

**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

2024

Introduction:

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

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

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

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

Concepts and terminology:

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

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

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

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

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

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

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

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

Academic Program Description Form

University Name: University of Anbar

Faculty/Institute: College of Engineering

Scientific Department: Civil department

Academic or Professional Program Name: Department of Civil Engineering

Final Certificate Name: Bachelor of Civil Engineering

Academic System: semester

Description Preparation Date: 13/9/2025

File Completion Date: 14/9/2025

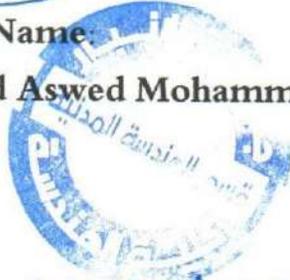
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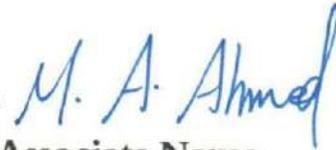
Head of Department Name:

Ass. Prof. Dr. Hameed Aswed Mohammed

Date: 14/9/2025



Signature:



Scientific Associate Name:

Prof. Dr. Mohammed Abed Ahmed

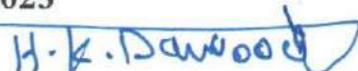
Date: 14/9/2025

The file is checked by: Ass. Prof. Aitham Kamil Dawood
Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 14/9/2025

Signature:



Approval of the Dean


14/9/2025

1. Program Vision

Excellence and pioneering in civil engineering sciences and their applications, alongside effective contributions to local and global community development, through the provision of innovative graduates capable of meeting modern engineering challenges.

2. Program Mission

Providing high-quality educational programs by integrating scientific and engineering principles to foster innovation and communication skills, delivering professional educational programs, and conducting applied research to contribute to sustainable solutions for civil engineering issues and challenges.

3. Program Objectives

- 1- Prepare innovative civil engineers in their workplace by adopting qualified learning and training courses.
- 2- Conducting novel scientific research, including postgraduate studies in civil engineering branches, to develop solutions for various engineering challenges that serve the community.
- 3- Prepare civil engineers who are dedicated to high ethical standards.
- 4- Develop the skills of the faculty to improve the quality of education and scientific research.
- 5- Providing engineering consultancy services and building strategic partnerships with industrial and research institutions to develop innovative engineering solutions to meet the needs of the local community and its service organizations.

4. Program Accreditation

N/A

5. Other external influences

N/A

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	English Language I	2		Basic
	Arabic language	2		Basic
	Human Rights	1		Basic
	Democracy	1		Basic
	English Language II	2		Basic
	English Language III	2		Basic
	English Language IV	2		Basic
	Management and Leadership skills	2		Basic
College Requirements	Calculus I	3		Basic
	Calculus II	3		Basic
	Physics	4		Basic
	Chemistry	4		Basic
	Fundamentals of Electrical Engineering	3		Basic
	Computer science	3		Basic
	Engineering Drawing	3		Basic

	Engineering Mechanics (Statics)	3		Basic
	Calculus III	3		Basic
	Calculus IV	3		Basic
	Engineering Statistics	3		Basic
	Engineering Numerical Methods	3		Basic
	Final Year Project I	3		Basic
	Final Year Project II	3		Basic
Department Requirements	Applied Physics	3		Basic
	Construction Materials	3		Basic
	Concrete Properties	4		Basic
	Building Contraction	3		Basic
	Engineering Geology	3		Basic
	Fluid Mechanics	3		Basic
	Dynamics	3		Basic
	Strength of Materials I	3		Basic
	Strength of Materials II	3		Basic
	Engineering Surveying I	3		Basic
	Engineering Surveying II	3		Basic
	Structure I	3		Basic
	Structure II	3		Basic
	Reinforced Concrete Design I	3		Basic
	Reinforced Concrete Design II	3		Basic
	Construction Management	3		Basic

	Engineering Economy	3		Basic
	Soil Mechanics I	3		Basic
	Soil Mechanics II	3		Basic
	Hydrology	3		Basic
	Traffic Engineering	3		Basic
	Hydraulic Structures	3		Basic
	Foundation Engineering I	3		Basic
	Highway Engineering	3		Optional
	Sanitary and Environmental Engineering	4		Optional
	Method of construction and Estimation	3		Basic
	Steel Structure	3		Basic
	Computer Application in civil Engineering (CE Elective I)	2		Optional
	CE Elective II	2		Optional
	CE Elective III	2		Basic
	CE Elective IV	2		Basic
Summer Training				
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours
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			theoretical	Tutorial	practical
First Year Semester I	CE1201	Calculus I	3	1	-
	CE1203	Physics	3	-	2
	CE1204	Chemistry	3	-	2
	CE1205	Fundamentals of Electrical Engineering	2	1	2
	CE1206	Computer Science	2	1	2
	CE1101	English Language I	2	-	-
	CE1103	Human Rights	1	-	-
Total Hours and Units			16	3	8
First Year Semester II	CE1202	Calculus II	3	1	-
	CE1301	Applied Physics	3	-	-
	CE 1208	Engineering Mechanics (Static)	3	1	-
	CE1302	Construction Materials	2	1	2
	CE 1207	Engineering Drawing	2	2	2
	CE1102	Arabic Language	2	-	-
	CE1104	Democracy	1	-	-
Total Hours and Units			17	4	4
Second Year Semester I	CE2201	Calculus III	3	1	-
	CE2308	Engineering Surveying I	2	1	2
	CE2306	Strength of Materials I	3	1	-
	CE2301	Concrete Properties	3	1	2
	CE2305	Dynamics	3	1	-
	CE2101	English Language II	2	-	-
Total Hours and Units			16	5	4
Second Year Semester II	CE2202	Calculus IV	3	1	-
	CE2309	Engineering Surveying II	2	1	2
	CE2307	Strength of Materials II	2	1	2
	CE2302	Building Construction	2	1	2
	CE2303	Engineering Geology	3	-	-
	CE2304	Fluid Mechanics	2	1	2
Total Hours and Units			14	5	8
Third Year Semester I	CE3301	Structure I	3	1	-
	CE3303	Reinforced concrete I	3	1	-
	CE3305	Construction Management	3	-	-
	CE3307	Soil Mechanics I	2	1	2
	CE3309	Hydrology	3	1	-
	CE3201	Engineering Statistics	3	-	-
	CE3101	English Language III	2	-	-
Total Hours and Units			19	4	2
Third Year Semester II	CE3302	Structure II	3	1	-
	CE3304	Reinforced concrete II	3	1	-
	CE3306	Engineering economy	3	-	-
	CE3308	Soil Mechanics II	2	1	2
	CE3202	Engineering Numerical methods	2	1	2
	CE3310	Traffic Engineering	3	1	-
Total Hours and Units			16	5	4
Fourth Year Semester I	CE4301	Hydraulic Structures	3	-	-
	CE 4302	Foundation Engineering I	3	1	-
	CE4303	Highway Engineering	2	2	2
	CE4307	Computer Applications in Civil Engineering (Course Elective I)	1	-	2
	CE 4310	Course Elective II	2	1	-
	CE4201	Final Year Project I	2	1	2
	CE4101	English Language IV	2	-	-

Total Hours and Units			15	5	6
Fourth Year Semester II	CE4304	Sanitary and Environmental Engineering	3	1	2
	CE4305	Methods of Construction and Estimation	3	1	-
	CE4306	Steel Structures	3	1	-
	CE4309	Course Elective III	2	2	-
	CE4317	Course Elective IV	2	2	-
	CE4202	Final Year Project II	2	1	2
	CE4102	Management and Leadership Skills	2	-	-
Total Hours and Units			17	8	4

8. Expected learning outcomes of the program

Knowledge

Learning Outcomes 1	<p>1- Full knowledge of the scientific aspects within the specialty.</p> <p>2- Complete preparation for conclusion, analysis and development.</p> <p>3- The correct preparation to confront problems and how to solve them.</p> <p>4- Raising the level of knowledge in order to develop the capabilities necessary to follow up on scientific innovations.</p>
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Skills

Learning Outcomes 2	Possibility of using programs and devices for engineering works.
Learning Outcomes 3	Optimal exploitation of the timing required to implement programs.

Ethics

Learning Outcomes 4	Maintaining the basic infrastructure for implementing scientific programs.
Learning Outcomes 5	Paying attention to everything possible through which the necessary qualifications for development are raised.

9. Teaching and Learning Strategies

- 1-Activities and exercises in the classroom.
- 2-Guiding students to some scientific sources that contain exercises and examples.

Teacher	Civil Engineering	Concrete Design and Technology/Building Materials			2	
Assistant teacher	Civil Engineering	Civil Engineering			2	
professor	Civil Engineering	Highway and Transportation			5	
Teacher	Civil Engineering	Highway and Transportation			3	
Teacher	Civil Engineering	Project Management			1	
Teacher	Civil Engineering	Geotechnique			2	
Teacher	Civil Engineering	Environment			1	
The total					38	

12. Professional Development

Mentoring new faculty members

- Providing Basic Information: A guide containing the policies and procedures of the institution and the department is provided.
- Orientation Sessions: Orientation sessions are held to introduce the culture of the institution and the department.
- Personal Guidance: A mentor is assigned to each new member to help them adapt to the new environment.
- Practical Training: Training programmes are offered to develop the essential skills needed for the job.
- Monitoring and Evaluation: New members are monitored and their progress is evaluated, with continuous support provided as needed.

Professional development of faculty members

1. Providing laboratory equipment to develop engineering ideas.

2. Providing specialized scientific resources.
3. Providing specialized software and personal computers.
4. Conducting workshops and scientific seminars to develop new teaching staff.

13. Acceptance Criterion

- Students are accepted based on their grades in the sixth preparatory grade.
- The criteria for distributing students in the department are either according to the student's preference or according to the grade they obtained in the sixth preparatory grade.
- The top student's channel for technical institutes and vocational education.
- The department's admission plan according to the capacity.

14. The most important sources of information about the program

- Textbooks.
- Supplementary academic resources available in the college library and reputable websites.
- Lectures, whether in print or electronic format, prepared by the course instructor.
- Videos related to the subject, specified by the course instructor.

15. Program Development Plan

- **Assessing the Current Situation:**
 - **Collecting Data:** Gather feedback from students, faculty members, and any previous evaluations of the programme.
 - **Performance Analysis:** Identify the strengths and weaknesses of the current programme.
- **Setting Objectives:**
 - **Educational Goals:** Identify areas for programme improvement (such as increasing success rates, enhancing students' understanding of the material, and boosting engagement).
 - **Professional Goals:** Determine the skills and knowledge that students need to acquire.
- **Reviewing Content:**
 - **Updating Study Materials:** Ensure that books, websites, and other resources are up-to-date and relevant.

- **Diversifying Resources:** Add new resources if necessary to cover topics more comprehensively.
- **Designing Educational Experiences:**
 - **Curriculum Development:** Prepare a detailed plan for each study unit, including educational goals, content, activities, and assessments.
 - **Enriching the Learning Experience:** Incorporate interactive activities such as discussions, group work, and practical projects.
- **Training Teachers:**
 - **Offering Workshops:** Organise training sessions for faculty members on modern teaching methods and the use of technology.
 - **Encouraging Collaboration:** Establish working groups to share experiences and best practices.
- **Educational Technology:**
 - **Using E-learning Platforms:** Integrate e-learning platforms to facilitate access to content and provide an interactive learning environment.
 - **Employing Technological Tools:** Use technological tools to enhance learning, such as educational videos, simulations, and online quizzes.
- **Continuous Evaluation and Improvement:**
 - **Regular Evaluation:** Assess the effectiveness of changes periodically through student surveys and evaluation results.
 - **Continuous Improvement:** Continue to adjust and enhance the programme based on feedback and evaluations.
- **Engaging Students:**
 - **Activating Student Participation:** Involve students in the programme development process by collecting their feedback and suggestions.
 - **Encouraging Flipped Classrooms:** Have students review content at home and discuss and apply it in class.
- **Planning a Timeline:**
 - **Clear Schedule:** Establish a timeline for each step of the development process and ensure everyone adheres to the deadlines.

Program Skills Outline

				Required program Learning outcomes												
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics				
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	
First Year	CE1201	Calculus I	Basic	*					*					*		
	CE1203	Physics	Basic	*				*						*		
	CE1204	Chemistry	Basic		*				*				*			
	CE1205	Fundamentals of Electrical Engineering	Basic		*				*				*			
	CE1206	Computer Science	Basic	*					*				*			
	CE1101	English Language I	Basic		*				*				*			
	CE1103	Human Rights	Basic		*				*				*			
	CE1202	Calculus II	Basic		*				*				*			
	CE1301	Applied Physics	Basic		*			*					*			
	CE 1208	Engineering Mechanics (Static)	Basic		*			*					*			

	CE1302	Construction Materials	Basic	*				*				*		
	CE 1207	Engineering Drawing	Basic	*			*					*		
	CE1102	Arabic Language	Basic		*			*			*			
	CE1104	Democracy	Basic		*			*			*			
Second Year	CE2201	Calculus III	Basic	*				*			*			
	CE2308	Engineering Surveying I	Basic		*			*			*			
	CE2306	Strength of Materials I	Basic		*			*			*			
	CE2301	Concrete Properties	Basic		*			*			*			
	CE2305	Dynamics	Basic		*		*				*			
	CE2101	English Language II	Basic		*		*				*			
	CE2202	Calculus IV	Basic	*				*				*		
	CE2309	Engineering Surveying II	Basic	*			*					*		
	CE2307	Strength of Materials II	Basic		*			*			*			

	CE2302	Building Construction	Basic	*				*				*		
	CE2303	Engineering Geology	Basic	*			*					*		
	CE2304	Fluid Mechanics	Basic		*			*			*			
Third Year	CE3301	Structure I	Basic		*			*			*			
	CE3303	Reinforced concrete I	Basic	*				*			*			
	CE3305	Construction Management	Basic		*			*			*			
	CE3307	Soil Mechanics I	Basic		*			*			*			
	CE3309	Hydrology	Basic		*			*			*			
	CE3201	Engineering Statistics	Basic		*		*				*			
	CE3101	English Language III	Basic		*		*				*			
	CE3302	Structure II	Basic	*				*				*		
	CE3304	Reinforced concrete II	Basic	*			*					*		
	CE3306	Engineering economy	Basic		*			*			*			

	CE3308	Soil Mechanics II	Basic	*				*				*		
	CE3202	Engineering Numerical methods	Basic	*			*					*		
	CE3310	Traffic Engineering	Basic		*			*			*			
Fourth Year	CE4301	Hydraulic Structures	Basic		*			*			*			
	CE 4302	Foundation Engineering I	Basic	*				*			*			
	CE4303	Highway Engineering	Optional		*			*			*			
	CE4307	Computer Applications in Civil Engineering (Course Elective I)	Optional		*			*			*			
	CE 4310	Course Elective II	Optional		*			*			*			
	CE4201	Final Year Project I	Basic		*		*				*			
	CE4304	English Language IV	Basic		*		*				*			
	CE4305	Sanitary and Environmental Engineering	Optional	*				*				*		

	CE4306	Methods of Construction and Estimation	Basic	*					*				*		
	CE4309	Steel Structures	Basic	*			*						*		
	CE4317	Course Elective III	Basic		*			*			*				
	CE4202	Course Elective IV	Basic		*			*			*				
	CE4102	Final Year Project II	Basic	*				*			*				
	CE4304	Management and Leadership Skills	Basic		*			*			*				

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

Course Description Form

1. Course Name:	
Arabic Language	
2. Course Code:	
UOA001	
3. Semester / Year:	
First semester	
4. Description Preparation Date:	
5/1/2025	
5. Available Attendance Forms:	
My presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Hours: 20 hours, units: 10	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Ahmed Ghafil Jasim	
Email: ahmed.ghafel@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> • Teaching students writing skills at the level of spelling, grammar, and morphology. • As well as teaching students how to analyze a literary text by referring to important literary texts.
9. Teaching and Learning Strategies	
Strategy	<ol style="list-style-type: none"> 1- Using modern means to present the scientific and theoretical aspect, such as data display devices, to attract attention and attract students so that the idea reaches the student better. 2- Assigning students to extracurricular tasks that require them to practice skills and self-explanations in experimental ways. 3- Interrogating students through discussion circles by asking intellectual questions such as: (how, why, when, where, which) for specific topics. 4- Using the method of brainstorming and mental feeding with the aim of activating the accumulated experiences of students by linking what was taken from the academic subjects in the pre-university stages and linking them to the new subjects. 5- Providing students with practical skills by linking their studies to practical reality.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	1	The hamza at the beginning of speech punctuation marks	Lectures	Written exam, assignments, and homework
second	2	1	Number and number rules Ruling on distinguishing numbers	Lectures	Written exam, assignments, and homework
Third	2	1	Counterpoint and counterpoint	Lectures	Written exam, assignments, and homework
fourth	2	1	Alliteration and puns	Lectures	Written exam, assignments, and homework
Fifth	2	1	The problem, the truth, and the metaphor	Lectures	Written exam, assignments, and homework
Sixth	2	1	The Arabic dictionary literature	Lectures	Written exam, assignments, and homework
seventh	2	1	Literary genres	Lectures	Written exam, assignments, and homework
eighth	2	1	Abo Altaieb Almotanabi	Lectures	Written exam, assignments, and homework

Ninth	2	1	Ka'b bin Zuhair	Lectures	Written exam, assignments, and homework
Tenth	2	1	Abu Baqa Al-Randi And Hassan bin Thabit	Lectures	Written exam, assignments, 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

Written exams: 30

Reports: 5

Homework: 10

Cobs: 5

Final exam: 50

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Arabic language book for non-specialists written by Dr. Rashid Al-Obaidi and others
Main references (sources)	Al-Nahw Al-Wafi by Abbas Hassan
Recommended books and references (scientific journals, reports...)	The book of clear dictations written by Ali Al-Jarim and Ahmed Amin
Electronic References, Websites	

Course Description Form

1. Course Name:	
Calculus 1	
2. Course Code:	
ENG003	
3. Semester / Year:	
1 st Semester 2024/2025	
4. Description Preparation Date:	
22 October 2024	
5. Available Attendance Forms:	
In Class	
6. Number of Credit Hours (Total) / Number of Units (Total)	
6 Credit Hours / 60 Hours (lectures) / 6 ECTS	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst. Prof. Dr. Ahmed Tareq Noaman Email: ahmed.noaman@uoanbar.edu.iq Name: Dr. Atheer Faisal Al-Anbaki Email: atheer.alanbaki@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	<ol style="list-style-type: none"> 1. To develop mathematical skill so that students are able to sketch the graph of various functions and evaluate Limits by using different techniques including L'Hopital's rule 2. Apply mathematical methods and principals in solving various derivative problems from Engineering fields, involving applications of derivatives. 3. Demonstrate algebraic facility with algebraic topics including linear, quadratic, exponential, logarithmic, and trigonometric functions, 4. Compute derivative and anti-derivative of algebraic, trigonometric, inverse trigonometric, exponential, logarithmic, and apply them to solve problems in a wide range of engineering applications.
9. Teaching and Learning Strategies	
Strategy	Lectures
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	1	Functions	Lectures	Quizzes Homework
2	4	1	Functions	Lectures	Quizzes Homework
3	4	1	Limits	Lectures	Quizzes Homework
4	4	2	Differentiation rules	Lectures	Quizzes Homework
5	4	2	The Chain Rule, Implicit Differentiation	Lectures	Quizzes Homework
6	4	2	Applications of Differentiation	Lectures	Quizzes Homework
7	4	3	Exponential and logarithmic functions.	Lectures	Quizzes Homework
8	4	3	Trigonometric functions and their derivatives	Lectures	Quizzes Homework
9	4	3	Hyperbolic functions and their derivatives	Lectures	Quizzes Homework
10	4	2, 3	Advanced Applications of differentiation	Lectures	Quizzes Homework
11	4	2, 3	Advanced Applications of differentiation	Lectures	Quizzes Homework
12	4	4	Derivative and anti-derivative functions	Lectures	Quizzes Homework
13	4	4	Derivative and anti-derivative functions	Lectures	Quizzes Homework
14	4	4	Derivative and anti-derivative functions	Lectures	Quizzes Homework
15	4	1, 2, 3, 4	Review	Lectures	-

