Al-darzi</td><td>e-mail</td><td>suhaib.qasim@uomosul.edu.iq</td></tr>
<tr><td>Scientific Committee Approval Date</td><td></td><td>Version Number</td><td>1.0</td></tr>
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<table>
<tr><td colspan="4" style="text-align:center">Relation with other Modules
العلاقة مع المواد الدراسية الأخرى</td></tr>
<tr><td>Prerequisite module</td><td>None</td><td>Semester</td><td></td></tr>
<tr><td>Co-requisites module</td><td>Mechanic of Materials</td><td>Semester</td><td></td></tr>
</table>

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	This course aims to introduce the student to the system of units, types of forces, and types of quantities. How to analyze and compose forces. Finding the resultant force, Being able to calculate moments about different points and how to calculate the couple and transfer forces from one place to another. The student also learns about the effect of forces on static bodies and how to calculate reactions. And learn about the methods of analyzing some structures, such as trusses and frames.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognizing Newton's laws and the concept of force and the basic units used for it, and understanding how to analyze and compose forces. 2. Classification of the type of forces, are they concurrent or parallel or are they nonconcurrent forces, and how to find the resultant of each type of force. 3. Finding the moment of forces about any point and determine the couple, In addition to the transfer of forces from one point to another point. 4. Applying equilibrium equations to problems and finding reactions that make bodies in equilibrium. 5. Analysis of some engineering structures such as trusses and frames. 6. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, andmathematics. 7. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, andmathematics. 8. An ability to acquire and apply new knowledge and using appropriate learning strategies. 9. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>**Chapter 1** Introduction</u> Fundamental concept, Newtons laws, units of measurement, the international system of units, Scalars and Vectors **[3 hrs]** <u>**Chapter 2** Forces system and Resultant</u> Forces, composition and resolution of forces, Parallelogram law, moment, Couples, Force analysis into force and couple, the resultant of any system of forces **[20hrs]** <u>**Chapter 3** Equilibrium</u>

	Free-Body Diagrams, Equations of Equilibrium, Two- and Three-Force Members, The equilibrium of bodies subjected to non-concurrent forces **[22hrs]**
	Chapter 4 <u>Truss and Frames</u> <u>Part A</u> Introduction, Trusses, Assumptions of simple trusses analysis, Zero-Force Members, Analysis of trusses by joint method, Analysis of trusses by section method. **[18 hrs]** <u>Part B</u> Frames analysis. **[12 hrs]**

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

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

Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	5	24% (24)	4, 12	LO # 2, 3, 4 ,5 and 6
	Assignments	2	6% (6)	4, 12	LO # 2, 3 and 4
	Calss work	2	6% (6)		LO # 2, 3 and 4
	Report	1	4% (4)		LO # 2, 3 and 4-9
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction, Basic concepts, vector and scalar quantities, units and their transformations.
Week 2	The law of parallelograms, forces and their components, Resolution and Composition of the forces
Week 3	The moments of forces, Couples
Week 4	The Resultant
Week 5	Determine the resultant location
Week 6	The concept of equilibrium and free body diagrams of the bodies
Week 7	Equilibrium equations for the concurrent force systems located in one plane
Week 8	Equilibrium of bodies subjected to two or three forces located in one plane
Week 9	Equilibrium of bodies subjected to non-concurrent forces and located in one plane
Week 10	Equilibrium of bodies subjected to non-concurrent forces and located in one plane
Week 11	Analysis of Trusses, introduction, Analysis of Trusses by joint method
Week 12	Analysis of Trusses by joint method & Analysis of Trusses by section method
Week 13	Analysis of Trusses by section method + fram analysis
Week 14	Frames analysis
Week 15	Frames analysis
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

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

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	"Engineering Mechanics-statics", (1990), (Book language:Arabic)	Yes
Recommended Texts	Engineering Mechanics-statics",(2016), R.C. Hibbeler ,14th edition.	Yes
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Perfomance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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أ.د. رمضان عبدالجبار مجمع عون
رئيس قسم الهندسة المدنية

5

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية				
Module Title	**Engineering Mechanics II**		**Module Delivery**	
Module Type	Core		☒ Theory	
Module Code	**CE107**		☐ Lecture	
ECTS Credits	7		☐ Lab	
SWL (hr/sem)	**175**		☒ Tutorial	
			☐ Practical	
			☐ Seminar	
Module Level	UGI	**Semester of Delivery**		2
Administering Department	Type Dept. Code	**College**	Type College Code	
Module Leader	Nuha Hameedi Jasim Dr. Mohammed S. Al Jawahery	**e-mail**	nuhahamedi.nh@uomosul.edu.iq mohammed .aljawahery@uomosul.edu.iq	
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**		MSc
Module Tutor	Nuha Hameedi Jasim Dr. Mohammed S. Al Jawahery	**e-mail**	nuhahamedi.nh@uomosul.edu.iq mohammed .aljawahery@uomosul.edu.iq	
Peer Reviewer Name	*Dr. Suhaib Y Al-darzi*	**e-mail**	suhaib.qasim@uomosul.edu.iq	
Scientific Committee Approval Date		**Version Number**	1.0	

<table>
<tr><td colspan="4" align="center">**Relation with other Modules**
العلاقة مع المواد الدراسية الأخرى</td></tr>
<tr><td>**Prerequisite module**</td><td></td><td>**Semester**</td><td></td></tr>
<tr><td>**Co-requisites module**</td><td>Mechanic of Materials</td><td>**Semester**</td><td></td></tr>
</table>

<table>
<tr><td colspan="2" align="center">**Module Aims, Learning Outcomes and Indicative Contents**
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية</td></tr>
<tr><td>**Module Aims**
أهداف المادة الدراسية</td><td>This course aims to introduce the student to Friction with application examples, concept of centroid and center of gravities, concept of moment of inertia. In additions to Introduction to dynamic's engineering mechanics.</td></tr>
<tr><td>**Module Learning Outcomes**

مخرجات التعلم للمادة الدراسية</td><td>

1. Friction, with application examples.
2. Concept of Centroid and center of gravities.
3. Concept of Moment of inertia.
4. Introduction to dynamic's engineering mechanics.
5. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, andmathematics.
6. An ability to acquire and apply new knowledge and using appropriate learning strategies.
7. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
</td></tr>
<tr><td>**Indicative Contents**

المحتويات الإرشادية</td><td>

Indicative content includes the following.

Chapter 1 Introduction

Fundamental concept, Reviewing for Engineering Mechanics-I with application examples **[5 hrs].**

Chapter 2 Friction

Introduction, Characteristics of Dry Friction, with application examples **[15 hrs]**

Chapter 3 Centroids and Center of Gravities

Part A:

Introduction, Centroid and center of gravities by integration. **[10 hrs]**

Part B:

Centroids for combined areas. **[10 hrs]**

Chapter 4 Moment of Inertia

Part A:

Concept of Moment of inertia. **[10 hrs]**

Part B:

Moment of inertia for combined areas. **[10 hrs]**

Part C:

Moment of inertia for an area about inclined axes. **[10 hrs]**

Chapter 5 Dynamics

Introduction to dynamic (basics, definitions and concepts of projectiles). **[20 hrs]**
</td></tr>
</table>

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

Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	97	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	5	24% (24)	4, 12	LO # 2, 3, 4 ,5 and 6
	Assignments	2	6% (6)	4, 12	LO # 2, 3 and 4
	Class work	2	6% (6)		LO # 2, 3 and 4
	Report	1	4% (4)		LO # 2, 3 and 4-9
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction, Basic concepts, Reviewing for Engineering Mechanics-I with application examples
Week 2	Concepts of friction (definitions and application examples)
Week 3	Problems
Week 4	Concept of centroids and center of gravities
Week 5	Centroid by integration
Week 6	Centroids for combined areas
Week 7	Problems
Week 8	Concept of Moment of inertia
Week 9	Moment of inertia for combined areas
Week 10	Product of inertia of an area
Week 11	Problems
Week 12	Moment of inertia for an area about inclined axes
Week 13	Problems
Week 14	Introduction to dynamic (basics, definitions and concepts of projectiles)
Week 15	Problems
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

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

<table>
<tr><th colspan="3" align="center">Learning and Teaching Resources
مصادر التعلم والتدريس</th></tr>
<tr><td></td><td align="center">Text</td><td>Available in the Library?</td></tr>
<tr><td>Required Texts</td><td>"Engineering Mechanics-Dynamic", (1990), (Book language: Arabic)</td><td>Yes</td></tr>
<tr><td>Recommended Texts</td><td>Engineering Mechanics-Dynamic", (2010), R.C. Hibbeler ,12 edition. (Book language: English)</td><td>Yes</td></tr>
<tr><td>Websites</td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="5" align="center">Grading Scheme
مخطط الدرجات</th></tr>
<tr><td>Group</td><td>Grade</td><td>التقدير</td><td>Marks (%)</td><td>Definition</td></tr>
<tr><td rowspan="5">Success Group (50 - 100)</td><td>A - Excellent</td><td>امتياز</td><td>90 - 100</td><td>Outstanding Performance</td></tr>
<tr><td>B - Very Good</td><td>جيد جدا</td><td>80 - 89</td><td>Above average with some errors</td></tr>
<tr><td>C - Good</td><td>جيد</td><td>70 - 79</td><td>Sound work with notable errors</td></tr>
<tr><td>D - Satisfactory</td><td>متوسط</td><td>60 - 69</td><td>Fair but with major shortcomings</td></tr>
<tr><td>E - Sufficient</td><td>مقبول</td><td>50 - 59</td><td>Work meets minimum criteria</td></tr>
<tr><td rowspan="2">Fail Group (0 – 49)</td><td>FX – Fail</td><td>راسب (قيد المعالجة)</td><td>(45-49)</td><td>More work required but credit awarded</td></tr>
<tr><td>F – Fail</td><td>راسب</td><td>(0-44)</td><td>Considerable amount of work required</td></tr>
</table>

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

5

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		

Module Title	**Statistics I**	Module Delivery
Module Type	**Supported**	☒ Theory
Module Code	CE105	☒ Lecture
ECTS Credits	**3**	☐ Lab
SWL (hr/sem)	**75**	☐ Tutorial
		☐ Practical
		☐ Seminar

Module Level	UGI	Semester of Delivery		Two
Administering Department	Type Dept. Code	**College**	Type College Code	
Module Leader	Mohammed Ghanim Mohammed Adnan	**e-mail**	Mohammed_g72@uomosul.edu.iq	
Module Leader's Acad. Title	Assistant lecture	**Module Leader's Qualification**		MSc
Module Tutor	Name (if available)	**e-mail**	E-mail	
Peer Reviewer Name	امينة احمد خليل	**e-mail**	amina.alshumam@uomosul.edu.iq	
Scientific Committee Approval Date	2025	**Version Number**	1.1	

Relation with other Modules		
العلاقة مع المواد الدراسية الأخرى		

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

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

Module Aims أهداف المادة الدراسية	1. Introduce the student to collecting and presenting statistical data 2. Classifying and tabular the engineering information in a manner consistent with the data and the field of academic work

	3. an ability to conduct experiments, analyze and interpret data
	4. The ability to identify and solve engineering problems.
	5. Take the appropriate decision through scientific analysis of information
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1 Develop a clear and concise description of the problem.
	2 Identify, at least tentatively, the important factors that affect this problem or that may play a role in its solution.
	3 Propose a model for the problem, using scientific or engineering knowledge of the phenomenon being studied. State any limitations or assumptions of the model.
	4 Conduct appropriate experiments and collect data to test or validate the tentative model or conclusions made
	5 Refine the model on the basis of the observed data.
	6 Manipulate the model to assist in developing a solution to the problem.
	7 Conduct an appropriate experiment to confirm that the proposed solution to the problem is both effective and efficient.
	8 Draw conclusions or make recommendations based on the problem solution.
	9. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics.
Indicative Contents المحتويات الإرشادية	- Introduction: nature of statistics. [8 hr]
	- The statistical terms: nature of statistical data, Distributions, Measures of central location, Measures of variation or dispersion. [12 hr]
	- Elementary probability theory, Probability distribution , Discrete probability distribution . [14 hr]
	- Continues probability distribution, Sampling theory, Estimation theory, Statistical decision theory, Simple regression and correlation. [14 hr]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

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

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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem)	42	Unstructured SWL (h/w)	3

الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75	

Module Evaluation تقييم المادة الدراسية					
		Time/Nu mber	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	3	24% (24)	5, 10,1	LO #1, 2-9
	Assignments	6	12% (12)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.				
	Report	1	4% (4)		LO # 3, 4, 6 and 7
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	General introduction of Engineering Statistics
Week 2	Data Presentation: Tabular presentation /Creating Frequency Table.
Week 3	Graphical presentation (Histogram, Frequency Polygon).
Week 4	Measures of central tendency (Arithmetic mean, median and mode, the relation between the central tendency measures for unimodal distributions
Week 5	Measurement of dispersion and variation, absolute dispersions (ungrouped data)
Week 6	Measurement of dispersion and variation, absolute dispersions (grouped data)
Week 7	Measurement of dispersion and variation, absolute dispersions (grouped data)
Week 8	**Probability:** Basic Concepts of Probability Theory
Week 9	Rule of Probability Additional rule Two events, mutually and non-mutually events
Week 10	Three events, mutually and non-mutually events
Week 11	Multiplication rule, Tow events, (independent and dependent events)
Week 12	The definition of conditional probability and their properties. Bayes' theorem
Week 13	The definition and classification of random variable (Discrete and Continuous), type of discrete distribution

Week 14	Discrete probability distributions (Binomial distribution)
Week 15	Discrete probability distributions Poisson distribution).
Week 16	Final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	مدخل إلى الاحصاء : د. خاشع الراوي	Yes
Recommended Texts	Introduction to Probability and Statistics for Engineers, Holický, Milan	No
Websites		

Grading Scheme
مخطط الدرجات

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

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

أ.د. معتز عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

<table>
<tr><td colspan="4" align="center">Module Information
معلومات المادة الدراسية</td></tr>
<tr><td>Module Title</td><td colspan="2" align="center">Statistics II</td><td>Module Delivery</td></tr>
<tr><td>Module Type</td><td colspan="2" align="center">Supportive</td><td rowspan="4">☒ Theory
☒ Lecture
☐ Lab
☒ Tutorial
☐ Practical
☐ Seminar</td></tr>
<tr><td>Module Code</td><td colspan="2" align="center">CE109</td></tr>
<tr><td>ECTS Credits</td><td colspan="2" align="center">3</td></tr>
<tr><td>SWL (hr/sem)</td><td colspan="2" align="center">75</td></tr>
<tr><td>Module Level</td><td>UGI</td><td>Semester of Delivery</td><td>Two</td></tr>
<tr><td>Administering Department</td><td>Type Dept. Code</td><td>College</td><td>Type College Code</td></tr>
<tr><td>Module Leader</td><td>Mohammed Adnan</td><td>e-mail</td><td>Maaa@uomosul.edu.iq</td></tr>
<tr><td>Module Leader's Acad. Title</td><td>Assistant lecture</td><td>Module Leader's Qualification</td><td>MSc</td></tr>
<tr><td>Module Tutor</td><td>Name (if available)</td><td>e-mail</td><td>E-mail</td></tr>
<tr><td>Peer Reviewer Name</td><td>امينة احمد خليل</td><td>e-mail</td><td>amina.alshumam@uomosul.edu.iq</td></tr>
<tr><td>Scientific Committee Approval Date</td><td>2025</td><td>Version Number</td><td>1.1</td></tr>
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<tr><td colspan="3" align="center">Relation with other Modules
العلاقة مع المواد الدراسية الأخرى</td></tr>
<tr><td>Prerequisite module</td><td>None</td><td>Semester</td></tr>
<tr><td>Co-requisites module</td><td>None</td><td>Semester</td></tr>
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<tr><td colspan="2" align="center">Module Aims, Learning Outcomes and Indicative Contents
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<tr><td>Module Aims
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2. Classifying and tabular the engineering information in a manner consistent with the data and the field of academic work
3. an ability to conduct experiments, analyze and interpret data</td></tr>
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	4. The ability to identify and solve engineering problems.
	5. Take the appropriate decision through scientific analysis of information
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1 Develop a clear and concise description of the problem.
	2 Identify, at least tentatively, the important factors that affect this problem or that may play a role in its solution.
	3 Propose a model for the problem, using scientific or engineering knowledge of the phenomenon being studied. State any limitations or assumptions of the model.
	4 Conduct appropriate experiments and collect data to test or validate the tentative model or conclusions made
	5 Refine the model on the basis of the observed data.
	6 Manipulate the model to assist in developing a solution to the problem.
	7 Conduct an appropriate experiment to confirm that the proposed solution to the problem is both effective and efficient.
	8 Draw conclusions or make recommendations based on the problem solution.
	9 An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, andmathematics.
	10 An ability to acquire and apply new knowledge and using appropriate learning strategies.
	11 An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	- Introduction: nature of statistics. [8 hr]
	- The statistical terms: nature of statistical data, Distributions, Measures of central location, Measures of variation or dispersion. [12 hr]
	- Elementary probability theory, Probability distribution , Discrete probability distribution . [14 hr]
	- Continues probability distribution, Sampling theory, Estimation theory, Statistical decision theory, Simple regression and correlation. [14 hr]

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

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	24% (8)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	8% (4)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	4% (4)		
	Report	1	4% (4)		
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Continuous Probability Distributions (normal distribution), Properties
Week 2	Rules to obtain the probability under the Normal Curve
Week 3	normally distributed population with a mean and variance into (N) samples
Week 4	Test of hypothesis: Types of errors in hypothesis testing. The steps of hypothesis test.
Week 5	Hypothesis Test of Two Means with Known Population Variance.
Week 6	Hypothesis Test of Two Means with Known Population Variance.
Week 7	Hypothesis Test of Two Means with Known Population Variance & confidence interval. applications
Week 8	T- test
Week 9	Test of the Mean with Unknown Population Variance using t statistic
Week 10	Test of the mean with unknown population variance using t statistic & confidence interval
Week 11	Test of the Mean with Unknown Population Variance using t statistic. applications

Week 12	F-test, applications
Week 13	F-test, applications
Week 14	χ^2- distribution
Week 15	χ^2-test, applications
Week 16	Final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	مدخل إلى الإحصاء ، د. خاشع الراوي	Yes
Recommended Texts	Introduction to Probability and Statistics for Engineers, Holický, Milan	No
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		
Module Title	**Computer**	**Module Delivery**
Module Type	**Basic**	☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**
Module Code	**UOM 1031**	
ECTS Credits	**3**	
SWL (hr/sem)	**75**	

Module Level	1	**Semester of Delivery**	1
Administering Department	Dam and Water Resources Engineering (DWRE)	**College**	**College of Engineering**
Module Leader	Dr. Talal Ahmed Basheer	**e-mail**	t.basheer@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	Ph.D.
Module Tutor	Omar Kanaan Taha	**e-mail**	omar.alsultan@uomosul.edu.iq
Peer Reviewer Name	**Dr. Anmar Abdulazeez Al Talib**	**e-mail**	Anmar.altalib@uomosul.edu.iq
Scientific Committee Approval Date		**Version Number**	**1.0**

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

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The Module aim is to prepare student to deal with computers. In addition to, teach the student the fundamentals of computers and its components. Furthermore, learning how to use two of Microsoft Office applications (Word and Excel).
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	It is expected from the student who passes this module learn the following topics: 1. Computers and Operating System 2. Software and Hardware Interaction 3. Windows File Management 4. Operating System Customization 5. Computer Hardware

	6. Monthly LAB Exam
	7. Exploring Microsoft Office 2013
	8. Getting Started with Word Essentials
	9. Editing and Formatting Documents
	10. Getting Started with Excel Essentials
	11. Organizing and Enhancing Worksheets
	12. Creating Formulas and Charting Data
	13. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, andmathematics.
	14. An ability to acquire and apply new knowledge and using appropriate learning strategies.
	15. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Computers and Operating System [6 hr] Software and Hardware Interaction [6 hr] Windows File Management [3 hr] Operating System Customization [3 hr] Computer Hardware [6 hr] Exploring Microsoft Office 2013 [3 hr] Getting Started with Word Essentials [3 hr] Editing and Formatting Documents [3 hr] Getting Started with Excel Essentials [3 hr] Organizing and Enhancing Worksheets [3 hr] Creating Formulas and Charting Data [3 hr]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

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

Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	27	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعياً	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	10% (10)	4, 11	LO #Q1: 1-2, Q2: 7-9
	Assignments	1	5% (5)	3, 10	LO #A1: 1-2, A2: 7-9
	Lab.	1	20% (20)	Continuous	All
	Report	1	5% (5)	14	All
Summative assessment	**Midterm Exam**	2 hr	10% (10)	9	LO # 1-5
	Final Exam	3hr	50% (50)		
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Computers and Operating System
Week 2	Computers and Operating System (Continued)
Week 3	Software and Hardware Interaction
Week 4	Software and Hardware Interaction (Continued)
Week 5	Windows File Management
Week 6	Operating System Customization
Week 7	Computer Hardware
Week 8	Computer Hardware (Continued)
Week 9	Monthly Exam
Week 10	Exploring Microsoft Office 2013
Week 11	Getting Started with Word Essentials
Week 12	Editing and Formatting Documents
Week 13	Getting Started with Excel Essentials
Week 14	Organizing and Enhancing Worksheets
Week 15	Creating Formulas and Charting Data
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered

Week 1, 2	Computers and Operating System
Week 3, 4	Software and Hardware Interaction
Week 5	Windows File Management
Week 6	Operating System Customization
Week 7, 8	Computer Hardware
Week 9	Monthly LAB Exam
Week 10	Exploring Microsoft Office 2013
Week 11	Getting Started with Word Essentials
Week 12	Editing and Formatting Documents
Week 13	Getting Started with Excel Essentials
Week 14	Organizing and Enhancing Worksheets
Week 15	Creating Formulas and Charting Data

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	2015 Computer Literacy BASICS: A Comprehensive Guide to IC3 Connie Morrison, Dolores Wells, Lisa Ruffolo Cengage Learning. ISBN: 128576658X	Available as PDF
Recommended Texts	IC3 GS5 Certification Guide Using Windows 10 & Office 2016	Available as PDF
Websites		

Grading Scheme

مخطط الدرجات

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

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

أ.د. معتز عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

-MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
Module Title	**Geology**	**Module Delivery**	
Module Type	**Core**	☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	**CE104**		
ECTS Credits	**6**		
SWL (hr/sem)	**150**		
Module Level	UGIV	**Semester of Delivery**	1
Administering Department	Type Dept. Code	**College**	Type College Code
Module Leader	Dr. Khawla Ahmed Khalil	**e-mail**	khawlah.ahmad@uomosul.edu.iq
Module Leader's Acad. Title	lecture	**Module Leader's Qualification**	
Module Tutor	Abdulnasser Younus Ali	**e-mail**	Abdulnasser.alshuwaykhi@uomosul.edu.iq
Peer Reviewer Name	عبد الناصر يونس علي	**e-mail**	Abdulnasser.alshuwaykhi@uomosul.edu.iq
Scientific Committee Approval Date	2025	**Version Number**	1.0

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

	Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The Module aims including the following:	
	1	Importance of engineering geology for civil engineer
	2	Learning types of minerals and their engineering properties, in addition to clay minerals which have great importance in civil engineering
	3	Understand basic relation in soil and rocks
	4	Effect of geological structures on engineering facilities built above and under the earth surface.
	5	Learning methods of drawing and reading geological, topographic and contour maps, and calculating the amounts of backfill and cut.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**1**	Learning types of minerals and their engineering properties, in addition to clay minerals which have great importance in civil engineering
	2	Understand basic relation in soil and rocks
	3	Effect of geological structures on engineering facilities built above and under the earth surface.
	4	Learning methods of drawing and reading geological, topographic and contour maps, and calculating the amounts of backfill and cut.
	5.	An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, andmathematics.
	6.	An ability to acquire and apply new knowledge and using appropriate learning strategies.
	7.	An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following.	
	1-	Definition of engineering geology
	2-	The relationship between geology and civil engineering [4]
	3-	Definition of natural minerals and their engineering properties Clay Mineralogy [4]
	4-	Introduction to rocks and their types in the Earth's crust
	5-	Definition of sedimentary, igneous and metamorphic rocks, their types and geological characteristics [4]
	6-	Weathering, erosion and soil formation [4]
	7-	Geological structures - folds, faults and joints in rocks and their impact on engineering structures [4]
	8-	Engineering properties of rocks - physical and mechanical [4]
	9-	Midterm examination [4]
	10-	Topographical and geological maps and the purpose of their study [4]
	11-	Soil engineering properties - physical, mechanical, and hydraulic properties of the soil [4]
	12-	Ground water - storage and movement of ground water, factors affecting groundwater movement and ground water qualityR [4]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

	The main strategy that will be adopted in delivering this module is to:
Strategies	**1** Importance of engineering geology for civil engineer
	2 Learning types of minerals and their engineering properties, in addition to clay minerals which have great importance in civil engineering
	3 Understand basic relation in soil and rocks
	4 Effect of geological structures on engineering facilities built above and under the earth surface.
	5 Learning methods of drawing and reading geological, topographic and contour maps, and calculating the amounts of backfill and cut.

Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	87	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	63	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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

elivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Definition of engineering geology
Week 2	Definition of engineering geology The relationship between geology and civil engineering
Week 3	Definition of natural minerals and their engineering properties Clay Mineralogy
Week 4	Introduction to rocks and their types in the Earth's crust Definition of sedimentary, igneous and metamorphic rocks, their types and geological characteristics
Week 5	Introduction to rocks and their types in the Earth's crust Definition of sedimentary, igneous and metamorphic rocks, their types and geological characteristics
Week 6	Weathering, erosion and soil formation
Week 7	Geological structures - folds, faults and joints in rocks and their impact on engineering structures
Week 8	Engineering properties of rocks - physical and mechanical
Week 9	Engineering properties of rocks - physical and mechanical
Week 10	Midterm examination
Week 11	Topographical and geological maps and the purpose of their study
Week 12	Soil engineering properties - physical, mechanical, and hydraulic properties of the soil
Week 13	Soil engineering properties - physical, mechanical, and hydraulic properties of the soil
Week 14	Ground water - storage and movement of ground water,
Week 15	factors affecting groundwater movement and ground water qualityR
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Definition of laboratory apparatus
Week 2	Types and properties of minerals
Week 3	Study of the types and composition of igneous rocks
Week 4	Study of the types and composition of metamorphic rocks
Week 5	Study of the types and composition of sedimentary rocks
Week 6	Midterm examination
Week 7	Some tests on rocks
Week 8	Topographical and geological maps drawings
Week 9	Preparatory week before the final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	New headway, beginner student's book. John and Liz Soars.	Yes
Recommended Texts		
Websites		

Grading Scheme
مخطط الدرجات

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

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أ.د. معتز عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

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

Module Level	1	Semester of Delivery	1
Administering Department	Civil Engineering Department (CED)	College	College of Engineering
Module Leader	Dr. Khawla Ahmed Khalil	e-mail	khawlah.ahmad@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	MSc
Module Tutor	ABDULNASSER YOUNUS ALI ALSHUWAYKHI	e-mail	abdulnasser.alshuwaykhi@uomosul.edu.iq
Peer Reviewer Name	Dr. Khawla Ahmed Khalil	e-mail	khawlah.ahmad@uomosul.edu.iq
Scientific Committee Approval Date	2025	Version Number	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

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

Module Aims أهداف المادة الدراسية	The Module aim is to prepare student to deal with computers. In addition to, teach the student the fundamentals of computers and its components. Furthermore, learning how to use two of Microsoft Office applications (Word and Excel).
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	It is expected from the student who passes this module learn the following topics: 1. Computers and Operating System 2. Software and Hardware Interaction 3. Windows File Management 4. Operating System Customization

	5. Computer Hardware
	6. Monthly LAB Exam
	7. Exploring Microsoft Office 2013
	8. Getting Started with Word Essentials
	9. Editing and Formatting Documents
	10. Getting Started with Excel Essentials
	11. Organizing and Enhancing Worksheets
	12. Creating Formulas and Charting Data
	13. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, andmathematics.
	14. An ability to acquire and apply new knowledge and using appropriate learning strategies.
	15. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Computers and Operating System [6 hr] Software and Hardware Interaction [6 hr] Windows File Management [3 hr] Operating System Customization [3 hr] Computer Hardware [6 hr] Exploring Microsoft Office 2013 [3 hr] Getting Started with Word Essentials [3 hr] Editing and Formatting Documents [3 hr] Getting Started with Excel Essentials [3 hr] Organizing and Enhancing Worksheets [3 hr] Creating Formulas and Charting Data [3 hr]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

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

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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	27	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعياً	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (10)	4, 11	LO #Q1: 1-2, Q2: 7-9
	Assignments	1	5% (5)	3, 10	LO #A1: 1-2, A2: 7-9
	Lab.	1	20% (20)	Continuous	All
	Report	1	5% (5)	14	All
Summative assessment	Midterm Exam	2 hr	10% (10)	9	LO # 1-5
	Final Exam	3hr	50% (50)		
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Computers and Operating System
Week 2	Computers and Operating System (Continued)
Week 3	Software and Hardware Interaction
Week 4	Software and Hardware Interaction (Continued)
Week 5	Windows File Management
Week 6	Operating System Customization
Week 7	Computer Hardware
Week 8	Computer Hardware (Continued)
Week 9	Monthly Exam
Week 10	Exploring Microsoft Office 2013
Week 11	Getting Started with Word Essentials
Week 12	Editing and Formatting Documents
Week 13	Getting Started with Excel Essentials
Week 14	Organizing and Enhancing Worksheets
Week 15	Creating Formulas and Charting Data
Week 16	**Preparatory week before the final Exam**

	Delivery Plan (Weekly Lab. Syllabus)
	المنهاج الاسبوعي للمختبر
	Material Covered
Week 1, 2	Computers and Operating System
Week 3, 4	Software and Hardware Interaction
Week 5	Windows File Management
Week 6	Operating System Customization
Week 7, 8	Computer Hardware
Week 9	Monthly LAB Exam
Week 10	Exploring Microsoft Office 2013
Week 11	Getting Started with Word Essentials
Week 12	Editing and Formatting Documents
Week 13	Getting Started with Excel Essentials
Week 14	Organizing and Enhancing Worksheets
Week 15	Creating Formulas and Charting Data

	Learning and Teaching Resources	
	مصادر التعلم والتدريس	
	Text	**Available in the Library?**
Required Texts	2015 Computer Literacy BASICS: A Comprehensive Guide to IC3 Connie Morrison, Dolores Wells, Lisa Ruffolo Cengage Learning. ISBN: 128576658X	Available as PDF
Recommended Texts	IC3 GS5 Certification Guide Using Windows 10 & Office 2016	Available as PDF
Websites		

Grading Scheme
مخطط الدرجات

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

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

أ.د. معتز عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		
Module Title	**Engineering Mathematics I**	**Module Delivery**
Module Type	Core	☒ Theory
Module Code	**CE201**	☒ Lecture
1ECTS Credits	**5**	☐ Lab
SWL (hr/sem)	**125**	☒ Tutorial
		☐ Practical
		☐ Seminar

Module Level	UGII	**Semester of Delivery**	3
Administering Department	CE	**College**	ENG
Module Leader	Asaad Al-Omari	**e-mail**	asaad.alomari@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	Revan Nahith	**e-mail**	revan.nahith@uomosul.edu.iq
Peer Reviewer Name	Asaad Al-Omari	**e-mail**	asaad.alomari@uomosul.edu.iq
Scientific Committee Approval Date	2025	**Version Number**	1.0

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

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Provide the fundamental base for elementary mathematics for functions in more than one variable. 2. Use mathematical differentiation and integration to solve some engineering problems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Find the derivative of the functions that have two and three variables. 2. Apply integral information to find the area and volume. 3. Apply integral information to solve some physical problems. 4. Know the hypobaric functions. 5. Solve the engineering problem Catenary. 6. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics. 7. An ability to acquire and apply new knowledge and using appropriate learning strategies. 8. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Chapter 1</u> Partial Derivative. Second Order Partial Derivative, Higher Order Partial Derivative, Chain Rule, Total Derivative, Maximum and Minimum & Saddle Point, t, Lagrange Multipliers [20 hrs] <u>Chapter 2</u> Introduction to Multiple Integration Multiple Integrals, Double and Iterated Integrals over Rectangles, Double Integrals over General Regions, Area by Double Integration, Double Integrals in Polar Form, and Moments and Centers of Mass. [20 hrs] <u>Chapter 3</u> Introduction to Hyperbolic Functions. Identities of Hyperbolic Functions. Graphs of Hyperbolic Functions. Derivative and Integral of hyperbolic Functions Graphs of Inverse Hyperbolic Functions. Identities of Inverse Hyperbolic Functions. Derivative of Inverse Hyperbolic Functions. The integral of Inverse Hyperbolic Functions. Relationship between Inverse Hyperbolic Functions and Logarithm Formula. [12 hrs] <u>Chapter 4</u> Application of Hyperbolic Functions : Catenary [8 hrs]

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

Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	3	30% (30)	5, 10	LO #1, 2, 3
	Assignments	5	10% (10)	2, 12	LO # 1-4
	Projects / Lab.				
	Report				
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1-3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Partial Derivative.
Week 2	Second Order Partial Derivative, Higher Order Partial Derivative
Week 3	Chain Rule,
Week 4	Maximum and Minimum & Saddle Point

Week 5	Lagrange Multipliers
Week 6	Introduction to Multiple Integration
Week 7	Multiple Integrals, Double and Iterated Integrals over Rectangles
Week 8	Double Integrals over General Regions, Area by Double Integration
Week 9	Double Integrals in Polar Form
Week 10	Moments and Centers of Mass.
Week 11	Introduction to Hyperbolic Functions. Identities of Hyperbolic Functions. Graphs of Hyperbolic Functions
Week 12	Derivative and Integral of hyperbolic Functions Graphs of Inverse Hyperbolic Functions. Identities of Inverse Hyperbolic Functions
Week 13	Derivative of Inverse Hyperbolic Functions. The integral of Inverse Hyperbolic Functions. Relationship between Inverse Hyperbolic Functions and Logarithm Formula
Week 14	Application of Hyperbolic Functions: Catenary
Week 15	Solve engineering problem abut catenary
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

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

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Thomas' Calculus by Finney and Thomas.	Yes
Recommended Texts	Thomas' Calculus Early Transcendentals - Thirteenth Edition	No
Websites		

Grading Scheme
مخطط الدرجات

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

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

أ.د. محسن عبد الهادي محمد عون
رئيس قسم الهندسة المدنية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
Module Title	**Engineering Mathematics II**	**Module Delivery**	
Module Type	Core	☒ Theory	
Module Code	**CE206**	☒ Lecture	
1ECTS Credits	**5**	☐ Lab	
		☒ Tutorial	
SWL (hr/sem)	**125**	☐ Practical	
		☐ Seminar	
Module Level	UGII	**Semester of Delivery**	4
Administering Department	CE	**College**	ENG
Module Leader	Asaad Al-Omari	**e-mail**	asaad.alomari@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	Revan Nahith	**e-mail**	revan.nahith@uomosul.edu.iq
Peer Reviewer Name	Asaad Al-Omari	**e-mail**	asaad.alomari@uomosul.edu.iq
Scientific Committee Approval Date	2025	**Version Number**	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Provide the fundamental base for elementary mathematics for Vectors and differential equations 2. Use mathematical information in vectors to solve some engineering problems.
Module Learning	1. Know the student the three-dimensional coordinate system. 2. Find the dot and cross product and angle between vectors

Outcomes مخرجات التعلم للمادة الدراسية	3. Know the equation and parametric equation. 4. Solve the differential equations in first-order first-degree. 5. Solve linear differential equations in high order.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A Three-Dimensional Coordinate Systems, The Distance Between two points, Vectors, Component Form, Vector Algebra Operations, Properties of Vector Operations, Midpoint of a Line Segment, The Dot Product, Angle Between Vectors [8 hrs] The Angle Between Two Nonzero Vectors u and v, Orthogonal Vectors, Dot Product Properties and Vector Projections. The Cross Product, The Cross Product of Two Vectors in Space, Parallel Vectors. [8 hrs] Properties of the Cross Product, Area of a Parallelogram, Calculating the Cross Product as a Determinant Lines and Planes in Space.Lines and Line Segments in Space. Parametric Equations for a Line, [8 hrs] The Distance from a Point to a Line in Space. An Equation for a Plane in Space, Equation for a Plane, Lines of Intersection, The Distance from a Point to a Plane, Angles Between Planes [4 hrs] Part B Differential Equations: Definition, Classification, order and degree of Des Homogeneity and linearity of the DEs, Generation of the DEs. Solution of DEs (First order First degree DEs by Separable method). Homogenous and non-homogenous DEs method). [8 hrs] Solution of DEs (First order First degree DEs by Linear and nonlinear method). Exact and non-exact method [8 hrs] Second order DEs for X-is missing, y-missing Solution of DEs (higher order DEs – Complementary solution + Particular solution). [16 hrs]

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

<table>
<tr><td colspan="4" align="center">Student Workload (SWL)</td></tr>
<tr><td colspan="4" align="center">الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا</td></tr>
<tr>
<td>Structured SWL (h/sem)
الحمل الدراسي المنتظم للطالب خلال الفصل</td>
<td>63</td>
<td>Structured SWL (h/w)
الحمل الدراسي المنتظم للطالب أسبوعيا</td>
<td>4</td>
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<tr>
<td>Unstructured SWL (h/sem)
الحمل الدراسي غير المنتظم للطالب خلال الفصل</td>
<td>62</td>
<td>Unstructured SWL (h/w)
الحمل الدراسي غير المنتظم للطالب أسبوعيا</td>
<td>4</td>
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<tr>
<td>Total SWL (h/sem)
الحمل الدراسي الكلي للطالب خلال الفصل</td>
<td colspan="3">125</td>
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<table>
<tr><td colspan="6" align="center">Module Evaluation</td></tr>
<tr><td colspan="6" align="center">تقييم المادة الدراسية</td></tr>
<tr>
<td></td>
<td></td>
<td>Time/Number</td>
<td>Weight (Marks)</td>
<td>Week Due</td>
<td>Relevant Learning Outcome</td>
</tr>
<tr>
<td rowspan="4">Formative assessment</td>
<td>Quizzes</td>
<td>3</td>
<td>30% (30)</td>
<td>5, 10</td>
<td>LO #1, 2, 3</td>
</tr>
<tr>
<td>Assignments</td>
<td>5</td>
<td>10% (10)</td>
<td>2, 12</td>
<td>LO # 1-4</td>
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<tr>
<td>Projects / Lab.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td rowspan="2">Summative assessment</td>
<td>Midterm Exam</td>
<td>2 hr</td>
<td>10% (10)</td>
<td>8</td>
<td>LO # 1-3</td>
</tr>
<tr>
<td>Final Exam</td>
<td>3hr</td>
<td>50% (50)</td>
<td>16</td>
<td>All</td>
</tr>
<tr>
<td colspan="2">Total assessment</td>
<td colspan="2">100% (100 Marks)</td>
<td></td>
<td></td>
</tr>
</table>

<table>
<tr><td colspan="2" align="center">Delivery Plan (Weekly Syllabus)</td></tr>
<tr><td colspan="2" align="center">المنهاج الاسبوعي النظري</td></tr>
<tr><td></td><td>Material Covered</td></tr>
<tr>
<td>Week 1</td>
<td>Three-Dimensional Coordinate Systems, The Distance Between two points Vectors, Component Form, Vector Algebra Operations, Properties of Vector Operations, Midpoint of a Line Segment</td>
</tr>
<tr>
<td>Week 2</td>
<td>The Dot Product, Angle Between Vectors.
The Angle Between Two Nonzero Vectors u and v, Orthogonal Vectors, Dot Product Properties and Vector Projections.</td>
</tr>
<tr>
<td>Week 3</td>
<td>The Cross Product, The Cross Product of Two Vectors in Space, Parallel Vectors Properties of the Cross Product, Area of a Parallelogram, Calculating the Cross Product as a Determinant</td>
</tr>
<tr>
<td>Week 4</td>
<td>Lines and Planes in Space.
Line</td>
</tr>
<tr>
<td>Week 5</td>
<td>Vector Equation for a Line.</td>
</tr>
<tr>
<td>Week 6</td>
<td>Parametric Equations for a Line, The Distance from a Point to a Line in Space</td>
</tr>
<tr>
<td>Week 7</td>
<td>An Equation for a Plane in Space, Equation for a Plane, Lines of Intersection, The Distance from a Point to a Plane, Angles Between Planes</td>
</tr>
<tr>
<td>Week 8</td>
<td>Differential Equations: Definition, Classification, order and degree of</td>
</tr>
<tr>
<td>Week 9</td>
<td>DEs Homogeneity and linearity of the DEs, Generation of the DEs</td>
</tr>
</table>

Week 10	First order First degree DEs by Separable method
Week 11	First order First degree DEs by linear and nonlinear DEs method
Week 12	First order First degree DEs by Exact and non-Exact DEs method
Week 13	Second order DEs for X-is missing, y-missing
Week 14	higher order DEs – Complementary solution + Particular solution).
Week 15	higher order DEs – Complementary solution + Particular solution).
Week 16	**Preparatory week before the final Exam**

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

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Thomas' Calculus by Finney and Thomas.	Yes
Recommended Texts	Thomas' Calculus Early Transcendentals - Thirteenth Edition	No
Websites		

Grading Scheme				
مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors

Week 10	First order First degree DEs by Separable method
Week 11	First order First degree DEs by linear and nonlinear DEs method
Week 12	First order First degree DEs by Exact and non-Exact DEs method
Week 13	Second order DEs for X-is missing, y-missing
Week 14	higher order DEs – Complementary solution + Particular solution).
Week 15	higher order DEs – Complementary solution + Particular solution).
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

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

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Thomas' Calculus by Finney and Thomas.	Yes
Recommended Texts	Thomas' Calculus Early Transcendentals - Thirteenth Edition	No
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors

4

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

<table>
<tr><td colspan="5" align="center">Module Information
معلومات المادة الدراسية</td></tr>
<tr><td>Module Title</td><td colspan="3" align="center">Mechanics of Materials I</td><td>Module Delivery</td></tr>
<tr><td>Module Type</td><td colspan="3" align="center">Core</td><td rowspan="4">☒ Theory
☒ Lecture
☐ Lab
☒ Tutorial
☐ Practical
☐ Seminar</td></tr>
<tr><td>Module Code</td><td colspan="3" align="center">CE202</td></tr>
<tr><td>ECTS Credits</td><td colspan="3" align="center">5</td></tr>
<tr><td>SWL (hr/sem)</td><td colspan="3" align="center">125</td></tr>
<tr><td>Module Level</td><td>UGII</td><td colspan="2">Semester of Delivery</td><td>3</td></tr>
<tr><td>Administering Department</td><td>CE</td><td>College</td><td colspan="2">ENG</td></tr>
<tr><td>Module Leader</td><td colspan="2">Dr. Ali Natheer Abdul Baki</td><td>e-mail</td><td>aliabdulbaki@uomosul.edu.iq</td></tr>
<tr><td>Module Leader's Acad. Title</td><td colspan="2">Lecturer</td><td colspan="2">Module Leader's Qualification</td><td>Ph.D.</td></tr>
<tr><td>Module Tutor</td><td colspan="2">Dr. Khalid Ahmed Abdullah</td><td>e-mail</td><td>khalid.alnuaemie75@uomosul.edu.iq</td></tr>
<tr><td>Peer Reviewer Name</td><td colspan="2">Dr. Ali Natheer Abdul Baki</td><td>e-mail</td><td>aliabdulbaki@uomosul.edu.iq</td></tr>
<tr><td>Scientific Committee Approval Date</td><td colspan="2">2025</td><td>Version Number</td><td>1.0</td></tr>
</table>

<table>
<tr><td colspan="4" align="center">Relation with other Modules
العلاقة مع المواد الدراسية الأخرى</td></tr>
<tr><td>Prerequisite module</td><td>CE102, CE107</td><td>Semester</td><td>one, two</td></tr>
<tr><td>Co-requisites module</td><td>None</td><td>Semester</td><td></td></tr>
</table>

	Module Aims, Learning Outcomes and Indicative Contents
	أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية
Module Aims أهداف المادة الدراسية	1. Teaching students the developed stresses, strains, and the effects of Poisson's ratio in various types of structural elements. 2. Teaching students the developed stresses due to changes in temperature or torsion. 3. Teaching students in detail drawings of the shear and moment diagrams and the calculation of deflection and rotation in beams and drawing of the elastic curve.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Ability to calculate the developed stresses in various structural elements. 2. Ability to calculate the developed strains in various structural elements. 3. Ability to calculate the developed thermal stresses in various structural elements. 4. Ability to calculate the developed stresses in various structural elements due to torsion. 5. Ability to draw the shear and moment diagram and find maximum shear and moments in beams. 6. Ability to draw the elastic curve of loaded beams. 7. Ability to calculate the developed deflections and the angle of rotation in beams. 8. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics. 9. An ability to acquire and apply new knowledge and using appropriate learning strategies. 10. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Simple stress Simple stress is developed in structural members when these members are subjected to an external load. There are three types of stresses: normal stress, shearing stress, and bearing stress. [10 hrs] Simple strain The normal strain is developed in a structural member, like a bar, due to the presence of axial loading or changes in temperatures. The stress-strain curve for structural materials, such as low-carbon steel and aluminum, and Hooke's law are explained in detail. In addition, Poisson's ratio, which is the ratio between the lateral and axial strain. Finally, compatibility equations are required to solve statically indeterminate problems, in these problems, the internal forces cannot be determined from statics alone. [20 hrs] Torsion The torsional stress, which is developed due to the applied torsional moment, is calculated for circular sections (solids and hollow). [5 hrs]

	Shear and moment in beams
	Beam is a bar, which is subjected to transverse loads, the internal forces in any section of the beam will generally consist of a shear force V and a bending couple M. The shear force V creates shearing stresses in that section, while the bending couple M creates normal stresses in the cross-section. Determining the maximum absolute values of the shear and the bending moment in a beam are greatly facilitated if V and M are plotted against the distance x measured from one end of the beam. Both of the equations method and the area method are utilized to draw the shear and moment diagram. [20 hrs]
	Deflection in beams
	From a structural perspective, deflection in a beam means the movement of a beam or node respecting its original location. The deflection is happened due to applied loads. The double integration method and area method are utilized to calculate deflection and rotation at any point on the beam. [20 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

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

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative	Quizzes	7	20% (20)	3,6,8,10,12,13,15	LO #1, 2, 3, 4, 5, 6 and 7

assessment	Assignments	7	15% (15)	2,5,7,9,11,12,14	LO #1, 2, 3, 4, 5, 6 and 7
	Report	1	5% (5)	8	LO # 1, 2, 3, 4 and 5
Summative	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
assessment	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

elivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction – Simple stress
Week 2	Simple stress (normal stress, shearing stress and bearing stress)
Week 3	Simple strain (Stress – Strain relationship and Hook's Law)
Week 4	Simple strain (Poisson's ratio and statically indeterminate members)
Week 5	Simple strain caused by thermal stresses
Week 6	Simple strain caused by thermal stresses + Torsion
Week 7	Mid-term Exam + Torsion
Week 8	Shear and moment in beams / shear and moment diagram (Equations method)
Week 9	Shear and moment diagram (Equations method)
Week 10	Shear and moment diagram (Area method)
Week 11	Shear and moment diagram (Area method)
Week 12	Deflection in beams (Double integration method)
Week 13	Deflection in beams (Moment-area method)
Week 14	Deflection in beams (Moment-area method)
Week 15	Deflection in beams (Moment-area method)
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Strength of materials; Andrew Pytel; Ferdinand Leon Singer	Yes
Recommended Texts	Mechanics of Materials; Ferdinand P. Beer, E. Russell Johnston Jr., John T. DeWolf, David F. Mazurek	Yes

Grading Scheme
مخطط الدرجات

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

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

أ.د. مرتضى عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		
Module Title	**Mechanics of Materials II**	**Module Delivery**
Module Type	Core	☒ Theory
Module Code	**CE207**	☒ Lecture
ECTS Credits	6	☐ Lab
		☒ Tutorial
SWL (hr/sem)	**150**	☐ Practical
		☐ Seminar

Module Level	UGII	**Semester of Delivery**		4
Administering Department	CE	**College**	ENG	
Module Leader	Dr. Ali Natheer Abdul Baki	**e-mail**	aliabdulbaki@uomosul.edu.iq	
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	Ph.D.	
Module Tutor	Dr. Khalid Ahmed Abdullah	**e-mail**	khalid.alnuaemie75@uomosul.edu.iq	
Peer Reviewer Name	Dr. Ali Natheer Abdul Baki	**e-mail**	aliabdulbaki@uomosul.edu.iq	
Scientific Committee Approval Date	2025	**Version Number**	1.0	

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	CE102, CE107	**Semester**	one, two
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Teaching students the developed Tensile and compressive bending stresses in beams (symmetrical cross-section). 2. Teaching students the developed Shear stress in beams. 3. Teaching students the developed Combined stresses in beams

	4. Teaching students the developed stresses in beams by Mohr's Circle method.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Ability to calculate developed bending stress in beams. 2. Ability to calculate developed shear stress in beams. 3. Ability to calculate developed combined stresses in beam 4. Ability learn to determine the stresses created by such combined loadings in structures.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Bending Stress in beam bending stress is developed in beam when these beams are subjected to an external load. [20 hrs] shear Stress in beam shear stress is developed in beam when these beams are subjected to an external load. [20 hrs] Combined stresses in beams There are four possible combinations of these loadings: (1) axial and flexural; (2) axial and torsional; (3) torsional and flexural: and (4) axial, torsional, and flexural,(to combine normal stresses in beams). [20 hrs]. Mohr's Circle the stress applied in the cross-section of the beam is represented and developed by the Moh'r circle. [15 hrs].

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

Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	7	20% (20)	3,6,8,10,12,13,15	LO #1, 2, 3, 4, 5, 6 and 7
	Assignments	7	15% (15)	2,5,7,9,11,12,14	LO #1, 2, 3, 4, 5, 6 and 7
	Report	1	5% (5)	8	LO # 1, 2, 3, 4 and 5
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction – shear and bending moment in beam
Week 2	Tensile and compressive bending stresses in beams (symmetrical cross-section)
Week 3	Tensile and compressive bending stresses in beams (unsymmetrical cross-section)
Week 4	Shear stress in solid section beams
Week 5	Shear stress in deferent section beams
Week 6	Shear stress in deferent section beams
Week 7	Mid-term Exam+ Introduction - Combined stresses
Week 8	Combined stresses deferent structure member
Week 9	Combined stresses in beams (axial and flexural)
Week 10	Combined stresses in beams (axial and torsional)
Week 11	Combined stresses in beams (torsional and flexural).
Week 12	Combined stresses in beams (axial, torsional, and flexural)
Week 13	represented stresses in cross section beam by equations
Week 14	represented stresses in cross section beam by Mohr's Circle
Week 15	represented stresses in cross section beam by Mohr's Circle
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

		Library?
Required Texts	Strength of materials; Andrew Pytel; Ferdinand Leon Singer	Yes
Recommended Texts	Mechanics of Materials; Ferdinand P. Beer, E. Russell Johnston Jr., John T. DeWolf, David F. Mazurek	Yes
Websites		

Grading Scheme
مخطط الدرجات

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

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

أ.د. بهجت عبد الهادي محمد عوني
رئيس قسم الهندسة المدنية

4

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية				
Module Title	**Fluid Mechanics**		**Module Delivery**	
Module Type	**supported**		☒Theory ☒Lecture ☒Lab ☒Tutorial ☐Practical ☐Seminar	
Module Code	CE203			
ECTS Credits	**5**			
SWL (hr/sem)	**125**			
Module Level	UGll	**Semester of Delivery**		4
Administering Department	CE	**College**	ENG	
Module Leader	Dr. Khansaa Abdulelah AHMED	**e-mail**	khansaa.abd@uomosul.edu.iq	
Module Leader's Acad. Title	lecture	**Module Leader's Qualification**		Ph.D.
Module Tutor	Dr. Khansaa Abdulelah AHMED	**e-mail**	khansaa.abd@uomosul.edu.iq	
Peer Reviewer Name	Dr. Khansaa Abdulelah AHMED	**e-mail**	khansaa.abd@uomosul.edu.iq	
Scientific Committee Approval Date	01/09/2024	**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. Understanding fluid behavior: Fluid mechanics helps engineers understand the fundamental principles governing the behavior of fluids, both liquids and gases. This includes studying fluid properties, such as density, viscosity, and pressure, as well as understanding how fluids flow, interact, and react under different conditions.

	2. Analysis and design of fluid systems: Fluid mechanics provides the necessary tools and techniques for analyzing and designing various engineering systems involving fluids. This includes designing pipelines, channels, pumps, turbines, compressors, and other devices that handle fluids. Engineers need to understand fluid mechanics to ensure efficient and safe operation of these systems.
	3. Fluid flow measurement and control: Fluid mechanics helps engineers learn about different techniques and instruments used for measuring fluid flow rates, pressures, velocities, and other parameters. This knowledge is crucial for maintaining control and optimizing performance in industrial processes, such as chemical plants, power generation, and oil refineries.
	4. Aerodynamics and hydrodynamics: Fluid mechanics plays a significant role in the study of aerodynamics (air flow) and hydrodynamics (water flow). These fields are essential for designing efficient aircraft, automobiles, ships, and submarines. Engineers use fluid mechanics principles to analyze and improve the performance, stability, and maneuverability of these vehicles.
	5. Energy efficiency: Head loss is directly related to energy losses in fluid systems. By studying head loss, engineers can identify areas of high energy dissipation and implement measures to reduce it. This leads to improved energy efficiency and reduced operating costs. Engineers can select pipe materials with lower friction factors, design smoother pipe fittings, or employ strategies such as pump optimization to minimize head loss and energy consumption.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understanding of hydrostatics: Civil engineers need to understand the principles of hydrostatics, which involve the study of fluids at rest. This includes topics such as pressure distribution in fluids, forces on submerged surfaces.
	2. Analysis of fluid flow in pipes and channels: Civil engineers frequently encounter fluid flow in pipes and open channels. Studying fluid mechanics helps in understanding the behavior of fluids in these systems, including topics such as energy losses, flow rates, pressure distribution, and hydraulic design.
	3. Understanding fluid forces and flow patterns helps engineers ensure the stability, functionality, and safety of these structures in different hydraulic condition.
	4. Understanding energy conservation in fluid flow: The Bernoulli equation represents a fundamental principle of energy conservation in fluid flow. By studying the Bernoulli equation, civil engineers gain an understanding of how energy is transferred and conserved in fluid systems.
	5. Understanding fluid dynamics around structures: The Bernoulli equation helps civil engineers understand fluid dynamics around structures, such as weirs, spillways, and bridges.
	6. Design and analysis of fluid systems: Understanding head loss is crucial for designing and analyzing fluid systems, such as pipelines, ducts, and channels. By studying head loss, engineers can determine the pressure drop along a flow path and ensure that the system operates efficiently. This knowledge

	helps in selecting appropriate pipe sizes, optimizing the layout of the system, and ensuring that the required flow rates and pressures are maintained. 7. Understanding of fluid forces: The momentum equation is a fundamental principle that relates the forces acting on a fluid to changes in its momentum. By studying the momentum equation, civil engineers gain an understanding of fluid forces, including pressure forces and viscous forces. This knowledge is crucial for designing structures that interact with fluid flows, such as dams, bridges, and offshore platforms, and for analyzing the stability and safety of hydraulic systems. 8. Design and analysis of hydraulic structures: The continuity equation is applicable to the design and analysis of various hydraulic structures encountered in civil engineering. Civil engineers can use the continuity equation to analyze the flow behavior and hydraulic performance of structures such as weirs, spillways, culverts, and hydraulic jumps. This knowledge helps engineers ensure the proper functioning and safety of these structures under different flow conditions. 9. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics. 10. An ability to acquire and apply new knowledge and using appropriate learning strategies. 11. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Introduction of Fluid Mechanics: Definition and properties of fluids, Fluid Statics: Pressure and forces. 2. Fluid static: Pascal Law, Viscosity, Surface tension, Capillarity. Fluid Dynamics: flow characteristics and classifications [10 hrs] Fluid Kinematics: Flow visualization and description, streamlines, Velocity and discharge. [10 hrs] 3. Fluid flow in pipes and Ducts: Laminar and turbulent flow, Reynolds number and flow regimes, Pressure drop Conservation laws and control volume analysis, continuity equation, Euler equation of motion, Bernoulli equation (energy equation) in ideal and real fluids and head loss calculation. Flow measurements: Principles and types of flow measuring devices, Venturi meter, Orifice meter, and Pitot tube. [10 hrs] 4. Momentum equation and computation of forces acting on a fluid to changes in its momentum. 5. Pumps and Turbines. [5 hrs] 6. Head loss calculation. [5 hrs] 7. Three reservoir Problems. [5 hrs] 8. Design and analysis of a multi-pipe system involve considering several factors, such as pipe sizing, pipe material selection, hydraulic calculations, pressure drop, and flow distribution. [8 hrs] 9. Flow in open channels: Types of Flow, Channel Geometry, Flow Velocity and

	Discharge, Manning Equation. [10 hrs]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	1. Lectures: Lectures serve as the primary mode of delivering content in fluid mechanics courses. Instructors use presentations, demonstrations, and visual aids to explain theoretical concepts, equations, and fundamental principles. They may also incorporate real-world examples and applications to help students connect theory to practice. 2. Problem-solving: Fluid mechanics is a highly problem-oriented subject. Instructors often emphasize problem-solving exercises and provide students with practice questions that cover a range of difficulty levels. Solving these problems helps students develop analytical and critical thinking skills, apply theoretical concepts to practical situations, and reinforce their understanding of the subject. 3. Laboratory experiments: Hands-on laboratory experiments provide students with an opportunity to observe fluid phenomena and validate theoretical concepts. By conducting experiments involving flow measurements, fluid properties, and hydraulic systems, students gain practical experience and learn how to use instruments and equipment commonly used in fluid mechanics. 4. Online resources and interactive tools: Online resources, such as interactive simulations, virtual labs, and multimedia materials, can supplement traditional teaching methods. These resources provide students with additional opportunities for self-study, practice, and exploration of fluid mechanics concepts at their own pace.

Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**125**		

Module Evaluation				
تقييم المادة الدراسية				
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	3 and 10	LO #1, #2, #3, #4, #6
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7

	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #6 and 8
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	

	Material Covered
Week 1	Fluid Definition, Units and dimensions, Fluid properties.
Week 2	Viscosity and Newtons Law
Week 3	Ideal and Real Fluids, Capillary, Surface Tension
Week 4	Static Fluid, Pascal Law, Basic equation for static fluids,
Week 5	Pressure in fluids, types of pressure, pressure measurement devices
Week 6	Kinematics of Fluid motion, Types of flow, Continuity Equation.
Week 7	Mid-term Exam
Week 8	Bernoulli Equation.
Week 9	Application of Bernoulli Equation
Week 10	Momentum Equation and application
Week 11	Pumps and Turbines
Week 12	Flow in Real Fluids, Head Loss
Week 13	Multi Pipe system, Pipes in Parallel, Pipes in Series.
Week 14	Three Reservoir Problems
Week 15	Flow in open channels
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	

	Material Covered
Week 1	Lab 1: Reynold Number.
Week 2	Lab 2: Impact of Jet.
Week 3	Lab 3: Center of Pressure.
Week 4	Lab 4: Bernoulli equation.

Week 5	Lab 5: Venturi meter.
Week 6	Lab 6: Friction factor for pipes.
Week 7	Lab 7: Flow through orifice.

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Street, R.L., Watters, G.Z. and Vennard, J.K., 1996. Elementary fluid mechanics. *(John Wiley)*.	Yes
Recommended Texts	Cimbala, J.M. and Cengei, Y.A., 2006. *Fluid mechanics: fundamentals and applications.* McGraw-Hill Higher Education.	No only online
Websites	https://www.udemy.com/course/the-complete-course-of-fluid-mechanics-for-engineers-2021/ https://www.edx.org/learn/fluid-mechanics	

Grading Scheme
مخطط الدرجات

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

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

أ.د. رمحان عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

<table>
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معلومات المادة الدراسية</td>
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☒ Lab
☐ Tutorial
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<td>Semester of Delivery</td>
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<td>Administering Department</td>
<td>CE</td>
<td>College</td>
<td>ENG</td>
</tr>
<tr>
<td>Module Leader</td>
<td>Dr. Sufyan Younis Ahmad</td>
<td>e-mail</td>
<td>sofyan1975@uomosul.edu.iq</td>
</tr>
<tr>
<td>Module Leader's Acad. Title</td>
<td>Assistance Professor</td>
<td>Module Leader's Qualification</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Module Tutor</td>
<td>Zeena Adel Mohammed</td>
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<td>zena.adal@uomosul.edu.iq</td>
</tr>
<tr>
<td>Peer Reviewer Name</td>
<td>Roua Suhail Zidan
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<td>2025</td>
<td>Version Number</td>
<td>1.0</td>
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العلاقة مع المواد الدراسية الأخرى</td>
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<td>Prerequisite module</td>
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<td>Semester</td>
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<td>Co-requisites module</td>
<td>Concrete Technology II</td>
<td>Semester</td>
<td>4</td>
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Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Introducing all construction materials, specifically cement and aggregate. 2. Finding the composition of different types of cement and the properties of cement with all tests that used to determine cement properties. 3. Study the properties of aggregate with all tests that conducted to find these properties. 4. Study the effect of cement and aggregate properties on the properties of concrete based on workability, strength, and durability. 5. Study how to calculate the bulking factor in aggregate to calculate the actual volume provided in site. 6. Study how to correct the weight of fine and coarse aggregate based on their humidity conditions. 7. Focus on sustainable materials (friendly environmental materials) that can be used as a replacement of construction materials including supplementary cementitious materials and recycling aggregate. 8. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics. 9. An ability to acquire and apply new knowledge and using appropriate learning strategies. 10. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Identify the standard specification of quality control for construction materials (cement, aggregate, and water) based on ASTM, BS EN, IQS. 2. Learn how to conduct all tests to determine the properties of all construction materials specially cement and aggregate and recognize the importance of these properties and their effect on the properties of concrete mixture. 3. Focus on the properties of plastic concrete including workability, and precautions that should be considered when concreting in hot and cold weather. 4. Learn how to determine concrete mix ratios (by weight) and convert it to volumes. 5. Learn how to correct the volume and weight of fine and coarse aggregate based on their moisture. 6. Identify the importance of using sustainable materials to improve the properties of plastic concrete.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A – Concrete Technology I / Theory • Introduction – Introduction of all construction materials. [5 hrs] • Cement - Focusing in Cement Composition, main compounds of

	cement and their effect on hydration process, types of cements, manufacturing and their uses, Rule of water in hydration, properties of cement according to the specifications. [25 hrs] • Aggregate – Identifying the properties of coarse and fine aggregate and their effect on concrete properties, and correct the weight of aggregate based on its humidity. [15 hrs] • Determine concrete mix ratios (by weight) and how to convert it to volume ratios. [5 hrs] • Properties of fresh concrete including workability and consistency of concrete, rheology of concrete and its plasticity. [10 hrs] • Temperature effect on fresh concrete properties and precautions considered in concreting under cold and hot weathers. [10 hrs] • Sustainable materials – including supplementary cementitious materials and recycling aggregate. [5 hrs] Part B – Concrete Technology I / Lab • Writing a good technical report [5 hrs] • Tests for ordinary Portland cement including (normal consistency, setting time, compressive strength, tensile strength and the effect on curing conditions on strength development). [25 hrs] • Tests of fine and coarse aggregate to determine all its properties including (sieve analysis, specific gravity, unit weight, moisture content, absorption). [20 hrs] • Tests of clay and concrete blocks, tests of tiles, and tensile test of steel. [20 hrs]

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.
Student Workload (SWL)	
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا	

Structured SWL (h/sem)	63	**Structured SWL (h/w)**	4

			Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4

الحمل الدراسي المنتظم للطالب خلال الفصل | الحمل الدراسي المنتظم للطالب أسبوعيا

Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	14% (10)	5, 10	LO #1, 3, and 4
	Assignments	2	6% (10)	2, 5, 8, 11	All
	Projects / Lab.	1	10% (10)	weekly	All
	Report	1	10% (10)	13	LO # 3, and 4
Summative assessment	**Midterm Exam**	2 hr	10% (10)	9	LO # 3, and 4
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction of Construction Materials Especially Cement And Concrete Aggregate.
Week 2	Cement Composition.
Week 3	Main Compounds of Cement and Their Effect On Hydration Process.
Week 4	Types of Cements, Manufacturing and Their Uses.
Week 5	Rule of Water in Hydration
Week 6	Concrete Ingredients, Calculating Mix Ratios, and Conversion The Weights to Volumes
Week 7	Aggregate Properties, Sieve Analysis of Fine and Coarse Aggregate
Week 8	Bulking Factor of Aggregates For Volume Correction
Week 9	ACI Code Procedure For Correction of Aggregate Weights Based on Its Humidity.
Week 10	Properties of Fresh Concrete, Workability and Consistency of Fresh Concrete.
Week 11	Standard Tests For Measuring The Workability and Consistency of Concrete.
Week 12	Calculating Yield, Unit Weight, and Cement Factor of fresh ($1m^3$) fresh concrete.
Week 13	Concreting in Hot Weather
Week 14	Concreting in Cold Weather
Week 15	Sustainable Materials (Supplementary Cementitious Materials + Recycling Aggregate)

	Delivery Plan (Weekly Lab. Syllabus)
	المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Writing a good technical report
Week 2	Lab 2: Tests for ordinary Portland cement (Normal consistency)
Week 3	Lab 3: Tests for ordinary Portland cement (Setting time)
Week 4	Lab 4: Tests of cement mortar (Compressive strength for different ages).
Week 5	Lab 5: Tests for cement mortar (Tensile strength for different ages).
Week 6	Lab 6: Sieve analysis of coarse aggregates (Grading , M.A.S , and A.S.S).
Week 7	Lab 7: Sieve analysis of fine aggregates (Grading , FM , and Fine materials passing No. 200).
Week 8	Lab 8: Midterm Exam.
Week 9	Lab 9: Tests for aggregates (Specific gravity of fine and coarse aggregates).
Week 10	Lab 10: Tests for aggregates (Unit weight, Absorption).
Week 11	Lab 11: Test of concrete blocks (Compressive strength ,Unit weight, Absorption).
Week 12	Lab 12: Tensile test and modulus of elasticity for steel.
Week 13	Lab 13: Tests for clayey Bricks (Compressive strength ,Unit weight, Absorption).
Week 14	Lab 14: Tests for tiles (Flexural tensile strength, Absorption).
Week 15	Lab 15: Activity Index of sustainable Cementitious materials.

	Learning and Teaching Resources	
	مصادر التعلم والتدريس	

	Text	Available in the Library?
Required Texts	Composition and properties of concrete (Troxell)	Yes (Text Book)
Recommended Texts	Properties of Concrete (M. Neville)	Yes
Websites	N/A	

	Grading Scheme			
	مخطط الدرجات			
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria

(0 – 49)	F – Fail	رأسب	(0-44)	Considerable amount of work required

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

أ.د. معتز عبد الجبار محمد عودة
رئيس قسم الهندسة المدنية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		
Module Title	**Concrete Technology II**	**Module Delivery**
Module Type	**Core learning activity**	☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	**CE209**	
ECTS Credits	**5**	
SWL (hr/sem)	**125**	

Module Level	UGII	**Semester of Delivery**	4
Administering Department	CE	**College**	ENG
Module Leader	Dr. Sufyan Younis Ahmad	**e-mail**	sofyan1975@uomosul.edu.iq
Module Leader's Acad. Title	Assistance Professor	**Module Leader's Qualification**	Ph.D.
Module Tutors	Zeena Adel Mohammed Roua Suhail Zidan Riffa dalli hamad	**e-mail**	zena.adal@uomosul.edu.iq rouasuhail@uomosul.edu.iq Reffashlla@uomosul.edu.iq
Peer Reviewer Name	Dr. Sufyan Younis Ahmad	**e-mail**	sofyan1975@uomosul.edu.iq
Scientific Committee Approval Date	2025	**Version Number**	1.0

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

<table>
<tr><td colspan="2" align="center">**Module Aims, Learning Outcomes and Indicative Contents**
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية</td></tr>
<tr>
<td>**Module Aims**
أهداف المادة الدراسية</td>
<td>

1. Finding bleeding and plastic shrinkage in fresh concrete.
2. Identifying the properties of hardened concrete.
3. Identifying Factors affecting the properties of hardened concrete
4. Study the effect of w/c ratio on concrete strength and durability.
5. Study the effect of test conditions on concrete strength.
6. Study the effect of cement type and aggregate nature on concrete strength.
7. Methods to measure tensile strength of hardened concrete and its relation with compressive strength.
8. Calculating the modulus of elasticity of concrete according to different international codes.
9. Calculating the drying shrinkage in concrete and its effect on durability.
10. Design of concrete mix based on ACI Method.
11. Acceptance of compressive strength results respect to Iraqi Code.

</td>
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<tr>
<td>**Module Learning Outcomes**

مخرجات التعلم للمادة الدراسية</td>
<td>

1. Identify the unhealthy effect of bleeding and plastic shrinkage on the properties of concrete.
2. Identifying the effect of (high and low) water content on the concrete strength and durability.
3. Identifying the effect of cement type and aggregate nature on the concrete strength and durability.
4. Calculating the modulus of elasticity and tensile strength of concrete using (ACI and BS) equations and ASTM specification.
5. Determining the drying shrinkage strain of concrete.
6. Learn how to design concrete mixture based on ACI Method.
7. Learn how to evaluate the concrete strength results according to IQS Code.

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<tr>
<td>**Indicative Contents**
المحتويات الإرشادية</td>
<td>

Indicative content includes the following.
<u>**Part A – Concrete Technology II / Theory**</u>
- Bleeding and plastic shrinkage in fresh concrete. [7 hrs]
- Properties of hardened concrete and Factors affecting on the concrete properties. [7 hrs]
- Effect of w/c ratio, and the conditions at test on concrete strength and durability. [7 hrs]
- Effect of cement type and aggregate nature on concrete strength. [7 hrs]
- Methods to measure tensile strength of hardened concrete and its relation with compressive strength. [7 hrs]
- Calculating the modulus of elasticity of concrete according to different international codes. [4 hrs]
- Design of concrete mix based on ACI code Method. [7 hrs]

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</tr>
</table>

	• Acceptance of compressive strength results respect to IQS Code. [4 hrs] **Part B – Concrete Technology II / Lab** • Writing a good technical report [5 hrs] • Testing the fresh concrete for Temperature, unit weight, slump, and bleeding of concrete specimens. [4 hrs] • Testing the strength of cured concrete samples at a standard age of 28 day, effect of capping of concrete cylinder on the compressive strength, and Effect of shape (standard cylinder and cube) of the concrete specimens on the compressive strength. [8 hrs] • Test of flexural tensile strength (one and two points loads). [3hrs] • Non-destructive testing of concrete (Hammer, ultrasonic test) and destructive testing of concrete (Core and loading test). [8 hrs] • ACI design method and making trial mix. [2hrs]

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

Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation				
تقييم المادة الدراسية				
	Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**

Formative assessment	**Quizzes**	2	14% (10)	3, 8	LO #1, 3, and 4
	Assignments	2	6% (10)	5, 8	All
	Projects / Lab.	1	10% (10)	weekly	All
	Report	1	10% (10)	13	LO # 3, and 4
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Finding bleeding and plastic shrinkage in fresh concrete.
Week 2	Identifying the properties of hardened concrete.
Week 3	Identifying Factors affecting the properties of hardened concrete.
Week 4	Effect of w/c ratio on the properties of hardened concrete.
Week 5	Study the effect of test conditions on concrete strength.
Week 6	Study the effect of cement type, fineness of cement, and aggregate nature on concrete strength.
Week 7	Effect of curing conditions and temperature on the properties of hardened concrete.
Week 8	Factors affecting compression & tensile in concrete and conversion between different ages.
Week 9	Measuring the tensile strength of hardened concrete and its relation with compressive strength.
Week 10	Relation between Compression and Tensile strength of concrete.
Week 11	Drying Shrinkage of concrete.
Week 12	Calculating the modulus of elasticity of concrete according to different codes.
Week 13	Calculating drying shrinkage of concrete.
Week 14	Design of concrete mix based on ACI Method.
Week 15	Acceptance of compressive strength results respect to IQS Code
Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Review writing a good technical report.
Week 2	Lab 2: Slump test of fresh concrete, making and curing concrete test specimens.
Week 3	Lab 3: Temperature and unit weight measurement of freshly mixed concrete.
Week 4	Lab 4: Bleeding measurement of freshly mixed concrete..
Week 5	Lab 5: Testing the compressive strength of hardened concrete samples and finding the effect of shape (standard cylinder and cube) of the concrete specimens on the strength.

Week 7	Lab 7: Testing the flexural tensile strength (one and two points load).
Week 8	Lab 8: Midterm Exam.
Week 9	Lab 9: Non-destructive testing of concrete (Hammer test).
Week 10	Lab 10: Non-destructive testing of concrete (ultrasonic test).
Week 11	Lab 11: Destructive testing of concrete (Core test and loading test).
Week 12	Lab 12: Retarders and Accelerators additives.
Week 13	Lab 13: Fiber reinforced concrete
Week 14	Lab 14: Effect of recycled coarse aggregate in concrete.
Week 15	Lab 15: making trial mix according to ACI design method.

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Composition and properties of concrete (Troxell)	Yes (Text Book)
Recommended Texts	Properties of Concrete (M. Neville)	Yes
Websites	N/A	

Grading Scheme
مخطط الدرجات

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

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

أ.د. معتز عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

5

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

<table>
<tr><td colspan="4" align="center">Module Information
معلومات المادة الدراسية</td></tr>
<tr><td>Module Title</td><td>Engineering Surveying I</td><td colspan="2">Module Delivery</td></tr>
<tr><td>Module Type</td><td>Core</td><td colspan="2" rowspan="4">☒Theory
☒Lecture
☒Lab
☒Tutorial
☐Practical
☐Seminar</td></tr>
<tr><td>Module Code</td><td>CE205</td></tr>
<tr><td>ECTS Credits</td><td>6</td></tr>
<tr><td>SWL (hr/sem)</td><td>150</td></tr>
<tr><td>Module Level</td><td>UGII</td><td>Semester of Delivery</td><td>3</td></tr>
<tr><td>Administering Department</td><td>CE</td><td>College</td><td>ENG</td></tr>
<tr><td>Module Leader</td><td>Yezin A. Alnajjar</td><td>e-mail</td><td>Yazinalnajjar@uomosul.edu.iq</td></tr>
<tr><td>Module Leader's Acad. Title</td><td>lecturer</td><td>Module Leader's Qualification</td><td>Ph.D.</td></tr>
<tr><td>Module Tutor</td><td>Zeena A. Al-Kazzaz</td><td>e-mail</td><td>Zeena.kazzaz@uomosul.edu.iq</td></tr>
<tr><td>Peer Reviewer Name</td><td>Yezin A. Alnajjar</td><td>e-mail</td><td>Yazinalnajjar@uomosul.edu.iq</td></tr>
<tr><td>Scientific Committee Approval Date</td><td>2025</td><td>Version Number</td><td>1.0</td></tr>
</table>

<table>
<tr><td colspan="4" align="center">Relation with other Modules
العلاقة مع المواد الدراسية الأخرى</td></tr>
<tr><td>Prerequisite module</td><td>None</td><td>Semester</td><td></td></tr>
<tr><td>Co-requisites module</td><td>None</td><td>Semester</td><td></td></tr>
</table>

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

Module Objectives أهداف المادة الدراسية	1. To develop problem solving skills and understanding of surveying theory through the application of techniques. 2. To understand linear and level measurements. 3. This course deals with the basic concept of surveying. 4. This is the basic subject for surveying. 5. To understand instruments. 6. To understand contouring.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Define surveying and types. 2. Angle units and conversions. Error types. 3. Scale types. 4. Basic surveying tools. 5. Distance measurements by tape. 6. Levels types and calculations. 7. Earth curvature and refraction. 8. Reciprocal leveling. 9. Two peg test. 10. Longitudinal and cross sections. 11. Contour lines. 12. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics. 13. An ability to acquire and apply new knowledge and using appropriate learning strategies. 14. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. **Part A: theory** Definition and types, history. Types of error- mistakes, systematic and randon. [6 hrs] Different formats of angles. How to convert, Scales, stations, basic map contents.[6 hrs] Revision problem classes [5 hrs] Leveling definitions and basics. Method of leveling. Types of levels, effects of Earth curvature and refraction. [14 hrs] Longitudinal and cross sections. Contours. [10 hrs]

	Part B: Lab
	Basic Surveying Instruments and Tools، Definition and Care (3hrs)
	Measuring distances with tape and other methods (3hrs)
	Surveying a building using the direct method (3hrs)
	Establishing and dropping vertical columns (3hrs)
	Measuring distances in the presence of obstacles (3hrs)
	Identifying the leveling instrument and its components (3hrs)
	Setting up the leveling instrument and taking readings (3hrs)
	Using the leveling instrument for transferring point elevations (fly leveling) (3hrs)
	Using the leveling instrument for precision leveling (3hrs)
	Finding intermediate point elevations (3hrs)
	Finding negative point elevations (3hrs)
	Conducting the two-peg test (3hrs)
	Conducting the reverse leveling (3hrs)
	Longitudinal profiles (3hrs)
	Cross-sectional profiles (3hrs)

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

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

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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	75	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل		**150**	

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	14% (7)	5 and 10	LO #1, #2 and #10, #11
	H.w. Assignments	1	3% (3)	2 and 12	LO #3, #4 and #6, #7
	Class .Assignments	1	3% (3)		
	Projects / Lab.	4	20% (5)	Continuous	All
	Report				
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to surveying, basic definitions
Week 2	Angles and conversions
Week 3	Types of errors
Week 4	Basic surveying tools
Week 5	Measuring lines
Week 6	Types of obstacles, Quiz
Week 7	Systematic errors in tape measurements
Week 8	Midterm Examination
Week 9	Basic leveling definitions, Optics of levels
Week 10	Types of levels
Week 11	HI method of leveling
Week 12	Check leveling, Two peg test, Effect of curvature and refraction
Week 13	Reciprocal leveling
Week 14	Longitudinal and cross sections, Contouring
Week 15	contouring
Week 16	Preparing for Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered

Week 1	Lab 1: Basic Surveying Instruments and Tools، Definition and Care.
Week 2	Lab 2: Measuring distances with tape and other methods.
Week 3	Lab 3: Surveying a building using the direct method.
Week 4	Lab 4: Establishing and dropping vertical columns.
Week 5	Lab 5: Measuring distances in the presence of obstacles.
Week 6	Lab 6: Identifying the leveling instrument and its components.
Week 7	Lab 7: Setting up the leveling instrument and taking readings.
Week 8	Lab 8: Using the leveling instrument for transferring point elevations (fly leveling).
Week 9	Lab 9: Using the leveling instrument for precision leveling.
Week 10	Lab 10: Finding intermediate point elevations.
Week 11	Lab 11: Finding negative point elevations.
Week 12	Lab 12: Conducting the two-peg test.
Week 13	Lab 13: Conducting the reverse leveling.
Week 14	Lab 14: Longitudinal profiles.
Week 15	Lab 15: Cross-sectional profiles.

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Kavanagh, Barry and Diane K. Slattery. Surveying with Construction Applications. 8th ed., Pearson Education, Inc., 2014.	Yes
Recommended Texts	Kavanagh, Barry and Diane K. Slattery. Surveying with Construction Applications. 8th ed., Pearson Education, Inc., 2014.	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/civil-engineering	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الأسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Basic Surveying Instruments and Tools+ Definition and Care.
Week 2	Lab 2: Measuring distances with tape and other methods.
Week 3	Lab 3: Surveying a building using the direct method.
Week 4	Lab 4: Establishing and dropping vertical columns.
Week 5	Lab 5: Measuring distances in the presence of obstacles.
Week 6	Lab 6: Identifying the leveling instrument and its components.
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Week 12	Lab 12: Conducting the two-peg test.
Week 13	Lab 13: Conducting the reverse leveling.
Week 14	Lab 14: Longitudinal profiles.
Week 15	Lab 15: Cross-sectional profiles.

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Kavanagh, Barry and Diane K. Slattery. Surveying with Construction Applications. 8th ed., Pearson Education, Inc., 2014.	Yes
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Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings

5

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية				
Module Title	**Engineering Surveying II**		**Module Delivery**	
Module Type	Core		☒Theory ☒Lecture ☒Lab ☒Tutorial ☐Practical ☐Seminar	
Module Code	CE210			
ECTS Credits	**6**			
SWL (hr/sem)	150			
Module Level	UGII	**Semester of Delivery**		4
Administering Department	CE	**College**	ENG	
Module Leader	Yezin A. Alnajjar	**e-mail**	yazinalnajjar@uomosul.edu.iq	
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**		Ph.D.
Module Tutor	Zeena A. Al-Kazzaz	**e-mail**	Zeena.kazzaz@uomosul.edu.iq	
Peer Reviewer Name	Yezin A. Alnajjar	**e-mail**	yazinalnajjar@uomosul.edu.iq	
Scientific Committee Approval Date	2025	**Version Number**	1.0	

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

	Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية
Module Objectives أهداف المادة الدراسية	1. To develop problem solving skills and understanding of surveying theory through the application of techniques. 2. To understand measurements. 3. This course deals with the basic concept of surveying. 4. This is the basic subject for surveying. 5. To understand angles and bearings problems. 6. To perform surveying.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize how to do angle measurements. 2. List the various terms associated with surveying. 3. Summarize what is meant by surveying. 4. Discuss the bearings. 5. Explain the coordinates. 6. Define Total station. 7. Identify the basic total station applications. 8. Define GPS basics. 9. Identify basic GPS applications. 10. Explain Area surveying. 11. Explain Volume surveying.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A- Course Theory Theodolite definition- types, history. Angle types- horizontal and vertical, face right and face left, positive and negative vertical angles, drawing the right shapes, clockwise and counterclockwise angles. [10 hrs] Naming convention of horizontal angles, one letter, three letter, closed and open traverse, Sum of internal angles. Bearings of lines. North determination. Departure and latitude. Coordinates (XYZ, ENH). Traverse errors and correction. Theodolite for coordinates. [12 hrs] Total station, components, types,,Prism and Non-Prism. Robotic and smart stations, TLS, point clouds, [6 hrs] GPS, types and segments. Sources of errors. Sky Plot. [4 hrs] Area measurements, from longitudinal and cross sections, from contours and spot heights, using trapezoidal and simpson methods. Volume calculations. [8 hrs] Revision problem classes [5 hrs] Part B. Lab

	Introduction to theodolites, setting, leveling, centering, orientation. measuring horizontal and vertical angles. Traversing. [14 hrs]
	Total station surveying. Survey of new coordinates, setting out, intersection. [5 hrs]
	GPS surveying, Sky plot, waypoints. Route. [5 hrs]
	Area calculations. Volume calculations. [6 hrs]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

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

Student Workload (SWL)
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Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	75	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All

Total assessment		100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Theodolites
Week 2	Angle types
Week 3	Theodolite setup
Week 4	Bearing types and conversions
Week 5	Coordinates
Week 6	Open and closed traverse
Week 7	Trigonometric leveling
Week 8	Midterm Examination
Week 9	Total Station and laser scanning
Week 10	GPS Surveying
Week 11	Areas
Week 12	Areas using coordinates
Week 13	Volumes
Week 14	Volumes, from contours and spot heights
Week 15	Horizontal and vertical curves
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to theodolites, setting
Week 2	Lab 2: measuring horizontal and vertical angles.
Week 3	Lab 3: traversing
Week 4	Lab 4: total station surveying
Week 5	Lab 5: gps surveying
Week 6	Lab 6: Area calculations
Week 7	Lab 7: Volume calculations

Learning and Teaching Resources
مصادر التعلم والتدريس

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

أ.د. معتز عبد الجبار محمد عوان
رئيس قسم الهندسة المدنية

5

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	The crimes of the Baath regime in Iraq	**Module Delivery**	
Module Type	Basic	☐ **Theory**	
Module Code	UOM2050	☒ **Lecture**	
ECTS Credits	2	☐ **Lab**	
SWL (hr/sem)	50	☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Level	UGII	**Semester of Delivery**	three
Administering Department	CE	**College**	ENG
Module Leader	Shaza Jagan	**e-mail**	xxxxxx
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	M.Sc
Module Tutor		**e-mail**	
Peer Reviewer Name	Shaza Jagan	**e-mail**	xxxxxx
Scientific Committee Approval Date	2025	**Version Number**	1.0

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

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	**توعية. .الطلاب بالجرائم التي ارتكبها البعث في العراق..** • **توجيه الطلاب للإلمام والمعرفة بالجرائم.....** .**توعية الطلاب بخطورة الجرائم**
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. **فهم تاريخي ومعرفي:** أن يكون لدى الطلاب فهم عميق للجرائم التي ارتكبها البعث في العراق، بما في ذلك السياق التاريخي والأسباب والنتائج. 2. **تطوير الوعي النقدي:** أن يتمكن الطلاب من تحليل وتقييم الأحداث التاريخية بشكل نقدي، وفهم تأثيرها على المجتمع العراقي. 3. **تعزيز القيم الإنسانية:** أن يتعلم الطلاب أهمية حقوق الإنسان والعدالة، وأن يكونوا قادرين على التعرف على انتهاكات حقوق الإنسان والتصدي لها.
Indicative Contents المحتويات الإرشادية	• **مفهوم الجرائم وأقسامها:** o تعريف الجريمة. o أنواع الجرائم (جنائية، سياسية، اجتماعية، إلخ). o أمثلة على كل نوع. • **أنواع الجرائم الدولية:** o تعريف الجرائم الدولية. o أمثلة على الجرائم الدولية (جرائم الحرب، الجرائم ضد الإنسانية، الإبادة الجماعية). o القوانين والمعاهدات الدولية المتعلقة بالجرائم الدولية:. • **الجريمة السياسية:** o تعريف الجريمة السياسية. o أمثلة على الجرائم السياسية. o تأثير الجرائم السياسية على المجتمع والدولة. o مراجعة شاملة للمواضيع التي تم تغطيتها في الأسابيع الثلاثة الأولى. o امتحان قصير لتقييم فهم الطلاب. • **الجريمة الاجتماعية:** o تعريف الجريمة الاجتماعية. o أمثلة على الجرائم الاجتماعية. • **جريمة قمع الانتفاضة الشعبانية:** o خلفية تاريخية عن الانتفاضة الشعبانية. o تفاصيل الجرائم المرتكبة خلال قمع الانتفاضة. • **الجرائم النفسية وآثارها:** o تعريف الجرائم النفسية. o أمثلة على الجرائم النفسية. o الآثار النفسية والاجتماعية لهذه الجرائم.