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Quizzes	At the end of each major topic	25%
Homework	Along the semester	10
Mid semester exam	According to department schedule	10%
Report	During the semester	5%
Final Exam	Week-16	50%
Total		100%

11. Learning and Teaching Resources

Required textbooks (curriculum books, if any)	Calculus, Early Transcendental by James Stewart, 9th Edition, 2020, Cengage Learning.
Main references (sources)	Lecture notes
Recommended books and	

references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:					
Computer science 1					
2. Course Code:					
UOA007					
3. Semester / Year:					
First					
4. Description Preparation Date:					
13 th Jan 2025					
5. Available Attendance Forms:					
Full time, In person					
6. Number of Credit Hours (Total) / Number of Units (Total)					
45 hours					
7. Course administrator's name (mention all, if more than one name)					
Name: Ahmed Hilal Farhan (Asst. Prof., PhD) Email: ahmed.farhan_ce@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives					
Introducing students to the computer components, operating system, mastering Windows operating system, computer risks and safety. In addition, students will be intruded during this course to Microsoft Word and PowerPoint which is useful during study and after graduation.					
9. Teaching and Learning Strategies					
Strategy		<ol style="list-style-type: none"> 1. Giving lectures about different topics and encouraging students to participate through discussion. 2. Conducting Examines and quizzes to evaluate students' understanding. 3. Help students to use computer lab to practice what was learn. 			
10. Course Structure					
Week	Ho urs	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3		General induction about computer and different computer generations	Lectures lab	NA
Week 2	3		internal and external components of computers	Lectures lab	Exams
Week 3	3		Operating systems and different commands	Lectures lab	Exams Lab

Week 4	3		Operating systems and different commands	Lectures lab	Exams Lab
Week 5	3		Computer safety and possible risks	Lectures lab	Exams Lab
Week 6	3		Progress Exam 1		
Week 7	3		Learning different commands for typing, editing Word files through Tabs and menus	Lectures lab	Exams Lab
Week 8	3		Learning different commands for typing, editing Word files through Tabs and menus	Lectures lab	Exams Lab
Week 9	3		Learning different commands for editing Word files through Tabs and menus	Lectures lab	Exams Lab
Week 10	3		Learning different commands for inserting objects , shapes and clip art through Tabs and menus	Lectures lab	Exams Lab
Week 11	3		Learning different commands for inserting tables and controlling their properties in Word files through Tabs and menus	Lectures lab	Exams Lab
Week 12	3		Progress Exam 2		
Week 13	3		Sharing files, editing and inserting pictures	Lectures lab	Exams Lab
Week 14	3		Constructing PowerPoint presentation	Lectures lab	Exams Lab
Week 15	3		Constructing PowerPoint presentation	Lectures lab	Exams lab

11.Course Evaluation

- Quizzes 25%
- Mid-term exam 15%
- Lab 10%
- Final Exam 50%.

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)

اساسيات الحاسوب وتطبيقاته المكتبية, الجزء الاول والثاني
تأليف أ.م.د. زياد محمد عبود وآخرون , 2015.

Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name: General Chemistry					
2. Course Code: ENG 002					
3. Semester / Year: 1st semester/ 2024-2025					
4. Description Preparation Date: 10-Nov-2024					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total) 3 Cr.Hrs / 45Hrs (lec.) + 30Hrs (Lab)					
7. Course administrator's name (mention all, if more than one name) Name: Dr. Abbas Hasan Faris Email: abbashasan@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives		<ol style="list-style-type: none"> 1. Scientific reasoning and quantitative analysis. Our majors will be able to apply chemical concepts to solve qualitative and quantitative problems. 2. Laboratory practice and safety. To learn the ways in which new scientific knowledge is created, our majors will experience how chemists interpret chemical and physical phenomena through experimental investigation. They will develop and apply the appropriate lab skills and instrumentation to solve chemical problems 			
9. Teaching and Learning Strategies					
Strategy		Lectures Lab.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	1	MEASUREMENTS IN CHEMISTRY	Lectures, Lab.	Written Exams Quizzes Homework assignments
2	3	1	Problem Solving in Chemistry Dimensional Analysis	Lectures, Lab.	Written Exams Quizzes Homework assignments

3	3	1	Atoms, Molecules and Ions	Lectures, Lab.	Written Exams Quizzes Homework assignments
4	3	1	Mass Relationships in Chemical Reactions	Lectures, Lab.	Written Exams Quizzes Homework assignments
5	3	1	Reactions in Aqueous Solution	Lectures, Lab.	Written Exams Quizzes Homework assignments
6	3	2	Gases	Lectures, Lab.	Written Exams Quizzes Homework assignments
7	3	2	Thermochemistry	Lectures, Lab.	Written Exams Quizzes Homework assignments
8	3	2	Quantum Theory and the Electronic Structure of Atoms	Lectures, Lab.	Written Exams Quizzes Homework assignments
9	3	3	Chemical Bonding	Lectures, Lab.	Written Exams Quizzes Homework assignments
10	3	3	Electrochemistry	Lectures, Lab.	Written Exams Quizzes Homework assignments
11	3	3	Volumetric Methods of Analysis	Lectures, Lab.	Written Exams Quizzes Homework assignments
12	3	3	Titration Based on Acid-Base Reactions	Lectures, Lab.	Written Exams Quizzes Homework assignments
13	3	3	Titration Based on Precipitation Reactions	Lectures, Lab.	Written Exams Quizzes Homework assignments
14	3	3	Titration Based on Complexation Reactions	Lectures, Lab.	Written Exams Quizzes Homework assignments
15	3	4	Titration Based on Redox reactions	Lectures, Lab.	Written Exams Quizzes Homework assignments

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include, Homeworks, Quizzes	At the end of each major topic	15%
Mid semester exam or Progress Exams	According to department schedule	25%
Lab reports	Report per each experiment	10%
Final Exam	Week-16	50%
Total		100%

11. Learning and Teaching Resources

Required textbooks (curriculum books, if any)	Introductory Chemistry Essentials, Nivaldo J. Tro
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Chemistry. Steven S. Zumdahl, Susan A. Zumdahl, Donald J. DeCoste
Electronic References, Websites	

Course Description Form

1. Course Name:					
Building Material					
2. Course Code:					
CIV001					
3. Semester / Year:					
1 st semester/ 2024-2025					
4. Description Preparation Date:					
2024/11/10					
5. Available Attendance Forms:					
In class - In laboratory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
7 Cr.Hrs / 30Hrs (lec.)+ 15Hrs(Tutorial) + 30Hrs (Lab)					
7. Course administrator's name (mention all, if more than one name)					
Name:1- Asst. Prof. Mohammad H. Mohana 2- Dr.Salam Rafea Armoosh Email: mhm1961mhm@uoanbar.edu.iq Email salam.armoosh@uoanbar.edu.iq .iq 3- Omar Zuhair Amer Email omer.zuair@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives		understand compositions, engineering behaviors, and design methods of various civil engineering materials, including steel; Wood, soil, aggregate, Portland cement concrete, and asphalt cement concrete...			
9. Teaching and Learning Strategies					
Strategy		Lectures - Tutorial - Lab.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	1	Introduction and Engineering materials	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignments
2	5	1	Introduction Engineering materials	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignments
3	5	3	Brick, Production bricks, Testing of br Specification of bricks	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignments
4	5	3	Brick, Production bricks, Testing of br Specification of bricks	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignments
5	5	3	Binding materi Gypsum, Lime	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignments

6	5	3	Cement, Production cement, Types of cement, Testing of cement,	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignments
7	5	3	Cement, Production cement, Types of cement, Testing of cement,	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignments
8	5	2	Insulating material,	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignments
9	5	2	Insulating material	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignments
10	5	3	Tiles	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignments
11	5	3	Metals (steel)	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignments
12	5	3	Building stone,	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignments
13	5	3	Concrete block	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignments
14	5	3	Water , New build materials	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignments
15	5	3	Water , New build materials	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignments

11. Course Evaluation

Assessment Tool(s)	Date	Weight (%)
Semester activities. These include quizzes, homework, and classroom interactions	Week 1 to week-15	15%
Two progress exams	Week-4 and week-11	25%
Lab work (reports and Field Work)	Week 1 to week-15	10%
Final Exam	Week-15	50%
Total		100%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Building Materials by Asst. P. Mohammad H. Mohana
Main references (sources)	Kenneth N. Deruche ¹ , George P Krofiatis, and Samer Ezeldin, Materials for Civil and High Engineers, Prentice Hall, 4 th ed.. 1988
Recommended books and references (scientific journals, reports...)	Laboratory Manual, Compiled by Instructor

Electronic References, Websites	---

Course Description Form

1. Course Name:	
Human Rights & Democracy	
2. Course Code:	
UOA005	
3. Semester / Year:	
First semester	
4. Description Preparation Date:	
2025/1/12	
5. Available Attendance Forms:	
My presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Hours: 10 hours, units: 10	
7. Course administrator's name (mention all, if more than one name)	
Name: M. Omar Abdel Moneim Khalil	
Email: omar.khalil@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	Introducing human rights, the most important basic rights, and introducing the concept of democracy and public freedoms.
9. Teaching and Learning Strategies	
Strategy	<p>1- Using modern means to present the scientific and theoretical aspect, such as data display devices, to attract attention and attract students so that the idea reaches the student better.</p> <p>2- Assigning students to extracurricular tasks that require them to practice skills and self-explanations in experimental ways.</p> <p>3- Interrogating students through discussion circles by asking intellectual questions such as: (how, why, when, where, which) for specific topics.</p> <p>4- Using the method of brainstorming and mental feeding with the aim of activating the accumulated experiences of students by linking what was taken from the academic subjects in the pre-university stages and linking them to the new subjects.</p> <p>5- Providing students with practical skills by linking their studies to practical reality.</p>

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	1	The first section: definition, characteristics and types of human rights and the most important basic rights	Lectures	Written exam, assignments, and homework
second	2	1	Historical development of human rights	Lectures	Written exam, assignments, and homework
Third	2	1	Human rights in Islam, the right to life, the human right to equality, the human right to choose his faith, the right to education	Lectures	Written exam, assignments, and homework
fourth	2	1	The right to property, the right to work, the inviolability of housing, the right to opinion, and the right to movement	Lectures	Written exam, assignments, and homework
Fifth	2	1	Parental rights, women's rights, children's rights, neighbors' rights, asylum rights, minorities' rights, human rights in European history	Lectures	Written exam, assignments, and homework
Sixth	2	1	Human rights in the modern era, international human rights conventions	Lectures	Written exam, assignments, and homework

seventh	2	1	Lectures on public freedoms, the concept of public freedoms, their definition and types, rights and freedoms in Islam	Lectures	Written exam, assignments, and homework
eighth	2	1	Types of public freedoms: freedom of security and feeling of reassurance, freedom of coming and going (movement), freedom of inviolability of home and private life, freedom of confidentiality of personal correspondence, freedom of physical integrity.	Lectures	Written exam, assignments, and homework
Ninth	2	1	Intellectual and cultural freedoms, the future of public freedoms	Lectures	Written exam, assignments, and homework
Tenth	2	1	The concept of democracy, the introduction to it and its types, characteristics of the democratic system, basic components of democracy, pillars of democracy, types of democracy.	Lectures	Written exam, assignments, 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)	Lectures on public freedoms, human rights guarantees before international courts, Dr. Ibrahim Mahmoud Al-Labidi, Dar Al-Kutub Al-Qanuni, Egypt, pp. 38-42
Main references (sources)	Lectures on public freedoms, human rights guarantees before international courts, Dr. Ibrahim Mahmoud Al-Labidi, Dar Al-Kutub Al-Qanuni, Egypt, pp. 38-42
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Physics	
2. Course Code:	
ENG001	
3. Semester / Year:	
First Semester/2024-2025	
4. Description Preparation Date:	
10/11/2024	
5. Available Attendance Forms:	
Classroom	
6. Number of Credit Hours (Total) / Number of Units (Total):	
75 hours/5	
7. Course administrator's name (mention all, if more than one name)	
Name: Jalil Eyada Kwad Email: j.j.kwad@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	<ol style="list-style-type: none"> 1. Introduce to the students, the concepts, principles, methods and major findings of classical Physics. 2. Perform basic analyses to study Newtonian mechanics, and motion diagrams , with topics include: Physics and measurement. 3. Familiarize the student with understanding Vectors, kinematics and dynamics of motion and work and energy
9. Teaching and Learning Strategies	
Strategy	<p>Learning Strategies:</p> <ol style="list-style-type: none"> 1. Active Learning: Students are encouraged to participate in class discussions, problem-solving sessions, and laboratory experiments actively engage with the subject matter. 2. Concept Mapping: Students create visual diagrams that connect key concepts and ideas to help them understand the relationships between different topics. 3. Problem-Based Learning: Students work on real-world problems that require them to apply physics concepts and principles to find solutions. 4. Collaborative Learning: Students work in groups to solve problems, share ideas, and learn from each other. 5. Inquiry-Based Learning: Students ask questions, investigate phenomena, and draw conclusions based on their own observations and data. <p>Teaching Strategies:</p>

1. Lecture: The teacher presents information through lecture demonstrations, or multimedia presentations.
2. Socratic Method: The teacher asks questions to guide students towards discovering the answers themselves.
3. Flipped Classroom: Students watch videos or read materials before class so that they can use class time for discussions and problem-solving activities.
4. Peer Instruction: The teacher poses a question or problem and students discuss it with their peers before coming up with a solution together.
5. Project-Based Learning: Students work on long-term projects that require them to apply physics concepts and skills to real-world problems. Overall, effective learning and teaching strategies in physics involve active engagement with the subject matter through hands-on activities, collaboration with peers, critical thinking skills development, and application of knowledge to real-world situations

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
one	5	1	Physics and Measurement	1,2,3,4,5	H, Q,E
two	5	1	Dimensional Analysis	1,2,3,4,5	H, Q,E
Three	5	2	Motion in One Dimension	1,2,3,4,5	H, Q,E
Four	5	2	Position, Velocity Speed and Acceleration	1,2,3,4,5	H, Q,E
Five	5	3	One-Dimensional Motion with Constant Acceleration	1,2,3,4,5	H, Q,E
Six	5	3	Vectors	1,2,3,4,5	H, Q,E
Seven	5	3	Component of Vectors and Unit Vectors	1,2,3,4,5	H, Q,E
Eight	5	4	The Position, Velocity and Acceleration Vector	1,2,3,4,5	E
Nine	5	4	Relative Velocity and Relative Acceleration	1,2,3,4,5	H, Q,E
Ten	5	5	The Laws of Motion	1,2,3,4,5	H, Q,E
Eleven	5	5	Circular Motion and Other Applications of Newton's Law	1,2,3,4,5	H, Q,E
Twelve	5	5	Temperature	1,2,3,4,5	H, Q,E
Thirteen	5	5	Energy and Energy Transfer	1,2,3,4,5	H, Q,E
Fourteen	5	5	Work Done by Constant Force	1,2,3,4,5	H, Q,E
Fifteen	5	5	The Scalar Product of Two Vectors	1,2,3,4,5	H, Q,E

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

	Time/Number	Weight (Marks)
Quizzes	5	25%(25)
Assignments H.W	2	5% (5)
Activities	1	4%(4)
Projects / Lab.	1	6% (6)
Report		
Midterm Exam	10 hr	10% (10)
Final Exam	3hr	50% (50)
		100% (100 Marks)

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	•
Main references (sources)	R.D. Knight, Physics for Scientists and Engineers, 2nd ed., Pearson, 2008
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	https://www.uoanbar.edu.iq/Bank-Section.php

Course Description Form

1. Course Name: Construction management					
2. Course Code: CIV013					
3. Semester / Year: 1 st semester/ 2024-2025					
4. Description Preparation Date: 20-10-2024					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total)					
Cr.Hrs / 45Hrs (lec.)+ 15Hrs(Tutorial)					
7. Course administrator's name (mention all, if more than one name)					
Name: Saadi Shartooch Sharqi					
Email: eng.saadish@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives			<ol style="list-style-type: none"> 1. Perform in the construction industry. 2. To study project planning & scheduling 3. Allocate the resources in project and control 4. Learn project deliveries and the types of contract 		
9. Teaching and Learning Strategies					
Strategy		Lectures Tutorial.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	1	Introduction to management	Lectures, Tutorial,	Written Exams Quizzes Homework assignments,
2	3	1	Project management techniques	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
3	3	1	Engineering Management	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
4	3	1	Construction Project Management	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
5	3	1	Control system in construction project	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
6	3	2	Programming construction projects ((project scheduling))	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
7	3	2	Method Of Planning/ Bar Chart Method	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
8	3	2	Net Work Analysis Method/ Activity On Arrow (A.O.A)	Lectures, Tutorial	Written Exams Quizzes Homework assignments,

9	3	3	Net Work Analysis Method/ Activity On Nods (A.O.N)	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
10	3	3	Program Evolution Review Techniques Method	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
11	3	3	Line Of Balance Method	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
12	3	3	Time Grade Method	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
13	3	3	Crash Program	Lectures, Tutorial,	Written Exams Quizzes Homework assignments,
14	3	3	Flow cash	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
15	3	4	Project report	Report, Tutorial	Write a report, discuss

11.Course Evaluation

Written exams 30%
Homework 5%
Quizzes 5%
Final exam 60%

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	<ul style="list-style-type: none"> Engineering Economy – R. Panneerselvam
Main references (sources)	
Recommended books and references (scientific journals, reports...)	<ul style="list-style-type: none"> principles of construction management – Roy Pilcher.
Electronic References, Websites	https://www.uoanbar.edu.iq/staff-page.php?ID=727

Course Description Form

1. Course Name: – Engineering statistics					
Course Code: CE2210					
2. Semester / Year: 1st semester / 2024-2025					
3. Description Preparation Date: 13-jan-2025					
4. Available Attendance Forms: In class					
5. Number of Credit Hours (Total) / Number of Units (Total)					
3 Cr.Hrs / 30Hrs (lec.)+ 15Hrs(Tutorial)					
6. Course administrator's name (mention all, if more than one name)					
Name: Ass.st Prof. Dr. Yousif A. Mansoor Email: yousif.mansoor@uoanbar.edu.iq					
7. Course Objectives					
Course Objectives			<ol style="list-style-type: none"> 1. understand the origin, formation, parameters and basic fundamental of statistics 2. understand skills of reading data 3. understand the effective of different analysis methods in data 4. understand the principles of modeling 5. how to evaluate the model 		
8. Teaching and Learning Strategies					
Strategy		Lectures			
9. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	2	<i>Introduction</i>	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
2	3	5	<i>, Data Summary and Presentation</i>	Lectures, Tutorial,	Written Exams Quizzes Homework assignment

3	2	4	Tendency measurement .	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
4	3	1	Application of tendency measurement	Lectures, Tutorial.	Written Exams Quizzes Homework assignment
5	3	1	Probability: Addition rule, conditional probability, multiplication rule and Bayes Theorem	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
6	3	2	Discrete random variables. Probability mass function. Mean and variance of discrete random variables	Lectures, Tutorial,.	Written Exams Quizzes Homework assignment
7	3	2	Probability Distribution functions: Uniform, Binomial, Geometric and Negative Binomial, Hyper-geometric and Poisson Distribution.	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
8	3	2	Mid-term Exam	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
9	3	3	Normal Distribution. Approximation to Binomial and Poisson Distribution. Exponential distribution. Other continuous distributions.	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
10	3	3	Joint probability function. Multiple discrete and continuous random variables	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
11	3	2	Parameter estimation. Properties of estimators. Method of Moments	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
12	3	3	Correlation	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
13	3	3	Interval estimation. Inference on the mean of a population: variance known or unknown. Inference on the variance of normal population	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
14	3	3	Hypothesis testing about the mean and Proportion: Small and Large Sample	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
15	3	4	Hypothesis testing: Two Populations	Lectures, Tutorial,.	Written Exams Quizzes Homework assignment

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include, Homeworks, Quizzes reports	At the end of each major topic	15%
Mid semester exam or Progress Exams	According to department schedule	25%
Final Exam	Week-16	40%
Total		100%

10. Learning and Teaching Resources

Required textbooks (curriculum books, if any)	
Main references (sources)	<ol style="list-style-type: none"> 1. William Mendenhall and Terry Sincich, <i>Statistics for Engineering and the Sciences</i>, Prentice Hall, 2. . <i>Elementary Statistics: A Step by Step Approach</i>, by Allan G. Bluman, 6th edition
Recommended books and references (scientific journals, reports...)	<ol style="list-style-type: none"> 1. <i>Probability, Statistics, and Decision for Civil Engineering</i>, by Jack R. Benjamin and C. Allin Cornell
Electronic References, Websites	

Course Description Form

1. Course Name: English Language-3					
2. Course Code: CIV014					
3. Semester / Year: 1st semester/ 2024-2025					
4. Description Preparation Date: 13-January-2024					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total)					
3 Cr.Hrs / 60Hrs (lec.)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Sadoon Mushrif Abdallah					
Email: sadoon.m.abdullah@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives		<ol style="list-style-type: none"> 1. To enable the students to achieve academic oral and written communication to the standard required at university level. 2. The course integrates all the language skills with emphasis on writing, and it stimulates students' imagination, and promotes personal expression. 3. Students, in this course, are trained to apply critical thinking skills to a wide range of challenging subjects from diverse scientific topics. 4. Course activities include writing various types of academic essays, acquiring advanced academic vocabulary, and getting involved in group discussions and debates. 5. In addition, the course also includes other skills to consolidate the main skills, such as further readings in civil engineering. 			
9. Teaching and Learning Strategies					
Strategy		Lectures Activities and homework Tests/Quizzes			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	1	enses, Questions forms, Vocabulary Writing	Lectures, Tutorial	Written Exams Quizzes

					Homework assignments
2	2	1	Present simple, present continuous	Lectures, Tutorial	Written Exams Quizzes Homework assignments
3	2	1	Past simple, past continuous	Lectures, Tutorial	Written Exams Quizzes Homework assignments
4	2	1	Count and noncount nouns	Lectures, Tutorial	Written Exams Quizzes Homework assignments
5	2	1	Verb patterns	Lectures, Tutorial	Written Exams Quizzes Homework assignments
6	2	2	Comparative and superlatives	Lectures, Tutorial	Written Exams Quizzes Homework assignments
7	2	2	Present perfect	Lectures, Tutorial	Written Exams Quizzes Homework assignments
8	2	2	Active and passive	Lectures, Tutorial	Written Exams Quizzes Homework assignments
9	2	3	Conditional verbs	Lectures, Tutorial	Written Exams Quizzes Homework assignments
10	2	3	prepositions	Lectures, Tutorial	Written Exams Quizzes Homework assignments
11	2	3	punctuation marks	Lectures, Tutorial	Written Exams Quizzes Homework assignments
12	2	3	Modal verbs	Lectures, Tutorial	Written Exams Quizzes Homework assignments
13	2	3	Auxiliary verbs	Lectures, Tutorial	Written Exams Quizzes Homework assignments
14	2	3	Reading skills	Lectures, Tutorial	Written Exams Quizzes Homework assignments
15	2	4	Listening skills	Lectures, Tutorial	Written Exams Quizzes Homework assignments

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include, Homeworks, Quizzes	At the end of each major topic	10%
Mid semester exams or Progress Exams	According to department schedule	30%
Final Exam	Week-16	60%

Total		100%
11.Learning and Teaching Resources		
Required textbooks (curriculum books, if any)	<ol style="list-style-type: none"> 1. John & Liz Soars, "New Headway Plus- Beginner Student's Book", 10th ed 2014 2. John & Liz Soars, "New Headway Plus- Pre-Intermediate Workbook with Key". 	
Main references (sources)		
Recommended books and references (scientific journals, reports...)	<ol style="list-style-type: none"> 1. John & Liz Soars "New Headway – English Course", OXFORD University Press, United Kingdom, 2000. 	
Electronic References, Websites		

Course Description Form

1. Course Name:					
Hydrology					
2. Course Code:					
CIV 015					
3. Semester / Year:					
1 st 2024-2025					
4. Description Preparation Date:					
01/10/2024					
5. Available Attendance Forms:					
In class attendance					
6. Number of Credit Hours (Total) / Number of Units (Total)					
4 hours/week. 60 hours					
7. Course administrator's name (mention all, if more than one name)					
Name: Ahmed Rahomi Rajab Email: ahmed.rahomi2@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives	<p>By the end of successful completion of this course, the student will be able to:</p> <ul style="list-style-type: none"> • Recognize hydrologic cycle, precipitation, streamflow measurements, return periods, aquifer and groundwater, design floods, and their relationships to engineering designs. • Understand the basics of statistical theories, the history of normal distribution, and their applications in frequency analysis for hydraulic designs. • learn the water infiltration and evaporation theory and their effects on estimating available water and flood analysis. • understand theories of unit hydrograph and applications on flood forecasts including peak discharge and time of peak occurrence. • learn theories of flood routing including reservoir and channel routing in flood forecasting 				
9. Teaching and Learning Strategies					
Strategy	<p>The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.</p>				
10. Course Structure					
Week	Hours	Required	Unit or subject name	Learning	Evaluation

		Learning Outcomes		method	method
1	4	1	Application of Hydrology in Engineering & Hydrologic cycle	Lecture	Written exam Quizzes Homework
2	4	1	Hydrologic cycle, return periods and water balance	Lecture	Written exam Quizzes Homework
3	4	1	Precipitation, types of precipitation and stream flow measurements	Lecture	Written exam Quizzes Homework
4	4	1	Precipitation, types of precipitation and stream flow measurements	Lecture	Written exam Quizzes Homework
5	4	2	Estimation of missed data, checking data consistency & Rainfall frequency analysis	Lecture	Written exam Quizzes Homework
6	4	2	Theory of frequency analysis for design storms and design floods.	Lecture	Written exam Quizzes Homework
7	4	3	Measurement of evaporation and estimation of potential evaporation	Lecture	Written exam Quizzes Homework
8	4	3	Losses from precipitation, Evaporation, Factors affecting Evaporation, Measurement and estimation of Evaporation process	Lecture	Written exam Quizzes Homework
9	4	3	Losses from precipitation, Evaporation, Factors affecting Evaporation, Measurement and estimation of Evaporation process	Lecture	Written exam Quizzes Homework
10	4	4	Infiltration, Factors affecting infiltration, Measurement and estimation of infiltration process	Lecture	Written exam Quizzes Homework
11	4	5	Infiltration, Factors affecting infiltration, Measurement and estimation of infiltration process	Lecture	Written exam Quizzes Homework
12	4	5	Runoff, Classes of Runoff, Rainfall-Runoff Correlation, Estimating Runoff Volume, Estimation of Flood Peak Discharge	Lecture	Written exam Quizzes Homework
13	4	5	Runoff, Classes of Runoff, Rainfall-Runoff Correlation, Estimating Runoff Volume, Estimation of Flood Peak Discharge	Lecture	Written exam Quizzes Homework
14	4	2	Hydrographs, Introduction and Unit Hydrographs	Lecture	Written exam Quizzes Homework
15	4	2	Hydrographs, Introduction and Unit Hydrographs	Lecture	Written exam Quizzes Homework

11.Course Evaluation

Quizzes (5%), home works (3%), classroom interactions (3%), Seminar (5%), and two progress exams (24%) + Final exam (60%)

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)

Recommended books and references (scientific journals, reports...)

- Warren vissman, Introduction to hydrology, 5th ed, 2003.
- Ven Te Chow, Applied hydrology.

	• Em. Wilson, Engineering hydrology
Electronic References, Websites	

Course Description Form

1. Course Name: Reinforced Concrete I	
2. Course Code: CIV018	
3. Semester / Year: 1 st Semester/ 2024-2025	
4. Description Preparation Date: 13-January-2025	
5. Available Attendance Forms: In class	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3 Cr.Hrs / 120 Hrs (lec.)	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Nahidh H. Kurdi Email: nahidh.kurdi@uoanbar.edu.iq Name: Dr. Dhafer K Jadaan Email dhafer.jadaan@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	<ol style="list-style-type: none"> 1. Introduced Material properties, Flexural theories, Un-cracked section. 2. Analysis and design using the working stress method. 3. Analysis and design using the ultimate strength. Design and analysis of singly rectangular, doubly rectangular, T- section, irregular section beams. Shear analysis and design. Continuous beams. 4. Analysis and design of one way slabs. 5. Bond, anchorage, development length, Cracked and deflection.
9. Teaching and Learning Strategies	
Strategy	Lectures Tutorial

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	1	Introduction and revision, materials and properties of concrete and reinforcing bars. ACI safety code provisions.	Lectures and tutorial.	Written Exams Quizzes Homework assignment
2	3	1	Introduction and revision, materials and properties of concrete and reinforcing bars. ACI safety code provisions.	Lectures and tutorial.	Written Exams Quizzes Homework assignment
3	3	1	Analysis and design of singly reinforced concrete beam.	Lectures and tutorial.	Written Exams Quizzes Homework assignment
4	3	1	Analysis and design of singly reinforced concrete beam.	Lectures and tutorial.	Written Exams Quizzes Homework assignment
5	3	1	Analysis and Design of doubly reinforced concrete beam.	Lectures and tutorial.	Written Exams Quizzes Homework assignment
6	3	2	Analysis and Design of doubly reinforced concrete beam.	Lectures and tutorial.	Written Exams Quizzes Homework assignment
7	3	2	Analysis and design of T and reinforced concrete beam.	Lectures and tutorial.	Written Exams Quizzes Homework assignment
8	3	2	Analysis and design of beams shear and diagonal tension.	Lectures and tutorial.	Written Exams Quizzes Homework assignment
9	3	3	Analysis and design of beams shear and diagonal tension.	Lectures and tutorial.	Written Exams Quizzes Homework assignment
10	3	3	Analysis and Design of continuous beam for flexure using ACI coefficients method.	Lectures and tutorial.	Written Exams Quizzes Homework assignment
11	3	3	Design of singly reinforced irregular concrete beams.	Lectures and tutorial.	Written Exams Quizzes Homework assignment
12	3	3	Analysis and design of Reinforced Concrete solid one-way slabs.	Lectures and tutorial.	Written Exams Quizzes Homework assignment
13	3	3	Analysis and design of Reinforced Concrete solid one-way slabs.	Lectures and tutorial.	Written Exams Quizzes Homework assignment
14	3	3	Serviceability requirements of members.	Lectures and tutorial.	Written Exams Quizzes Homework assignment
15	3	4	Comprehensive Exam		Written Exams Quizzes Homework assignment

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include, Homeworks, Quizzes	At the end of each major topic	10%
Mid semester exam or Progress Exams	According to department schedule	30%
Final Exam	Week-16	60%
Total		100%

11. Learning and Teaching Resources

Required textbooks (curriculum books, if any)	Arthur H. Nilson, David Darwin, Charles W. Dolan, Design of Concrete Structures, McGraw-Hill, 14th ed., 2014.
Main references (sources)	Structural Concrete- Theory and Design”, Hasson, M. N. and Al-Manseer. 5th Edition, John Wiley & Sons, Inc. 2012
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name: Soil Mechanics-I					
2. Course Code: CIV014					
3. Semester / Year: 1st semester/ 2024-2025					
4. Description Preparation Date: 13-Jan.-2024					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total)					
3 Cr.Hrs / 30Hrs (lec.)+ 15Hrs(Tutorial) + 30Hrs (Lab)					
7. Course administrator's name (mention all, if more than one name)					
Name: Prof. Dr. Khalid R. Mahmood Aljanabi Email: kr_aljanabi@uoanbar.edu.iq Name: Dr. Junied A. Baker Email: junied.bakr@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives		<ol style="list-style-type: none"> 1. understand the origin, formation, parameters and basic fundamental behavior of soils and have the knowledge of soil classification and be able to classify the soil using Unified Soil Classification System 2. understand soil permeability and seepage theory and be able to analyze a seepage problem by flow net 3. understand the effective stress concept and be able to calculate effective stress in non-seepage and seepage problems and be able to calculate the vertical stress in soils caused by various types of loading 4. understand the principles of soil compaction and the factors affecting soil compaction 5. do the experiments and determine the Engineering and index properties of soils applied in field problems 			
9. Teaching and Learning Strategies					
Strategy		Lectures Tutorial Lab.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	3	1	Soil origin and Grain Size	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
2	3	1	Weight-volume relationships	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
3	3	1	Solved problems and examples	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
4	3	1	Plasticity and soil structure	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
5	3	1	engineering Soil classification	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
6	3	2	Permeability and Seepage	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
7	3	2	Permeability and Seepage	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
8	3	2	Solved problems and examples	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
9	3	3	Effective stresses	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
10	3	3	Solved problems and examples	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
11	3	3	Mohr's circles	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
12	3	3	Solved problems and examples	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
13	3	3	Stresses on the soil mass	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
14	3	3	Solved problems and examples	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
15	3	4	Soil Compaction	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include, Homeworks, Quizzes	At the end of each major topic	10%
Mid semester exam or Progress Exams	According to department	30%

	schedule	
Lab reports	Report per each experiment	10%
Final Exam	Week-16	50%
Total		100%

11. Learning and Teaching Resources

Required textbooks (curriculum books, if any)	Fundamentals of Geotechnical Engineering, Braja M. Das, 3 rd ed., 2008
Main references (sources)	
Recommended books and references (scientific journals, reports...)	1. Principles of geotechnical engineering, Braja M. Das, 8th Ed. 2. Soil mechanics, R.F. Craig, 8 th Ed. Soil mechanics laboratory manual, Braja M. Das, 6 th ed.,
Electronic References, Websites	

Course Description Form

1. Course Name:					
Structures I					
2. Course Code:					
CIV011					
3. Semester / Year:					
First Semester / 2024					
4. Description Preparation Date:					
1 st of Aug 2024					
5. Available Attendance Forms:					
Physical attendance only					
6. Number of Credit Hours (Total) / Number of Units (Total)					
3					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Shaho Mahmoud Hama Email: shaho_m83@uoanbar.edu.iq Name: Dr. Mohammed Raji Mohammed Email: moh.raji@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives			<ul style="list-style-type: none"> Learning the basics notions of internal stresses in statically determinate structures, including shears, moments and axial forces. Studying those stresses in different statically determinate structures including beams, frames and trusses. Applying these concepts to influence line and deflections analysis of those statically determinate structures. 		
9. Teaching and Learning Strategies					
Strategy		Direct lecturing by the instructor, doing homework, and classroom interaction.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1,2	8	Understand the concept of axial force, shear force, and bending moment in the context of statically determinate structures, e.g.	Introduction to basic concepts and review	Lecturing and homework	Exam, homework, and quizzes.

		beams, frames and trusses.			
3,4,5	12	Analyzing statically determinate beams and frames for internal forces.	Analysis of statically determinate beams and frames	Lecturing and homework	Exam, homework, and quizzes.
6,7,8	12	Analyzing statically determinate trusses for internal forces.	Analysis of statically determinate trusses	Lecturing and homework	Exam, homework, and quizzes.
9,10,11,12	16	Understand the concept of an influence line and construct influence lines for various structural functions of statically determinate structures.	Influence lines of statically determinate structures	Lecturing and homework	Exam, homework, and quizzes.
13,14,15	12	Analyzing statically determinate structures for deflections and rotations using geometrical and energy methods.	Deflections of statically determinate structures	Lecturing and homework	Exam, homework, and quizzes.

11. Course Evaluation

Semester activities. These include quizzes, homework, and classroom interactions 10%
 Mid semester exam 20%
 Progress exam 10%
 Final Exam 60%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	R.C. Hibbeler, Structural Analysis, Prentice Hall, 8 th ed., 2007.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Kenneth M. Leet, Chia-Ming Uang, Anne Gilbert, Fundamentals of Structural Analy McGraw-Hill, 4th ed., 2011.
Electronic References, Websites	NA

Course Description Form

1. Course Name:					
Calculus-3					
2. Course Code:					
ENG008					
3. Semester / Year:					
1 st Semester/2024-2025					
4. Description Preparation Date:					
1/09/2024					
5. Available Attendance Forms:					
Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total):					
45 hours/3					
7. Course administrator's name (mention all, if more than one name)					
Name: Mohammed Raji Mohammed Email: moh.raji@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives	<ul style="list-style-type: none"> Recognize the 3-space in different types of coordinates systems Do operations on vectors Identify the basic properties of the real-valued functions of several variables. Maxima and minima of functions of two variables. Lagrange multipliers 				
9. Teaching and Learning Strategies					
Strategy	Lectures supported by modes developing material covered in lectures. These modes include theoretical lectures and problem-solving tutorials.				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
one	4	Recognize the 3-sp in different types coordinates syste and Do operations vectors	Rectangular Coordin systems in 3-spa Vectors		H, Q,E
two	4	operations on vecto	Dot product, projections. product Cr		H, Q,E

Three	4	Identify the basic properties of the real-valued functions of several variables.	Parametric equations of a line. Planes in 3-space	H, Q, E
Four	4	operations on vectors	Introduction to vector-valued functions Calculus of vector-valued functions	H, Q, E
Five	4	operations on vectors	Change of parameter Arc Length. Unit Tangent Normal and Binormal vectors	H, Q, E
Six	4	operations on vectors	Curvature	H, Q, E
Seven	4	Recognize the 3-space in different types of coordinates systems and Do operations on vectors Identify basic properties of real-valued functions of several variables	Quadric Surfaces Functions of two or more variables	H, Q, E
Eight			First-month Exam	E
Nine	4	Recognize the 3-space in different types of coordinates systems and Do operations on vectors Identify basic properties of real-valued functions of several variables	Limits and continuity Partial derivatives	H, Q, E
Ten	4	Recognize the 3-space in different types of coordinates systems and Do operations on vectors Identify basic properties of real-valued functions of several variables	Differentiability, Local Linearity. The Chain rule	H, Q, E
Eleven	4	operations on vectors and Identify the basic properties of the real-valued functions of several variables.	Directional derivatives and gradients. Tangent planes and normal vectors	H, Q, E
Twelve	4	Maxima and minima of functions of two variables. Lagrange multipliers	Maxima and minima of functions of two variables. Lagrange multipliers	H, Q, E
Thirteen	4	Evaluate multiple integrals in different	Double integrals. Double integrals over rectangular regions	H, Q, E

		types of coordina systems			
Fourteen	4	Evaluate multi integrals in differ types of coordina systems	Double integrals in po coordinates. Tri integrals		H, Q,E
Fifteen			Second-month Exam		E

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)	<ul style="list-style-type: none"> Calculus, 8th edition (2007) by Howard Anton, (John Wiley & Sons, Inc, New York).
Main references (sources)	
Recommended books and references (scientific journals, reports...)	<ul style="list-style-type: none"> Calculus, by H. Anton, I. Bivens, and S. Davis, 8th Edition, 2002, Wiley
Electronic References, Websites	