	● جرائم نظام البعث وفق قانون المحكمة الجنائية العراقية العليا 2005: ○ نظرة عامة على قانون المحكمة الجنائية العراقية العليا. ○ أمثلة على الجرائم التي ارتكبها نظام البعث والتي تم محاكمتها بموجب هذا القانون. **● جرائم أحداث صلاة الجمعة:** ○ خلفية عن أحداث صلاة الجمعة. ○ تفاصيل الجرائم المرتكبة خلال هذه الأحداث. **● جرائم المقابر الجماعية:** ○ تعريف المقابر الجماعية. ○ أمثلة على المقابر الجماعية في العراق. **● قصف العتبات المقدسة:** ○ خلفية عن قصف العتبات المقدسة. ○ تفاصيل الجرائم المرتكبة خلال هذه الأحداث. **● الهجوم الكيميائي على حلبجة:** ○ خلفية عن الهجوم الكيميائي على حلبجة. ○ تفاصيل الجرائم المرتكبة خلال هذا الهجوم. **● استعمال الأسلحة المحرمة دولياً:** ○ تعريف الأسلحة المحرمة دولياً. ○ أمثلة على استخدام هذه الأسلحة في العراق. ○ تأثير هذه الجرائم على المجتمع. ○ مراجعة شاملة للمواضيع التي تم تغطيتها في الأسابيع السابقة. ○ امتحان لتقييم فهم الطلاب. **● الجرائم البيئية لنظام البعث في العراق:** ○ تعريف الجرائم البيئية. ○ أمثلة على الجرائم البيئية التي ارتكبها نظام البعث. **● أحداث المقابر والإبادة الجماعية المرتكبة من النظام البعثي في العراق:** ○ خلفية عن أحداث المقابر والإبادة الجماعية. ○ تفاصيل الجرائم المرتكبة خلال هذه الأحداث.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم
Strategies	**المحاضرات التفاعلية** **● وصف الاستراتيجية:** تقديم محاضرات تتضمن تفاعلًا مباشرًا مع الطلاب من خلال طرح أسئلة، وإجراء مناقشات، واستخدام وسائل تعليمية متعددة مثل الفيديوهات والصور. **● الفوائد:** يحافظ على انتباه الطلاب ويشجع على المشاركة الفعالة. **التعلم القائم على القيم** **● وصف الاستراتيجية:** التركيز على القيم الإنسانية والأخلاقية من خلال مناقشة تأثير الجرائم على حقوق الإنسان والعدالة. **● الفوائد:** يعزز الوعي بالقيم الإنسانية ويشجع على التفكير النقدي حول القضايا الأخلاقية.

<table>
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Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (10)	5, 10	LO #2, 4, 6 and 8
	H. W. Assignments	1	7% (7)	3, 5, 8, 11, 13	LO # 1, 3, 7, 6, 9 and 10
	Class . Assignments	1	7% (7)	3, 5, 8, 11, 13	LO # 1, 3, 7, 6, 9 and 10
	Projects / Lab.		10% (10)		
	Report	1	6% (6)	13	LO # 2,4,5,7,9and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered

Week 1	مفهوم الجرائم واقسامها
Week 2	أنواع الجرائم الدولية
Week 3	الجريمة السياسية
Week 4	امتحان
Week 5	الجريمة الاجتماعية
Week 6	جريمة قمع الانتفاضة الشعبانية
Week 7	الجرائم النفسية واثارها
Week 8	جرائم نظام البعث وفق قانون المحكمة الجنائية العراقية العليا 2005
Week 9	جرائم احاث صلاة الجمعة
Week 10	جرائم المقابر الجماعية
Week 11	قصف العتبات المقدسة
Week 12	الهجوم الكيمائي على حلبجة
Week 13	استعمال الأسلحة المحرمة دوليا
Week 14	الجرائم البيئية لنظام البعث في العراق
Week 15	احداث المقابر والابادة الجماعية المرتكبة من النظام البعثي في العراق
Week 16	

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

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	كتاب المقرر جرائم نظام البعث في العراق من قبل وزارة التعليم العالي والبحث العلمي	No
Recommended Texts		No
Websites		

Grading Scheme
مخطط الدرجات

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

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

أ.د. رئيس قسم الهندسة المدنية
رئيس قسم الهندسة المدنية

6

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

<table>
<tr><td colspan="4" align="center">Module Information
معلومات المادة الدراسية</td></tr>
<tr><td>Module Title
اسم المنهج</td><td>اللغة العربية</td><td colspan="2">Module Delivery</td></tr>
<tr><td>Module Type
نوع المنهج</td><td>اساسي</td><td colspan="2" rowspan="4">☒Theory
☐Lecture
☐Lab
☐Tutorial
☐Practical
☒Seminar</td></tr>
<tr><td>Module Code
رمز المنهج</td><td>UOM2012</td></tr>
<tr><td>ECTS Credits
عدد الوحدات</td><td>2</td></tr>
<tr><td>SWL (hr/sem)
الحمل الكلي</td><td>50</td></tr>
<tr><td>Module Level / المستوى</td><td>2</td><td>Semester of Delivery / سحب المنهج</td><td>1</td></tr>
<tr><td>Administering Department
القسم الإداري</td><td>CE</td><td>College
الكلية</td><td>ENG</td></tr>
<tr><td>Module Leader</td><td>Rasha Taha</td><td>e-mail</td><td>xxxxxx</td></tr>
<tr><td>Module Leader's Acad. Title</td><td>Assistant Lecturer</td><td>Module Leader's Qualification</td><td>M.Sc.</td></tr>
<tr><td>Module Tutor</td><td>-------</td><td>e-mail</td><td>-------</td></tr>
<tr><td>Peer Reviewer Name</td><td>Rasha Taha</td><td>e-mail</td><td>xxxxxx</td></tr>
<tr><td>Scientific Committee Approval Date</td><td>2025</td><td>Version Number</td><td>1.0</td></tr>
</table>

<table>
<tr><td colspan="4" align="center">Relation with other Modules
العلاقة مع المواد الدراسية الأخرى</td></tr>
<tr><td>Prerequisite module</td><td>لا يوجد</td><td>Semester</td><td></td></tr>
<tr><td>Co-requisites module</td><td>لا يوجد</td><td>Semester</td><td></td></tr>
</table>

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	الهدف من هذا الفصل الدراسي هو تمكين الطالب من القراءة الصحيحة، وأن يكتسب القدرة على استعمال اللغة استعمالاً صحيحاً في الاتّصال مع الآخرين؛ كالسرعة وجودة الإلقاء وحسن التعبير، وتعويده حسن الاستماع وتنمية الذوق الأدبي لدى الطالب وتعويده على التعبيرات السليمة الواضحة.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**CLO1:** تعريف الطالب بضرورة ممارسة قواعد الكتابة والكلام باللغة العربية الفصيحة. **CLO2:** تعريف الطالب بمستويات نظام اللغة العربية **CLO3:** تعميق اتصال الطالب بالتراث العربي والإسلامي. **CLO4:** تعزيز البحث العلمي في مجال اللغة العربية وعلومها لإعداد الدراسات والبحوث. **CLO5:** إظهار جمال اللغة العربية واتساع معانيها واساليبها الإنشائية. **CLO6:** تمكين الطالب من تجاوز الأخطاء اللغوية وتصحيحها. **CLO7:** تنمية الذوق الأدبي لدى الطالب لإدراك النواحي الجمالية في اسلوب الكلام وصوره ومعانيه. **CLO8:** التعريف بأبرز شعراء العصر العباسي.
Indicative Contents المحتويات الإرشادية	**الجزء الأول:** (6 ساعات) • قواعد اللغة العربية (النحو) • المبتدأ والخبر • نواسخ المبتدأ والخبر **الجزء الثاني:** (6 ساعات) • كان واخواتها • إن واخواتها • ظن واخواتها **الجزء الثالث:** (6 ساعات) • الامتحان الفصلي • الأسماء المنصوبة • المفعول المطلق **الجزء الرابع:** (4 ساعات) • الأخطاء اللغوية • الأملاء **الجزء الخامس:** (8 ساعات) • الادب في العصر العباسي • الشاعر المتنبي • الشاعر أبو تمام • الشاعر أبو فراس الحمداني
Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	إنّ الغاية الأساسية من دروس اللغة العربية هو القضاء على الصعوبة والجمود الذي قد يصاحب مواضيع بعض

	هذه الدروس، بالإضافة إلى إيصال الأفكار والمعلومات المطلوبة إلى الطلاب بطرق مفهومة وتتناسب الفروقات الفردية بينهم، ومن أبرز ما تم التركيز عليه في المحاضرات هو قواعد اللغة العربية والأدب وتتمثل الدراسة بالمحاضرات والامتحانات والواجبات داخل الصف والمناقشة والواجبات المنزلية.	الاستراتيجيات

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل		**50**	

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative Assessment التقويم التكويني	**Quizzes** الكويز	3	5% (15)	4,8 and 10	All
	H.W Assignments الواجبات البيتية	2	5% (10)	6, 7	CLO4, CLO5, and CLO6
	Seminars السمنار	1	5% (5)	12	All
	On-site Assignment واجبات داخل الصف	2	5% (10)	6, 10	CLO4, CLO5, and CLO6
Summative Assessment التقويم التلخيصي	**Midterm Exam** امتحان نصف الفصل	2 hrs	10% (10)	7	All
	Final Exam الامتحان النهائي	3 hrs	50% (50)	16	All
Total Assessment / التقويم النهائي		100% (100 Marks)			

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered / المواضيع المغطاة
Week 1	قواعد اللغة العربية (النحو)
Week 2	المبتدأ والخبر
Week 3	نواسخ المبتدأ والخبر
Week 4	كان واخواتها
Week 5	إن واخواتها
Week 6	ظن واخواتها
Week 7	ظن واخواتها

Week 8		الأسماء المنصوبة
Week 9		المفعول المطلق
Week 10		الأخطاء اللغوية
Week 11		الأملاء
Week 12		الادب في العصر العباسي
Week 13		الشاعر المتنبي
Week 14		الشاعر أبو تمام
Week 15		الشاعر أبو فراس الحمداني
Week 16		الامتحان النهائي

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered / المواضيع المغطاة	
Week 1		لا يوجد
Week 2		لا يوجد
Week 3		لا يوجد
Week 4		لا يوجد
Week 5		لا يوجد
Week 6		لا يوجد
Week 7		لا يوجد

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text الاسم	Available in the Library? هل متوفر في المكتبة؟
Required Texts المنهج المطلوب	النحو الوافي / عباس حسن	نعم
Recommended Texts المنهج الموصى به	في الأدب العباسي / محمد مهدي البصير	نعم
Websites المواقع الالكترونية	https://uomosul.edu.iq/en/engineering/environmental-engineering-dept/	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	**A - Excellent**	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
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	F – Fail	راسب	(0-44)	Considerable amount of work required

Week 8		الأسماء المنصوبة
Week 9		المفعول المطلق
Week 10		الأخطاء اللغوية
Week 11		الإملاء
Week 12		الأدب في العصر العباسي
Week 13		الشاعر المتنبي
Week 14		الشاعر أبو تمام
Week 15		الشاعر أبو فراس الحمداني
Week 16		الإمتحان النهائي

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered / المواضيع المغطاة	
Week 1		لا يوجد
Week 2		لا يوجد
Week 3		لا يوجد

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text الأسم	Available in the Library? هل متوفر في المكتبة؟
Required Texts المنهج المطلوب	النحو الوافي / عباس حسن	نعم
Recommended Texts المنهج الموصى به	في الأدب العباسي / محمد مهدي البصير	نعم
Websites المواقع الإلكترونية	https://uomosul.edu.iq/en/engineering/environmental-engineering-dept/	

Grading Scheme
مخطط الدرجات

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أ.د. معتز عبد الجبار بحر أعون
رئيس قسم الهندسة المدنية

4

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	**Computer**	**Module Delivery**
Module Type	**Basic**	☒ **Theory**
Module Code	**UOM2032**	☐ **Lecture**
ECTS Credits	**3**	☒ **Lab**
		☐ **Tutorial**
SWL (hr/sem)	**75**	☐ **Practical**
		☐ **Seminar**

Module Level	1	**Semester of Delivery**	1
Administering Department	Civil Engineering	**College**	**College of Engineering**
Module Leader	Mohammed Th. Younis	**e-mail**	mohammedmth@uomosul.edu.iq
Module Leader's Acad. Title	Assist. Prophesier	**Module Leader's Qualification**	Doctor
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date		**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

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

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

Module Aims أهداف المادة الدراسية	Students successfully completing this course will be able to: 1. Utilize the computer for fundamental tasks. letoMATION 2. Identify and discuss the hardware components of the computer system. 3. Creating documents using a word processor and creating presentations. 4. Conducting research on the Internet. 5. An introduction to Artificial Intelligence
Module Learning Outcomes مخرجات التعلم للمادة	Students successfully completing this course will be able to: 1. Utilize the computer for fundamental tasks. letoMATION 2. Identify and discuss the hardware components of the computer system. 3. Creating

الدراسية	documents using a word processor and creating presentations. 4. Conducting research on the Internet. 5. An introduction to Artificial Intelligence
Indicative Contents المحتويات الإرشادية	**security and Networking:** What is a network? Types of networks. Basic network components. Network Security Basics. Understanding network threats. Network Troubleshooting **E-Commerce:** Concepts of Electronic banking services this include online banking: ATM and debit card services, Phone banking, SMS banking, electronic alert, Mobile banking **Computer Troubleshooting**: Identifying and solving common hardware and software problems that computer users encounter. Basic troubleshooting techniques and tools for diagnosing and resolving issues. **Introduction to AI: Definition of AI, History of AI, AI Techniques and Approaches, Challenges and Ethical Considerations.** **AI in Our Daily Lives:** AI in smartphones and virtual assistants like Siri or Google Assistant.) **Ethical Challenges in AI** :(AI ethics, privacy and surveillance, the impact of AI on the job market.) **The Future of AI** (Future trends in AI, recent research and emerging technologies.)

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

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

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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	27	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعياً	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (10)	4, 11	LO #Q1: 1-2, Q2: 7-9
	Assignments	1	5% (5)	3, 10	LO #A1: 1-2, A2: 7-9
	Lab.	1	20% (20)	Continuous	All
	Report	1	5% (5)	14	All
Summative assessment	Midterm Exam	2 hr	10% (10)	9	LO # 1-5
	Final Exam	3hr	50% (50)		
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**security and Networking:** What is a network? Types of networks. Basic network components. Network Security Basics. Understanding network threats. Network Troubleshooting
Week 2	**E-Commerce:** Concepts of Electronic banking services this include online banking: ATM and debit card services, Phone banking, SMS banking, electronic alert, Mobile banking
Week 3	**Computer Troubleshooting**: Identifying and solving common hardware and software problems that computer users encounter. Basic troubleshooting techniques and tools for diagnosing and resolving issues.
Week 4	**Introduction to AI: Definition of AI, History of AI, AI Techniques and Approaches, Challenges and Ethical Considerations.**
Week 5	**AI in Our Daily Lives:** AI in smartphones and virtual assistants like Siri or Google Assistant.)
Week 6	**Applications of AI:** Education, Healthcare, Finance, Transportation, Marketing and Advertising.
Week 7	**AI and Society:** (How AI affects social, AI and international relations, AI and the future of humanity.)
Week 8	**Ethical Challenges in AI** :(AI ethics, privacy and surveillance, the impact of AI on the job market.)
Week 9	**The Future of AI** (Future trends in AI, recent research and emerging technologies.)
Week 10	

Week 11	
Week 12	
Week 13	
Week 14	
Week 15	
Week 16	

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1, 2	**ecurity and Networking:** What is a network? Types of networks. Basic network components. Network Security Basics. Understanding network threats. Network Troubleshooting
Week 3, 4	**E-Commerce:** Concepts of Electronic banking services this include online banking: ATM and debit card services, Phone banking, SMS banking, electronic alert, Mobile banking
Week 5	**Computer Troubleshooting**: Identifying and solving common hardware and software problems that computer users encounter. Basic troubleshooting techniques and tools for diagnosing and resolving issues.
Week 6	**Introduction to AI: Definition of AI, History of AI, AI Techniques and Approaches, Challenges and Ethical Considerations.**
Week 7, 8	**AI in Our Daily Lives:** AI in smartphones and virtual assistants like Siri or Google Assistant.)
Week 9	**Applications of AI:** Education, Healthcare, Finance, Transportation, Marketing and Advertising.
Week 10	**AI and Society:** (How AI affects social, AI and international relations, AI and the future of humanity.)
Week 11	**Ethical Challenges in AI** :(AI ethics, privacy and surveillance, the impact of AI on the job market.)
Week 12	**The Future of AI** (Future trends in AI, recent research and emerging technologies.)
Week 13	
Week 14	
Week 15	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Graham **Brown**, David Watson, "Cambridge IGCSE Information and Communication Technology", 3rd Edition (2020)	
Recommended Texts	Alan Evans, Kendall Martin, Mary Anne Poatsy, "Technology In Action Complete", 16th Edition (2020).	
Websites		

Grading Scheme

مخطط الدرجات

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

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

أ.د. معتز عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

MODULE DESCRIPTION FORM
نموذج وصف المادة الدراسية

<table>
<tr><th colspan="5">Module Information
معلومات المادة الدراسية</th></tr>
<tr><td>Module Title</td><td colspan="2">English Language-2</td><td colspan="2">Module Delivery</td></tr>
<tr><td>Module Type</td><td colspan="2">Support or related learning activity</td><td colspan="2" rowspan="4">Theory
☒ Lecture
Lab
☐ Tutorial
☐ Practical
☐ Seminar</td></tr>
<tr><td>Module Code</td><td colspan="2">UOM2022</td></tr>
<tr><td>ECTS Credits</td><td colspan="2">2</td></tr>
<tr><td>SWL (hr/sem)</td><td colspan="2">50</td></tr>
<tr><td>Module Level</td><td>UGII</td><td colspan="2">Semester of Delivery</td><td>4</td></tr>
<tr><td>Administering Department</td><td>CE</td><td>College</td><td colspan="2">ENG</td></tr>
<tr><td>Module Leader</td><td>Atheer Khudhur Jumaah</td><td>e-mail</td><td colspan="2">atheer.khudur@uomosul.edu.iq</td></tr>
<tr><td>Module Leader's Acad. Title</td><td>Assistant Lecturer</td><td colspan="2">Module Leader's Qualification</td><td>M.Sc.</td></tr>
<tr><td>Module Tutor</td><td>Atheer Khudhur Jumaah</td><td>e-mail</td><td colspan="2">atheer.khudur@uomosul.edu.iq</td></tr>
<tr><td>Peer Reviewer Name</td><td>Amina Ahmed</td><td>e-mail</td><td colspan="2">Amina.alshumam@uomosul.edu.iq</td></tr>
<tr><td>Scientific Committee Approval Date</td><td>2025</td><td>Version Number</td><td colspan="2">1.0</td></tr>
</table>

<table>
<tr><th colspan="4">Relation with other Modules
العلاقة مع المواد الدراسية الأخرى</th></tr>
<tr><td>Prerequisite module</td><td></td><td>Semester</td><td></td></tr>
<tr><td>Co-requisites module</td><td></td><td>Semester</td><td></td></tr>
</table>

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Study grammar, (verb tenses, structure sentence, question words, adverbs and adjectives, quantity, articles, verb pattern, prepositions, comparative and superlative). 2. Learn Vocabulary, focus on all academic words specifically in environmental engineering field. 3. Study comprehensive reading in variety subjects. 4. Focus on listening and speaking using videos and conversation between students in class. 5. Study how to write an academic paragraph.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Learn grammar specifically that help student to write and speak. 2. Learn new vocabulary and focus on academic word that related in environmental engineering field. 3. Learn the comprehensive reading. 4. Practice more on listening and speaking. 5. Learn how to write an academic paragraph.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. – English Language • Grammar/ Verb tenses and examples, structure sentence, question words, adverb and adjectives, articles, quantity, phrasal verbs, and comparative & superlatives, and certainty. [18 hrs.] • Practice on comprehensive reading. [4 hrs.] • Practice on Listening and Speaking. [4 hrs.] • Writing an academic paragraph and paraphrasing. [6hrs.]

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

<table>
<tr><th colspan="4">Student Workload (SWL)</th></tr>
<tr><td colspan="4">الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا</td></tr>
<tr><td>Structured SWL (h/sem)
الحمل الدراسي المنتظم للطالب خلال الفصل</td><td>33</td><td>Structured SWL (h/w)
الحمل الدراسي المنتظم للطالب أسبوعيا</td><td>2</td></tr>
<tr><td>Unstructured SWL (h/sem)
الحمل الدراسي غير المنتظم للطالب خلال الفصل</td><td>17</td><td>Unstructured SWL (h/w)
الحمل الدراسي غير المنتظم للطالب أسبوعيا</td><td>1</td></tr>
<tr><td>Total SWL (h/sem)
الحمل الدراسي الكلي للطالب خلال الفصل</td><td>50</td><td></td><td></td></tr>
</table>

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	8.11	LO #1, 3, and 5
	Assignments	2	10% (10)	2, 5, 8, 12	All
	OnsitAssignments	1	10%		
	حلقات دراسية	1	10		
Summative assessment	Midterm Exam	1 hr	10% (10)	9	LO # 1-3
	Final Exam	3hr	50% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Grammar / Verb tenses and examples (present, past, future) / Vocabulary / Reading, listening, speaking
Week 2	Grammar/ Verb tenses and examples (present) / Vocabulary / Reading, listening, speaking
Week 3	Grammar/ Verb tenses and examples (past) / Vocabulary / Reading, listening, speaking
Week 4	Grammar/ Quantity/ Vocabulary / Reading, listening, speaking
Week 5	Grammar/ Verb tenses and examples (future) / Vocabulary / Reading, listening, speaking
Week 6	Grammar/ Comparative & Superlatives / Vocabulary / Reading, listening, speaking
Week 7	Grammar/ Verb tenses and examples (present perfect) / Vocabulary / Reading, listening, speaking
Week 8	Grammar/ have to, should / Vocabulary / Reading, listening, speaking
Week 9	Midterm Exam

	speaking
Week 11	Grammar/ Verb tenses and examples (passive) / Vocabulary / Reading, listening, speaking
Week 12	Grammar/ Verb tenses and examples (present perfect continuous) / Vocabulary / Reading, listening, speaking
Week 13	Writing an academic paragraph / Reading, listening, speaking
Week 14	Grammar/ if condition / Vocabulary / Reading, listening, speaking
Week 15	Writing / Paraphrasing / Reading, listening, speaking

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Headway Pre-Intermediate Student's Book-Fourth Edition	Yes (text book)
	Headway Pre-Intermediate Student's Book-Fourth Edition	Yes
Websites	https://meet.google.com/yof-ngkn-ssc	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
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أ.د. معن عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		
Module Title	**Building construction and damages assessment**	**Module Delivery**
Module Type	Core	☒ Theory
Module Code	CE211	☒ Lecture
ECTS Credits	**3**	☐ Lab
SWL (hr/sem)	**75**	☒ Tutorial
		☐ Practical
		☐ Seminar

Module Level	UGII	**Semester of Delivery**	4
Administering Department	CE	**College**	ENG
Module Leader	Zeena Adel Mohammed Atheer Khudhur Jumaah	**e-mail**	Zena.adal@uomosul.edu.iq atheer.khudhur@uomosul.edu.iq
Module Leader's Acad. Title	lecture	**Module Leader's Qualification**	M.sc.
Module Tutor	Name (if available)	**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	2025	**Version Number**	1.0

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

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. تطوير مهارات الطلبة للتعرف على أنواع المباني من الناحية الانشائية 2. يتناول المقرر المراحل الأساسية لطريقة انشاء المباني

	3. يتناول المقرر المشاكل التي تتعرض لها الأبنية من الناحية التنفيذية
	4. تطوير مهارات الطلبة في التعرف على محددات المواصفات الانشائية
	5. توضيح اسباب التلف والاضرار في الأبنية
	6. تطوير المهارات للتحري الموقعي تتناول اهم طرق المعالجات الموقعية للأبنية
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. التعرف على العناصر الانشائية المكونة للأبنية للمباني باختلاف أنواعها 2. تعريف أسلوب تنفيذ العناصر الانشائية 3. شرح ابعاد ومواصفات الوحدات البنائية 4. كيفية اجراء الفحوصات الموقعية 5. مناقشة مستوى تقييم الاضرار وطرق معالجتها
Indicative Contents المحتويات الإرشادية	– مقدمة عامة عن المباني وانواعها حسب التنفيذ ، الحفريات الترابية واساليبها المختلفة وكيفية تصريف المياه وتجفيف ساحة العمل ، الاملائيات الترابية. [6 hr] – اعمال الأسس وطبيعة التربة ، اعمال الركائز وتصنيفها، اعمال الخرسانة ، تلف الخرسانة- المسببات وطرق الوقاية[7 hr] . – اكمال وتوصيل الجدران والتمشيط واختيار السمك ، الاعتاب، الاعمدة وتصنيفها[5 hr] . – الارضيات والسقوف وأنواع الاحمال المسلطة ، اعمال القوالب وطريقة تصميم القالب الخشبي ز [5 hr] – خطوات تقييم الاضرار في المنشآت وتشخيص الاسباب واعداد تقرير الفحص والمعاينة البصرية. [5 hr] – الفحوصات الموقعية والمختبرية المعتمدة في تقييم الاضرار في المنشآت. [5 hr] – مانع الرطوبة وطرق قطع الرطوبة للجدران والارضيات والسراديب. [5 hr]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	الاستراتيجية الأساسية التي هي تشجيع الطالب للاطلاع ومناقشة المراحل الانشائية وكيفية التحري الموقعي من خلال التعليم التفاعلي وأسلوب عرض المشكلة والحلول المناسبة لها

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	27	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation تقييم المادة الدراسية				
	Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**

Formative assessment	Quizzes	3	30% (10)	2,5,10	LO #1, 2, 3 and 5
	Assignments	1	6% (10)	8	LO # 1,2, and 5
	Projects / Lab.	0	0% (0)	Continuous	All
	Report	1	4% (10)	3	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	9	LO # 2,4
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	مقدمة عامة عن المباني وانواعها حسب التنفيذ (بناء هيكلي ، بناء غير هيكلي والبناء المشترك)
Week 2	الحفريات الترابية واساليبها المختلفة وكيفية تصريف المياه وتجفيف ساحة العمل
Week 3	الاملائيات الترابية
Week 4	اعمال الأسس وطبيعة التربة وعلاقتها بالأسس وأنواع النزول
Week 5	اعمال الركائز وتصنيفها حسب النوع وحسب موادها وطرق تنفيذها
Week 6	اعمال الخرسانة وأسلوب نقلها ورصها
Week 7	اسباب تضرر الخرسانة- المسببات وطرق الوقاية.
Week 8	اكمال وتوصيل الجدران والتمشيط واختيار السمك
Week 9	الاعتاب (أنواع الاعتاب والمسنمات الحديدية)
Week 10	الاعمدة (تصنيف الاعمدة الخرسانية والمعدنية) ، الارضيات والسقوف وأنواع الاحمال المسلطة
Week 11	اعمال القوالب وطريقة تصميم القالب الخشبي
Week 12	انهاء المفاصل البنائية والمواد الرابطة
Week 13	خطوات تقييم الاضرار في المنشآت وتشخيص الاسباب واعداد تقرير الفحص والمعاينة البصرية
Week 14	الفحوصات الموقعية والمختبرية المعتمدة في تقييم الاضرار في المنشآت
Week 15	مانع الرطوبة وطرق قطع الرطوبة للجدران والارضيات والسراديب
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
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أ.د. معتز عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

Course Description Form

University: Mosul   **College :** Engineering   **Department or Branch:** Civil

1. Course Name and Stage of Study
Analysis of determinate Structures I

2. Course Code
CIV303

3. Semester/Year
Autumn 2024

4. Date of preparation of this description
Autumn 2024

5. Available Attendance Forms
Attendance

6. Number of credit hours (total) / number of units (total)
3 hours theory / 3 units

7. Name of the course administrator (if more than one name) and scientific title
Name: Dr. Oday Asal Salih + Dr. Jasim Ali Abdullah Email: odaycivileng@uomosul.edu.iq + jassim24676@uomosul.edu.iq

8. Course Objectives	
Course Objectives	Defining the methods used to find stresses in determinate Structures, in addition to the methods used to find stresses in Structures that are subjected to moving loads

9. Teaching and learning strategies	
Strategy	The main strategy that will be adopted: The main strategy that will be Define all types of Loadings, Stability and determinacy of structures , defining the methods

used to find Elastic deformation generated in all types of Loadings under the influence of loads, as well as defining the methods used to find stresses in Determinate Structures , in addition to the methods used to find stresses in Determinate Structures that are subjected to moving loads

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Understanding, application, and analysis	Introduction and background	Lecture and discussion	Oral questions and written tests
2	3	Understanding, application, and analysis	Stability and determinacy of structures	Lecture and discussion	Oral questions and written tests
3	3	Understanding, application, and analysis	Analysis of statically Statically determinate Beams	Lecture and discussion	Oral questions and written tests
4	3	Understanding, application, and analysis	Analysis of statically Statically determinate trusses	Lecture and discussion	Oral questions and written tests
5	3	Understanding, application, and analysis	Analysis of statically Statically determinate rigid frames and composite structures	Lecture and discussion	Oral questions and written tests
6	3	Understanding, application, and analysis	Elastic deformation of structures, conjugate-beam method	Lecture and discussion	Oral questions and written tests
7	3	Understanding, application, and analysis	Method of virtual work (unite-load method) (Beams)	Lecture and discussion	Oral questions and written tests
9 - 8	6	Understanding, application, and analysis	Method of virtual work (unite-load method) (Frames)	Lecture and discussion	Oral questions and written tests
11 - 10	6	Understanding, application, and analysis	Method of virtual work (unite-load method) (Trusses)	Lecture and discussion	Oral questions and written tests

12	3	Understanding, application, and analysis	Castigliano's first theorem (Beams)	Lecture and discussion	Oral questions and written tests
13	3	Understanding, application, and analysis	Castigliano's first theorem (Frames)	Lecture and discussion	Oral questions and written tests
14	3	Understanding, application, and analysis	Castigliano's first theorem (Trusses)	Lecture and discussion	Oral questions and written tests
15	3	Understanding, application, and analysis	Influence line for statically determinate structures	Lecture and discussion	Oral questions and written tests

11. Course Evaluation and Grade Divisions

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

12. Learning and Teaching Resources

1-Russell C. Hibbeler. " Structural Analysis " 8th ed.	Required textbooks (methodology, if any)
2-Yuan-Yu Hsieh, "Elementary Theory of Structures".	Key references (sources)
	Recommended books and references (scientific journals, reports...)
https://www.youtube.com/watch?v=zkdGHcilATU&list=PLtHgTYGmlqSMelWXMuPbflyt8Gri6tkEt	Electronic References, Websites
10%	Curriculum update rate or description

Name and signature of the course holder: Asst.Prof.Dr. Oday Asal Salih
Name and signature of the head of the department or branch

Course Description Form

University: Mosul   **College :** Engineering   **Department or Branch:** Civil

1. Course Name and Stage of Study	
Analysis of Indeterminate Structures II	
2. Course Code	
CIV304	
3. Semester/Year	
Spring 2024	
4. Date of preparation of this description	
Spring 2024	
5. Available Attendance Forms	
Attendance	
6. Number of credit hours (total) / number of units (total)	
2 hours theory / 2 units	
7. Name of the course administrator (if more than one name) and scientific title	
Name: Dr. Oday Asal Salih + Dr. Jasim Ali Abdullah Email: odaycivileng@uomosul.edu.iq + jassim24676@uomosul.edu.iq	
8. Course Objectives	
Course Objectives	Teaching students how to analysis of Indeterminate Structures (II): defining the methods used to find stresses in Indeterminate Structures, in addition to the methods used to find stresses in Structures that are subjected to moving loads.
9. Teaching and learning strategies	
Strategy	The main strategy that will be adopted: • Analysis for statically indeterminate structures. • Analysis of statically indeterminate beam, trusses, rigid frames, and

			composite structures by the method of consistent deformations.
			• Analysis of statically indeterminate beam, trusses, rigid frames, and composite structures by the method of least work.
			• Analysis of statically indeterminate beams and rigid frames with and without joint translation by the slope-deflection method.
			• Analysis of statically indeterminate rigid frames without joint translation by moment distribution.
			• Influence line for statically indeterminate structure.

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understanding, application, and analysis	Introduction and background	Lecture and discussion	Oral questions and written tests
2	2	Understanding, application, and analysis	Analysis of statically indeterminate beams by the method of consistent deformations	Lecture and discussion	Oral questions and written tests
3-4	4	Understanding, application, and analysis	Analysis of statically indeterminate trusses by the method of consistent deformations	Lecture and discussion	Oral questions and written tests
5-6	4	Understanding, application, and analysis	Analysis of statically indeterminate rigid frames by the method of consistent deformations	Lecture and discussion	Oral questions and written tests
7	2	Understanding, application, and analysis	Analysis of statically indeterminate beams by the method of least work	Lecture and discussion	Oral questions and written tests
8-9	4	Understanding, application, and analysis	Analysis of statically indeterminate trusses by the method of least work	Lecture and discussion	Oral questions and written tests
10-11	4	Understanding, application, and analysis	Analysis of statically indeterminate rigid frames by the method of least work	Lecture and discussion	Oral questions and written tests
12 - 13	4	Understanding, application, and analysis	Analysis of statically indeterminate beams and rigid frames without joint translation by the slope-deflection method	Lecture and discussion	Oral questions and written tests
14	2	Understanding, application, and analysis	Analysis of statically indeterminate beams and rigid frames without joint translation by moment distribution	Lecture and discussion	Oral questions and written tests

| 15 | 2 | Understanding, application, and analysis | Influence line for statically indeterminate structure | Lecture and discussion | Oral questions and written tests |

11. Course Evaluation and Grade Divisions

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

12. Learning and Teaching Resources

1-Russell C. Hibbeler. " Structural Analysis " 8th ed.	Required textbooks (methodology, if any)
2-Yuan-Yu Hsieh, "Elementary Theory of Structures".	Key references (sources)
	Recommended books and references (scientific journals, reports...)
https://www.youtube.com/watch?v=xcE7JUQqa3g&list=PLtHgTYGmlq SNuiZBooHyltQ_WzVxaYHlj	Electronic References, Websites
10%	Curriculum update rate or description

Name and signature of the course holder: Asst.Prof.Dr. Oday Asal Salih
 Name and signature of the head of the department or branch

أ. د. بهجت عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

Course Description Form

University: Connector   **College :** Engineering   **Department or Branch:** Civil

1. Course Name and Stage of Study	
Transportation Engineering	
2. Course Code	
CIV309	
3. Semester/Year	
Third / 2025-2024	
4. Date of preparation of this description	
2025	
5. Available Attendance Forms	
immanence	
6. Number of credit hours (total) / number of units (total)	
3 Theoretical	
7. Name of the course administrator (if more than one name) and scientific title	
Name: Asst.Prof.Dr. Mohammad Ahmed Humoody Email: mohammad66ah@uomosul.edu.iq	
8. Course Objectives	
● .**Formation of engineering skills that ensure design, construction, operations, maintenance** ● **Optimization of transport systems.All (roads and airports ,,,)** ● **Focusing mainly on operating systems more than construction activities**	Course Objectives
9. Teaching and learning strategies	
Lecture, discussion, written tests, practical tests. Posts, Assignments, Software	Strategy

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Memorization and understanding	Introduction and background	Lecture and discussion	Oral questions and written tests
2	3	Understanding and analysis	Road user: (a) Driver characteristics (b) Pedestrian	Lecture and discussion	Oral questions and written tests
3	3	Conservation, understanding and application	Vehicle : Static characteristics and Operational characteristics	Lecture and discussion	Oral questions and written tests
4	3	Understanding, application and design	Road characteristics	Lecture and discussion	Oral questions and written tests
5	3	Understanding, application and design	Traffic flow parameters	Lecture and discussion	Oral questions and written tests
6	3	Understanding, application and design	Analysis of speed-flow-density relationships	Lecture and discussion	Oral questions and written tests
7	3	Understanding and design	Traffic Flow Models	Lecture and discussion	Oral questions and written tests
9 - 8	6	Understanding and application	Spot speed studies : Definitions, Applications & Methods	Lecture and discussion	Oral questions and written tests
11 - 10	6	Understanding and application	Volume studies : Definitions, Applications & Methods	Lecture and discussion	Oral questions and written tests
12	3	Understanding and analysis	Travel time and delay studies: Definitions, Applications & Methods	Lecture and discussion	Oral questions and written tests
13	3	Conservation, understanding and application	Parking studies : Definitions, Applications and classification	Lecture and discussion	Oral questions and written tests
14	3	Understanding, application and design	Accident studies : Definitions, Applications and classification	Lecture and discussion	Oral questions and written tests
15	3	Understanding, application and design	Aviation Study	Lecture and discussion	Oral questions and written tests

11. Course Evaluation and Grade Divisions

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

12. Learning and Teaching Resources

• Nicholas J. Garber and Lester A. Hoel. "Traffic and Highway Engineering". RPK Editorial Services, Inc. 5th edition, 2020.	Required textbooks (methodology, if any)
1. Highway Capacity Manual 2022 , TRB 209 (HCM7)	Key references (sources)
1. ASHTO. A Policy On Geometric Design Of Highways And Streets . American Association Of State Highway And Transportation Officials, Washington, D.C., 2010. 2. American Society For Testing And Materials (ASTM), (2003). Standard Specification, Section 4, Vol. 04-03, West Conshohocken, PA.. 3. The Asphalt Institute, "Laboratory Mixing And Compaction Temperatures" Executive Offices And Research Center, Research Park Drive, P.O.Box. 14052, Lexington, KY 40512-4052, USA. Asphalt Institute Technical Bulletin.	Recommended books and references (scientific journals, reports...)
https://www.nationalacademies .org/trb/transportation- research-board	Electronic References, Websites
10%	Curriculum update rate or description

Name and signature of the course holder:Asst.Prof.Dr. Mohammad Ahmed Humoody
Name and signature of the head of the department or branch

أ.د. مهنن عبد الجبار محمد عدنان
رئيس قسم الهندسة المدنية

Course Description

1. Course Name:
Applied Numerical Analysis

2. Course Code:
CE309

3. Semester / Year:
2025 -2024-Spring semester

4. Description Preparation Date:
2025

5. Available Attendance Forms:
Attendance

6. Number of Credit Hours (Total) / Number of Units (Total)
4/3

7. Course administrator's name (mention all, if more than one name)
Name: assist. Prof. Dr. Salwa Mubarak Abdullah. Email: salwa_hano@uomosul.edu.iq Lecturer Dr. Nadiya Sadeek Ismaeel Email : Nadiya.alsaffar@uomosul.edu.iq

8. Course Objectives	
Course Objectives	To make the students familiar with the use of numerical methods to solve equations, including iterative methods, how to find the completion in different ways, as well as numerical integration and numerical derivative, and the use of matrices to solve the system of equations in different ways, as well as using the numerical solution to solve first and second degree differential equations in numerical ways.

9. Teaching and Learning Strategies	
Strategy	Lectures , Homework and teaching videos

10. Course Structure
Details are shown in the attachment below

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	1	Numerical Methods in General, Introduction.	Attendance	
2, 3	4	1	Solution of Equations by Iteration, fixed point iteration method, Newton Raphson method and Secant method.	Attendance	

Required textbooks (curricular books, if any)	Advanced Engineering Mathematics by Erwin Kreyszig
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Kiusalaas, " Numerical Methods in Engineering with MATLAB", Campridge University press, 2005

أ.د. معتز عبد الجبار محمد عون
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Course Description Form

1. Course Name: Hydraulic Structures
2. Course Code: CIV3161
3. Semester / Year: Second semester – 2025-2024
4. Description Preparation Date: 2025-2024
5. Available Attendance Forms: attendance in class
6. Number of Credit Hours (Total) / Number of Units (Total): 2 hr. / 2 unit
7. Course administrator's name (mention all, if more than one name)
Assistant professor Dr. Ayman Talib Hameed / ayman.th@uomosul.edu.iq Ahmed yhya

8. Course Objectives	
Course Objectives	This course aims to provide civil engineers with basic information about the types of hydraulic structures, their importance, and the various methods used to calculate the pressures generated on the structure and the uplift pressure. It also to provide students with information on the design of some small and large hydraulic structures, with explaining some of the problems that the structure is exposed and how to solve the problems.

9. Teaching and Learning Strategies	
Strategy	The strategy of this course is to encourage student for participation in presentations and exercises, in same times honing and expanding their thinking and skills. This will be achieved through lectures, scholarly resources, interactive tutorials, and by considering the type of simple experiments that include some sampling activities that interest students.

10. Course Structure

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

Course Evaluation and Grade Breakdown:	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.

Percentage%	No.	Tasks
4	1	Attendance and class participation
3	6	Homework
12	2	Daily exams
21	1	Midterm exam
60	1	Final exam
100		total

Learning and Teaching Resources:

1- Varshneny R.S. (1979). " Theory and design of irrigation structures (volume 1&volume2)", 4th, N.C.Jain.

2- Arora K. R. (2006), "Irrigation, Water Power and Water Recourses Engineering ", 4th Reprint Edition, A. K. Jain, For standard Publishers distributors, 1705-B. Nai Sarak. Delhi-110006.

3- Santosh Kumear (1999), "Irrigation Engineering and Hydraulic Structures", 14th Reviers edition in S.I. Units, Hanna Publishers,2-B. Nathmarket. Naisarak, Delhi-110006.

4- Irrigation, Water Power and Water Recourses Engineering, Dr. K. R. Arora, 4th Reprint Edition 2006.

Appendix

Week	Hour	Topic
1	2	Introduction to hydraulic structures, types of hydraulic structures
2	2	Hydraulic jump and it is advantages in the design of hydraulic structures, Draw the water surface profile of hydraulic jump and types of energy dissipators
3	2	Types and designs of stilling basins
4	2	Design of concrete floors using (Bligh's theory + Line's theory), design of concrete floors using (Khosali's theory)
5	2	
6	2	Types of culverts, hydraulic design of culverts
7	2	Spillways, design of Ogee spillway
8	2	Types and design of cross drainage works
9	2	
10	2	Types of syphon, Design of syphon
11	2	Protection works, Design of scour
12	2	Canal regulation works, Types of regulators, Design of regulators
13	2	
14	2	Dams, Design of concrete gravity dam
15	2	

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3

Course Description

1. Course Name:
Applied Numerical Analysis

2. Course Code:
CE301

3. Semester / Year:
○ 2025 -2024- Autumn semester

4. Description Preparation Date:
2025

5. Available Attendance Forms:
Attendance

6. Number of Credit Hours (Total) / Number of Units (Total)
4/60

7. Course administrator's name (mention all, if more than one name)
Name: assist. Prof. Dr. Salwa Mubarak Abdullah.   Email: salwa_hano@uomosul.edu.iq   Lecturer Dr. Nadiya Sadeek Ismaeel   Email : Nadiya.alsaffar@uomosul.edu.iq

8. Course Objectives	
Course Objectives	To make the students familiar with the use of numerical methods to solve equations, including iterative methods, how to find the completion in different ways, as well as numerical integration and numerical derivative, and the use of matrices to solve the system of equations in different ways, as well as using the numerical solution to solve first and second degree differential equations in numerical ways.

9. Teaching and Learning Strategies	
Strategy	Lectures , Homework and teaching videos

10. Course Structure

Details are shown in the attachment below

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	1	Second order Linear Differential Equation	Attendance	
2	4	1	Solve Problems and applications Higher Order Linear Differential Equation	Attendance	

3	4	1	Solve Problems and applications	Attendance	
4	4	1	Eigen value and Eigen vectors	Attendance	
5	4	1	Solution of simultaneous DES using the operator D	Attendance	
6	4	1	Fourier Series and solve problems	Attendance	
7	4	1	Even and odd function half range expansions	Attendance	
8	4	1	Fourier series Applications	Attendance	
9	4	1	Fourier series Applications	Attendance	
10	4	1	Partial Differential Equation, Wave Equation	Attendance	
11	4	1	Partial Differential Equation, Heat Equation	Attendance	
12	4	1	Partial Differential Equation, Laplace Equation	Attendance	
13	4	1	Partial Differential Equation, Consolidation Equation	Attendance	
14	4	1	Solve Problems	Attendance	
15	4	1	Final exam	Attendance	

11. Course Evaluation

Final Exam (Theoretical+ laboratory)	I	60
Total		**100**

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. Erwin Kreyszig, "Advanced engineering mathematics"John wiley & sons, sixth edition, 1988. 2. C. Ray Wylie, " Advanced engineering mathematics" McGRAW-Hill ,INC, Ltd., fourth edition, 1975.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	

أ.د. معتز عبد الجبار محمد عون
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Course Description Form

1. Course Name: Hydrology – Third Class
2. Course Code: CE3081
3. Semester / Year: First semester / 2025 - 2024
4. Description Preparation Date: 2024-2025
5. Available Attendance Forms: attendance in class
6. Number of Credit Hours (Total) / Number of Units (Total) : 2 hr. / 2 unit
7. Course administrator's name (mention all, if more than one name)
Assistant professor Dr. Ayman Talib Hameed / ayman.th@uomosul.edu.iq

8. Course Objectives	
Course Objectives	This course aims to describe hydrology and explain the information related to hydrology, explaining the various instruments and methods used to calculate water quantities in surface and subsurface flow. Then explains how this information can be used in various fields, such as design and operation of hydraulic structures, flood risk forecasting, and prediction of water quantities and levels during floods.

9. Teaching and Learning Strategies	
Strategy	1- The student learning important information about hydrology.
	2- The student connects the topics of this subject with other subjects.
	3- The student acquires knowledge of the practical aspects related to the subject.
	4- The student acquires knowledge of using

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

Course Evaluation and Grade Breakdown:

Percentage%	No.	Tasks
4	1	Attendance and class participation
3	6	Homework
12	2	Daily exams
21	1	Midterm exam
60	1	Final exam
100		**total**

Learning and Teaching Resources:

1- Mohammead soliman et. al., (1992), "Engineering Hydrology" Arabic version, 1st edition, Home books for printer and Publisher –Mosul.

2- Arora K. R. (2006), "Irrigation, Water Power and Water Recourses Engineering ", 4th Reprint Edition, A. K. Jain, For standard Publishers distributors, 1705-B. Nai Sarak. Delhi-110006.

3- Santosh Kumear (1999), "Irrigation Engineering and Hydraulic Structures", 14th Reviers edition in S.I. Units, Hanna Publishers,2-B. Nathmarket. Naisarak, Delhi-110006.

4- Irrigation, Water Power and Water Recourses Engineering, Dr. K. R. Arora, 4th Reprint Edition 2006.

Appendix

Week	Hour	Topic
1	2	Introduction ,Hydrological cycle ,Practical application of Hydrology in engineering
2	2	Precipitation, type of precipitation ,Measurement of precipitation, Type of gauges
3	2	
4	2	Preparation of data, double mass curve method, Presentation of rainfall data, Estimating missing precipitation data, Determination of average precipitation over area
5	2	Stream flow, Water stage measurement in river ,Discharge measurement, Stage-Discharge relationship
6	2	
7	2	Extension of rating curve
8	2	Run Off
9	2	Hydrograph, Components of Hydrograph, Factors affecting on hydrograph, Base flow separation, Analysis of complex hydrograph
10	2	Unit hydrograph, Derivation of unit hydrograph, Conversion of unit hydrograph
11	2	Synthetic unit hydrograph
12	2	Flood routing, Reservoir routing
13	2	Channel routing
14	2	Ground water
15	2	Wells

أ.د. معين عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

3

Course Description Form

1. Course Name: Hydrology – Third Class

2. Course Code: CE3081

3. Semester / Year: First semester / 2025 - 2024

4. Description Preparation Date: 2024-2025

5. Available Attendance Forms: attendance in class

6. Number of Credit Hours (Total) / Number of Units (Total) : 2 hr. / 2 unit

7. Course administrator's name (mention all, if more than one name)
Assistant professor Dr. Ayman Talib Hameed / ayman.th@uomosul.edu.iq

8. Course Objectives	
Course Objectives	This course aims to describe hydrology and explain the information related to hydrology, explaining the various instruments and methods used to calculate water quantities in surface and subsurface flow. Then explains how this information can be used in various fields, such as design and operation of hydraulic structures, flood risk forecasting, and prediction of water quantities and levels during floods.

9. Teaching and Learning Strategies	
Strategy	1- The student learning important information about hydrology. 2- The student connects the topics of this subject with other subjects. 3- The student acquires knowledge of the practical aspects related to the subject. 4- The student acquires knowledge of using

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

Course Evaluation and Grade Breakdown:			

Percentage%	No.	Tasks
4	1	Attendance and class participation
3	6	Homework
12	2	Daily exams
21	1	Midterm exam
60	1	Final exam
100		**total**

Learning and Teaching Resources:

1- Mohammead soliman et. al., (1992), "Engineering Hydrology" Arabic version, 1st edition, Home books for printer and Publisher –Mosul.

2- Arora K. R. (2006), "Irrigation, Water Power and Water Recourses Engineering ", 4th Reprint Edition, A. K. Jain, For standard Publishers distributors, 1705-B. Nai Sarak. Delhi-110006.

3- Santosh Kumear (1999), "Irrigation Engineering and Hydraulic Structures", 14th Reviers edition in S.I. Units, Hanna Publishers,2-B. Nathmarket. Naisarak, Delhi-110006.

4- Irrigation, Water Power and Water Recourses Engineering, Dr. K. R. Arora, 4th Reprint Edition 2006.

Appendix

Week	Hour	Topic
1	2	Introduction ,Hydrological cycle ,Practical application of Hydrology in engineering
2	2	Precipitation, type of precipitation ,Measurement of precipitation, Type of gauges
3	2	
4	2	Preparation of data, double mass curve method, Presentation of rainfall data, Estimating missing precipitation data, Determination of average precipitation over area
5	2	Stream flow, Water stage measurement in river ,Discharge measurement, Stage-Discharge relationship
6	2	
7	2	Extension of rating curve
8	2	Run Off
9	2	Hydrograph, Components of Hydrograph, Factors affecting on hydrograph, Base flow separation, Analysis of complex hydrograph
10	2	Unit hydrograph, Derivation of unit hydrograph, Conversion of unit hydrograph
11	2	Synthetic unit hydrograph
12	2	Flood routing, Reservoir routing
13	2	Channel routing
14	2	Ground water
15	2	Wells

أ.د. معتز عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

Course Description

1. **Course Name:**
Engineering Economics

2. **Course Code:**
ENGC 426

3. **Semester / Year:**
Second Semester / 2024/2025

4. **Description Preparation Date:**
2025

5. **Available Attendance Forms:**
Theoretical Lecturers and Tutorials

6. **Number of Credit Hours (Total) / Number of Units (Total)**
30 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- ntroducing the student to the importan of studying the engineering econom course. 2- Introducing the student to the importan of controlling costs Engineering projects. 3- Training students to conduct econor 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

			sustainability		
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	

أ.د. محمد عبد الجبار محمد علوان
رئيس قسم الهندسة المدنية

Course Description

1. Course Name:
Reinforced Concrete II

2. Course Code:
CE312

3. Semester / Year:
الفصل الربيعي -2024- 2025

4. Description Preparation Date:
2025

5. Available Attendance Forms:
Attendance

6. Number of Credit Hours (Total) / Number of Units (Total)
4/2

7. Course administrator's name (mention all, if more than one name)
Name: assist. Prof. dr. rabi M. najem   Emai :dr.rabi.najem@uomosul.edu.iq   Name: assist. Prof. dr. halla J. Mohammed   Emai :engrehal.1984@uomosul.edu.iq

8. Course Objectives	
Course Objectives	Teaching the students how to make a safe and economical design for different structural members (slabs, beams, columns and foundations), through the restriction of the used designed code (ACI code 2008), and providing them with experience to handle different designing and construction problems in site.

9. Teaching and Learning Strategies	
Strategy	

10. Course Structure

Details are shown in the attachment below

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

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)	Basics of Reinforced concrete. Saad Al Taan, 1991
Main references (sources)	Building Code Requirements for Structural Concrete (ACI 318M-19) and Commentary
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

MOSUL UNIVERSITY
FACULTY OF ENGINEERING
Department of CIVIL ENGINEERING,
Spring 2025
Course Information for CE312 Reinforced Concrete II

Course Name:	Reinforced Concrete					
Code	**Course type**	**Regular Semester**	**Theoretical**	**Practical**	**Credits**	**ECTS**
CE312			**4**	**0**	**2**	
Name of Lecturer(s)-Academic Title:	Ass. Prof. Rabi M. Najim. Ass. Prof. Dr. Halla Jasem Mohamad .					
Teaching Assistant(s):	N/A					
Course Language:	English					
Course Type:	Main					
Office Hours	11:30 to 1:30 Tuesday, 10:30-12:30 Thursday, 8:30 to 10:30 Thursday					
Contact:	Email: dr.rabi.najem@uomosul.edu.iq engrehal.1984@uomosul.edu.iq Tel: N/A					
Teacher's academic profile:	Dr. Rabi M. Najim: : B.Sc./ Civil Engineering 1998, M.Sc./ Structural Engineering 2001, Ph.D./ Structural Engineering 2013. Dr. Halla: B.Sc./ Civil Engineering 2006 (Iraq), M.Sc./ Structural Engineering 2010 (Iraq), Ph.D./ Structural Engineering 2021 (Iraq).					
Course Objectives:						
Course Description (Course overview):	-The course aims to acquaint students of the third stage (civil engineering) with the basics of reinforced concrete and the theories of analysis and design approved by the international ACI Code					

1	4	27-02-2025	Beam design for torsion
2	4	06-03-2025	Beam design for torsion
3	4	13-03-2025	Beam design for torsion
4	4	20-03-2025	Beam design for torsion
5	4	27-03-2025	Analysis and design of short columns
6	4	03-04-2025	Analysis and design of short columns
7	4	10-04-2025	Analysis and design of short columns
8	4	17-04-2025	Analysis and design of short columns
9	4	24-04-2025	Midterm Exam
10	4	01-05-2025	Analysis and design of long columns
11	4	08-05-2025	Analysis and design of long columns
12	4	15-05-2025	Analysis and design of long columns
13	4	22-05-2025	Development and lap splices.
14	4	29-05-2025	Development and lap splices.
15	4	05-06-2025	Development and lap splices.
16	4	12-06-2025	Final Exam

أ.د. وجمان عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

Course Description Form

1. Course Name:		
Environmental Engineering I		

2. Course Code:		
CE306		

3. Semester / Year:		
2024-2025		

4. Description Preparation Date:		
2025		

5. Available Attendance Forms:		
In-person (inside the classroom)		

6. Number of Credit Hours (Total) / Number of Units (Total)		
4 hours / 3 units		

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

Name: Yousif Hassan Najim - Aya Thamer Ibrahem - Thura Azzam Abed
Email: engyousif123@uomosul.edu.iq
Aya.thamer@uomosul.edu.iq
thura.azzam@uomosul.edu.iq

8. Course Objectives

Course Objectives	On successful completion of this course students will be able to: 1-Identify the most common types of pollution in environment like (Air pollution, Noise pollution, Thermal pollution …Etc)(i). 2- Identify Physical and Chemical Properties of Water (i). 3- Identify Mass Balance Approach To Solve Environmental Problems (i) 4. Determine the Factors controlling the eutrophication (i). 5- Identify Solid Waste management- collection (i) 6- perform measurements and tests, and make conclusions based on engineering requirements (iii).