Course Description Form

1. Course Name: Crimes of the Baath Party regime in Iraq					
2. Course Code: UOA005					
3. Semester / Year: 2st semester/ 2024-2025					
4. Description Preparation Date: 13 -1-2025					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total) 3 Cr.Hrs / 30Hrs					
7. Course administrator's name (mention all, if more than one name)					
Name: M.D. Majid Hadi Talal Email: mqaessy@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives			Identifying and learning about the crimes committed by the defunct and dissolved Baath Party against the Iraqi people and their various components, and to establish awareness among students to reject all forms of injustice and tyranny of these regimes and to demand all civil and political rights.		
9. Teaching and Learning Strategies					
Strategy		Giving lectures and using the method of discussion and dialogue			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	3	1	Baath crimes according to the Iraqi Criminal Court law	Lectures	Written Exams Quizzes Homework assignments
2	3	1	The concept of crimes and their types	Lectures	Written Exams Quizzes Homework assignments
3	3	1	Definition of crime in language and terminology	Lectures	Written Exams Quizzes Homework assignments
4	3	1	Crime departments	Lectures	Written Exams Quizzes Homework assignments
5	3	1	Types of international crimes	Lectures	Written Exams Quizzes Homework assignments
6	3	2	Decisions issued by the criminal court	Lectures	Written Exams Quizzes Homework assignments
7	3	2	Psychological and social crimes and the most prominent violations of the Baath Party	Lectures	Written Exams Quizzes Homework assignments
8	3	2	Psychological crimes	Lectures	Written Exams Quizzes Homework assignments
9	3	3	Mechanisms of psychological crimes	Lectures	Written Exams Quizzes Homework assignments
10	3	3	Psychological effects of crimes	Lectures	Written Exams Quizzes Homework assignments
11	3	3	Social crimes	Lectures	Written Exams Quizzes Homework assignments
12	3	3	The Baath position on religion	Lectures	Written Exams Quizzes Homework assignments
13	3	3	Iraqi Criminal Court	Lectures	Written Exams Quizzes Homework assignments
14	3	3	Violating Iraqi laws	Lectures	Written Exams Quizzes Homework assignments
15	3	4	Subject exam	Lectures	Written Exams Quizzes Homework assignments

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
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Semester activities: These include, Homeworks, Quizzes	At the end of each major topic	25%
Mid semester exam or Progress Exams	According to department schedule	25%
Final Exam	Week-16	50%
Total		100%

11.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Crimes of the Baath Party regime in Iraq
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:					
Engineering Surveying I					
2. Course Code:					
CIV003					
3. Semester / Year:					
1st Semester/ Second Stage/ 2024-2025					
4. Description Preparation Date:					
13-01-2025					
5. Available Attendance Forms:					
In class					
6. Number of Credit Hours (Total) / Number of Units (Total)					
75 hours / 3 credit hours					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Hameed Aswad Mohammed and Dr. Maher Shakir Mahmood					
Email: hameedaswad@uoanbar.edu.iq					
Email: maher.mahmood@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives	<ul style="list-style-type: none"> Learn the basics of surveying and field measurement. Train on different types of engineering measurement and surveying equipment. Apply engineering surveying principles and ideas to a wide range of engineering problems, projects, and various engineering constructions 				
9. Teaching and Learning Strategies					
Strategy	<ol style="list-style-type: none"> 1. Lectures 2. Assignments 3. Discussions 				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	6	3. Students will learn to use equipment similar in type and quality to those professional surveyors use in their businesses; 4. Exhibit an understanding of the role of engineering surveyors in the civil and environmental engineering profession.	Basic Principle of Surveying	Lecture, Tutorial and Lab	Exam, and assignments
2.	6	3. Students will learn to use equipment similar in type and	Basic Principle of Surveying	Lecture, Tutorial and Lab	Exam, and assignments

		<p>quality to those professional surveyors use in their businesses;</p> <p>4. Exhibit an understanding of the role of engineering surveyors in the civil and environmental engineering profession.</p>			
3.	6	<p>1. Develop an ability to solve surveying problems utilizing fundamental principles of Science and Engineering;</p> <p>2. Expose students to the latest computational and measurement tools. This will be done as individuals and as members of student field survey teams;</p> <p>3. Students will learn to use equipment similar in type and quality to those professional surveyors use in their businesses;</p> <p>4. Exhibit an understanding of the role of engineering surveyors in the civil and environmental engineering profession.</p>	Distance Measurements Using Tape	Lecture, Tutorial and Lab	Exam, and assignments
4.	6	<p>1. Develop an ability to solve surveying problems utilizing fundamental principles of Science and Engineering;</p> <p>2. Expose students to the latest computational and measurement tools. This will be done as individuals and as members of student field survey teams;</p> <p>3. Students will learn to use equipment similar in type and quality to those professional surveyors use in their businesses;</p> <p>4. Exhibit an understanding of the role of engineering surveyors in the civil and environmental engineering profession.</p>	Distance Measurements Using Tape	Lecture, Tutorial and Lab	Exam, and assignments
5.	6	<p>1. Develop an ability to solve surveying problems utilizing fundamental principles of Science and Engineering;</p> <p>2. Expose students to the latest computational and measurement tools. This will be done as individuals and as members of student field survey teams;</p> <p>3. Students will learn to use equipment similar in type and quality to those professional</p>	Leveling—Theory and Methods	Lecture, Tutorial and Lab	Exam, and assignments

		<p>surveyors use in their businesses;</p> <p>4. Exhibit an understanding of the role of engineering surveyors in the civil and environmental engineering profession.</p>			
6.	6	<p>1. Develop an ability to solve surveying problems utilizing fundamental principles of Science and Engineering;</p> <p>2. Expose students to the latest computational and measurement tools. This will be done as individuals and as members of student field survey teams;</p> <p>3. Students will learn to use equipment similar in type and quality to those professional surveyors use in their businesses;</p> <p>4. Exhibit an understanding of the role of engineering surveyors in the civil and environmental engineering profession.</p>	Leveling—Theory and Methods	Lecture, Tutorial and Lab	Exam, and assignments
7.	6	<p>1. Develop an ability to solve surveying problems utilizing fundamental principles of Science and Engineering;</p> <p>2. Expose students to the latest computational and measurement tools. This will be done as individuals and as members of student field survey teams;</p> <p>3. Students will learn to use equipment similar in type and quality to those professional surveyors use in their businesses;</p> <p>4. Exhibit an understanding of the role of engineering surveyors in the civil and environmental engineering profession.</p>	Distance Measurements Using Trigonometric & EDM	Lecture, Tutorial and Lab	Exam, and assignments
8.	6		Mid-term Exam		Exam, and assignments
9.	6	<p>1. Develop an ability to solve surveying problems utilizing fundamental principles of Science and Engineering;</p> <p>2. Expose students to the latest computational and measurement tools. This will be done as individuals and as members of student field survey teams;</p> <p>3. Students will learn to use equipment similar in type and</p>	Distance Measurements Using Trigonometric & EDM	Lecture, Tutorial and Lab	Exam, and assignments

		<p>quality to those professional surveyors use in their businesses;</p> <p>4. Exhibit an understanding of the role of engineering surveyors in the civil and environmental engineering profession.</p>			
10.	6	<p>1. Develop an ability to solve surveying problems utilizing fundamental principles of Science and Engineering;</p> <p>2. Expose students to the latest computational and measurement tools. This will be done as individuals and as members of student field survey teams;</p> <p>3. Students will learn to use equipment similar in type and quality to those professional surveyors use in their businesses;</p> <p>4. Exhibit an understanding of the role of engineering surveyors in the civil and environmental engineering profession.</p>	Angles, Azimuth, and Bearing	Lecture, Tutorial and Lab	Exam, and assignments
11.	6	<p>1. Develop an ability to solve surveying problems utilizing fundamental principles of Science and Engineering;</p> <p>2. Expose students to the latest computational and measurement tools. This will be done as individuals and as members of student field survey teams;</p> <p>3. Students will learn to use equipment similar in type and quality to those professional surveyors use in their businesses;</p> <p>4. Exhibit an understanding of the role of engineering surveyors in the civil and environmental engineering profession.</p>	Angles, Azimuth, and Bearing	Lecture, Tutorial and Lab	Exam, and assignments
12.	6	<p>1. Develop an ability to solve surveying problems utilizing fundamental principles of Science and Engineering;</p> <p>2. Expose students to the latest computational and measurement tools. This will be done as individuals and as members of student field survey teams;</p> <p>3. Students will learn to use equipment similar in type and quality to those professional</p>	Angles, Azimuth, and Bearing	Lecture, Tutorial and Lab	Exam, and assignments

		<p>surveyors use in their businesses;</p> <p>4. Exhibit an understanding of the role of engineering surveyors in the civil and environmental engineering profession.</p>			
13.	6	<p>1. Develop an ability to solve surveying problems utilizing fundamental principles of Science and Engineering;</p> <p>2. Expose students to the latest computational and measurement tools. This will be done as individuals and as members of student field survey teams;</p> <p>3. Students will learn to use equipment similar in type and quality to those professional surveyors use in their businesses;</p> <p>4. Exhibit an understanding of the role of engineering surveyors in the civil and environmental engineering profession.</p>	Traversing	Lecture, Tutorial and Lab	Exam, and assignments
14.	6	<p>1. Develop an ability to solve surveying problems utilizing fundamental principles of Science and Engineering;</p> <p>2. Expose students to the latest computational and measurement tools. This will be done as individuals and as members of student field survey teams;</p> <p>3. Students will learn to use equipment similar in type and quality to those professional surveyors use in their businesses;</p> <p>4. Exhibit an understanding of the role of engineering surveyors in the civil and environmental engineering profession.</p>	Traversing	Lecture, Tutorial and Lab	Exam, and assignments
15.	6	<p>1. Develop an ability to solve surveying problems utilizing fundamental principles of Science and Engineering;</p> <p>2. Expose students to the latest computational and measurement tools. This will be done as individuals and as members of student field survey teams;</p> <p>3. Students will learn to use equipment similar in type and quality to those professional surveyors use in their</p>	Traversing	Lecture, Tutorial and Lab	Exam, and assignments

		businesses; 4. Exhibit an understanding of the role of engineering surveyors in the civil and environmental engineering profession.			
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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)	<ul style="list-style-type: none"> • Charles D. Ghilani, Paul R. Wolf, Elementary Surveying, Prentice Hall, 12th ed., 2008. • Chandra, A. M. Surveying Problem Solution with Theory and Objective Type Questions. New Age International, 2005
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name: Properties of Concrete	
2. Course Code: CIV005	
3. Semester / Year: First/Second	
4. Description Preparation Date: 13/01/2025	
5. Available Attendance Forms: Course (In class)	
6. Number of Credit Hours (Total) / Number of Units (Total)	
105 hrs./6	
7. Course administrator's name (mention all, if more than one name)	
Name: Assistant Prof. Dr. Mahmoud Khashaa Mohammed	
Email: mahmoud.mohammed@uoanbar.edu.iq	
Name: Lecturer Dr. Ahmed Anees Ahmed	
Email: ahmed.anees@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	<p>The main aim of this course is to enable the student to identify the basic and fundamental, theoretical and experimental, principles of concrete science with high quality of knowledge. By the end of successful completion of this course, the student will be able to:</p> <ol style="list-style-type: none"> 1. Deeply understand the fundamentals properties of concrete and its raw materials. 2. Introduce or propose critical thoughts in how to develop the characterizations of the concrete and its raw materials based on point number 1. 3. Prepare and conduct most of the important tests for the concrete and its raw materials. (This is from theoretical background and Concrete Lab. works) 4. Deal with the problems of the concrete and its raw materials. This includes the concrete problems in fresh and hardening stages. 5. Develop different research skills in the course topics at BSc level. 6. Introduce critical thoughts in how to develop/invent new types of concrete or cement.
9. Teaching and Learning Strategies	
Strategy	<ul style="list-style-type: none"> • Lectures • Lab. • Homework • Quizzes

- Coursework (report +Oral Presentation + Poster)

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	1-6	Introduction and general backgrounds	lectures	Written exam, Quizzes Homework
2	4	1-6	Cement, production and types	Lectures	Written exam, Quizzes Homework
3	12	1-6	Cement, chemical and physical properties	Lectures, Lab.	Written exam, Quizzes Homework and Lab.
4	12	1-6	Aggregate of concrete, classification and mechanical properties	Lectures, Lab.	Written exam, Quizzes Homework and Lab.
5	12	1-6	Aggregate of concrete, physical properties and sieve analysis	Lectures, Lab.	Written exam, Quizzes Homework and Lab.
6	6	1-6	Water in concrete works and mixing of concrete	Lectures, Lab.	Written exam, Quizzes Homework
7	4	1-6	Admixtures of concrete	lectures	Written exam, Quizzes Homework
8	4	1-6	Mid-term Exam		Written exam
9	12	1-6	Properties of fresh concrete	Lectures, Lab.	Written exam, Quizzes Homework and Lab.
10	4	1-6	Design of concrete mixes	lectures	Written exam, Quizzes Homework
11	12	1-6	Strength of concrete	Lectures, Lab.	Written exam, Quizzes Homework and Lab.
12	6	1-6	Elasticity of concrete	Lectures, Lab.	Written exam, Quizzes Homework
13	4	1-6	Volume changes in concrete (swelling and shrinkage)	Lectures, Lab.	Written exam, Quizzes Homework
14	4	1-6	Durability of Concrete and Special types of concrete	lectures	Written exam, Quizzes Homework
15	6	1-6	Coursework Project presentations/Exams	Project exam	Report +Oral Presentation + Poster

11. Course Evaluation (Bologna System)

	Term Tests	Laboratory	Quizzes	Project and Homework	Final Exam	
	10%	5 %	25 %	10%	50%	

12. Learning and Teaching Resources

Required textbooks (curricular books any)	Lecture notes: Dr Mahmoud Kh. Mohammed
Main references (sources)	<p>1- English:</p> <ul style="list-style-type: none"> • Neville, A. M. 2011. Properties of Concrete, London, Pearl Education Limited. or any Edition. • Mehta, P. K. & Monteiro, P. J. M. 2006. Concrete Microstructure, properties and materials, McGraw-Hill. <p>2-Arabic:</p> <ul style="list-style-type: none"> • Concrete Technology (كتاب تكنولوجيا الخرسانة) , Dr Hana A and Dr Muyed Noori <p>Lecture notes: 1- Dr Mahmoud Kh. Mohammed</p>
Recommended books and references	<ul style="list-style-type: none"> • Concrete Technology (كتاب تكنولوجيا الخرسانة) , Dr Hana A

(scientific journals, reports...)

and Dr Muyed Noori

Electronic References, Websites

Course Description Form

1. Course Name:					
Dynamics					
2. Course Code:					
CIV006					
3. Semester / Year:					
1 st Semester 2024/2025					
4. Description Preparation Date:					
14 January 2024					
5. Available Attendance Forms:					
In Class					
6. Number of Credit Hours (Total) / Number of Units (Total)					
5 Credit Hours / 60 Hours (lectures)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Atheer Faisal Al-Anbaki Email: atheer.alanbaki@uoanbar.edu.iq Name: Dr. Shaho Mahmoud Hama Email: shaho_m83@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives		<ol style="list-style-type: none"> 1. Use rectangular, normal-tangential, and polar coordinate systems to describe the motion (kinematics) of a particle, system of particles, and rigid bodies. 2. Use Newton's Second Law, Work-Energy, and Impulse-Momentum principles to determine the kinetics of particles, systems of particles, and rigid bodies. 3. Understand and solve introductory vibration problems. 4. In applying the above principles, continue to develop a systematic, orderly procedure for solving engineering problems and design mechanical device using their knowledge in Dynamics. 			
9. Teaching and Learning Strategies					
Strategy			Lectures		
10. Course Structure					
Week	Hours	Required	Unit or subject name	Learning	Evaluation

		Learning Outcomes		method	method
1	4	1	Kinematics of a Particle: Continuous and Erratic Rectilinear Kinematics	Lectures	Exams Quizzes
2	4	1	Kinematics of a Particle: General Curvilinear Motion + Motion of a Projectile	Lectures	Exams Quizzes
3	4	1	Kinematics of a Particle: Absolute Dependent Motion Analysis of Two Particles + Relative-Motion of Two Particles Using Translating Axes	Lectures	Exams Quizzes
4	4	2	Planar Kinematics of a Rigid Body: Translation and Rotation about a Fixed Axis	Lectures	Exams Quizzes
5	4	2	Planar Kinematics of a Rigid Body: Absolute Motion Analysis	Lectures	Exams Quizzes Homework assignment
6	4	2	Planar Kinematics of a Rigid Body: Relative-Motion Analysis: Velocity and Acceleration	Lectures	Exams Quizzes
7	4	2	Kinetics of a Particle: Newton's Second Law of Motion and The Equation of Motion (Rectangular Coordinates)	Lectures	Exams Quizzes
8	4	2	Kinetics of a Particle: Equations of Motion (Normal and Tangential Coordinates)	Lectures	Exams Quizzes
9	4	3	Kinetics of a Particle: The Work of a Force and Principle of Work and Energy	Lectures	Exams Quizzes
10	4	3	Kinetics of a Particle: Power and Efficiency + Conservative Forces and Potential Energy	Lectures	Exams Quizzes Homework assignment
11	4	3	Kinetics of a Particle: Conservation of Energy	Lectures	Exams Quizzes
12	4	4	Kinetics of a Particle: Principle of Linear Impulse and Momentum	Lectures	Exams Quizzes
13	4	4	Kinetics of a Particle: Conservation of Linear Momentum for a System of Particles	Lectures	Exams Quizzes
14	4	4	Kinetics of a Particle: Impact	Lectures	Exams Quizzes
15	4	1, 2, 3, 4	Review	Lectures	Exams Quizzes

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Quizzes	At the end of each major topic	25%
Online assignments	According to department schedule	5%
Onsite Assignments	According to department schedule	5%
Reports	According to department schedule	5%
Midterm exam	According to department schedule	10%
Final Exam	Week-16	50%
Total		100%

11. Learning and Teaching Resources

Required textbooks (curriculum books, if any)	R.C. Hibbeler, Engineering Mechanics: Dynamics, Pearson, 14th ed., 2016.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	J. L. Meriam and L. G. Kraige, Engineering Mechanics: Dynamics, 6th ed., 2006.
Electronic References, Websites	

Course Description Form

1. Course Name: Strength of material-I					
2. Course Code: CIV004					
3. Semester / Year: 1 st semester / 2024-2025					
4. Description Preparation Date: 12-June-2024					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total) 3 Cr.Hrs / 30Hrs (lec.)+ 15Hrs(Tutorial)					
7. Course administrator's name (mention all, if more than one name) Name: Lec.Dr.Dhafer Khalefa Jadaan Email: dhafer.jadaan@uoanbar.edu.iq Name: Lec. Dr. Jalil Eyada Kwad Kata Email: j.j.kwad@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives			<p>The goals of this course are to enable students to:</p> <p>Learn the basics mechanics of materials and internal loading.</p> <p>Study stresses and strains of materials.</p> <p>Apply these concepts to design and analyze structural members like beams and columns.</p>		
9. Teaching and Learning Strategies					
Strategy			Lectures Tutorial		
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	1	Shear and moment diagrams	Lectures, Tutorial.	Written Exams Quizzes Homework assignment
2	3	1	Shear and moment diagrams	Lectures, Tutorial.	Written Exams Quizzes Homework assignment
3	3	1	Simple stress	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
4	3	1	Simple stress	Lectures, Tutorial.	Written Exams Quizzes Homework assignment