9. Teaching and Learning Strategies

Strategy	The strategy is achieved through lectures, e-learning platforms, a homework and classroom assignments.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
2	4	I	Water pollution	Power point lecture	exam (Daily+term+ Final)

2	4	I	Biochemical Oxygen Demand	Power point lecture	exam (Daily+term+ Final)
2	4	I	Mass Balance Approach To Solve Environmental Problems	Power point lecture	exam (Daily+term+ Final)
1	2	I	The effect of demanding waste on river	Power point lecture	exam (Daily+term+ Final)
1	2	I	Rate of deoxygenation	Power point lecture	exam (Daily+term+ Final)
2	4	I	Air pollution	Power point lecture	exams (Daily+term+ Final)
2	4	I	Solid Waste management	Power point lecture	exam (Daily+term+ Final)
1	2	I	Thermal pollution	Power point lecture	exam (Daily+term+ Final)
1	2	I	Nose pollution	Power point lecture	exam (Daily+term+ Final)
1	2	I	**Examination**	Paper exam	Exam term

Lab. Syllabus

2	2	III	Turbidity experiment	laboratory experiment	Report+(term +final) exams

4	2	III	Total Solid experiment	laboratory experiment	Report+(term +final) exams
2	2	III	PH experiment	laboratory experiment	Report+(term +final) exams
2	2	III	Electrical Conductivity experiment	laboratory experiment	Report+(term +final) exams
2	2	III	Hardness experiment	laboratory experiment	Report+(term final) exams
2	2	III	Jar Test experiment	laboratory experiment	Report+(term final) exams
1	2	III	**Examination**		term exam

11. Course Evaluation

Quizes	6
monthly exam	27
H.w	1
C.w	1
lab. Term Exam	7
lab. Reports	8
lab. Final Exam	10
Final Exam	40

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Environmental Engineering	Gerard Kiely
Introduction to Environmental Engineering	Mackenzie L. Gornwell
علم وتكنلوجيا البيئة	د. طارق احمد محمود

أ.د. معتز عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

1. Course Name:
Environmental Engineering Ⅱ

2. Course Code:
CE314

3. Semester / Year:
Second semester (spring)/2024-2025

4. Description Preparation Date:
2025

5. Available Attendance Forms:
In-person (inside the classroom)

6. Number of Credit Hours (Total) / Number of Units (Total)
4/3

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

Name: Mohammed Salim Mahmood - Thura Azzam Abed- Aya Thamer
Email: mohammedsalim@uomosul.edu.iq
    thura.azzam@uomosul.edu.iq
    Aya.thamer@uomosul.edu.iq

8. Course Objectives	
Course Objectives	After successfully completing this course, students will be able to: 1- Identify environmental pollution in lakes (i). 2- Study the units of drinking water treatment plants and wastewater treatment plants (i). 3- Identify green buildings and their basic requirements (i). 4- Conduct practical tests, draw conclusions, and discuss them (iii).

9. Teaching and Learning Strategies	
Strategy	The strategy is achieved through lectures, e-learning platforms, and homewo[rk] and classroom assignments.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	I	Variation in water consumption.	Power point lecture	exam (Daily+term+Final)

3	6	I	Water treatment- Characteristics - water treatment methods.	Power point lecture	exam (Daily+term+Final)
2	4	I	Water quality in lakes and reservoirs	Power point lecture	exam (Daily+term+Final)
2	4	I	Wastewater treatment- -pretreatment units	Power point lecture	exam (Daily+term+Final)
2	4	I	Wastewater treatment- -Secondary units	Power point lecture	exam (Daily+term+Final)
2	4	I	Wastewater treatment- -Tertiary units	Power point lecture	exams (Daily+term+Final)
2	4	I	Green bulding	Power point lecture	exam (Daily+term+Final)
1	2	I	**Examination**	Paper exam	Exam term

Lab. Syllabus

4	8	III	Chloride experiment	laboratory experiment	Report+(term +final) exams
4	8	III	Alkalinity experiment	laboratory experiment	Report+(term +final) exams
4	8	III	Total number of bacteria in water	laboratory experiment	Report+(term +final) exams
2	4	III	BOD experiment	laboratory experiment	Report+(term +final) exams

1	2	III	Examination		term exam

11. Course Evaluation

Quizes	6	
monthly exam	27	
H.w	1	
C.w	1	
lab. Term Exam	7	
lab. Reports	8	
lab. Final Exam	10	
Final Exam	40	

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	علم وتكنلوجيا البيئة- د. طارق احمد محمود
Main references (sources)	1-Environmental Engineering- Gerard Kiely 2-Introduction to Environmental Engineering - Mackenzie L. Gornwell
Recommended supporting books and references (scientific journals, reports...)	
Electronic references, websites	المبنى الأخضر المستدام- د. قاسم محمد قاسم

أ.د. معتز عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

Course Description Form

University: Mosul   **College :** Engineering   **Department or Branch:** Civil

1. Course Name and Stage of Study	
Analysis of determinate Structures I	
2. Course Code	
CIV303	
3. Semester/Year	
Autumn 2024	
4. Date of preparation of this description	
Autumn 2024	
5. Available Attendance Forms	
Attendance	
6. Number of credit hours (total) / number of units (total)	
3 hours theory / 3 units	
7. Name of the course administrator (if more than one name) and scientific title	
Name: Dr. Oday Asal Salih + Dr. Jasim Ali Abdullah	
Email: odaycivileng@uomosul.edu.iq + jassim24676@uomosul.edu.iq	
8. Course Objectives	
Course Objectives	Defining the methods used to find stresses in determinate Structures, in addition to the methods used to find stresses in Structures that are subjected to moving loads
9. Teaching and learning strategies	
Strategy	The main strategy that will be adopted: The main strategy that will be Define all types of Loadings, Stability and determinacy of structures , defining the methods

		used to find Elastic deformation generated in all types of Loadings under the influence of loads, as well as defining the methods used to find stresses in Determinate Structures , in addition to the methods used to find stresses in Determinate Structures that are subjected to moving loads

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Understanding, application, and analysis	Introduction and background	Lecture and discussion	Oral questions and written tests
2	3	Understanding, application, and analysis	Stability and determinacy of structures	Lecture and discussion	Oral questions and written tests
3	3	Understanding, application, and analysis	Analysis of statically Statically determinate Beams	Lecture and discussion	Oral questions and written tests
4	3	Understanding, application, and analysis	Analysis of statically Statically determinate trusses	Lecture and discussion	Oral questions and written tests
5	3	Understanding, application, and analysis	Analysis of statically Statically determinate rigid frames and composite structures	Lecture and discussion	Oral questions and written tests
6	3	Understanding, application, and analysis	Elastic deformation of structures, conjugate-beam method	Lecture and discussion	Oral questions and written tests
7	3	Understanding, application, and analysis	Method of virtual work (unite-load method) (Beams)	Lecture and discussion	Oral questions and written tests
9 - 8	6	Understanding, application, and analysis	Method of virtual work (unite-load method) (Frames)	Lecture and discussion	Oral questions and written tests
11 - 10	6	Understanding, application, and analysis	Method of virtual work (unite-load method) (Trusses)	Lecture and discussion	Oral questions and written tests

12	3	Understanding, application, and analysis	Castigliano's first theorem (Beams)	Lecture and discussion	Oral questions and written tests
13	3	Understanding, application, and analysis	Castigliano's first theorem (Frames)	Lecture and discussion	Oral questions and written tests
14	3	Understanding, application, and analysis	Castigliano's first theorem (Trusses)	Lecture and discussion	Oral questions and written tests
15	3	Understanding, application, and analysis	Influence line for statically determinate structures	Lecture and discussion	Oral questions and written tests

11. Course Evaluation and Grade Divisions

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

12. Learning and Teaching Resources

1-Russell C. Hibbeler. " Structural Analysis " 8th ed.	Required textbooks (methodology, if any)
2-Yuan-Yu Hsieh, "Elementary Theory of Structures".	Key references (sources)
	Recommended books and references (scientific journals, reports...)
https://www.youtube.com/watch?v=zkdGHcilATU&list=PLtHgTYGmlqSMelWXMuPbflyt8Gri6tkEt	Electronic References, Websites
10%	Curriculum update rate or description

Name and signature of the course holder Asst.Prof.Dr. Oday Asal Salih
Name and signature of the head of the department or branch

أ.د. معن عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

Course Description Form

University: Mosul   **College :** Engineering   **Department or Branch:** Civil

1. Course Name and Stage of Study	
Analysis of Indeterminate Structures II	
2. Course Code	
CIV304	
3. Semester/Year	
Spring 2024	
4. Date of preparation of this description	
Spring 2024	
5. Available Attendance Forms	
Attendance	
6. Number of credit hours (total) / number of units (total)	
2 hours theory / 2 units	
7. Name of the course administrator (if more than one name) and scientific title	
Name: Dr. Oday Asal Salih + Dr. Jasim Ali Abdullah Email: odaycivileng@uomosul.edu.iq + jassim24676@uomosul.edu.iq	
8. Course Objectives	
Course Objectives	Teaching students how to analysis of Indeterminate Structures (II): defining the methods used to find stresses in Indeterminate Structures, in addition to the methods used to find stresses in Structures that are subjected to moving loads.
9. Teaching and learning strategies	
Strategy	The main strategy that will be adopted: • Analysis for statically indeterminate structures. • Analysis of statically indeterminate beam, trusses, rigid frames, and composite structures by the method of consistent deformations.

- Analysis of statically indeterminate beam, trusses, rigid frames, and composite structures by the method of least work.
- Analysis of statically indeterminate beams and rigid frames with and without joint translation by the slope-deflection method.
- Analysis of statically indeterminate rigid frames without joint translation by moment distribution.
- Influence line for statically indeterminate structure.

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understanding, application, and analysis	Introduction and background	Lecture and discussion	Oral questions and written tests
2	2	Understanding, application, and analysis	Analysis of statically indeterminate beams by the method of consistent deformations	Lecture and discussion	Oral questions and written tests
3-4	4	Understanding, application, and analysis	Analysis of statically indeterminate trusses by the method of consistent deformations	Lecture and discussion	Oral questions and written tests
5-6	4	Understanding, application, and analysis	Analysis of statically indeterminate rigid frames by the method of consistent deformations	Lecture and discussion	Oral questions and written tests
7	2	Understanding, application, and analysis	Analysis of statically indeterminate beams by the method of least work	Lecture and discussion	Oral questions and written tests
8-9	4	Understanding, application, and analysis	Analysis of statically indeterminate trusses by the method of least work	Lecture and discussion	Oral questions and written tests
10-11	4	Understanding, application, and analysis	Analysis of statically indeterminate rigid frames by the method of least work	Lecture and discussion	Oral questions and written tests
12 - 13	4	Understanding, application, and analysis	Analysis of statically indeterminate beams and rigid frames without joint translation by the slope-deflection method	Lecture and discussion	Oral questions and written tests
14	2	Understanding, application, and analysis	Analysis of statically indeterminate beams and rigid frames without joint translation by moment distribution	Lecture and discussion	Oral questions and written tests
15	2	Understanding, application, and analysis	Influence line for statically indeterminate structure	Lecture and discussion	Oral questions and written tests

11. Course Evaluation and Grade Divisions

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

12. Learning and Teaching Resources

1-Russell C. Hibbeler. " Structural Analysis " 8th ed.	Required textbooks (methodology, if any)
2-Yuan-Yu Hsieh, "Elementary Theory of Structures".	Key references (sources)
	Recommended books and references (scientific journals, reports...)
https://www.youtube.com/watch?v=xcE7JUQqa3g&list=PLtHgTYGmlq SNuiZBooHyltQ_WzVxaYHlj	Electronic References, Websites
10%	Curriculum update rate or description

Name and signature of the course holder: Asst.Prof.Dr. Oday Asal Salih
Name and signature of the head of the department or branch

<div align="center">

Course Description Form

</div>

University: Mosul   **College :** Engineering   **Department or Branch:** Civil

1. Course Name and Stage of Study
Highway Engineering 1
2. Course Code
CIV309
3. Semester/Year
Third /2024-2025
4. Date of preparation of this description
4/20/2025
5. Available Attendance Forms
immanence
6. Number of credit hours (total) / number of units (total)
2 theoretical + 1 applied + 2 practical
7. Name of the course administrator (if more than one name) and scientific title
Name: Asst.Prof.Dr. Mohammad Ahmed Humoody   **Email: mohammad66ah@uomosul.edu.iq**

8. Course Objectives	
● .**Formation of engineering skills that ensure design, construction, operations, maintenance** ● **Optimizing road and transport systems** ● **Mainly focused on the engineering design of roads from a technical point of view**	Course Objectives

9. Teaching and learning strategies	
Lecture, discussion, written tests, practical tests. Posts, Assignments, Software	Strategy

10. Course Structure

The week	Hours	Evaluation method	Required Learning Outcomes	Unit or subject name	Learning method
1	3	Oral questions and written tests	Memorization and understanding	HIGHWAYS as PART of the TRANSPORTATION SYSTEM Transportation Engineering, Transportation System , Traffic or (Transportation) Engineering, Highway Transportation Elements	Lecture and discussion
2	3	Oral questions and written tests	Understanding and analysis	ROAD USER Driver Characteristics and Senses, Visual Critical Characteristics, Fields of Vision, Perception-Reaction Time, Pedestrian Characteristics	Lecture and discussion
3	3	Oral questions and written	Conservation, understanding	VEHICLE (A) Static Characteristics,(B) Operational Characteristics(C) Environmental Characteristics, VEHICLE VARIABLE	Lecture and discussion
4	3	Oral	Under-	ROAD CHARACTERISTICS	Lecture and

		questions and written tests	standing, application and design	Highway Functional Classifications,HighwayClassifications , Sight Distance Type, Stopping Sight Distance,Passing Sight DistanceHighway Design Manual Classification	discussion
5	3	Oral questions and written tests	Under-standing, application and design	Highway Surveys and Location Office Study of Existing Information,Reconnaissance Survey ,Preliminary Location Survey,Final Location Survey,Location of Recreational and Scenic Routes,Location of Highways in Urban Areas Principles of Bridge Location, Survey Methods	Lecture and discussion
6	3	Oral questions and written tests	Under-standing, application and design	HIGHWAY EARTHWORK5 General Method of Procedure,Volume of Earthwork ,Haul and Overhaul,Computing Ordinates of the Mass Diagram,Interpretation of the Mass Diagram,	Lecture, discussion and class assignments
7	3	Oral questions and written tests	Under-standing and design	Geometric Design Principles of Highway Factors Influencing Highway Design,Volume and Flow Rate,Daily Volumes.,Hourly Volumes.DESIGN OF THE ALIGNMENTGeometric Design Elements, Vertical Alignment, Horizontal Alignment,Cross-section	Lecture and discussion
7 - 10	3	Oral questions and written tests	Under-standing and design and application	VERTICAL ALIGNMENT Types of Vertical Curves,Length of Crest Vertical Curves,Minimum Length of Sag Vertical Curves Based on SSD , Based on Comfort Based on Appearance , Drainage Based Length of Crest and Sag Vertical Curves Based on K,Sight Distance at Undercrossing,Turning point ,Combined Sag and Crest Vertical Curves,Grades,General for Vertical Alignment,	Lecture, discussion , classroom and homework
11 - 14	3	Oral questions and written tests	Under-standing and design and application	HORIZONTAL ALIGNMENT Vehicle Cornering and Superelevation,Simple Curves (dynamic & geometry),Formulas for Simple Curves. Field Location of a Simple Horizontal Curve,Transition Curves, Length of Spiral Curves. Length of Superelevation Runoff, Attainment of Superelevation. Curve Widening of Horizontal Curves, Curve Radii Based on Stopping Sight Distance, Cross-Section Elements,Width, Medians, Barriers.,Cross,	Lecture, discussion , classroom and homework
15	3	Oral Questions	Under-standing,	CHANNELIZATION	Lecture and discussion

11. Course Evaluation and Grade Divisions

Distribution of the grade out of 100 according to the tasks assigned to the student, daily preparation, daily oral and written exams, as well as monthly, homework, class discussions... etc

12. Learning and Teaching Resources

• Nicholas J. Garber and Lester A. Hoel. "Traffic and Highway Engineering". RPK Editorial Services, Inc. 5th edition, 2020.	Required textbooks (methodology, if any)
AASHTO. A Policy On Geometric Design Of Highways And Streets . American Association Of State Highway And Transportation Officials, Washington, D.C., 2014.	Key references (sources)
1. American Society for Testing and Materials (ASTM), (2003). Standard Specification, Section 4, Vol. 04-03, West Conshohocken, PA.. 2. The Asphalt Institute, "Laboratory Mixing and Compaction Temperatures" Executive Offices And Research Center, Research Park Drive, P.O.Box. 14052, Lexington, KY 40512-4052, USA. Asphalt Institute Technical Bulletin.	Recommended books and references (scientific journals, reports...)
https://www.nationalacademies .org/trb/transportation- research-board	Electronic References, Websites
15%	Curriculum update rate or description

Name and signature of the course holder:Asst. Prof. Dr. Mohamed Ahmed Humoody

Name and signature of the head of the department or branch

أ.د. معَن عَبْد الجَبار محمَد عَوَن

رئيس قسم الهندسة المدنية

1. Course Name and Stage of Study	
Highway Engineering 2	
2. Course Code	
CIV310	
3. Semester/Year	
Third /2024-2025	
4. Date of preparation of this description	
2025	
5. Available Attendance Forms	
immanence	
6. Number of credit hours (total) / number of units (total)	
2 theoretical + 1 applied + 2 practical	
7. Name of the course administrator (if more than one name) and scientific title	
Name: Asst.Prof.Dr. Mohammad Ahmed Humoody **Email: mohammad66ah@uomosul.edu.iq**	
8. Course Objectives	
● .**Formation of engineering skills that ensure design, construction, operations, maintenance** ● **Optimizing road and transport systems** ● **Mainly focused on the engineering design of roads from a technical point of view**	Course Objectives
9. Teaching and learning strategies	
Lecture, discussion, written tests, practical tests. Posts, Assignments, **Software**	Strategy
10. Course Structure	

The week	Hours	Evaluation method	Required Learning Outcomes	Unit or subject name	Learning method
1	3	Oral questions and tests	under-standing ,description	Pavement Types and Design Factors Historical Developments Pavement Types, Design Elements for Flexible versus Rigid	Lecture and discussion
2	3	Oral questions	Under-standing	Definition of Flexible Pavement, Advantages and Disadvantages of Flexible Pavement,	Lecture and discussion
3	3	Oral questions	Under-standing	Definition of Rigid Pavement: Advantages and Disadvantages of Rigid Pavement,	Lecture and discussion
4	3	Oral questions and tests	Under-standing, application	Stresses and Strains in flexible Pavements Stresses in a homogeneous mass, Layered Systems,Fundamental design concepts	Lecture and discussion
5	3	Oral questions and written tests	Under-standing, application and design	Pavement Performance Distresses in flexible pavements, Types of flexible pavements failure, Subgrade failure Type, Temperature failure Type Precipitation, Methods of measuring distress	Lecture and discussion
6	3	Oral questions and written tests	Under-standing, application and design	Pavement Design Procedures Material Characterization ,Characterizations of Subgrade,Subbase Courses ,Base Courses , Asphaltic Layers	Lecture, discussion and class assignments
7	3	Oral questions and written tests	Under-standing and design	Analysis of Traffic Loading for Pavement Design Wheel Load Influence on Pavements, Tire Contact Pressure on Pavement,Vehicle Speed, Axle Configuration, Repetition of Loads, Equivalent Single Axle Load Approach, Concepts of Reliability in Pavement Design, Drainage Design	Lecture and discussion
7 - 10	3	Oral questions and written tests	Under-standing and design and application	Design of Flexible Pavement (AASHTO Method) AASHTO DESIGN EQUATION FOR FLEXIBLE PAVEMENT ,Required Structural Number (SNR),Layer Coefficient (a_i), Drainage Coefficient (m_i), Equivalent Single Axle Load ($W18$), Reliability (%R), Standard Deviate (ZR) , Standard Deviation (SO), Resilient Modulus (MR), Change In Serviceability (ΔPSI)	Lecture, discussion , classroom and homework
11 - 12	3	Oral questions and written tests	Under-standing and design and application	Design of Flexible Pavement (Asphalt Institute Method) Asphalt Institute Method, AI Fatigue Cracking Model ,AI Rutting Failure Model, ASPHALT INSTITUTE PAVEMENT DESIGN METHODOLOGY, Determination of cumulative ESAL, Selection of subgrade resilient modulus, Selection of layer materials, Selection of bitumen grade, Thickness determination (procedure)	Lecture, discussion , classroom and homework
13	3	Oral questions tests	Under-standing , application	Pavement Construction & Maintenance Surface Course, Binder Course, Base Course , Subbase Course, Subgrade, Seal Coat, Tack Coat, Prime Coat	Lecture, discussion, homework
14	3	Oral questions tests	Under-standing and design application	Design of Rigid Pavements Design Considerations, Modulus of Subgrade Reaction, Drainage, Joint load transfer coefficient (J), Thickness Design of Rigid Pavements	Lecture, discussion , classroom , homework
15	3	Oral Questions	Under-standing, application	Joints in Concrete Pavements Expansion Joints,Contraction Joints, Hinge Joints, Construction Joints, Dowel Bars , Tie Bars	Lecture and discussion

11. Course Evaluation and Grade Divisions

Distribution of the grade out of 100 according to the tasks assigned to the student, daily preparation, daily oral and written exams, as well as monthly, homework, class discussions... etc

12. Learning and Teaching Resources

• Nicholas J. Garber and Lester A. Hoel. "Traffic and Highway Engineering". RPK Editorial Services, Inc. 5th edition, 2020.	Required textbooks (methodology, if any)
AASHTO. A Policy On Geometric Design Of Highways And Streets . American Association Of State Highway And Transportation Officials, Washington. D.C., 2014.	Key references (sources)
1. American Society for Testing and Materials (ASTM), (2003). Standard Specification, Section 4, Vol. 04-03, West Conshohocken, PA.. 2. The Asphalt Institute, "Laboratory Mixing and Compaction Temperatures" Executive Offices And Research Center, Research Park Drive, P.O.Box. 14052, Lexington, KY 40512-4052, USA. Asphalt Institute Technical Bulletin.	Recommended books and references (scientific journals, reports...)
https://www.nationalacademies .org/trb/transportation- research-board	Electronic References, Websites
15%	Curriculum update rate or description

Name and signature of the course holder: Asst. Prof. Dr. Mohamed Ahmed Humoody

Name and signature of the head of the department or branch

د. مهتن عبد المجلس محمد عون

رئيس قسم الهندسة المدنية

Course Description Form

University: Mosul   **College :** Engineering   **Department or Branch:** Civil

1. Course Name and Stage of Study
Theory of Structures I
2. Course Code
CE303
3. Semester/Year
Autumn 2024
4. Date of preparation of this description
Autumn 2024
5. Available Attendance Forms
Attendance
6. Number of credit hours (total) / number of units (total)
3 hours theory / 3 units
7. Name of the course administrator (if more than one name) and scientific title
Name: Dr. Oday Asal Salih + Dr. Jasim Ali Abdullah Email: odaycivileng@uomosul.edu.iq + jassim24676@uomosul.edu.iq
8. Course Objectives

Course Objectives	Defining the methods used to find stresses in determinate Structures, in addition to the methods used to find stresses in Structures that are subjected to moving loads

9. Teaching and learning strategies

Strategy	The main strategy that will be adopted: The main strategy that will be Define all types of Loadings, Stability and determinacy of structures , defining the methods

used to find Elastic deformation generated in all types of Loadings under the influence of loads, as well as defining the methods used to find stresses in Determinate Structures , in addition to the methods used to find stresses in Determinate Structures that are subjected to moving loads

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Understanding, application, and analysis	Introduction and background	Lecture and discussion	Oral questions and written tests
2	3	Understanding, application, and analysis	Stability and determinacy of structures	Lecture and discussion	Oral questions and written tests
3	3	Understanding, application, and analysis	Analysis of statically Statically determinate Beams	Lecture and discussion	Oral questions and written tests
4	3	Understanding, application, and analysis	Analysis of statically Statically determinate trusses	Lecture and discussion	Oral questions and written tests
5	3	Understanding, application, and analysis	Analysis of statically Statically determinate rigid frames and composite structures	Lecture and discussion	Oral questions and written tests
6	3	Understanding, application, and analysis	Elastic deformation of structures, conjugate-beam method	Lecture and discussion	Oral questions and written tests
7	3	Understanding, application, and analysis	Method of virtual work (unite-load method) (Beams)	Lecture and discussion	Oral questions and written tests
9 - 8	6	Understanding, application, and analysis	Method of virtual work (unite-load method) (Frames)	Lecture and discussion	Oral questions and written tests

13	3	Understanding, application, and analysis	Castigliano's first theorem (Frames)	Lecture and discussion	Oral questions and written tests
14	3	Understanding, application, and analysis	Castigliano's first theorem (Trusses)	Lecture and discussion	Oral questions and written tests
15	3	Understanding, application, and analysis	Influence line for statically determinate structures	Lecture and discussion	Oral questions and written tests

11. Course Evaluation and Grade Divisions

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

12. Learning and Teaching Resources

1-Russell C. Hibbeler. " Structural Analysis " 8th ed.	Required textbooks (methodology, if any)
2-Yuan-Yu Hsieh, "Elementary Theory of Structures".	Key references (sources)
	Recommended books and references (scientific journals, reports...)
https://www.youtube.com/watch?v=zkdGHcilATU&list=PLtHgTYGmlq SMeIWXMuPbflyt8Gri6tkEt	Electronic References, Websites
10%	Curriculum update rate or description

Name and signature of the course holder: Asst.Prof.Dr. Oday Asal Salih
Name and signature of the head of the department or branch

ا.د. مؤتن عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

Course Description Form

University: Mosul   **College :** Engineering   **Department or Branch:** Civil

1. Course Name and Stage of Study	
Theory of Structures II	
2. Course Code	
CE310	
3. Semester/Year	
Spring 2024	
4. Date of preparation of this description	
Spring 2024	
5. Available Attendance Forms	
Attendance	
6. Number of credit hours (total) / number of units (total)	
2 hours theory / 2 units	
7. Name of the course administrator (if more than one name) and scientific title	
Name: Dr. Oday Asal Salih + Dr. Jasim Ali Abdullah Email: odaycivileng@uomosul.edu.iq + jassim24676@uomosul.edu.iq	
8. Course Objectives	
Course Objectives	Teaching students how to analysis of Indeterminate Structures (II): defining the methods used to find stresses in Indeterminate Structures, in addition to the methods used to find stresses in Structures that are subjected to moving loads.
9. Teaching and learning strategies	
Strategy	The main strategy that will be adopted: • Analysis for statically indeterminate structures. • Analysis of statically indeterminate beam, trusses, rigid frames, and composite structures by the method of consistent deformations. • Analysis of statically indeterminate beam, trusses, rigid frames, and composite structures by the method of least work. • Analysis of statically indeterminate beams and rigid frames with and

			without joint translation by the slope-deflection method. • Analysis of statically indeterminate rigid frames without joint translation by moment distribution. • Influence line for statically indeterminate structure.

10. Course Structure

The week	Ho urs	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understanding, application, and analysis	Introduction and background	Lecture and discussion	Oral questions and written tests
2	2	Understanding, application, and analysis	Analysis of statically indeterminate beams by the method of consistent deformations	Lecture and discussion	Oral questions and written tests
3-4	4	Understanding, application, and analysis	Analysis of statically indeterminate trusses by the method of consistent deformations	Lecture and discussion	Oral questions and written tests
5-6	4	Understanding, application, and analysis	Analysis of statically indeterminate rigid frames by the method of consistent deformations	Lecture and discussion	Oral questions and written tests
7	2	Understanding, application, and analysis	Analysis of statically indeterminate beams by the method of least work	Lecture and discussion	Oral questions and written tests
8-9	4	Understanding, application, and analysis	Analysis of statically indeterminate trusses by the method of least work	Lecture and discussion	Oral questions and written tests
10-11	4	Understanding, application, and analysis	Analysis of statically indeterminate rigid frames by the method of least work	Lecture and discussion	Oral questions and written tests
12 - 13	4	Understanding, application, and analysis	Analysis of statically indeterminate beams and rigid frames without joint translation by the slope-deflection method	Lecture and discussion	Oral questions and written tests
14	2	Understanding, application, and analysis	Analysis of statically indeterminate beams and rigid frames without joint translation by moment distribution	Lecture and discussion	Oral questions and written tests

11. Course Evaluation and Grade Divisions

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

12. Learning and Teaching Resources

1-Russell C. Hibbeler. " Structural Analysis " 8th ed.	Required textbooks (methodology, if any)
2-Yuan-Yu Hsieh, "Elementary Theory of Structures".	Key references (sources)
	Recommended books and references (scientific journals, reports...)
https://www.youtube.com/watch?v=xcE7JUQqa3g&list=PLtHgTYGmlqSNuiZBooHyItQ_WzVxaYHlj	Electronic References, Websites
10%	Curriculum update rate or description

Name and signature of the course holder: Asst.Prof.Dr. Oday Asal Salih

Name and signature of the head of the department or branch

Course Description Form

1. Course Name:
Fundamental of Soil Mechanics

2. Course Code:
CIV307

3. Semester / Year:
Fall Semester / 2025-2024

4. Description Preparation Date:
2025

5. Available Attendance Forms:
In-person (Classrooms for the theoretical part and laboratory for the practical part)

6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours of theory, 2 hours of practical / 3 credits

7. Course administrator's name (mention all, if more than one name)
Name: Moataz A. M. Alobaydi   Amina Ahmead Khaleel Email: dralobaydi@uomosul.edu.iq   amina.alshumam@uomosul.edu.iq

8. Course Objectives 5	
Course Objectives	The course aims to: Provide students with knowledge of the fundamentals of soil mechanics, its problems, and composition, as well as an understanding of its volumetric and weight relationships and their applications. Additionally, it covers the calculations of hydraulic properties and water movement within the soil. Furthermore, the curriculum includes methods for calculating internal pressures in the soil, the impact of groundwater levels, and the transfer and distribution of stresses within the soil. These aspects are essential for evaluating its bearing capacity and compressibility. Finally, the course explains soil compressibility and the calculations of total settlement in its various forms over time, as well as differential settlement, which is a critical factor in the design, safety, and structural integrity of buildings.