5	3	1	Simple stress	Lectures, Tutorial.	Written Exams Quizzes Homework assignment
6	3	2	Simple strain	Lectures, Tutorial.	Written Exams Quizzes Homework assignment
7	3	2	Simple strain	Lectures, Tutorial.	Written Exams Quizzes Homework assignment
8	3	2	Simple strain	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
9	3	3	Thermal stresses	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
10	3	3	Thermal stresses	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
11	3	3	Indeterminate axially loaded bar	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
12	3	3	Indeterminate axially loaded bar	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
13	3	3	Indeterminate axially loaded bar	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
14	3	3	Deflection of beams	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
15	3	4	Deflection of beams	Lectures, Tutorial,.	Written Exams Quizzes Homework assignment

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include, Homeworks, Quizzes	At the end of each major topic	15%
Mid semester exam or Progress Exams	According to department schedule	25%
Lab reports		
Final Exam	Week-16	60%
Total		100%

11. Learning and Teaching Resources

Required textbooks (curriculum books, if any)	R.C. Hibbeler, Mechanics of Materials, Prentice Hall, 7th ed., 2007.
Main references (sources)	

Recommended books and references (scientific journals, reports...)	1. Strength of Materials, Stringer, 8 th Ed.
Electronic References, Websites	

Course Description Form

1. Course Name:	
Steel Structures I	
2. Course Code:	
CIV035	
3. Semester / Year:	
First / 2024-2025	
4. Description Preparation Date:	
13/1/2025	
5. Available Attendance Forms:	
Class attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours/	
7. Course administrator's name (mention all, if more than one name)	
Name: Jamal Abdulrazzaq Khalaf Email: jamal.khalaf@uoanbar.edu.iq Hayder Faysal Anbaki @uoanabar.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> • Introduce to the students, the principal analysis and design of structures • standard computer applications sequence includes using computer to solve problems related to civil engineering such as analysis and design of building
9. Teaching and Learning Strategies	
Strategy	<p>The goals of this course are to enable students to:</p> <ol style="list-style-type: none"> 1. Learn the basics of using computer for civil engineering. 2. learn the basic's topics and modules that ETABS software depend on, such as computer languages, concrete and steel analysis and design, theory of structures as well as numerical analysis (stiffness matrix and finite elements). 3. Study of using ETABS software for structural analysis and design.
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	4	Learn how to use ETABS program as windows program.	Learn how to use ETABS program as windows program.	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 2	4	Identify the using of grid based on our building dimensions	Identify the using of grid based on our building dimensions	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 3	4	Define the building materials and frame section (beams and columns) as well as slabs.	Define the building materials and frame section (beams and columns) as well as slabs.	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 4	4	Drew beams, columns and slabs, also gives the restraint for reactions.	Drew beams, columns and slabs, also gives the restraint for reactions.	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 5	4	Run the Analysis	Run the Analysis	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 6	4	Display the results for analysis	Display the results for analysis	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 7	4	Run the design and display the results	Run the design and display the results	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 8	4	First Exam			
Week 9	4	Learn about using different types of slabs such as one and two way ribbed slab, slab with drop panel and waffle slab	Learn about using different types of slabs such as one and two way ribbed slab, slab with drop panel and waffle slab	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 10	4	Learn about using different types of slabs such as one and two way ribbed slab, slab with drop panel and waffle slab	Learn about using different types of slabs such as one and two way ribbed slab, slab with drop panel and waffle slab	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 11	4	Learn about using different types of slabs such as one and two way ribbed slab, slab with drop panel and waffle slab	Learn about using different types of slabs such as one and two way ribbed slab, slab with drop panel and waffle slab	Lectures	daily preparation, daily oral, monthly, or written exams, reports

Week 12	4	Learn about using different types coordinate systems such as Cartesian and cylindrical system.	Learn about using different types coordinate systems such as Cartesian and cylindrical system.	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 13	4	Learn about using different types coordinate systems such as Cartesian and cylindrical system.	Learn about using different types coordinate systems such as Cartesian and cylindrical system.	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 14	4	Analysis and design steel structures	Analysis and design steel structures	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 15	4	Analysis and design steel structures	Analysis and design steel structures	Lectures	daily preparation, daily oral, monthly, or written exams, reports

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)	<p>(دكتور جمال عبد الواحد. تحليل ETABS 2015 وتصميم الأبنية باستخدام برنامج)</p> <ul style="list-style-type: none"> •
Main references (sources)	
Electronic References, Websites	On line resources from internet

Course Description Form

1. Course Name:	
Steel Structures I	
2. Course Code:	
CIV023	
3. Semester / Year:	
First / 2024-2025	
4. Description Preparation Date:	
13/1/2025	
5. Available Attendance Forms:	
Class attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours/	
7. Course administrator's name (mention all, if more than one name)	
Name: Sheelan Mahmoud Hama Email: drsheelan@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> Introduce to the students, the principal types of steel structures Provide the students with a basic understanding of the essential steps involved in the design of steel structures. Develop an understanding of the behavior of steel structures under different types of loading Perform basic analyses to solve problems related to steel structures with the given procedures, understand their limitations.
9. Teaching and Learning Strategies	
Strategy	<p>Steel structures courses require effective learning and teaching strategies to ensure students develop a strong understanding of complex concepts and their practical applications. A range of strategies that can enhance the learning experience for students in steel structures courses. These strategies include lecture-based teaching, practical applications, problem-solving assignments, group work and discussions, technology integration, field trips, site visits, guest speakers, assessments and feedback, continuous learning, and encourage self-directed learning. By incorporating these strategies, educators can create an engaging and comprehensive learning environment that equips students with the knowledge, skills, and critical thinking abilities necessary for success in the field of steel structures design analysis.</p>

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	4	Identify various loading conditions that are important in structural design and determine/select the critical loading.	Introduction: General, Advantages and disadvantages of steel structures, Materials, Type of Structural Steel Sections, Cross-Sections of Some of the more Commonly Used Hot-Rolled Shapes, Loads, Philosophies of Design, and Building Codes.	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 2	4	Identify various loading conditions that are important in structural design and determine/select the critical loading.	Specifications, Loads, and Methods of Design: Specifications and Building Codes, Loads, Load and Resistance Factor Design (LRFD) and Allowable, Strength Computation of Loads for LRFD Combined Loads with LRFD Expressions, Computing Combined , Two Methods of Obtaining an Acceptable Level of Safety, Discussion of Sizes of Load Factors and Safety Factors.	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 3	4	To perform the appropriate structural analysis based on the loading determined above and design the overall structure, determining the required member sizes capable of supporting the loads.	Analysis of Tension Members : Introduction, Non-Strengths of Tension Members , Net Areas , Effect of Staggered Holes , Effective Net Areas ,	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 4	4	They will have to apply the knowledge they acquired in the prerequisite courses such as determining maximum moments and forces and finding the strength of each member.	Connecting Elements Tension Members, Bolted Connections, and Shear .	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 5	4	Be knowledgeable with the national, regional, and local codes and engineering standards and be familiar with the professional practice and requirements of structural engineers.	Selection of Sections,	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 6	4		Built-Up Tension Members.	Lectures	daily preparation, daily oral,

					monthly, or written exams, reports
Week 7	4		Compression members: General, Residual Stresses, Sections Used for Columns, Development of Column Formulas, *	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 8	4		The Euler Formula, End Restraint and Effective Lengths of Columns,	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 9	4		Stiffened and Unstiffened Elements,	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 10	4		Long, Short, and Intermediate Columns, Column Formulas,	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 11	4		Maximum Slenderness Ratios, example problems.	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 12	4		Design of Axially Loaded Compression Members: Introduction, AISC Design Tables	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 13	4		Frames Meeting Assumptions Chart	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 14	4		Frames not Meeting Assumptions as to Joint Rotations Chart	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 15	4		Stiffness-Reduction Factors, Columns Leaning on Each Other for In-Plane Design	Lectures	daily preparation, daily oral, monthly, or written exams, reports

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)	<ul style="list-style-type: none">(15th) AISC - Steel Construction Manual 15th Edition-AISC (2017)
Main references (sources)	<ul style="list-style-type: none">McCormac, Jack C.-Structural steel design- (2018)
Recommended books and references (scientific journals, reports...)	<ul style="list-style-type: none">William T. Segui. Steel Design, 6th ed, 2018
Electronic References, Websites	

Course Description Form

1. Course Name:	
Foundation Engineering I	
2. Course Code:	
CE4325	
3. Semester / Year: First semester	
4. Description Preparation Date:	
23/6/2024	
5. Available Attendance Forms:	
Theory and electronic	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Ahmed Hazim Abdulkareem and Maher Zhaer Email: ahmed1973ed@uoanar.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> -Provide students with a basic understanding of the basic steps involved in a site investigation. -Develop an understanding of the behavior of foundations of engineering structures and gain knowledge of design methods that can be applied to practical geotechnical problems -Introducing the student to the procedures used to estimate the bearing capacity and settlement of shallow and deep foundations -Perform basic analyzes to solve foundation problems with specified procedures and soil properties, and understand its limitations
9. Teaching and Learning Strategies	
Strategy	<ul style="list-style-type: none"> -Factors affecting the planning of subsurface investigations -Analyze the results of on-site tests and convert measurements and their associated uncertainties into relevant design criteria; -Analysis of the bearing capacity of shallow foundations. -Evaluating the immediate, consolidated and secondary settlement

shallow institutions.

-Synthesize design concepts of allowable stress, appropriate safety factors, safety margin, and reliability;

-Analysis of individual piles, groups and drilled columns for axial capacity;

-Evaluating immediate settlements and consolidating de foundations

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Introduction	Introduction	Theory	homework
2-4	12	Site investigation	Site investigation	Theory	Quiz
5-7	12	Bearing capacity foundation	Bearing capacity foundation	Theory	Quiz
8-9	8	Settlement of foundation	Settlement of foundation	Theory	Homework + Quiz
10-13	16	Design of foundation	Design of foundation	Theory	Homework + Quiz
14-15	8	Slope stability	Slope stability	Theory	Homework + Quiz

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)	1-Braja M. Das, Principles of Foundation engineering, 8th ed.
Main references (sources)	-Donald P. Coduto, Foundation Design Principles and Practices, 2nd ed. -3Joseph E. Bowles, Foundation Analysis and Design, 5th ed.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name: Highway Engineering					
2. Course Code: CE 4327					
3. Semester / Year: 1st semester/ 2024-2025					
4. Description Preparation Date: 13-Jan-2024					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total) 3 Cr.Hrs / 60Hrs (lec.)+ 30Hrs (Lab)					
7. Course administrator's name (mention all, if more than one name)					
Name: Asst. Prof. Dr. Duraid Muayed Abd					
Email: Duraid.abd@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives			<ol style="list-style-type: none"> 1. It educates the students on the various components of Highway Engineering. 2. It exposes the students to highway planning, engineering surveys for highway alignment, 3. Design of Geometric Elements of Highways (Horizontal and Vertical curves) 4. The students further learn the desirable properties of highway materials and various practices adopted for construction. 5. It enables the students to develop skill on evaluation of the pavements and to decide appropriate types of maintenance. 6. Know asphalt concrete mix production in asphalt plants and constructing of flexible pavement layers in the site. 7. Know the various pavement distress, causes, failure and required action. 		
9. Teaching and Learning Strategies					
Strategy			Lectures Tutorial Lab.		
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	1,2	Highway location	Lectures, Lab	Written Exams

					Quizzes Homework assignment
2	4	1,2	esign speed, factors affecting design highway types, cross section elements	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignment
3	4	1,2	Sight distances and horizontal alignment design	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
4	4	1,2	Horizontal alignment design	Lectures, Tutorial,.	Written Exams Quizzes Homework assignment
5	4	1,2	Horizontal alignment design	Lectures, Tutorial,.	Written Exams Quizzes Homework assignment
6	4	1,2	Vertical alignment design	Lectures, Tutorial,.	Written Exams Quizzes Homework assignment
7	4	1,2	Intersections and interchanges	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
8	4	1,2	Highway construction, Pavement materials (including aggregate combination)	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignment
9	4	1,2	Pavement design – General	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignment
10	4	1,2	Pavement design – flexible pavement	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignment
11	4	1,2	Pavement design- rigid pavement	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignment
12	4	1,2	Pavement distress and Maintenance	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignment
13	4	1,2	Selected topics	Lectures, Tutorial,	Written Exams Quizzes Homework assignment

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include, Homeworks, Quizzes	At the end of each major topic	15%
Mid semester exam or Progress Exams	According to department schedule	25%
Lab reports	Report per each experiment	10%
Final Exam	Week-16	50%
Total		100%

11. Learning and Teaching Resources

Required textbooks (curriculum) Textbook – Garber, N. J. and L. A. Hoel (2009). Traffic and

books, if any)	highway Engineering, Cengage
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name: Hydraulic Structure					
2. Course Code: CE 4342					
3. Semester / Year: 1st semester/ 2024-2025					
4. Description Preparation Date: 13-January -2025					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total)					
2 Cr.Hrs / 30Hrs (lec.)+ 15Hrs(Tutorial)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Atheer Saleem Almawla Email: eng.atheer84@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives			<ol style="list-style-type: none"> 1. use the knowledge and skills studied previously, especially, on fluid mechanics, hydraulics and hydrology into this course. 2. to recognize the different types of hydraulic structures, to understand its purpose and function and to select the most appropriate structure and location for a specific problem. 3. to design, to analyze and to proof that the hydraulic structure is save and economical. 4. to broaden skills in team work, communication and planning through small projects. 		
9. Teaching and Learning Strategies					
Strategy		Lectures Tutorial			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	1	Fundamentals	Lectures,	Written Exams

			Classification and Select definitions	Tutorial,	Quizzes Homework assignment
2	3	1	Seepage under hydraulic structures	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
3	3	1	Open channel flow	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
4	3	1	Hydraulic Design Regulators	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
5	3	1	Design of pipes and Box Culverts	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
6	3	2	Specific Energy	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
7	3	2	Design of Spillway	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
8	3	2	Energy Dissipation Structures	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
9	3	3	Flow-Measuring Structures	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
10	3	3	Design of Dams	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
11	3	3	Critical Depth flow	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
12	3	3	Hydraulic Design of Underflow Gates	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
13	3	3	Foundations of Dams and their Treatment	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
14	3	3	Hydraulic jump	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
15	3	4	the Stilling Basin	Lectures, Tutorial,	Written Exams Quizzes Homework assignment

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include, Homeworks, Quizzes	At the end of each major topic	10%
Two Mid semester exam or Progress Exams	According to department schedule	30%

Final Exam	Week-16	60%
Total		100%

11. Learning and Teaching Resources

Required textbooks (curriculum books, if any)	Hydraulic Structures by Novak. 4th Edition 2007
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Hydraulic Structures by C S James, Springer Nature Switzerland AG ,2020
Electronic References, Websites	

Course Description Form

1. Course Name:					
Calculus 2					
2. Course Code:					
ENG004					
3. Semester / Year:					
Second Semester/2024-2025					
4. Description Preparation Date:					
1/3/2025					
5. Available Attendance Forms:					
Classroom					
6. Number of Credit Hours (Total) / Number of Units (Total):					
60 hours/3					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Ahmed Tareq Noaman Email: ahmed.noaman@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives		1. Introduce integration techniques and solve various integration problems. 2. Apply the acquired knowledge to find areas, volumes, and arc length. 3. Understand sequence and series.			
9. Teaching and Learning Strategies					
Strategy		Lectures supported by modes developing material covered in lectures. These modes include theoretical lectures and problem-solving tutorials.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
one	4	Evaluate definite, indefinite and improper integrals by using different integration techniques	Principles of Integration	Direct communication	H, Q,E
two	4	Evaluate definite, indefinite and	Integral Methods	Direct communication	H, Q,E

		improper integrals by using different integration techniques			
Three		Evaluate of definite, indefinite and improper integrals by using different integration techniques	Integration Techniques - Integration by Parts	Direct communication	H, Q,E
Four		Evaluate of definite, indefinite and improper integrals by using different integration techniques	Integration Techniques - Trigonometric Integrals	Direct communication	H, Q,E
Five		Evaluate of definite, indefinite and improper integrals by using different integration techniques	Integration Techniques - Partial Fractions	Direct communication	H, Q,E
Six		Evaluate of definite, indefinite and improper integrals by using different integration techniques	Integration Techniques - Partial Fractions	Direct communication	H, Q,E
Seven		To determine areas, arc length, surface area and volume by using the applications of integration techniques.	Applications of Integrals - Infinite Area Applications of Integrals - Length, Surface area	Direct communication	H, Q,E
Eight		All above	Mid-term Exam		E
Nine		To determine arc length, surface	Applications of Integrals -	Direct communication	H, Q,E

		area and volume by using the applications of integration techniques	Volumes (Disk, Washer, Shell)		
Ten		Define polar coordinate graphs and solve related problems including area, arc length and volume	Polar Coordinates - Common Polar Coordinate Graphs.	Direct communication	H, Q, E
Eleven		Define polar coordinate graphs and solve related problems including area, arc length and volume	Arc Length with Polar coordinates, Area in Polar Coordinates	Direct communication	H, Q, E
Twelve		Define polar coordinate graphs and solve related problems including area, arc length and volume	Polar Coordinates - Tangents with Polar Coordinates, Curves defined by parametric equations.	Direct communication	H, Q, E
Thirteen		Identify the properties of sequences and their limits with identifying standard convergent operations of power series'	Sequences and Series: Infinite series	Direct communication	H, Q, E
Fourteen		Identify the properties of sequences and their limits with identifying standard convergent operations of power series'	The comparison. Ratio and Root tests. Alternating series. Conditional convergence	Direct communication	H, Q, E
Fifteen		Identify the properties of sequences and their limits with	Maclaurin and Taylor series and their approximation,	Direct communication	H, Q, E

		identifying standard convergent operations of power series'	Power series.		