9. Teaching and Learning Strategies	
Strategy	Encouraging students to think critically, analyze, and draw conclusions in problem-solving and solving engineering problems. This is achieved through lectures, practical demonstrations, hands-on lessons, problem-solving exercises, and discussions in small groups. Additionally, students are trained to take responsibility.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	First	Volumetric and weight relationships	Attendance	Exam
2	3	First and third	Physical and engineering properties of soil, soil plasticity, Atterberg limits (plastic limit, liquidity limit, plasticity index), clay activity, relative density, sensitivity, flow curve, flow index, shrinkage limit and index, compaction test.	Attendance	Exam and report
3	3	First and fifth	Grain gradation and soil classification (Unified Soil Classification System, AASHTO classification, MIT classification, and triangular classification).	Attendance	Exam and report
4	3	Third	Hydraulic properties	Attendance	Exam and report
5	3	First	Introduction to flow in porous media	Attendance	Exam and assignment
6	3	First	Capillary properties and surface tension	Attendance	Exam and assignment
7	3	First	Soil permeability	Attendance	Exam and assignment
8	3	First	Water seepage through soil (Laplace equation, flow network, drawing a flow network, flow lines, equipotential lines, calculating the amount of water seeped through a flow network in heterogeneous soils, seepage pressure, critical hydraulic gradient, calculating seepage pressure and uplift force)	Attendance	Exam
9	3	First	Seepage beneath and through earth structures, soil boiling phenomena, critical conditions in water structures, piping phenomenon, seepage through earth structures, and determining the free surface of flow in embankment dams, sand filter design for earth filters.	Attendance	Exam

10	3	Fifth	Stresses in soil mass (total and effective)	Attendance	Exam and report
11	3	First and third	Internal stresses in soil mass (total pressure, effective pressure, and neutral pressure in soil).	Attendance	Exam and assignment
12	3	First and third	Stresses due to external loads under different loading areas.	Attendance	Exam and assignment
13	3	First and third	Stresses due to a single or multiple concentrated loads, stresses from homogeneous linear loads.	Attendance	Exam and assignment
14	3	First and third	Stresses from regular strip loads.	Attendance	Exam
15				Attendance	

Course Evaluation and Grade Breakdown:	Here is the distribution of grades based on the student's assigned tasks: Daily exams and assignments for the theoretical part (5): 12 points Reports for the practical part and exams (6): 15 points Midterm exam (1): 23 points Final exam (1): 50 points

Learning and Teaching Resources:

Required Textbooks (Curriculum, if available):

1. **Primary References (Sources):**
   - Principles of Geotechnical Engineering ,(2004), Braja M. Das, 5th edition 2002, copyright by Wadsworth Group/United Stated.
2. **Supplementary References (Books, Journals, Reports, etc.):**
   - العشو، محمد عمر ، 1991" مبادئ ميكانيك التربة" ، كلية الهندسة ، جامعة الموصل.
3. **Recommended Additional Resources:**
   - Bowels J.E. (1978): Engineering properties of soils and their measure mends, second edition. McGraw-Hill books company.
4. **Electronic Resources:**
   - Whitlow, R. (1983): Basic soil mechanics, Construction Press, London and New York.
   - Annual Book of ASTM Standards, volume 04.08 : Soil and Rock (I) Published by ASTM in 2000

أ.د. معتز عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

1

Course Description

1. **Course Name:**
Engineering management

2. **Course Code:**
ENGC 425

3. **Semester / Year:**
Second Semester / 2025-2024

4. **Description Preparation Date:**
2025

5. **Available Attendance Forms:**
Theoretical Lecturers and Tutorials

6. **Number of Credit Hours (Total) / Number of Units (Total)**
30 hours / 2 units

7. **Course administrator's name (mention all, if more than one name)**
Name: Rakan Farooq Qasim Email: **rakanalmola75@uomosul.edu.iq**

8. **Course Objectives**

Course Objectives	1- Introducing the student to the importance studying the engineering management course.
	2- Introducing the student to the importance of the control in engineering projects.
	3- Training the student to create work progra tables
	4- Training the student to make tables of quantit
	5- Teach the student the importance of control quality in projects

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 about engineering management	Learning and discussion	Discussion
2,3,4	2 for each week	Learning and solving problems	Engineering contracts	Learning and discussion	Discussion and homework
5,6	2 for each week	Learning and solving problems	Bar chart and frequency distribution	Learning and discussion	Discussion and homework
7,8	2 for each week	Learning and solving problems	How to calculate the critical path by contract	Learning and discussion	Discussion and homework
9,10,11	2 for each week	Learning and solving problems	PERT path method	Learning and discussion	Home works
12,13	2 for each week	Learning and solving problems	Primavera	Learning and discussion	Home works
14,15	2 for each week	Learning	Tables of quantities and cost calculations	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)

Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description

1. Course Name:
Soil mechanics / Shear strength & its applications

2. Course Code:
CIV308

3. Semester / Year:
2024-2025

4. Description Preparation Date:
2025

5. Available Attendance Forms:
Excel lists

6. Number of Credit Hours (Total) / Number of Units (Total)
3/3

7. Course administrator's name (mention all, if more than one name)
Name: Mohammed N. Jaro   Mohammed K. Faris Email: m.jaro@uomosul.edu.iq   mohammed.kamil@uomosul.edu.iq

8. Course Objectives

Course Objectives The course aims to give students the knowledge to understand shear strength of the soil and calculation of parameters (cohesion and internal friction). Shear strength of the soil considered an important introduction to calculate the bearing capacity of different soils and behavior the soil under load	....

9. Teaching and Learning Strategies

Strategy	The course is designed to finish the student with knowledge on the basic of shear strength of soil. It starts with introduction to shear strength of soil, Hydraulic properties of soil, lateral earth pressure subjected to earth structures such as retaining walls. This supposed to give the students the basics that will be useful in the course of foundation design in the forth class.

10. Course Structure

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

1	2	General introduction	General introduction	Lecture explanation with student participation	Quizzes & Mid. Exams
2	2	Soil shear strength	Soil shear strength	Lecture explanation with student participation	Quizzes & Mid. Exams
3	2	Shear strength of the soil and factors affecting, failure planes and principals stresses, normal and shear stress calculation	Shear strength of the soil and factors affecting, failure planes and principals stresses, normal and shear stress calculation	Lecture explanation with student participation	Quizzes & Mid. Exams
4	2	Representation the failure plane on Mohr's Circle, properties of Mohr's Circle, failure theory and Mohr Envelope, factors affecting on shear strength of soil, type of shear strength testing	Representation the failure plane on Mohr's Circle, properties of Mohr's Circle, failure theory and Mohr Envelope, factors affecting on shear strength of soil, type of shear strength testing	Lecture explanation with student participation	Quizzes & Mid. Exams
5	2	Shear strength of cohesive soil	Shear strength of cohesive soil	Lecture explanation with student participation	Quizzes & Mid. Exams
6	2	Shear strength of cohesionless soil	Shear strength of cohesionless soil	Lecture explanation with student participation	Quizzes & Mid. Exams

7	2	Failure theory and Mohr Envelope, lab shear strength testing	Failure theory and Mohr Envelope, lab shear strength testing	Lecture explanation with student participation	Quizzes & Mid. Exams
8	2	Retaining structures and lateral earth pressure	Retaining structures and lateral earth pressure	Lecture explanation with student participation	Quizzes & Mid. Exams
9	2	General introduction, types of lateral earth pressure, lateral earth pressure coefficients,	General introduction, types of lateral earth pressure, lateral earth pressure coefficients,	Lecture explanation with student participation	Quizzes & Mid. Exams
10	2	Lateral earth pressure at rest	Lateral earth pressure at rest	Lecture explanation with student participation	Quizzes & Mid. Exams
11	2	Active lateral earth pressure	Active lateral earth pressure	Lecture explanation with student participation	Quizzes & Mid. Exams
12	2	passive lateral earth pressure	passive lateral earth pressure	Lecture explanation with student participation	Quizzes & Mid. Exams
13	2	Factors affecting on the lateral earth pressure coefficients, lateral earth pressure distribution on the retaining structures,	Factors affecting on the lateral earth pressure coefficients, lateral earth pressure distribution on the retaining structures,	Lecture explanation with student participation	Quizzes & Mid. Exams

		lateral earth pressure calculation, lateral earth pressure calculation using Rankine's theory	lateral earth pressure calculation, lateral earth pressure calculation using Rankine's theory		
14	2	lateral earth pressure calculation using Coulomb's theory	lateral earth pressure calculation using Coulomb's theory	Lecture explanation with student participation	Quizzes & Mid. Exams
15	2	Application on lateral earth pressure	Application on lateral earth pressure	Lecture explanation with student participation	Quizzes & Mid. Exams

11. Course Evaluation

Mid Exam 20   Quizzes 10   preparations & H.W   5   Practical Part 15   Total 50%
Final 50%

12. Learning and Teaching Resources

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

1." Elements of Soil Mechanics", (1988), G. N. Smith and Ion G. N. Smith, USA.

2." Problem Solving in Soil Mechanics", (2003), A. Aysen, Swets & Zeitlinger B.V

Dr. Mohammed N. Jaro   Dr. Mohammed K. Faris

Course Description Form

1. Course Name:
Quantity Survey

2. Course Code:
CIV 413

3. Semester / Year:
2024-2025

4. Description Preparation Date:
2025

5. Available Attendance Forms:
presence

6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours / units (2)

7. Course administrator's name (mention all, if more than one name)
Name: Mohammed Ghanim Email:mohammed_g72@uomosul.edu.iq

8. Course Objectives

Course Objectives	Identify the types of estimation Train students to calculate quantities for construction work Train students to create quantity tables Explain how to create engineering arms

9. Teaching and Learning Strategies

Strategy	Dividing construction work into sections, calculating the quantities of each section and the quantities of construction materials, teaching and training students to calculate the quantities of construction materials needed for various civil engineering works, and teaching students to create quantity tables and include the appropriate sections for construction work.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	4	Interdiction of Quantity survey & Rough estimation	Quantity survey	Explanation with data show	Daily tests
3-4	4	Quantities of Building Materials (concrete block, Bricks, thermostone & Stone construction	Construction work	Explanation with data show	Daily tests

7-8	4	Reinforced concrete works estimate	Reinforced concrete	Explanation with data show	Daily tests
9-12	8	Earth work Estimation	Earth work	Explanation with data show	Daily tests
13-14	4	Technical specifications for construction works	Specification work	Explanation with data show	Daily tests

Course Evaluation and Grade Breakdown:		
	Quiz:	10%
	Classwork	10%
	Midterm Exam(s)	20%
	Final Exam	60%

Learning and Teaching Resources: "التخمين والمواصفات" مدحت فضيل
"التخمين والمواصفات القياسية" م.د. لوى محمد عباس الشذر / جامعة الكوفة

أ.د. معتز عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

Course Description Form

1. Course Name:
Prestressed Concrete and Bridge Design

2. Course Code:
CIV417

3. Semester / Year:
2025-2024

4. Description Preparation Date:
2025-2024

5. Available Attendance Forms
In-person

6. Number of Credit Hours (Total) / Number of Units (Total)
2/2

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

1- Dr. Suhaib Y. Kasim
    Professor   E-mail : suhaib.qasim@uomosul.edu.iq
 	
2- Dr, Muna M. A.
    Lecturer   E-mail : hanom2020@uomosul.edu.iq

8. Course Objectives

Course Objectives	The students will be familiar with the analysis and design prestressed reinforced concrete members, and RC bridges considering the international codes in design as ACI and AASHTO codes to make the student able to understand and start working in the design field. On completion of the course the student will be able to: • Analysis of prestress flexural members, • Design of prestress flexural members, and • Design of RC Bridges.

9. Teaching and Learning Strategies

Strategy	Lectures, Videos, Assignments

10. Course Structure

Week	Hours	Required Outcomes	Unit or subject name	Learning method	Evaluation method
1	**2**	2	Introduction:	Lecture	

1

2	**2**	2	Review the principles of precast reinforced concrete design	Lecture	
3	**2**	2	Precast construction advantages and disadvantages.	Lecture	
4	**2**	2	Design Examples	Lecture	
5	**2**	2	Brackets.	Lecture	
6	**2**	2	End beam.	Lecture	
7	**2**	2	Homework, Tutorial, Quiz	In-person	
8	**2**	2	The principles of prestressing, theory and method of load applying.	Lecture	
9	**2**	2	Material properties and types, prestressed and ordinary steel high strength concrete.	Lecture	
10	**2**	2	Types and methods of prestressing.	Lecture	
11	**2**	2	Tutorial, Quiz	In-person	
12	**2**	2	Type of loading used for bridges design.	Lecture	
13	**2**	2	Design of slab bridge and edge beam.	Lecture	
14	**2**	2	Deck girder bridges, span length, minimum depth, loading criteria.	Lecture	
15	**2**	2	Shear and flexural stress calculation at different sections along the span.	In-person	

Course Evaluation and Grade Breakdown:	Method	
	Attendance and participation	6
	Midterm Exam(s)	20
	Quiz	10
	Homework	4
	Final Exam	60

• **Main references (sources)**	2. Design of Prestressed Concrete, A.l Nilson, 2nd Edition.
• Recommended **supporting books and references (scientific journals, reports...)**	
• **Electronic references, websites**	
• **Curriculum or course description update rate**	15%

Course Instructor

1- Dr. Suhaib Y. Kasim

2- Dr, Muna M. A

Head of Department

Course Description Form

1. Course Name:
Reinforced Concrete Design

2. Course Code:
CIV402

3. Semester / Year:
2025-2024

4. Description Preparation Date:
2025-2024

5. Available Attendance Forms
In-person

6. Number of Credit Hours (Total) / Number of Units (Total)
2/2

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

1- Dr. Suhaib Y. Kasim
   Professor   E-mail : suhaib.qasim@uomosul.edu.iq

2- Dr, Muna M. A.
   Lecturer   E-mail : hanom2020@uomosul.edu.iq

8. Course Objectives

Course Objectives	The students will be familiar with the fundamentals for reinforced concrete design floors, beams considering the international codes in design as ACI codes to make the student able to understand and start working in the design field.
	On completion of the course the student will be able to:
• Design of one-way RC slabs and continuous beams,
• Design of two-way RC slabs supported on edge beams,
• Design of one-way ribbed slabs and voided slabs, and
• Design of flat slabs.

9. Teaching and Learning Strategies

Strategy	Lectures, Videos, Assignments

10. Course Structure

Week	Hours	Required Outcomes	Unit or subject name	Learning method	Evaluation method
1	**2**	2	Introduction: Review the principles of reinforced concrete design	Lecture	

2	**2**	2	Design of One-way slab and continuous beams	Lecture	
3	**2**	2	- Design area of steel reinforcement and minimum area for shrinkage and temp. in slab and flexure for beams. - Approximate bent or cutoff points and maximum spacing for main and secondary reinforcement.	Lecture	
4	**2**	2	- Beam loads and critical moment and shear sections in beams. - Detailing for reinforcement continuous beams and slabs.	Lecture	
5	**2**	2	Detailing for reinforcement continuous beams and slabs. Homework; Tutorial; Quiz Two-way edge supported slabs - Minimum slab thickness.	Lecture	
6	**2**	2	- Direct design method and limitations. - Total static moment (panel moment). - Middle and edge strip width and moment distribution.	Lecture	
7	**2**	2	- Check for shear strength and flexure and calculation of steel reinforcement, checking minimum area and max spacing. - Design for beam supporting two-way slabs. - Design by moment coefficient method. - Homework - Quiz	Lecture	
8	**2**	2	Mid-term exam	In-person	
9	**2**	2	Flat slabs and flat plates - Minimum thickness of beamless slab according to ACI code. - Effective span length and minimum drop panel dimension. - The drop panel dimensions and requirements.	Lecture	
10	**2**	2	- Check for punching shear strength and diagonal shear. - Application of direct design method. - Design of flexural reinforcement at all critical moment section. Check the minimum and maximum spacing.	Lecture	
11	**2**	2	- Design by moment coefficient method. - Openings in flat slab construction. - Detailing of reinforcing steel considering minimum extension bars lengths. - Homework	Lecture	
12	**2**	2	One-way ribbed slabs - Code limitations and dimension. - Diagonal shear, solid part. - Voided slabs, equivalent rib width.	Lecture	

			- Quiz		
14	**2**	2	Course review		
15	**2**	2	Final exam	In-person	

Course Evaluation and Grade Breakdown:	Method	
	Attendance and participation	6
	Midterm Exam(s)	20
	Quiz	10
	Homework	4
	Final Exam	60

Learning and Teaching Resources:

Prescribed textbooks (syllabus books, if available)	Arthur H. Nilson, David Darwin, Charles W. Dol. Design of concrete structures", McGraw-Hill Edu
• **Main references (sources)**	ACI Committee 318. (2014). Building code requi for structural concrete: (ACI 318-14); and comme (ACI 318R-14). Farmington Hills, MI: American Institute.
• Recommended **supporting books and references (scientific journals, reports...)**	
• **Electronic references, websites**	
• **Curriculum or course description update rate**	10%

Course Instructor

1- Dr. Suhaib Y. Kasim

2- Dr, Muna M. A

Head of Department

ا.د. معتز عبد الجبار بهجة عون
رئيس قسم الهندسة المدنية

Course Description Form

1. Course Name:
Special Topics in Structural Analysis and Design

2. Course Code:
CIV407

3. Semester / Year:
2025-2024

4. Description Preparation Date:
2025-2024

5. Available Attendance Forms
In-person

6. Number of Credit Hours (Total) / Number of Units (Total)
2/2

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

1- Dr. Suhaib Y. Kasim
Professor   E-mail : suhaib.qasim@uomosul.edu.iq

2- Dr. Muna M. A.
Lecturer   E-mail : hanom2020@uomosul.edu.iq

3- Dr. Eman K. Ibrahem
Lecturer   E-mail : emankhalid33@uomosul.edu.iq

8. Course Objectives

Course Objectives	The students will be familiar with the analysis and design prestressed reinforced concrete members, and RC bridges considering the international codes in design as ACI and AASHTO codes to make the student able to understand and start working in the design field. On completion of the course the student will be able to: - Analysis of multistory frames, - Design of reinforced concrete stairs, and - Design of RC slabs using yield line method. .

9. Teaching and Learning Strategies

Strategy	Lectures, Videos, Assignments

10. Course Structure

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

1	2	2	Introduction: Review the principles of precast reinforced concrete design	Lecture	
2	2	2	Design of reinforced concrete stairs Stair types and stair limitations.	Lecture	
3	2	2	Design stairs mainly reinforcement in transverse direction. Design stairs longitudinally reinforced.	Lecture	
4	2	2	Effective spans, loading and moment calculation. The calculations of the positive and negative moments.	Lecture	
5	2	2	Checking shear in stairs. Reinforcement and structural details of the stair	Lecture	
6	2	2	Homework, Tutorial, Quiz	In-person	
7	2	2	Yield line theory of slab analysis - Yielding slabs and development of plastic hinges. - Guide lines to established patterns of yield lines and axis of rotations slabs.	Lecture	
8	2	2	- Axes of rotations and failure shape. - Analysis by equilibrium method.	Lecture	
9	2	2	- Virtual work method. - Isotropically and orthotropically reinforced slabs. - Components of work methods. - Different types of loading.	Lecture	
10	2	2	- Circular and polygon slab panels. - Slabs with large opening.	Lecture	
11	2	2	- Optimization method for load calculation. -Circular and prismatic slabs. -Slabs with large openings.	Lecture	
12	2	2	Tutorial, Quiz	In-person	
13	2	2	Multistory building frames - Behavior of building frames under partial gravity loads. - Methods of maximum stress calculation in beams and columns of multistory building frame.	Lecture	
14	2	2	- Stresses produced from wind load. - Computer programs used in analysis and deign of multistory. -Sub-frames analysis by ACI codes.	Lecture	
15	2	2	Tutorial, Quiz	In-person	

Course Evaluation and Grade Breakdown:	
	Method
	Attendance and participation 6
	Midterm Exam(s) 20
	Quiz 10
	Homework 4
	Final Exam 60

	concrete structures", McGraw-Hill Education.
• Main references (sources)	ACI Committee 318. (2014). Building code requi for structural concrete: (ACI 318-14); and comme (ACI 318R-14). Farmington Hills, MI: American Institute.
• Recommended supporting books and references (scientific journals, reports...)	
• Electronic references, websites	
• Curriculum or course description update rate	10%

Course Instructor

1- Dr. Suhaib Y. Kasim

2- Dr. Muna M. A

3- Dr. Eman K. Ibrahim

Head of Department

أ.د. وهفن عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

3

Course Description Form

University : Mosul **College : Engineering** **Department : Civil**

1. Course name and academic level
Selected Topics in Traffic Engineering / Fourth level

2. Course code
CIV421

3. Semester/Year
Spring / 2025- 2024

4. Date this description was prepared
2025

5. Available forms of attendance
Attendance in the classroom according to the weekly lesson schedule

6. Number of study hours (total) / Number of units (total)
2 hours of theory per week(30 hours totai) / 2 units

7. Name of the course supervisor and academic title
Dr. Mohammed Yasseen Taha / AssistantProfessor Email: mohammedtaha@uomosul.edu.iq

8. Scientific course objectives

Subject objectives	- Understand the general principles of traffic engineering and the characteristics of traffic engineering - Identify the role of traffic engineering within transportation engineering in life - Analyze and design data for traffic characteristics and find the level of service for freeways - Analyze and design data for traffic characteristics and find the level of service for multi-lane highways - Study and classify intersections of all types on the road network - Analyze and evaluate the signalized intersections performance.

9. Teaching and learning strategies

The student acquires knowledge of the characteristics of traffic engineering and the ability to distinguish, define, analyze and address the most important engineering and mathematical problems and issues in the field of traffic engineering and for specific types of roads distributed on the urban and rural road network and the method of finding the necessary immediate and future solutions and developing the appropriate design and planning for each of them.

10. Course Structure

Week	Hours	Required learning outcomes		Learning method	Evaluation method
1	2	Learn about the methods of evaluating and analyzing and level of design the types of roads found in the urban and rural road network and how to find their capacity and level of design service with the most important principles of design and future planning.	Introduction to Traffic Engineering	Students' attendance in the classroom and through the educational tools available inside the classroom, with some site visits.	According to the tasks assigned to the student, such as daily preparation, daily, oral, monthly and written exams, and reports.
2	2		Study the main characteristics in traffic engineering		
3	2		Definition and classification of freeways and identification of their parts		
4	2		Study the factors affecting freeway traffic		
5	2		Analysis of traffic characteristics in basic segment freeway		
6	2		Finding the level of service in basic segment freeway		
7	2		Design and planning of traffic in basic segment freeway		
8	2		Definition and classification of multi-lane roads and their sections		
9	2		Analysis of traffic characteristics in multi-lane highways		
10	2		Finding the level of service in multi-lane highways		
11	2		Design and planning of traffic in multi-lane highways		
12	2		Definition and classification of traffic intersections and their functions		
13	2		Study of methods of analyzing the signalized intersections		
14	2		Finding the level of service for the signalized intersections		
15	2		Study of vehicle parking, their types, importance and impact on traffic		

11. Course Evaluation and Grade Divisions

Daily attendance and preparation = 10 marks   Daily homework and exam = 10 marks
Reports = 5 marks   Monthly exams = 15 marks   Final exam = 60 marks

12. Learning and teaching references

Required textbooks (methodology if any)	Highway Capacity Manual 2010, 2016 (Fifth & Sixth editions)
Main References (Sources)	Nicholas J. Garber, and Lester A. Hoel," *Traffic and Highway Engineering*", Fourth Edition, Cengage Learning, Toronto, Canada, pp. 99-150, 2009.
Recommended supporting books and references (scientific journals, reports...)	Not specified only within the field of traffic engineering and according to the titles
Electronic references, Internet sites	Not specified only within the field of traffic engineering and according to the titles
Curriculum update rate or description	

Name and signature of the course owner   Name and signature of the head of the department

أ.د. مجتبى عبد الجبار محمد عزان
رئيس قسم الهندسة المدنية

Course Description Form

1. Course Name: English language – Upper Intermediate

2. Course Code: CE406

3. Semester / Year: First / 2024 and Second/2025

4. Description Preparation Date: **2024-2025**

5. Available Attendance Forms: In class

6. Number of Credit Hours (Total) / Number of Units (Total) 2/2

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

Name: Muna Mubark Hano hanom2020@uomosul.edu.iq

Name: Eman Khalid Ibrahim emankhalid33@uomosul.edu.iq

8. Course Objectives

Course Objectives	The aim of this course is to develop the academic skills, reading comprehension, writing proficiency, and study techniques of students. It provides comprehensive instruction and practice to enhance reading skills through exposure to authentic academic texts, focusing on comprehension, vocabulary acquisition, and critical analysis. It also guides students in various types of academic writing, emphasizing organization, clarity, and grammar usage. Additionally, it equips students with essential study skills, including paraphrasing, academic presentation, note-taking, time management, critical thinking, and research techniques.

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 such as academic presentation for a specific subject selected by students.

10. Course Structure

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

Attached				
Course Evaluation and Grade Breakdown:	Formative assessment		Quizzes	6
			Presentation	10
			Assignments	5
			Attendance and participation	4
	Summative assessment		Midterm Exam	15
			Final Exam	60
	Total assessment		100% (100 Marks)	

Learning and Teaching Resources:

https://www.wiley.com/en-us/network/publishing/research-publishing/writing-and-conducting-research/6-tips-for-giving-a-fabulous-academic-presentation

https://novoresume.com/career-blog/how-to-write-a-cv

Course Description Form

1. Course Name:	
Environmental &Sanitary Engineering	
2. Course Code:	
CIV414	
3. Semester / Year:	
Spring semester 2024−2025	
4. Description Preparation Date	
2025	
5. Available Attendance Forms:	
6. Number of Credit Hours (Total) / Number of Units (Total):	
3 hr / week (Credit)/ 3(units)	

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

Name: **Abeer Hashim Hassan**   Email: Abeerhashim2014@uomosul.edu.iq
Name: Dr.**Riyadh Mahmood Saleh**   Email: Riy_sal@uomosul.edu.iq

8. Course Objectives

Course Objectives	Course objectives is to provide students the necessary background information for Sanitary Engineering and Environmental. On completion of the course the student will be able to:
	• Demonstrate understanding of the formation of Basic water supply demands and criteria,.
	• Determine the quantities and the types of water consumption
	• Calculate the quantity of fire demand .
	• Classify the types of impurities in water .
	• Determine the quality of water(criteria and standards).
	• Understand the principles of water treatment methods .
	• Design of water treatment plant units.
	• Design water supply networks.
	• Design of sewerage systems.

9. Teaching and Learning Strategies

Strategy	Blended learning is achieved through the following methods :-
	i. Use multiple and varied teaching methods such as lectures and discussions.
	ii. Use illustrative and applied examples to enrich the scientific material
	iii. Use electronic platforms to communicate with students, such as Google Classroom.