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)	<ul style="list-style-type: none"> Stewart, J., Clegg, D. K., & Watson, S. (2018). Calculus: early transcendentals. Cengage Learning.
Main references (sources)	<ul style="list-style-type: none"> Thomas, G. B., Haas, J., Heil, C., & Weir, (2018). Thomas' Calculus. Pearson Education Limited. Kreyszig, E., Stroud, K. and Stephenson, G., (2019). Advanced engineering mathematics. Integrat 9(4).T
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Engineering Drawing	
2. Course Code:	
ENG007	
3. Semester / Year:	
2 nd Semester 2024/2025	
4. Description Preparation Date:	
1/2/2025	
5. Available Attendance Forms:	
In Class	
6. Number of Credit Hours (Total) / Number of Units (Total)	
90 Hours (lectures) /3 Credit Hours	
7. Course administrator's name (mention all, if more than one name)	
Name: Wasan Mahdi Mahmood Email: eng.wasan2015@uoanbar.edu.iq Name: Dhifaf Natiq Hamdullah Email: dhifaf.natiq@uoanbar.edu.iq Name: Noor A. Rajab Email: eng.noor85@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	<ol style="list-style-type: none"> 1. Recognize the value of engineering graphics as a language of communication. 2. Infer the nature of engineering graphics, the relationships between 2D and 3D environments. 3. Comprehend and deduce orthographic projections of an object. 4. Visualize wide variety of objects and drawing the missing views. 5. Comprehend and deduce section views. 6. Produce two- and three-dimensional drawings utilizing CAD software.
9. Teaching and Learning Strategies	
Strategy	<ol style="list-style-type: none"> 1. Giving lectures about different topics and encouraging student to participate through discussion. 2. Conducting Examines and quizzes to evaluate students' understanding. 3. Help students to use computer lab to practice what was learn.
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	1 & 2	Introduction: graphic language, standards, instruments, letters...etc	Traditional method	Q , E , H
2	3	1 & 2	drawings, line types, types of drawings and sketches	Traditional method	Q , E , H
3	3	1 & 2	Rules for using calipers to draw circles	Traditional method	Q , E , H
4	3	1 & 2	Engineering processes and their application for drawing geometric shapes	Traditional method	Q , E , H
5	3	1 & 2	Applications on the computer using the AutoCAD program	Drawing using AutoCAD	Q , E , H
6	3	2 & 3	Orthographic views. Deducing front, top, and side views from a pictorial	Traditional method	Q , E , H
7	3	1 & 2&3&4	Dimensioning and Drawing Scale	Traditional method	Q , E , H
8	3	2 & 3	Applications on the computer using the AutoCAD program	Drawing using AutoCAD	Q , E , H
9	3	2 & 3	Sectional views: full and half sections	Traditional method	Q , E , H
10	3	2 & 3	Applications on the computer using the AutoCAD program	Drawing using AutoCAD	Q , E , H
11	3	2 & 3	Applications on the computer using the AutoCAD program	Drawing using AutoCAD	Q , E , H
12	3	2 & 3	Drawing a missed view from given two views	Traditional method	Q , E , H
13	3	2 & 3	Applications on the computer using the AutoCAD program	Drawing using AutoCAD	Q , E , H
14	3	3 & 4	Pictorial sketching: isometric and oblique	Traditional method	Q , E , H
15	3	3 & 4	Applications on the computer using the AutoCAD program	Drawing using AutoCAD	Q , E , H

11. Course Evaluation

Semester activities. These include quizzes, classroom interactions 13%

Lab work 20%
Mid semester exam 10%
CAD Exam 7%
Final Exam 50%

12.Learning and Teaching Resources

Required textbooks (curriculum books, if any)	Engineering drawing, Abdul Rasul Khafaf 1988
Main references (sources)	Interpreting Engineering Drawings, Jensen, C.H. and Helsel, G.D., 7th ed., Thomson Delmar Learning, 2007
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	https://www.uoanbar.edu.iq/Bank-Section.php

Course Description Form

1. Course Name: Engineering Geology					
2. Course Code: CIV002					
3. Semester / Year: 2 nd semester / 2024-2025					
4. Description Preparation Date: 12-May-2025					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total)					
3 Cr.Hrs / 30Hrs (lec.)+ 15Hrs(Tutorial) + 30Hrs (Lab)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Junied A. Baker					
Email: junied.bakr@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives		<ol style="list-style-type: none"> 1) To introduce basic geology and the principles of site investigation to civil engineering students. 2) Students should develop an appreciation of geologic processes and their influence civil engineering works. 3) Acquire knowledge of the most important rocks and minerals and be able to identify them. 4) Interpret geological maps with an emphasis on making construction decisions. 5) Demonstrate an understanding of the relationship between the built environment and its geological substrate and the possible impacts of natural earth hazards on engineered structures 			
9. Teaching and Learning Strategies					
Strategy		Lectures Tutorial Lab.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	1	Introduction and Overview	Lectures, Tutorial, Lab.	Written Exams Quizzes

					Homework assignment
2	3	1	Minerals properties	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
3	3	1	Minerals properties	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
4	3	1	Igneous Rock	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
5	3	1	Surface Processes and Sedimentary Rocks	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
6	3	2	Surface Processes and Sedimentary Rocks	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
7	3	2	Metamorphic rocks	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
8	3	2	Engineering Properties of Rocks	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
9	3	3	Structural Geology	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
10	3	3	Structural Geology	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
11	3	3	Structural Geology	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
12	3	3	Topographic and Geologic maps	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
13	3	3	Topographic and Geologic maps	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
14	3	3	Ground-water Geology	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
15	3	4	Ground-water Geology	Lectures, Tutorial,	Written Exams Quizzes Homework assignment

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include, Homeworks, Quizzes	At the end of each major topic	25%
Mid semester exam or Progress Exams	According to department	10%

	schedule	
Lab reports	Report per each experiment	6%
Classwork	Report	4%
Homework	Report	5%
Final Exam	Week-16	50%
Total		100%

11. Learning and Teaching Resources

Required textbooks (curriculum books, if any)	Blyth, F.G.H. and de Freitas, M. H. A. (1984). A Geology for Engineers. 7th Edition.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Waltham, T. (2003). Foundations of Engineering Geology. 2nd Edition. Bell, F. G. (2007). Engineering Geology. 2nd Edition. Lisle, R. J. (2004). Geological Structures and Maps-A practical Guide. 3rd Edition
Electronic References, Websites	

Course Description Form

1. Course Name:					
Statics					
2. Course Code:					
ENG006					
3. Semester / Year:					
2nd semester / 2024-2025					
4. Description Preparation Date:					
17-May-2025					
5. Available Attendance Forms:					
In class					
6. Number of Credit Hours (Total) / Number of Units (Total)					
60 hrs. / 3 Cr.					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Atheer F. Al-Anbaki Email: atheer.alanbaki@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives		<ol style="list-style-type: none"> 1) Use scalar and vector principles to find resultants of various force systems and solve equilibrium problems particles and rigid bodies. 2) Use fundamental concepts of structure analysis to analyze simple trusses and find internal forces throughout structural members. 3) Apply mathematical theorems and methods to determine center of gravity, centroids, and moment of inertia of various shapes and areas. 			
9. Teaching and Learning Strategies					
Strategy		Lectures Tutorial			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	4	1	General Principles	Lectures, Tutorial.	Written Exams Quizzes Homework assignment
2	4	1	Resultant of Coplanar and Non-coplanar Force Systems	Lectures, Tutorial.	Written Exams Quizzes Homework assignment
3	4	1	Resultant of General Force System	Lectures, Tutorial.	Written Exams Quizzes Homework assignment
4	4	1	Resultant of General Force System	Lectures, Tutorial.	Written Exams Quizzes Homework assignment
5	4	1	Equilibrium of a Particle	Lectures, Tutorial.	Written Exams Quizzes Homework assignment
6	4	1	Equilibrium of a Rigid Body	Lectures, Tutorial.	Written Exams Quizzes Homework assignment
7	4	1	Mid-term Exam	Lectures, Tutorial.	Written Exams Quizzes Homework assignment
8	4	1	Equilibrium of a Rigid Body	Lectures, Tutorial.	Written Exams Quizzes Homework assignment
9	4	2	Simple Truss Analysis: The Method of Joints	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
10	4	2	Simple Truss Analysis: The Method of Sections	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
11	4	2	Simple Truss Analysis: The Method of Sections	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
12	4	3	Center of Gravity / Mass	Lectures, Tutorial.	Written Exams Quizzes Homework assignment
13	4	3	Centroids	Lectures, Tutorial.	Written Exams Quizzes Homework assignment
14	4	3	Moment of Inertia	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
15	4	3	Moment of Inertia	Lectures, Tutorial,	Written Exams Quizzes Homework assignment

11. Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Class Work	Weeks 1-15	5.00%
Quizzes	Weeks 1-15	25.0%
Homework	Week-6	5.00%

Mid-term Exam	Week-7	10.0%
Report	Week-12	5.00%
Final Exam	Week-16	50.0%
Total		100%

12. Learning and Teaching Resources

Required textbooks (curriculum books, if any)	R.C. Hibbeler, Engineering Mechanics: Statics, Pearson, 14th ed., 2016.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:					
English 1					
2. Course Code:					
CE1101					
3. Semester / Year:					
Second semester					
4. Description Preparation Date:					
17-5-2025					
5. Available Attendance Forms:					
yes					
6. Number of Credit Hours (Total) / Number of Units (Total)					
2					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Hamid Ahmed Awad Email: hamid.awad@uoanabr.edu.iq					
8. Course Objectives					
Course Objectives					
			1. Read and understand basic expressions, short and simple texts. 2. Integrate the use of the four language skills i.e. Reading, Listening, Speaking, Writing. 3. Demonstrate limited control of essential grammatical structures. 4. Recognize and use properly ancient and modern dictionaries to look up words and meanings.		
9. Teaching and Learning Strategies					
Strategy					
		Text book			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	2	1	Unit 1	Text b.	HW
2	2	1	Unit 2	Text b.	QUIZ
3	2	1	Unit 3	Text b.	HW
4	2	2	Unit 4	Text b.	Quiz
5	2	2	Unit 5	Text b.	QUIZ
6	2	2	Unit 6	Text b.	QUIZ
7	2	2	Unit 7	Text b.	HW
8	2	3	Unit 8	Text b.	M. Exam
9	2	3	Unit 9	Text b.	HW
10	2	3	Unit 10	Text b.	QUIZ
11	2	4	Unit 11	Text b.	HW
12	2	4	Unit 12	Text b.	M. Exam
13	2	4	Unit 13	Text b.	QUIZ
14	2	4	Unit 14	Text b.	M. Exam
15	2		Review	Text b.	Report

11. Course Evaluation

Monthly exam 10%, Quiz 15%, Homework 15%, Report 10%, Final Exam 50%

12. Learning and Teaching Resources

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

Course Description

1. Course Name
Fundamentals of Electrical Engineering
2. Course Code
ELEC101
3. Semester / Year
Second / 2025
4. Date of Preparation
2025/5/20
5. Available Attendance Modes
In-class
6. Total Study Hours / Total Units
45 hours (Theory) + 15 hours (Practical) + 15 hours (Laboratory) / 3 units
7. Course Coordinator(s)
- Name : Dr. Ali Amer Ahmed
Email : ali.amer@uoanbar.edu.iq
8. Course Objectives
1. Understanding the theoretical and practical foundations of electrical engineering.
2. Learning about electrical circuits and how to analyze them.
3. Gaining knowledge about electrical components such as resistors, capacitors, and inductors.
4. Understanding and applying Kirchhoff's laws, Norton, Node, Mesh, and Delta-Star in electrical circuits.
5. Conducting laboratory experiments to determine the electrical characteristics of various components.
9. Teaching and Learning Strategies
- Lectures
- Practical Applications
- Laboratory Sessions

10. Course Structure

1. Course Structure

Week	Hours	Expected Learning Outcomes	Unit or Topic Name	Teaching Method	Assessment Method
1	3	Understanding the basics of electrical engineering	Introduction to Electrical Engineering	Lectures, Practical, Laboratory	Written exams, quizzes, homework
2	3	Learning about basic electrical components	Basic Electrical Components	Lectures, Practical, Laboratory	Written exams, quizzes, homework
3	3	Applying Ohm's Law and circuit analysis	Ohm's Law	Lectures, Practical	Written exams, quizzes, homework
4	3	Analyzing series and parallel circuits	Series and Parallel Circuits	Lectures, Practical, Laboratory	Written exams, quizzes, homework
5	3	Circuit analysis using Kirchhoff's laws	Circuit Analysis Using Kirchhoff's Laws	Lectures, Practical, Laboratory	Written exams, quizzes, homework
6	3	Circuit analysis using Node laws	Circuit Analysis Using Node Laws	Lectures, Practical, Laboratory	Written exams, quizzes, homework
7	3	Circuit analysis using Mesh laws	Circuit Analysis Using Mesh Laws	Lectures, Practical, Laboratory	Written exams, quizzes, homework
8	3	Solved problems and examples	Solved Problems and Examples	Lectures, Practical	Written exams, quizzes, homework
9	3	Circuit analysis using Norton's laws	Circuit Analysis Using Norton's Laws	Lectures, Practical	Written exams, quizzes, homework
10	3	Solved problems and examples	Solved Problems and Examples	Lectures, Practical	Written exams, quizzes, homework
11	3	Circuit analysis using Thevenin's laws	Circuit Analysis Using Thevenin's Laws	Lectures, Practical	Written exams, quizzes, homework
12	3	Solved problems and examples	Solved Problems and Examples	Lectures, Practical	Written exams, quizzes, homework
13	3	Circuit analysis using Delta-Star	Circuit Analysis Using Delta-Star	Lectures, Practical	Written exams, quizzes,

		transformation			homework
14	3	Solved problems and examples	Solved Problems and Examples	Lectures, Practical	Written exams, quizzes, homework
15	3	Practical applications in electrical engineering	Practical Applications in Electrical Engineering	Lectures, Practical, Laboratory	Written exams, quizzes, homework

11. Course Assessment

- Written Exams: 30%
- Homework: 5%
- Quizzes: 5%
- Laboratory Reports: 10%
- Final Exam: 50%

12. Learning and Teaching Resources

- Required Textbooks (if any)
 - Fundamentals of Electrical Engineering, Leonard S. Bobrow, 2nd ed., 2011
- Main References (Sources)
 - Recommended Books and References (Journals, Reports, etc.)
 1. Electric Circuits, James W. Nilsson & Susan Riedel, 10th Ed.
 2. Introduction to Electric Circuits, Richard C. Dorf & James A. Svoboda, 8th Ed.
 3. Electrical Engineering: Principles and Applications, Allan R. Hambley, 6th ed.
- Electronic References, Websites

Course Description Form

1. Course Name: Engineering Economy					
2. Course Code: CIV007					
3. Semester / Year: 2nd semester / 2024-2025					
4. Description Preparation Date: 20/5/2025					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total) Cr.Hrs / 45Hrs (lec.)+ 15Hrs(Tutorial)					
7. Course administrator's name (mention all, if more than one name)					
Name: SaLam Rafea Armoosh Email: salam.armoosh@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives		<ol style="list-style-type: none"> 1. Understand fundamental concepts of engineering economy and their role in decision-making processes. 2. Analyze the economic feasibility of engineering projects using systematic evaluation methods. 3. Apply the principles of time value of money to compare different investment alternatives. 4. Evaluate project alternatives using present worth, equivalent annual worth, and benefit-cost analysis. 5. Interpret depreciation methods and their impact on project cost evaluation. 			
9. Teaching and Learning Strategies					
Strategy	Lectures Tutorial.				
10. Course Structure					
Week	Hours	Required	Unit or subject name	Learning	Evaluation method

		Learning Outcomes		method	
1	3	1	Introduction to engineering economy	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignments,
2	3	1	Introduction to engineering economy	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
3	3	1, 2	Economic feasibility study	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
4	3	1, 2	Economic feasibility study	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
5	3	1, 3	Time value of money	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
6	3		First Month Exam	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
7	3	1, 3	Time value equivalence	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
8	3	1, 3	Time value equivalence	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
9	3	3, 4	Present worth comparison	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
10	3	1, 3, 4	Equivalent Annual worth comparison	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
11	3	1, 3, 4	Equivalent Annual worth comparison	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
12	3		Second Month Exam	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
13	3	1, 4, 5	Benefit cost analysis	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
14	3	1, 5	Benefit cost analysis	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
15	3	1, 5	Depreciation	Report, Tutorial	Write a report, discuss

11. Course Evaluation

Written exams 20%
Homework 5%
Quizzes 5%
Attendance 5%
Reports 5%
Final exam 60%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Engineering Economy – R. Panneerselvam
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Chan, S. Park. Fundamentals of Engineering Economics, 4th Edition, 2020.
Electronic References, Websites	-----

Course Description Form

1. Course Name:					
Numerical methods					
2. Course Code:					
CE3202					
3. Semester / Year:					
Second					
4. Description Preparation Date:					
15 May 2025					
5. Available Attendance Forms:					
Full time, In person					
6. Number of Credit Hours (Total) / Number of Units (Total)					
45 hours					
7. Course administrator's name (mention all, if more than one name)					
Name: Jalil E. Kwad (Lecurer, PhD.) Email: Jalil.Kwad@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives					
<ol style="list-style-type: none"> 1. The student is familiar with the mathematical background of different numerical methods. 2. Understand different numerical methods for solving algebraic equations and for estimating roots of nonlinear equations. 3. Study formulating relationship between discrete data through curve fitting 4. Understand different numerical methods for differentiation and integration and for solving ODEs and PDEs 5. Create MATLAB functions to solve numerical geometry problems and use the built-in functions 					
9. Teaching and Learning Strategies					
Strategy					
		<ol style="list-style-type: none"> 1. Giving lectures about different topics and encouraging students to participate discussion about application of these numerical methods in field of civil engineering. 2. Giving assignments at the end of each chapter to help students to practice what was learn through each chapter. 3. Conducting Examines and quizzes to evaluate students' understanding. 4. Help students to use MATLAB software to solve different numerical methods in computerized way. 			
10. Course Structure					
Week	Ho	Required Learning	Unit or subject name	Learning	Evaluation

	urs	Outcomes		method	method
Week 1	3	Be aware of the mathematical background for the different numerical methods introduced in the course.	General Introduction about course and computer lab.	lectures	NA
Week 2	3	Understand the different numerical methods to solve the algebraic equations and to solve system of linear and nonlinear equations.	General definition of the types of numerical error, Roots of equations	Lectures lab	Exams
Week 3	3	Understand the different numerical methods to solve the algebraic equations and to solve system of linear and nonlinear equations.	Roots of equations	Lectures lab	Exams HW
Week 4	3	Understand the different numerical methods to solve the algebraic equations and to solve system of linear and nonlinear equations.	Solving system of linear equations	Lectures lab	Exams HW
Week 5	3	Understand the different numerical methods to solve the algebraic equations and to solve system of linear and nonlinear equations.	Solving system of linear equations	Lectures lab	Exams HW
Week 6	3		Progress Exam 1		
Week 7	3	Understand the different numerical methods for interpolation and curve fitting	Curve Fitting, Polynomial Interpolation	Lectures lab	Exams HW
Week 8	3	Understand the different numerical methods for interpolation and curve fitting	Curve Fitting, Polynomial Interpolation	Lectures lab	Exams HW
Week 9	3	Understand the different numerical methods for differentiation, integration and solving set of ordinary differential equations.	Numerical differentiation	Lectures lab	Exams HW
Week 10	3	Understand the different numerical methods for differentiation, integration and solving set of ordinary differential	Numerical differentiation	Lectures lab	Exams HW

		equations.			
Week 11	3	Understand the different numerical methods for differentiation, integration and solving set of ordinary differential equations.	Numerical integration	Lectures lab	Exams HW
Week 12	3		Progress Exam 2		
Week 13	3	Understand the different numerical methods for differentiation, integration and solving set of ordinary differential equations.	Ordinary differential equations	Lectures lab	Exams HW
Week 14	3	Understand the different numerical methods for differentiation, integration and solving set of ordinary differential equations.	Ordinary differential equations	Lectures lab	Exams HW
Week 15	3	Understand the different numerical methods for differentiation, integration and solving set of ordinary differential equations.	Partial differential equations	Lectures lab	Exams HW

11.Course Evaluation

- Quizzes 5%
- Progress exam 1 15%
- Progress exam 1 15%
- Lab 10%
- HW 5%.
- Final Exam 50%.

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Numerical Methods for Engineers, 6th edition 2010, S. C. Chapra and R. P Canale, McGraw-Hill,
Main references (sources)	
Recommended books and references (scientific journals, reports...)	K. Atkinson: An Introduction to Numerical Analysis, Wiley, (2nd ed.), 1989
Electronic References, Webites	

Course Description Form

1. Course Name: reinforced concrete-2					
2. Course Code: CE3320					
3. Semester / Year: 2nd semester/ 2024-2025					
4. Description Preparation Date: 12-May-2025					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total) 3 Cr.Hrs / 120 Hrs (lec.)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. jamal A, Khalaf Email: jamal.khalaf@uoanbar.edu.iq Name: Dr. Ahmed Anis Ahmed Email: Ahmed.anis@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives			<ol style="list-style-type: none"> 1. understand analysis and design of short column and two direction slabs 2. analysis and design of short colons 3. analysis and design of two-way slabs 		
9. Teaching and Learning Strategies					
Strategy		Lectures Tutorial			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	1	ort Reinforced Concrete Compress Members	Lectures, Tutorial, Lab.	Written Exams Quizzes

					Homework assignment
2	3	1	Short Concrete Columns	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
3	3	1	Design of Spiral Reinforcement.	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
4	3	1	Reinforced Concrete Columns (Uniaxial Bending Design)	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
5	3	1	Reinforced Concrete Columns (interaction diagrams)	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
6	3	2	Reinforced Concrete Columns (Biaxial Bending)	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
7	3	2	Reinforced Concrete Columns (Biaxial Bending)	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
8	3	2	Mid-term Exam	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
9	3	3	Design of TWO-WAY SLABS	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
10	3	3	Learn the analysis and design of Two way slabs.	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
11	3	3	Lateral Moment Distribution by DD development length	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
12	3	3	Learn the analysis and design of Two way slabs.	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
13	3	3	Lateral Moment Distribution by DD development length	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
14	3	3	Learn the analysis and design of Two way slabs.	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
15	3	4	Comprehensive Exam	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include, Homeworks, Quizzes	At the end of each major topic	10%
Mid semester exam or Progress Exams	According to department schedule	30%
Final Exam	Week-16	60%

Total		100%
11.Learning and Teaching Resources		
Required textbooks (curriculum books, if any)	Design of R.C.Structures) by Nilson	
Main references (sources)		
Recommended books and references (scientific journals, reports...)		
Electronic References, Websites		

Course Description Form

1. Course Name: Soil Mechanics-2					
2. Course Code: CIV018					
3. Semester / Year: 2nd semester/ 2024-2025					
4. Description Preparation Date: 18-May-2025					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total)					
3 Cr.Hrs / 30Hrs (lec.)+ 15Hrs(Tutorial) + 30Hrs (Lab)					
7. Course administrator's name (mention all, if more than one name)					
Name: Asst. Prof. Dr. Muayad A. Al-Sharrad Email: muayad.alsharrad@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives		<ol style="list-style-type: none"> 1. Apply one-dimensional consolidation theory to calculate settlement and pore pressure as a function of time during consolidation. 2. Apply the principles of shear strength of soils to various laboratory tests. 3. Perform experimental work and determine the compressibility and shear strength properties of soils applied in field problems. 			
9. Teaching and Learning Strategies					
Strategy		Lectures Tutorial Lab.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	1	Introduction	Lectures, Lab.	Written Exams Quizzes Homework assignment
2	3	1,3	One-dimensional consolidation theory	Lectures, Tutorial, Lab	Written Exams Quizzes

					Homework assignment
3	3	1,3	Calculation of settlement from one dimensional primary and secondary consolidation	Lectures, Tutorial, , Lab	Written Exams Quizzes Homework assignment
4	3	1,3	Calculation of settlement from one dimensional primary and secondary consolidation	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignment
5	3	1	Problems on consolidation	Lectures, Tutorial	Written Exams Quizzes Homework assignment
6	3	1,3	Time rate of consolidation	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignment
7	3	2	Problems on time rate of consolidation	Lectures, Tutorial	Written Exams Quizzes Homework assignment
8	3	1	First monthly exam		Written Exams
9	3	2,3	Shear strength of soil and Mohr-Coulomb failure criteria	Lectures, Tutorial, lab	Written Exams Quizzes Homework assignment
10	3	2,3	Determination of shear strength parameters from direct shear test triaxial compression test	Lectures, Tutorial, lab	Written Exams Quizzes Homework assignment
11	3	2,3	Determination of shear strength parameters from direct shear test triaxial compression test	Lectures, Tutorial	Written Exams Quizzes Homework assignment
12	3	3	Pore water pressure parameters	Lectures, Tutorial	Written Exams Quizzes Homework assignment
13	3	3	Problems on shear strength	Lectures, Tutorial	Written Exams Quizzes Homework assignment
14	3	3	Problems on shear strength	Lectures, Tutorial	Written Exams Quizzes Homework assignment
15	3	3	Second monthly exam		Written Exams

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include, Homeworks, Quizzes	At the end of each major topic	10%
Mid semester exam or Progress Exams	According to department schedule	20%
Lab reports	Report per each experiment	10%
Final Exam	Week-16	60%
Total		100%

11.Learning and Teaching Resources

Required textbooks (curriculum books, if any)	Braja M. Das, Fundamentals of Geotechnical Engineering, 3rd ed., 2007
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Knappett J., Craig R.F., Craig Soil Mechanics, 9th ed. Ishibashi, I., Hazarika, H. Soil Mechanics Fundamentals, 2010.
Electronic References, Websites	

Course Description Form

1. Course Name:					
Structures 2					
2. Course Code:					
CIV016					
3. Semester / Year:					
2 nd Semester 2024/2025					
4. Description Preparation Date:					
22 May-2025					
5. Available Attendance Forms:					
In Class					
6. Number of Credit Hours (Total) / Number of Units (Total)					
3 Credit Hours / 60 Hours (lectures)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Shaho Mahmoud Hama Email: shaho_m83@uoanbar.edu.iq Name: Dr. Mohammed Raji Mohammed Email: moh.raji@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives			<ol style="list-style-type: none"> 1. use the consistent deformations method (a force method) to analyze statically indeterminate linearly elastic structures. 2. use the slope-deflections equations (a displacement method) to analyze statically indeterminate linearly elastic structures. 3. use the moment distribution method (a displacement method) to analyze statically indeterminate linearly elastic structures. 		
9. Teaching and Learning Strategies					
Strategy			Lectures		
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	1	Deflections by virtual work method: Trusses	Lectures	Exams Quizzes
2	4	1	Deflections by virtual work	Lectures	Exams

			method: Beams		Quizzes
3	4	1	Deflections by virtual work method: Frames	Lectures	Exams Quizzes
4	4	1	Analysis of statically indeterminate structures by the force method: Trusses	Lectures	Exams Quizzes
5	4	1	Analysis of statically indeterminate structures by the force method: Beams	Lectures	Exams Quizzes Homework assignment
6	4	1	Analysis of statically indeterminate structures by the force method: Frames	Lectures	Exams Quizzes
7	4	2	Analysis of statically indeterminate structures by the slope deflection method: Beams	Lectures	Exams Quizzes
8	4	2	Analysis of statically indeterminate structures by the slope deflection method: Beams	Lectures	Exams Quizzes
9	4	2	Analysis of statically indeterminate structures by the slope deflection method: Braced frames	Lectures	Exams Quizzes
10	4	2	Analysis of statically indeterminate structures by the slope deflection method: Frames with sidesway	Lectures	Exams Quizzes Homework assignment
11	4	2	Analysis of statically indeterminate structures by the slope deflection method: Frames with sidesway	Lectures	Exams Quizzes
12	4	3	Analysis of statically indeterminate structures by the moment distribution method: Introduction	Lectures	Exams Quizzes
13	4	3	Analysis of statically indeterminate structures by the moment distribution method: Beams	Lectures	Exams Quizzes
14	4	3	Analysis of statically indeterminate structures by the moment distribution method: Braced frames	Lectures	Exams Quizzes
15	4	1, 2, 3	Review	Lectures	Exams Quizzes

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include, Homeworks, Quizzes	At the end of each major topic	15%
Mid semester exam or Progress Exams	According to department schedule	25%

Lab reports		0%
Final Exam	Week-16	60%
Total		100%

11. Learning and Teaching Resources

Required textbooks (curriculum books, if any)	R. C. Hibbeler, "STRUCTURAL ANALYSIS", Tenth Edition in SI Units. Published by Pearson Education, Inc. or its affiliates, 2020.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name: Traffic Engineering	
2. Course Code: CIV019	
3. Semester / Year: Second /2024-2025	
4. Description Preparation Date: 20/5/2025	
5. Available Attendance Forms: In class /weekly	
6. Number of Credit Hours (Total) / Number of Units (Total): 3	
7. Course administrator's name (mention all, if more than one name) Name: Asst. Prof. Hameed Aswad Mohammed Email: hameedaswad@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	<ol style="list-style-type: none">1. Describe the character, elements and impacts of human factors and vehicle characteristics on traffic operations and safety;2. Conduct and analyze the results of volume, speed, and delay studies to assess the performance of transportation infrastructure;3. Design and analysis different traffic facilities.4. Conduct a full traffic impact study resulting in the assessment and design of on and off-site mitigation; and5. Communicate effectively the results of transportation engineering analysis in written and verbal forms.
9. Teaching and Learning Strategies	
Strategy	<ol style="list-style-type: none">1. Lecture notes2. Data show3. Homework and project (online and in class)

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Understanding the fundamental principles of traffic engineering	Syllabus & Introduction to Traffic Engineering	Theoretical	Homework, quizzes, exams
2	4	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	Principles of Traffic Engineering	Theoretical	Homework, quizzes, exams
3	4	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	Traffic Stream Parameters	Theoretical	Homework, quizzes, exams
4	4	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	Macroscopic Parameters	Theoretical	Homework, quizzes, exams
5	4	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	Road Users Characteristics and Sight Distance	Theoretical	Homework, quizzes, exams
6	4	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	Primary Elements of Traffic Flow	Theoretical	Homework, quizzes, exams
7	4	An ability to identify, formulate, and solve complex engineering	Relationship Between Basic Traffic Variables	Theoretical	Homework, quizzes, exams

		problems by applying principles of engineering, science, and mathematics			
8			Midterm Exam		
9	4	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	Traffic Flow Theory	Theoretical	Homework, quizzes, exams
10	4	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	Speed Studies	Theoretical	Homework, quizzes, exams
11	4	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	Capacity and Level-of Service for Highway Segments	Theoretical	Homework, quizzes, exams
12	4	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	Traffic Signal	Theoretical	Homework, quizzes, exams
13	4	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	Road Intersections	Theoretical	Homework, quizzes, exams

14	4	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	Traffic Signs and Road Markings	Theoretical	Homework, quizzes, exams
15			Final Exam		

11. Course Evaluation

1. Homework 5%
2. Quizzes 5%
3. Active Class Participation 5%
4. Attendance 5%
5. Midterm Exams 20%
6. Final Exam 60%

12. Learning and Teaching Resources

Main references (sources)

1. Highway Capacity Manual (HCM), Transportation Research Board (TRB), Washington D.C., 2010.
2. Manual on Uniform Traffic Control Devices, FHWA, U.S. Department of Transportation, Washington, D.C., 2009.
3. Walter H. Kraft, Wolfgang S. Homburger, & James L. Pline, Traffic Engineering Handbook, Sixth Edition, Institute of Transportation Engineers (ITE), Washington, D.C., 2010.
4. Bastian J. Schroeder, Christopher M. Cunningham, Daniel J. Findley, Joseph E. Hummer, & Robert S. Foyle, Manual of Traffic Engineering Studies. Second Edition, Institute of Transportation Engineers (ITE), Washington, D.C., 1994.
5. Nicholas J. Garber and Lester A. Hoel, Traffic and Highway Engineering, Fifth Edition, Cengage Learning, Toronto, ON,

	2015.
Recommended books and references (scientific journals, reports...)	<ol style="list-style-type: none">1. Roger P. Roess, Elena S. Prassas, & William R. McShane, Traffic Engineering, Fourth Edition, Pearson Higher Education, Inc., Upper Saddle River, NJ, 20112. Thomas R. Currin, Introduction to Traffic Engineering a Manual for Data Collection and Analysis, Second Edition, Cengage Learning, Stamford, CT, 2013.

Course Description Form

1. Course Name: Calculus -4					
2. Course Code: ENG009					
3. Semester / Year: 2nd semester/ 2024-2025					
4. Description Preparation Date: 12-June-2025					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total) 3 Cr.Hrs / 120 Hrs (lec.)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. jamal A, Khalaf Email: jamal.khalaf@uoanbar.edu.iq Name: Dr. Atheer F. Al-Anbaki Email: atheer.alanbaki@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives		<ul style="list-style-type: none"> ● Determine the solution of linear and nonlinear first order differential equations using various techniques and Solve applied problems using first order differential equation models ● Solve non-homogeneous second order differential equations using the method of undetermined coefficients and the method of variation of parameters and Apply second order differential equations to solve vibration models based on real life problems ● Use Fourier series solutions and some Applications. ● Use Laplace transforms to solve differential equations and initial value problems. 			
9. Teaching and Learning Strategies					
Strategy		Lectures Tutorial			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	3	1	etermine the solution of linear and nonlinear order differential equations using varioc techniques	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
2	3	1	etermine the solution of linear and nonlinear order differential equations using varioc techniques	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
3	3	1	Solve applied problems using first order differential equation models ^[1] _[SEP]	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
4	3	1	Solve applied problems using first order differential equation models ^[1] _[SEP]	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
5	3	1	Solve applied problems using first order differential equation models ^[1] _[SEP]	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
6	3	2	ve non-homogeneous second order differe equations using the method of undeterm coefficients and the method of variatio parameters	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
7	3	2	ve non-homogeneous second order differe equations using the method of undeterm coefficients and the method of variatio parameters	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
8	3	2	Apply second order differential	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
9	3	3	Apply second order differential	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
10	3	3	Use Fourier series solutions and some Applications.	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
11	3	3	Use Fourier series solutions and some Applications.	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
12	3	3	Use Fourier series solutions and some Applications.	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
13	3	3	Use Laplace transforms to solve differential equations and initial value problems. ^[1] _[SEP]	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
14	3	3	Use Laplace transforms to solve differential equations and initial value problems. ^[1] _[SEP]	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
15	3	4	Use Laplace transforms to solve differential equations and initial value problems. ^[1] _[SEP]	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include, Homeworks, Quizzes	At the end of each major topic	10%

Mid semester exam or Progress Exams	According to department schedule	30%
Final Exam	Week-16	60%
Total		100%

11. Learning and Teaching Resources

Required textbooks (curriculum books, if any)	Fundamentals of Differential Equations bound with IDE CD (5th Edition) by Nagle, Saff and Snider
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:					
Computer Science 2					
2. Course Code:					
UOA007					
3. Semester / Year:					
Second					
4. Description Preparation Date:					
15 th May 2025					
5. Available Attendance Forms:					
Full time, In person					
6. Number of Credit Hours (Total) / Number of Units (Total)					
45 hours					
7. Course administrator's name (mention all, if more than one name)					
Name: Ahmed Hilal Farhan (Asst. Prof., PhD) Email: ahmed.farhan_ce@uoanbar.edu.iq					
8. Course Objectives					
<p>Course Objectives</p> <p>This course introduces the student to computer fundamentals-related issues such as computer networking types, computer network security and threats. In addition, this course helps students to identify computer problems and troubleshooting techniques to ensure safe computers and high level of students' intendancy. Finally, this course will also introduce students to the basics of AI, its applications and ethical challenges related to AI.</p>					
9. Teaching and Learning Strategies					
Strategy		<ol style="list-style-type: none"> 1. Giving lectures about different topics and encouraging students to participate through discussion. 2. Conducting Examiners and quizzes to evaluate students' understanding. 3. Help students to use computer lab to practice what was learn. 			
10. Course Structure					
Week	Ho urs	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	1	Identify computer networking, type and features of networking including advantages and disadvantages and their usage.	General introduction about computers, email, video conferencing	Lectures lab	Exams Lab
Week 2	1	Identify computer networking, type and	Identifying various computer networks,	Lectures	Exams

		features of networking including advantages and disadvantages and their usage.	their advantages and disadvantages, and usage.		
Week 3	1	Identifying various threats of networks and how to deal with these threats and security problems	Identifying various computer networks threats and how to overcome these threats	Lectures	Exams
Week 4	1	Identifying various threats of networks and how to deal with these threats and security problems	Identifying various computer networks threats and how to overcome these threats	Lectures	Exams
Week 5	1	How to deal with software and hardware problems and the troubleshooting techniques.	Identifying different troubleshooting techniques	Lectures lab	Exams Lab
Week 6	1	How to deal with software and hardware problems and the troubleshooting techniques.	Identifying different troubleshooting techniques		
Week 7	1	Mid-term Exam			Exams
Week 8	1	How to deal with software and hardware problems and the troubleshooting techniques.	Identifying different troubleshooting techniques	Lectures lab	Exams Lab
Week 9	1	How to deal with software and hardware problems and the troubleshooting techniques.	Identifying different troubleshooting techniques	Lectures lab	Exams Lab
Week 10	1	Identify the AI and its history and the applications of AI, and the usage of AI in different fields.	Introduction to AI	Lectures	Exams
Week 11	1	Identify the AI and its history and the applications of AI, and the usage of AI in different fields.	Establishment and development of AI and ethical challenges.	Lectures	Exams
Week 12	1	Identify the AI and its history and the applications of AI, and the usage of AI in different fields.	Applications of AI in our daily lives	Lectures lab	Exams Lab
Week 13	1	Identify the AI and its history and the	Applications of AI in our daily lives	Lectures lab	Exams Lab

		applications of AI, and the usage of AI in different fields.			
Week 14	1	Identify the AI and its history and the applications of AI, and the usage of AI in different fields.	Future of AI	Lectures	Exams
Week 15	1	General Review		Lectures lab	Exams lab

11. Course Evaluation

- Quizzes 25%
- LAB 7 %
- In-class activities 4%
- Homework 4%
- Mid-term Exam 10%
- Final Exam 50%.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	<ul style="list-style-type: none"> • Graham Brown and Daive Watson “Cambridge IGCSE information and communication technology” 3rd Edition, 2020. • Alan Evans and Kendall Martin “Technology in action complete” 16th edition, 2020. • Ahmed Banafa “Introduction to Artificial Intelligent AI”, 1st edition 2024. • الخضر على الخضر بحاث " اساسيات الحاسوب" و 2016 • د. عادل عبد النور " المدخل الى عالم الذكاء الاصطناعي " 2005
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name: construction building					
Course Code: CE 3315					
2. Semester / Year: 2st semester / 2024-2025					
3. Description Preparation Date: 18-may-2025					
4. Available Attendance Forms: In class					
5. Number of Credit Hours (Total) / Number of Units (Total) 3 Cr.Hrs / 30Hrs (lec.)+ 15Hrs(Tutorial) + 30Hrs (Lab)					
6. Course administrator's name (mention all, if more than one name)					
Name: Ass.st Prof. Dr. Yousif A. Mansoor Email: yousif.mansoor@uoanbar.edu.iq Name: Tamar Yousif Ahmed Email:					
7. Course Objectives					
Course Objectives			<ol style="list-style-type: none"> 1. understand the origin, formation, parameters and basic fundamental of construction 2. understand skills of construction 3. understand the effective of different construction methods in items of building 4. understand the principles of construction and drawing 5. reading the plane sheet 6. developed the student ability to read and draw the plane of building 		
8. Teaching and Learning Strategies					
Strategy		Lectures Tutorial Lab.			
9. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	2	Introduction to building construction including stages of construction and buildings types	Lectures, Tutorial, Lab.	Written Exams Quizzes

					Homework assignment
2	3	5	Earthwork: excavations and earth filling	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
3	2	4	Footing and foundation	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
4	3	1	Piles: uses and types	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
5	3	1	Concrete works: mixing, transport, pumping, compaction, finishing and curing	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
6	3	2	Brickwork	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
7	3	2	Mid-term Exam	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
8	3	2	Walls: types and function	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
9	3	3	Floors and roofs	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
10	3	3	Arches, lintels and sills	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
11	3	2	Damp proofing	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
12	3	3	Doors and windows	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
13	3	3	Joints in buildings	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
14	3	3	Structural drawing	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
15	3	4	Final Exam	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include, , Quizzes reports	At the end of each major topic	25%
Mid semester exam or Progress Exams	For topics of construction According to department schedule	5%
		10%

Lab reports (Homeworks, Quizzes)	Exams and reports and homework	10%
Final Exam	Week-16	50%
Total		100%

10. Learning and Teaching Resources

Required textbooks (curriculum books, if any)	
Main references (sources)	R. Chudley 'building construction handbook, 7th edition, 2008
Recommended books and references (scientific journals, reports...)	B.C. Punmaia 'Building construction' reprinted 2005
Electronic References, Websites	