10. Course Structure

Course Description Form

University : Mosul **College : Engineering** **Department : Civil**

1. Course name and academic level
Selected Topics in Traffic Engineering / Fourth level

2. Course code
CIV421

3. Semester/Year
Spring / 2024- 2025

4. Date this description was prepared
2025

5. Available forms of attendance
Attendance in the classroom according to the weekly lesson schedule

6. Number of study hours (total) / Number of units (total)
2 hours of theory per week(30 hours totai) / 2 units

7. Name of the course supervisor and academic title
Dr. Mohammed Yasseen Taha / AssistantProfessor Email: mohammedtaha@uomosul.edu.iq

8. Scientific course objectives	
Subject objectives	▪ Understand the general principles of traffic engineering and the characteristics of traffic engineering ▪ Identify the role of traffic engineering within transportation engineering in life ▪ Analyze and design data for traffic characteristics and find the LOS for freeways ▪ Analyze and design data for traffic characteristics and find the LOS for multi-lane highways ▪ Study and classify intersections of all types on the road network ▪ Analyze and evaluate the signalized intersections performance. ▪ Analyze and design of parking.

9. Teaching and learning strategies
The student acquires knowledge of the characteristics of traffic engineering and the ability to distinguish, define, analyze and address the most important engineering and mathematical problems and issues in the field of traffic engineering and for specific types of roads distributed on the urban and rural road network and the method of finding the necessary immediate and future solutions and developing the appropriate design and planning for each of them.

10. Course Structure

Week	Hours	Required learning outcomes		Learning method	Evaluation method
1	2	Learn about the methods of evaluating and analyzing the types of roads found in the urban and rural road network and how to find their capacity and level of design service with the most important principles of design and future planning.	Introduction to Traffic Engineering	Students' attendance in the classroom and through the educational tools available inside the classroom, with some site visits.	According to the tasks assigned to the student, such as daily preparation, daily, oral, monthly and written exams, and reports.
2	2		Study the main characteristics in traffic engineering		
3	2		Definition and classification of freeways and identification of their parts		
4	2		Study the factors affecting freeway traffic		
5	2		Analysis of traffic characteristics in basic segment freeway		
6	2		Finding the level of service in basic segment freeway		
7	2		Design and planning of traffic in basic segment freeway		
8	2		Definition and classification of multi-lane roads and their sections		
9	2		Analysis of traffic characteristics in multi-lane highways		
10	2		Finding the level of service in multi-lane highways		
11	2		Design and planning of traffic in multi-lane highways		
12	2		Definition and classification of traffic intersections and their functions		
13	2		Study of methods of analyzing the signalized intersections		
14	2		Design and timinig for the signalized intersections		
15	2		Study of parking, their types, design, importance and impact on traffic		

11. Course Evaluation and Grade Divisions

Daily attendance and preparation = 10 marks   Daily homework and exam = 10 marks
Reports = 5 marks   Monthly exams = 15 marks   Final exam = 60 marks

12. Learning and teaching references

Required textbooks (methodology if any)	Highway Capacity Manual 2010, 2016 (Fifth & Sixth editions)
Main References (Sources)	Nicholas J. Garber, and Lester A. Hoel, " *Traffic and Highway Engineering*", Fourth Edition, Cengage Learning, Toronto, Canada, pp. 99-150, 2009.
Recommended supporting books and references (scientific journals, reports...)	Not specified only within the field of traffic engineering and according to the titles
Electronic references, Internet sites	Not specified only within the field of traffic engineering and according to the titles
Curriculum update rate or description	10 %

Name and signature of the course owner   Name and signature of the head of the department

Dr. Mohammed Y. Taha

أ. د. وجدان عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

Course Description Form

1. Course Name:
Fundamentals of Foundation Engineering

2. Course Code:
CIV403

3. Semester / Year:
2025-2024

4. Description Preparation Date:
2025

5. Available Attendance Forms:
Attendance List (Excel)

6. Number of Credit Hours (Total) / Number of Units (Total)
3/3

7. Course administrator's name (mention all, if more than one name)
Dr. Qutayba N. Al-Saffar Email: dr.qutayba@uomosul.edu.iq

8. Course Objectives	
Course Objectives	• Introduce students to the most important field investigations for various civil engineering projects • Provide students with sufficient information on studying the bearing capacity of soil under foundations. • Provide students with sufficient information to calculate and estimate settlement in various structures. • Introduce students to the design of various types of foundations.

9. Teaching and Learning Strategies	
Strategy	• Sustainable Education Strategy. • Strategy for linking theoretical aspects with practical application.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Introduction and General Information (Definition of foundation engineering and types of foundations)	Fundamentals of Foundation Engineering	• A logical explanation of the subject being taught. • Informational sustainability through recalling previous topics and linking them to the new topic. • Attempting to link the theoretical aspect with the practical aspect.	• Daily exams (4). • Monthly exams (2). • Final exam.
2+3	6	Introduction to field investigations			
4+5	6	Calculating soil bearing capacity for different types of foundations			
6	3	bearing capacity of clay soil			
7	3	bearing capacity of sandy soil			
8	3	Calculate the settlement under the foundations			
9	3	Introduction to foundation designs			
10	3	Structural design of single column foundations			
11	3	Design of reinforced and unreinforced wall foundations			
12	3	Rectangular continuous foundation design			
13+ 14+15	9	Mat foundation design with applications			

11. Course Evaluation and Grade Breakdown:	Daily exams (12) + monthly exams (20) + attendance, participation and assignments (8) = annual effort (40%)

Learning and Teaching Resources:

- "Principles of Foundation Engineering" , 9th_Edition,_SI_Edition By Braja-M. Dass . (2019).
- Foundation Design & Analysis By Bowels

Dr. Qutayba N. Al-Saffar

أ.د. محسن عبد الجبار محمد أمين
رئيس قسم الهندسة المدنية

1

Course Description

1. Course Name:
Construction Drawing **4th Level**

2. Course Code:
CIV415

3. Semester / Year:
Spring 2025

4. Description Preparation Date:

5. Available Attendance Forms:
In person

6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours/1 unit

7. Course administrator's name (mention all, if more than one name)
Name: Ahmed A. Mohammed Ali Email: a.aldubony@uomosul.edu.iq   ..... Name: Revan N. Wadie Emai: revan.nahith@uomosul.edu.iq   .....

8. Course Objectives

Course Objectives	In this course, students will gain proficiency: 1. Learning how to use the ACI Detailing Manual 2. Enabling students to draw structural and architectural plans. **3.** Enabling students to read structural and architectural plans

9. Teaching and Learning Strategies

Strategy	

10. Course Structure
Details are shown in the attachment below

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

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

Exams (hour mid exam 25%, three hours final exam 50%, homework 13%, quiz 12%)

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	1. " Construction Drawing by Dr. Rabe Moayed (2020) 2. ACI Detailing Manual.
Electronic References, Websites	

Course Description:

The details for the description are listed in the table below.

References:

- " Construction Drawing by Dr. Rabe Moayed (2020)
- ACI Detailing Manual.

Course Details:

Subject	Week
- General review of the Engineering Drawing with an Introduction to the Topic. - Types of lines used in structural drawing. - Naming the drawing sheets.	1
- R.C. footing with the descriptions of different types. - Wall footings. - Isolated footings.	2
- Continuous footing. - Combined footing.	3
- Raft foundation	4
- R.C. Columns. - Columns key plan. - Columns Schedule.	5
- R.C. slabs – one-way slabs and two-way slabs. - Slab plans. - Slab sections. - Slab Dimensions and reinforcement.	6
Beams and girders and their details	7

Beams and girders and their details	7
• Stairs (types of stairs). • Stair's plan and positions.	8
• Stairs Sections.	9
Steel structures and its connections.	10
Column – column connections.	11
Beam – column connections.	12
Steel column – footing	13
Power point presentation.	14
Practical lecture for reading sheet plan samples	15

. **Class/laboratory Schedule:**
  10:30 to 12:30 Sunday, 10:30 to 12:30 & 12:30 to 2:30 Monday.

أ.د. معتز عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

Course Description Form

1. Course Name:
Quantity Survey

2. Course Code:
CIV 413

3. Semester / Year:
2024-2025

4. Description Preparation Date:
2025

5. Available Attendance Forms:
presence

6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours / units (2)

7. Course administrator's name (mention all, if more than one name)
Name: Mohammed Ghanim
Email:mohammed_g72@uomosul.edu.iq

8. Course Objectives

Course Objectives	Identify the types of estimation Train students to calculate quantities for construction work Train students to create quantity tables Explain how to create engineering arms

9. Teaching and Learning Strategies

Strategy	Dividing construction work into sections, calculating the quantities of each section and the quantities of construction materials, teaching and training students to calculate the quantities of construction materials needed for various civil engineering works, and teaching students to create quantity tables and include the appropriate sections for construction work.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	4	Interdiction of Quantity survey & Rough estimation	Quantity survey	Explanation with data show	Daily tests
3-4	4	Quantities of Building Materials (concrete block, Bricks, thermostone & Stone construction	Construction work	Explanation with data show	Daily tests

5-6	4	Construction works and Bill of Quantities	Bill of quantity	Explanation with data show	Daily tests
7-8	4	Reinforced concrete works estimate	Reinforced concrete	Explanation with data show	Daily tests
9-12	8	Earth work Estimation	Earth work	Explanation with data show	Daily tests
13-14	4	Technical specifications for construction works	Specification work	Explanation with data show	Daily tests

Course Evaluation and Grade Breakdown:	Quiz:	10%
	Classwork	10%
	Midterm Exam(s)	20%
	Final Exam	60%

Learning and Teaching Resources: مدحت فضيل "التخمين والمواصفات"

"التخمين والمواصفات القياسية" م.د. لؤي محمد عباس الشذر / جامعة الكوفة

أ.د. مهنن عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

Course Description

1. Course Name:	
Flexible Pavement Design – 4th class	
2. Course Code:	
CIV410	
3. Semester / Year:	
2nd Semester, 2024-2025	
4. Description Preparation Date:	
2025	
5. Available Attendance Forms:	
presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 hours / units (2)	

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

Name: Ayman Abdulhadi & Mohammed Ganam
Email: aymanmawjoud@uomosul.edu.iq
mohammed_g72@uomosul.edu.iq

8. Course Objectives

Course Objectives	
● Understand the basic principles of asphalt material behavior ● Understand the basic principles of aggregate used in road construction works ● Determine the thickness of paving layers	● ● ….. ● …..

9. Teaching and Learning Strategies

Strategy	The teaching and learning strategy requires a combination of theoretical and practical methods, given the nature of the subject which combines basic engineering concepts with practical applications in pavement design and construction.

10. Course Structure

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

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-5	10	Basic principles of asphalt material	Asphalt material	Explanation with data show	Daily tests
6-10	10	Basic principles of aggregates used in road construction works	Aggregate	Explanation with data show	Daily tests
11-15	10	Pavement thickness	Design methods	Explanation with data show	Daily tests

11. course Evaluation

Quiz:	10%
Classwork	10%
Midterm Exam(s)	20%
Final Exam	60%

12. Learning and Teaching Resources

Required textbooks (curricular books)	
Main references	Garber and Hoel "Traffic and Highway Engineering" Fifth edition, 2020
Recommended books and references	ASTM standards FHA, "Superpave Fundamentals. NATIONAL HIGHWAY INSTITUTE.," Asphalt-Institute-MS2-7th-Edition-Asphalt-Institute-Mix-Design.
Electronic references	https://almerja.net/reading.php?idm=197435&utm_source=chatgpt.com https://www.dr-myoussef.com/design-aashto/?utm_source=chatgpt.com

ا.د. مجتبى عبدالجبار محمد عمران
رئيس قسم الهندسة المدنية

Course Description Form

1. Course Name: Analysis and Design of Deep Foundations	
2. Course Code: CIV419	
3. Semester / Year: 2024-2025	
4. Description Preparation Date: 2025	
5. Available Attendance Forms:	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30	

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

abdulrahman.aldaood@uomosul.edu.iq   Dr. Abdulrahman Hand Aldaood

mfqawad2015@uomosul.edu.iq   Dr. Muwafaq Awad

8. Course Objectives

Course Objectives	Calculating ultimate pile load capacity, understanding analysis and design of deep foundation, design problem solving techniques, processing pile load test results, calculating settlement of pile foundation.

9. Teaching and Learning Strategies

Strategy	Encourage students to express their opinions. Being able to explain their solutions. Variety of teaching methods used to achieve objectives. Cooperative learning increases students' ability to develop diverse solutions. Use real-life examples of engineering problems and provide appropriate solutions.

10. Course Structure

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

Course Evaluation and Grade Breakdown:	Homework, classwork and quizzes worth 20%, mid-term exam worths 20%, and final exam worths 60%

Learning and Teaching Resources:

Principles of foundation engineering. Ninth Edition, Das, B. M., & Sivakugan, N. Cengage learning.

Peck, R. B., Hanson, W. E., & Thornburn, T. H. (1991). *Foundation engineering*. John Wiley & Sons.

Bowles, J. E., & Guo, Y. (1996). *Foundation analysis and design* (Vol. 5, p. 127). New York: McGraw-hill.

Poulos, H. G., & Davis, E. H. (1980). *Pile foundation analysis and design*.

Course Description Form

1. Course Name:
Special topics in geotechnics

2. Course Code:
CIV408

3. Semester / Year:
2024-2025

4. Description Preparation Date:
2025

5. Available Attendance Forms:

6. Number of Credit Hours (Total) / Number of Units (Total)
30

7. Course administrator's name (mention all, if more than one name)
mfqawad2015@uomosul.edu.iq   Dr. Muwafaq Awad   mohammed.kamil@uomosul.edu.iq   Dr. Mohammed Kamil Faris

8. Course Objectives

Course Objectives	Stability analysis of retaining walls and structural design of retaining walls, slope stability analysis using different methods and for different soil conditions, understanding the geotechnical design of sanitary landfills and studying compaction and permeability criteria of lining layers.

9. Teaching and Learning Strategies

Strategy	Encourage students to express their opinions. Being able to explain their solutions. Variety of teaching methods used to achieve objectives. Cooperative learning increases students' ability to develop diverse solutions. Use real-life examples of engineering problems and provide appropriate solutions.

10. Course Structure

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

Course Evaluation and Grade Breakdown:	Homework, classwork and quizzes worth 20%, mid-term exam worths 20%, and final exam worths 60%

Learning and Teaching Resources:

Principles of foundation engineering. Ninth Edition, Das, B. M., & Sivakugan, N. Cengage earning.

Soil strength and slope stability. Second Edition, Duncan. J. M., Wright. S. G., & Brandon, T. L., John Wiley & Sons.

Geotechnical aspects of landfill design and construction. Qian, X., Koerner, R. M., & Gray, D. H.

Principles of foundation engineering. Ninth Edition, Das, B. M., & Sivakugan, N. Cengage earning.

ا.د. وجقن عبد الجبار بهجت عون
رئيس قسم الهندسة المدنية

1

Course Description Form

1. Course Name:
Prestressed Concrete and Bridge Design

2. Course Code:
CIV417

3. Semester / Year:
2025-2024

4. Description Preparation Date:
2025-2024

5. Available Attendance Forms
In-person

6. Number of Credit Hours (Total) / Number of Units (Total)
2/2

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

1- Dr. Suhaib Y. Kasim
     Professor   E-mail : suhaib.qasim@uomosul.edu.iq
 	
 2- Dr, Muna M. A.
     Lecturer   E-mail : hanom2020@uomosul.edu.iq

8. Course Objectives

Course Objectives	The students will be familiar with the analysis and design prestressed reinforced concrete members, and RC bridges considering the international codes in design as ACI and AASHTO codes to make the student able to understand and start working in the design field. On completion of the course the student will be able to: • Analysis of prestress flexural members, • Design of prestress flexural members, and • Design of RC Bridges.

9. Teaching and Learning Strategies

Strategy	Lectures, Videos, Assignments

10. Course Structure

Week	Hours	Required Outcomes	Unit or subject name	Learning method	Evaluation method
1	**2**	2	Introduction:	Lecture	
2	**2**	2	Review the principles of precast reinforced concrete design	Lecture	

Learning and Teaching Resources:	
Prescribed textbooks (syllabus books, if available)	1. Design of reinforced concrete structures, A.H N 2010.
• **Main references (sources)**	2. Design of Prestressed Concrete, A.H. Nilson, Edition.
• Recommended **supporting books and references (scientific journals, reports...)**	
• **Electronic references, websites**	
• **Curriculum or course description update rate**	15%

Course Instructor

1- Dr. Suhaib Y. Kasim

2- Dr, Muna M. A

Head of Department

ا.د. مجتبى عبد الجبار محمد عون
رئيس قسم الهندسة المدنية

1

Course Description Form

1. Course Name:
Reinforced Concrete Design

2. Course Code:
CIV402

3. Semester / Year:
2025-2024

4. Description Preparation Date:
2025-2024

5. Available Attendance Forms
In-person

6. Number of Credit Hours (Total) / Number of Units (Total)
2/2

7. Course administrator's name (mention all, if more than one name)
1- Dr. Suhaib Y. Kasim Professor   E-mail : suhaib.qasim@uomosul.edu.iq 2- Dr, Muna M. A. Lecturer   E-mail : hanom2020@uomosul.edu.iq

8. Course Objectives	
Course Objectives	The students will be familiar with the fundamentals for reinforced concrete design floors, beams considering the international codes in design as ACI codes to make the student able to understand and start working in the design field. On completion of the course the student will be able to: • Design of one-way RC slabs and continuous beams, • Design of two-way RC slabs supported on edge beams, • Design of one-way ribbed slabs and voided slabs, and • Design of flat slabs.

9. Teaching and Learning Strategies	
Strategy	Lectures, Videos, Assignments

10. Course Structure

Week	Hours	Required Outcomes	Unit or subject name	Learning method	Evaluation method
1	**2**	2	Introduction: Review the principles of reinforced concrete design	Lecture	

2	**2**	2	Design of One-way slab and continuous beams	Lecture	
3	**2**	2	- Design area of steel reinforcement and minimum area for shrinkage and temp. in slab and flexure for beams. - Approximate bent or cutoff points and maximum spacing for main and secondary reinforcement.	Lecture	
4	**2**	2	- Beam loads and critical moment and shear sections in beams. - Detailing for reinforcement continuous beams and slabs.	Lecture	
5	**2**	2	Detailing for reinforcement continuous beams and slabs. Homework; Tutorial; Quiz Two-way edge supported slabs - Minimum slab thickness.	Lecture	
6	**2**	2	- Direct design method and limitations. - Total static moment (panel moment). - Middle and edge strip width and moment distribution.	Lecture	
7	**2**	2	- Check for shear strength and flexure and calculation of steel reinforcement, checking minimum area and max spacing. - Design for beam supporting two-way slabs. - Design by moment coefficient method. - Homework - Quiz	Lecture	
8	**2**	2	Mid-term exam	In-person	
9	**2**	2	Flat slabs and flat plates - Minimum thickness of beamless slab according to ACI code. - Effective span length and minimum drop panel dimension. - The drop panel dimensions and requirements.	Lecture	
10	**2**	2	- Check for punching shear strength and diagonal shear. - Application of direct design method. - Design of flexural reinforcement at all critical moment section. Check the minimum and maximum spacing.	Lecture	
11	**2**	2	- Design by moment coefficient method. - Openings in flat slab construction. - Detailing of reinforcing steel considering minimum extension bars lengths. - Homework	Lecture	
12	**2**	2	One-way ribbed slabs - Code limitations and dimension. - Diagonal shear, solid part. - Voided slabs, equivalent rib width.	Lecture	

14	2	2	Course review		
15	2	2	Final exam	In-person	

Course Evaluation and Grade Breakdown:	Method	
	Attendance and participation	6
	Midterm Exam(s)	20
	Quiz	10
	Homework	4
	Final Exam	60

Learning and Teaching Resources:

Prescribed textbooks (syllabus books, if available)	Arthur H. Nilson, David Darwin, Charles W. Dol Design of concrete structures", McGraw-Hill Edu
• Main references (sources)	ACI Committee 318. (2014). Building code requi for structural concrete: (ACI 318-14); and comme (ACI 318R-14). Farmington Hills, MI: American Institute.
• Recommended supporting books and references (scientific journals, reports...)	
• Electronic references, websites	
• Curriculum or course description update rate	10%

Course Instructor

1- Dr. Suhaib Y. Kasim

2- Dr, Muna M. A

Head of Department

أ.د. وجمان عمد الجبار جمعون١

رئيس قسم الهندسة المدنية

1

Course Description Form

1. Course Name:
Special Topics in Structural Analysis and Design

2. Course Code:
CIV407

3. Semester / Year:
2025-2024

4. Description Preparation Date:
2025-2024

5. Available Attendance Forms
In-person

6. Number of Credit Hours (Total) / Number of Units (Total)
2/2

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

1- Dr. Suhaib Y. Kasim
  Professor   E-mail : suhaib.qasim@uomosul.edu.iq
 	
2- Dr. Muna M. A.
  Lecturer   E-mail : hanom2020@uomosul.edu.iq
3- Dr. Eman K. Ibrahem
  Lecturer   E-mail : emankhalid33@uomosul.edu.iq

8. Course Objectives

Course Objectives	The students will be familiar with the analysis and design prestressed reinforced concrete members, and RC bridges considering the international codes in design as ACI and AASHTO codes to make the student able to understand and start working in the design field. On completion of the course the student will be able to: • Analysis of multistory frames, • Design of reinforced concrete stairs, and • Design of RC slabs using yield line method. .

9. Teaching and Learning Strategies

Strategy	Lectures, Videos, Assignments

10. Course Structure

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

1	2	2	Introduction: Review the principles of precast reinforced concrete design	Lecture	
2	2	2	Design of reinforced concrete stairs Stair types and stair limitations.	Lecture	
3	2	2	Design stairs mainly reinforcement in transverse direction. Design stairs longitudinally reinforced.	Lecture	
4	2	2	Effective spans, loading and moment calculation. The calculations of the positive and negative moments.	Lecture	
5	2	2	Checking shear in stairs. Reinforcement and structural details of the stair	Lecture	
6	2	2	Homework, Tutorial, Quiz	In-person	
7	2	2	Yield line theory of slab analysis - Yielding slabs and development of plastic hinges. - Guide lines to established patterns of yield lines and axis of rotations slabs.	Lecture	
8	2	2	- Axes of rotations and failure shape. - Analysis by equilibrium method.	Lecture	
9	2	2	- Virtual work method. - Isotropically and orthotropically reinforced slabs. - Components of work methods. - Different types of loading.	Lecture	
10	2	2	- Circular and polygon slab panels. - Slabs with large opening.	Lecture	
11	2	2	- Optimization method for load calculation. -Circular and prismatic slabs. -Slabs with large openings.	Lecture	
12	2	2	Tutorial, Quiz	In-person	
13	2	2	Multistory building frames - Behavior of building frames under partial gravity loads. - Methods of maximum stress calculation in beams and columns of multistory building frame.	Lecture	
14	2	2	- Stresses produced from wind load. - Computer programs used in analysis and deign of multistory. -Sub-frames analysis by ACI codes.	Lecture	
15	2	2	Tutorial, Quiz	In-person	

Course Evaluation and Grade Breakdown:	Method	
	Attendance and participation	6
	Midterm Exam(s)	20
	Quiz	10
	Homework	4
	Final Exam	60

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• Recommended supporting books and references (scientific journals, reports...)	
• Electronic references, websites	
• Curriculum or course description update rate	10%

Course Instructor

1- Dr. Suhaib Y. Kasim

2- Dr. Muna M. A

3- Dr. Eman K. Ibrahim

Head of Department

أ.د. ريمون عبد الجبار محمد عون

رئيس قسم الهندسة المدنية

1. Course name and academic level
Selected Topics in Traffic Engineering / Fourth level

2. Course code
CIV421

3. Semester/Year
Spring / 2024- 2025

4. Date this description was prepared
2025

5. Available forms of attendance
Attendance in the classroom according to the weekly lesson schedule

6. Number of study hours (total) / Number of units (total)
2 hours of theory per week(30 hours totai) / 2 units

7. Name of the course supervisor and academic title
Dr. Mohammed Yasseen Taha / AssistantProfessor Email: mohammedtaha@uomosul.edu.iq

8. Scientific course objectives

Subject objectives	▪ Understand the general principles of traffic engineering and the characteristics of traffic engineering ▪ Identify the role of traffic engineering within transportation engineering in life ▪ Analyze and design data for traffic characteristics and find the LOS for freeways ▪ Analyze and design data for traffic characteristics and find the LOS for multi-lane highways ▪ Study and classify intersections of all types on the road network ▪ Analyze and evaluate the signalized intersections performance. ▪ Analyze and design of parking.

9. Teaching and learning strategies

The student acquires knowledge of the characteristics of traffic engineering and the ability to distinguish, define, analyze and address the most important engineering and mathematical problems and issues in the field of traffic engineering and for specific types of roads distributed on the urban and rural road network and the method of finding the necessary immediate and future solutions and developing the appropriate design and planning for each of them.

10. Course Structure

Week	Hours	Required learning outcomes		Learning method	Evaluation method
1	2	Learn about the methods of evaluating and analyzing the types of roads found in the urban and rural road network and how to find their capacity and level of service with the most important principles of design and future planning.	Introduction to Traffic Engineering	Students' attendance in the classroom and through the educational tools available inside the classroom, with some site visits.	According to the tasks assigned to the student, such as daily preparation, daily, oral, monthly and written exams, and reports.
2	2		Study the main characteristics in traffic engineering		
3	2		Definition and classification of freeways and identification of their parts		
4	2		Study the factors affecting freeway traffic		
5	2		Analysis of traffic characteristics in basic segment freeway		
6	2		Finding the level of service in basic segment freeway		
7	2		Design and planning of traffic in basic segment freeway		
8	2		Definition and classification of multi-lane roads and their sections		
9	2		Analysis of traffic characteristics in multi-lane highways		
10	2		Finding the level of service in multi-lane highways		
11	2		Design and planning of traffic in multi-lane highways		
12	2		Definition and classification of traffic intersections and their functions		
13	2		Study of methods of analyzing the signalized Intersections		
14	2		Design and timinig for the signalized intersections		
15	2		Study of parking, their types, design, importance and impact on traffic		

11. Course Evaluation and Grade Divisions

Daily attendance and preparation = 10 marks   Daily homework and exam = 10 marks
Reports = 5 marks   Monthly exams = 15 marks   Final exam = 60 marks

12. Learning and teaching references

Required textbooks (methodology if any)	Highway Capacity Manual 2010, 2016 (Fifth & Sixth editions)
Main References (Sources)	Nicholas J. Garber, and Lester A. Hoel," *Traffic and Highway Engineering*", Fourth Edition, Cengage Learning, Toronto, Canada, pp. 99-150, 2009.
Recommended supporting books and references (scientific journals, reports...)	Not specified only within the field of traffic engineering and according to the titles
Electronic references, Internet sites	Not specified only within the field of traffic engineering and according to the titles
Curriculum update rate or description	10 %

Name and signature of the course owner   Name and signature of the head of the department
   Dr. Mohammed Y. Taha

ا.د. ريسون عبد الهناء جحا عجن
رئيس قسم الهندسة المدنية

Course Description Form

1. Course Name: English language – Upper Intermediate

2. Course Code: CE406

3. Semester / Year: First / 2024 and   Second/2025

4. Description Preparation Date: **2024-2025**

5. Available Attendance Forms: In class

6. Number of Credit Hours (Total) / Number of Units (Total) 2/2

7. Course administrator's name (mention all, if more than one name)
Name: Muna Mubark Hano hanom2020@uomosul.edu.iq
Name: Eman Khalid Ibrahim emankhalid33@uomosul.edu.iq

8. Course Objectives	
Course Objectives	The aim of this course is to develop the academic skills, reading comprehension, writing proficiency, and study techniques of students. It provides comprehensive instruction and practice to enhance reading skills through exposure to authentic academic texts, focusing on comprehension, vocabulary acquisition, and critical analysis. It also guides students in various types of academic writing, emphasizing organization, clarity, and grammar usage. Additionally, it equips students with essential study skills, including paraphrasing, academic presentation, note-taking, time management, critical thinking, and research techniques.

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 such as academic presentation for a specific subject selected by students.

10. Course Structure

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

Attached			
Course Evaluation and Grade Breakdown:	**Formative assessment**	**Quizzes**	6
		Presentation	10
		Assignments	5
		Attendance and participation	4
	Summative assessment	**Midterm Exam**	15
		Final Exam	60
	Total assessment	100% (100 Marks)	

Learning and Teaching Resources:

https://www.wiley.com/en-us/network/publishing/research-publishing/writing-and-conducting-research/6-tips-for-giving-a-fabulous-academic-presentation

https://novoresume.com/career-blog/how-to-write-a-cv

Course Evaluation and Grade Breakdown:	Formative assessment	Quizzes	6
		Presentation	10
		Assignments	5
		Attendance and participation	4
	Summative assessment	Midterm Exam	15
		Final Exam	60
	Total assessment	100% (100 Marks)	

Learning and Teaching Resources:

https://www.wiley.com/en-us/network/publishing/research-publishing/writing-and-conducting-research/6-tips-for-giving-a-fabulous-academic-presentation

https://novoresume.com/career-blog/how-to-write-a-cv

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