Course Description Form

1. Course Name:					
Engineering Surveying-II					
2. Course Code:					
CIV007					
3. Semester / Year:					
2 nd Semester/ Second Year					
4. Description Preparation Date:					
2025-05-18					
5. Available Attendance Forms:					
In class					
6. Number of Credit Hours (Total) / Number of Units (Total)					
3 credit hours					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Maher Shakir Mahmood Email: maher.mahmood@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives		<ul style="list-style-type: none"> • Learn the basics of surveying and field measurement. • Train on different types of engineering measurement and surveying equipment. • Apply engineering surveying principles and ideas to a wide range of engineering problems, projects, and various engineering constructions 			
9. Teaching and Learning Strategies					
Strategy		<ol style="list-style-type: none"> 1. Lectures 2. Assignments 3. Discussions 			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	6	1. Develop an ability to solve plane surveying problems by proper mathematics. 3. Learn to apply total stations and other surveying equipment to make observations.	Areas	Lecture, Tutorial and Lab	Exam, and assignments
2.	6	1. Establish an ability to solve plane surveying problems by proper mathematics. 3. Learn to apply total stations and other surveying equipment to make observations.	Areas	Lecture, Tutorial and Lab	Exam, and assignments
3.	6	1. Establish an ability to solve plane surveying problems by proper mathematics.	Areas	Lecture, Tutorial and Lab	Exam, and assignments

		3. Learn to apply total stations and other surveying equipment to make observations.			
4.	6	1. Develop 1. Establish an ability to solve plane surveying problems by proper mathematics. 3. Learn to apply total stations and other surveying equipment to make observations.	Volume computations	Lecture, Tutorial and Lab	Exam, and assignments
5.	6	1. Establish an ability to solve plane surveying problems by proper mathematics. 3. Learn to apply total stations and other surveying equipment to make observations.	Volume computations	Lecture, Tutorial and Lab	Exam, and assignments
6.	6	2. provide the knowledge and skill in curve ranging. 3. Learn to apply total stations and other surveying equipment to make observations.	Horizontal curves.	Lecture, Tutorial and Lab	Exam, and assignments
1.	6	2. provide the knowledge and skill in curve ranging. 3. Learn to apply total stations and other surveying equipment to make observations.	Horizontal curves.	Lecture, Tutorial and Lab	Exam, and assignments
2.	6		Mid -Term Exam		Exam, and assignments
3.	6	2. provide the knowledge and skill in curve ranging. 3. Learn to apply total stations and other surveying equipment to make observations.	Horizontal curves	Lecture, Tutorial and Lab	Exam, and assignments
4.	6	2. provide the knowledge and skill in curve ranging. 3. Learn to apply total stations and other surveying equipment to make observations.	Vertical curves	Lecture, Tutorial and Lab	Exam, and assignments
5.	6	2. provide the knowledge and skill in curve ranging. 3. Learn to apply total stations and other surveying equipment to make observations.	Vertical curves	Lecture, Tutorial and Lab	Exam, and assignments
6.	6	2. provide the knowledge and skill in curve ranging. 3. Learn to apply total stations and other surveying equipment to make observations.	Vertical curves	Lecture, Tutorial and Lab	Exam, and assignments
7.	6	1. Establish an ability to solve plane surveying problems by proper mathematics. 3. Learn to apply total stations and other surveying equipment to make observations. 4. Develop an understanding of the basic principles of photogrammetry, geographic information system GIS and global position system GPS.	Global Position System (GPS)	Lecture, Tutorial and Lab	Exam, and assignments

8.	6	1. Establish an ability to solve plane surveying problems by proper mathematics. 3. Learn to apply total stations and other surveying equipment to make observations. 4. Develop an understanding of the basic principles of photogrammetry, geographic information system GIS and global position system GPS.	Basic principle of remote sensing	Lecture, Tutorial and Lab	Exam, and assignments
9.	6	1. Establish an ability to solve plane surveying problems by proper mathematics. 3. Learn to apply total stations and other surveying equipment to make observations. 4. Develop an understanding of the basic principles of photogrammetry, geographic information system GIS and global position system GPS.	Introduction to Geographic Information System (GIS).	Lecture, Tutorial and Lab	Exam, and assignments

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)	<ul style="list-style-type: none"> • Charles D. Ghilani, Paul R. Wolf, Elementary Surveying, Prentice Hall, 12th ed., 2008. • Chandra, A. M. Surveying Problem Solution with Theory and Objective Type Questions. New Age International, 2005
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name: English Language-II					
2. Course Code: (UOA004)					
3. Semester / Year: 2nd semester/ 2024-2025					
4. Description Preparation Date: 12-December-2024					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total) 3 Cr.Hrs / 30Hrs (lec.)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Sadoon Mushrif Abdallah Abed Email: sadoon.m.abdullah@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives		<ul style="list-style-type: none"> a. Enabling students to reach academic oral and written communication at the required level for the university. b. Expand academic and engineering vocabulary through reading. c. Enhance critical thinking skills. 			
9. Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> 1. Lectures 2. Working papers 3. Online Studies 4. Group Discussions 			
10. Course Structure					
Week	Hours	Required learning	outcomes Name of unit/course or subject	Teaching method	Evaluation method
	3	Unit-1: Getting to know y	1-7	Theoretical	Discussion, quick exam, problem solving, homework

	3	Unit-1: Workbook	1-7	Theoretical	Discussion, quick exam, problem solving, homework
	3	Unit-2: Whatever makes you happy	1-7	Theoretical	Discussion, quick exam, problem solving, homework
	3	Unit-2: Workbook	1-7	Theoretical	Discussion, quick exam, problem solving, homework
	3	Unit-3: What's in the news	1-7	Theoretical	Discussion, quick exam, problem solving, homework
	3	Unit-3: Workbook	1-7	Theoretical	Discussion, quick exam, problem solving, homework
	3	Unit-4: Eat, drink, and be merry!	1-7	Theoretical	Discussion, quick exam, problem solving, homework
	3	Unit-4: Workbook	1-7	Theoretical	Discussion, quick exam, problem solving, homework
	3	Unit-5: Looking forward	1-7	Theoretical	Discussion, quick exam, problem solving, homework
	3	Unit-5: Workbook	1-7	Theoretical	Discussion, quick exam, problem solving, homework
	3	Unit-6: The way I see it	1-7	Theoretical	Discussion, quick exam, problem solving, homework
	3	Unit-6: Workbook	1-7	Theoretical	Discussion, quick exam, problem solving, homework
	3	Unit-7: Living history	1-7	Theoretical	Discussion, quick exam, problem solving, homework
	3	Unit-7: Workbook	1-7	Theoretical	Discussion, quick exam, problem solving, homework
	3	Review	1-7	Theoretical	Discussion, quick exam, problem solving, homework
	3	Final exam			

Course Evaluation

10 %–Mid-term exam
25 %–Quizzes
15 %-homeworks+class works
50%-Final exam

11. Learning and Teaching Resources

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

Course Description Form

1. Course Name: Fluid Mechanics					
2. Course Code: CIV010					
3. Semester / Year: 2nd semester / 2024-2025					
4. Description Preparation Date: 16-June-2024					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total)					
3 Cr.Hrs / 30Hrs (lec.)+ 15Hrs(Tutorial) + 30Hrs (Lab)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Abdalsatar Hamid Hussein					
Email: abdalsatar.hamid@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives		<ol style="list-style-type: none"> 1) Describe the International System of Units, convert units, and explain the basic properties of liquids. 2) Fluids at rest, pressure gauges and hydrostatic forces. 3) Derivation, description and application of Bernoulli's equation and momentum equation. 4) Understanding fluid movement, fluid flow, and influential parameters. 5) Determine the coefficient of friction, frictional losses, and energy losses in the pipe, apply Moody's diagram and determine secondary losses. 			
9. Teaching and Learning Strategies					
Strategy		Lectures Tutorial Lab.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	1	Introduction in Fluid	Lectures,	Written Exams

			Mechanics	Tutorial, Lab.	Quizzes Homework assignment
2	3	1	Dimensions and Units systems	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
3	3	2	The fundamental properties of fluids	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
4	3	2	Fluids in Statics	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
5	3	2	Derive a relationship among different parameters related to Fluid, Flow, and geometric properties by Dimensional Analysis.	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
6	3		Progress Exam 1	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
7	3	2	Pressure measurements and Manometers	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
8	3	2	Hydrostatic forces on flat surfaces	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
9	3	3	hydrostatic forces on curved surfaces	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
10	3	3	Fluid Kinematics	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
11	3		Progress Exam 2	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
12	3	4	State the applications of Momentum equation.	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
13	3	5	Define friction and friction factor, pipe head loss, apply the Moody Diagram and determine minor losses.	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
14	3	5	Solve problems involving pipe networks and pumps	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
15	3	4	Describe the open channels and types of flow.	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include,	At the end of each major	16%

Homeworks, Quizzes	topic	
Progress Exams (1 & 2)	According to department schedule	24%
Lab reports	Report per each experiment	10%
Final Exam	Week-16	50%
Total		100%

11. Learning and Teaching Resources

Required textbooks (curriculum books, if any)	ميكانيك الموائع – د. نعمة عمارة
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Fluid Mechanics by Streeter
Electronic References, Websites	

Course Description Form

1. Course Name: Strength of Materials II					
2. Course Code: CIV008					
3. Semester / Year: 2 nd semester/ 2024-2025					
4. Description Preparation Date: 17-May-2025					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total)					
3 Cr.Hrs / 30Hrs (lec.)+ 15Hrs(Tutorial) +30 Cr.Hrs(Lab)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Nahidh Hammad Kurdi Email: nahidh.kurdi@uoanbar.edu.iq Name: Dr. Mohammad Raji Mohammad Email: moh.raji@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives			<ol style="list-style-type: none"> 1. Understand the concepts shear and bending moment diagrams. 2. Identify and solve problems for flexural stresses. 3. Solve problems for transverse shear stresses. 4. Understand the stress and strain transformations. 5. Understand the buckling of column and impacts on column design. 		
9. Teaching and Learning Strategies					
Strategy		Lectures Tutorial			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	1	Shear and moment diagrams	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
2	3	1	Shear and moment diagrams	Lectures,	Written Exams Quizzes

				Tutorial, Lab.	Homework assignment
3	3	1	Flexural stresses	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
4	3	1	Flexural stresses	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
5	3	1	Flexural stresses	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
6	3	2	Transverse stresses	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
7	3	2	Transverse stresses	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment
8	3	2	Transverse stresses	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
9	3	3	stress and strain transformation	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
10	3	3	stress and strain transformation	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
11	3	3	stress and strain transformation	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
12	3	3	Column buckling	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
13	3	3	Column buckling	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
14	3	3	Solved problems and examples	Lectures, Tutorial,	Written Exams Quizzes Homework assignment
15	3	4	Solved problems and examples	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignment

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include, Homeworks, Quizzes	At the end of each major topic	15%
Mid semester exam or Progress Exams	According to department schedule	25%
Lab reports	Report per each experiment	10%
Final Exam	Week-16	50%
Total		100%

11. Learning and Teaching Resources

Required textbooks (curriculum books, if any)	R.C. Hibbeler, Mechanics of Materials, Prentice Hall, 7th ed., 2007.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	1. Strength of Materials, Stringer, 8 th Ed.
Electronic References, Websites	

Course Description Form

1. Course Name:	
Foundation Engineering II	
2. Course Code:	
CIV029	
3. Semester / Year:	
Second semester	
4. Description Preparation Date:	
4/5/2025	
5. Available Attendance Forms:	
Theory and electronic	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Ahmed Hazim Abdulkareem and Maher Zhaer Email: ahmed1973ed@uoanar.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> -Provide students with a basic understanding of the pile foundation -Develop an understanding of the behavior of group pile structures and gain knowledge of design methods that can be applied to practical geotechnical problems -Introducing the student to the procedures used to estimate the lateral earth pressure -Perform basic analyzes to solve retaining wall and sheet piles walls problems with specified procedures and soil properties, and understand its limitations
9. Teaching and Learning Strategies	
Strategy	<ul style="list-style-type: none"> -Factors affecting the planning of subsurface investigations -Analyze the results of on-site tests and convert measurements and their associated uncertainties into relevant design criteria; -Analysis of the pile and group foundations. -Evaluating the lateral earth pressure. -Synthesize design concepts of retaining wall and sheet pile walls

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-6	24	Pile foundation and group pile	Pile foundation and group pile	Theory	Homework and Quiz
7-10	16	Lateral Earth pressure	Lateral Earth pressure	Theory	Quiz
11-13	12	Retaining walls	Retaining walls	Theory	Quiz + homework
14-15	8	Sheet pile walls	Sheet pile walls	Theory	Homework + Quiz
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)			1-Braja M. Das, Principles of Foundation engineering, 8th ed.		
Main references (sources)			-Donald P. Coduto, Foundation Design Principles and Practices, 2nd ed. -3Joseph E. Bowles, Foundation Analysis and Design, 5th ed.		
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

1. Course Name: Highway Materials

2. Course Code: **CE 4345**

3. Semester / Year: 2nd / 2025

4. Description Preparation Date: 20/5/2025

5. Available Attendance Forms: Class and lab.

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

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

Name: Prof. Dr. Talal H. Fadhil

Email: talalmudadi1@uoanbar.edu

8. Course Objectives

Course Objectives

- Understand the practical concepts of highway materials and their interaction with the engineering properties of each highway structure layer.
- Apply the knowledge of highway layer materials and how they are tested and constructed. Also, students can use the standard test method and specification to build the road embankments and hot mix asphalt courses and also able to do mix design of HMA according to Marshall and Superpave mix design methods.

9. Teaching and Learning Strategies

Strategy

- Student's class attendance and receiving lectures using the data show.
- Discussing and analyzing study topics and class discussions.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3		1-Introduction		
2	3		2-Types of highway material		
3	3		3-Soil classifications		
4	3		4-Unbonded material types and their		

5	3		engineering properties. 5- Standard tests of unbonded material	In the class	Exams, H.W, & quizzes
6	3		6- Bonded materials (Hydraulically) and their engineering properties		
7	3		7- Asphalt cement sources, and production		
8	3		8-Standard tests of asphalt cement.		
9	3		9- Aggregate properties and important tests		
10	3		10-Blending of aggregate fractions by using graphical and mathematical methods		
11	3		11- Asphalt concrete mix (methods of mix design)		
12	3		12-Type of asphalt plants (asphalt concrete mix production)		
13	3		13-Flexible pavement construction and maintenance		

11.Course Evaluation

Monthly written exams 30%
Homework 4%
Quizzes 4%
Daily attendance 2%
Final exam 60%

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Highway Engineering Pavements, Materials and Control of Quality ,By: Athanassios Nikolaides ,2015, by Taylor & Francis Group, LLC
Main references (sources)	1- The Superpave Mix Design Manual for New Construction and Overlays. 2- BACKGROUND of SUPERPAVE ASPHALT MIXTURE DESIGN AND ANALYSIS.
Recommended books and references (scientific journals, reports...)	Course supplements will be used to present extra information not covered in the textbook.
Electronic References, Websites	https://pavementinteractive.org/reference-desk/design/mix-design/superpave-mix-design/

Course Description Form

1. Course Name: Management and Leadership Skills					
2. Course Code: CIV012					
3. Semester / Year: Semester/ 2024-2025					
4. Description Preparation Date: 15-5-2025					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total): 2 hrs. by weekly 2.0 Cr. hrs / 22 hrs (lec.)+ 8.0 hrs(Tutorial)					
7. Course administrator's name (mention all, if more than one name)					
Name: Prof.Dr. Ayad Sleibi Mustafa Email: ayad_eng2001@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives			1- Explain the basic concepts of leadership. 2- Add value to their sphere of influence 3-Give and receive feedback, actively listen, provide supportive communication, and coach and counsel their team members.		
9- Teaching and Learning Strategies					
Strategy		Lectures, Seminars, Case Studies			
10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	Introduction to leadership		Lectures Seminars Case Studies	Written Examinations Quizzes Homework Assignments Reports
2	2	Leadership and management styles		Lectures Seminars Case Studies	Written Examinations Quizzes Assignments Reports

3	2	Effective team leadership applications		Lectures Seminars Case Studies	Written Examinations Quizzes Homework Assignments Reports
4	2	Communication Types		Lectures Seminars Case Studies	Written Examinations Quizzes Homework Assignments Reports
5-6	4	Leadership characteristics and types		Lectures Seminars Case Studies	Written Examinations Quizzes Homework Assignments Reports
7-8	4	Ethical Issues in Engineering Practice		Lectures Seminars Case Studies	Written Examinations Quizzes Assignments Reports
9-10	4	Environmental Ethical Issues in Engineering Practice		Lectures Seminars Case Studies	Written Examinations Quizzes Homework Assignments Reports
11-12	4	Sustainable design and Safety and risk in design		Lectures Seminars Case Studies	Written Examinations Quizzes Assignments Reports
13-15	4	Case studies in the civil Eng. of leadership skills - Denver International Airport (DIA) -Space shuttle Challenger accident: -The Failure of the Teton Dam		Lectures Seminars Case Studies	Case study for engineering problems

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

Term Tests	Quizzes	Reports	Final Exam
20%	10%	10%	60%

12- Learning and Teaching Resources

Required textbooks (curricular books, if any)	Benator, Barry and Thumann, Albert “ Project Management and Leadership Skills for Engineering and Construction Projects. ” 2003, The Fairmont Press, Inc., USA
Main references (sources)	Fleddermann, C. B. (2012). Engineering Eth Upper Saddle River, NJ: Prentice Hall
Recommended books and references (scientific journals, reports...)	أخلاقيات ممارسة المهنة الهندسية- نقابة المهندسين العراقية، 2007
Electronic References, Websites	

Course Description Form

1. Course Name: Method of Construction and Estimation					
2. Course Code: CIV027					
3. Semester / Year: 2 nd semester/ 2024-2025					
4. Description Preparation Date: 15-05-2025					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total) Cr.Hrs / 45Hrs (lec.)+ 15Hrs(Tutorial)					
7. Course administrator's name (mention all, if more than one name)					
Name: Asst. Prof. Saadi Shartooh Sharqi Dr. Ibrahim Hakeem Mohammed Email: eng.saadish@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives			<ol style="list-style-type: none"> 1. Preparation of estimate, determination of quantities of items and labor requirement of civil engineering works. 2. Preparation of specification of construction items. 3. To introduce the students in depth knowledge of professional practice as well the quantity analysis of construction works like, multi-storied structures, Water works & sanitary works, Irrigation works, Road estimates, culverts, etc.. 4. Learn how to apply engineering fundamentals and analyses to planning, selection, and utilization of construction equipment. 		
9. Teaching and Learning Strategies					
Strategy		Lectures Tutorial.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	1	Factors affecting the choice of construction machinery	Lectures, Tutorial,	Written Exams Quizzes Homework assignments,
2	3	1	Drilling machine productivity	Lectures, Tutorial	Written Exams Quizzes Homework assignments,

3	3	1	Transport machinery productivity	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
4	3	2	Wooden mold	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
5	3	2	Soil consolidation	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
6	3	2	Factors affecting the productivity of machines and equipment	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
7	3	3	Introduction to Estimates	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
8	3	3	Estimate of Buildings	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
9	3	3	Rate Analysis of Different Items for Construction Work	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
10	3	-----	Prices	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
11	3	3	Estimate of Other Structures	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
12	3	3	Estimate of Earthwork	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
13	3	3	Specification and Tenders	Lectures, Tutorial,	Written Exams Quizzes Homework assignments,
14	3	4	Valuation in Construction	Lectures, Tutorial	Written Exams Quizzes Homework assignments,
15	3	1,2,3,	Report Preparation	Lectures, Tutorial	Report

11. Course Evaluation

Written exams 30%
Homework 5%
Quizzes 5%
Final exam 60%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. S. W. Nunnally, Construction Methods and Management, 8th Edition by, 2010
Main references (sources)	2. Frank R. Dagostino and Steven J. Peters Estimating in Building Construction, Prentice H 7th ed., 2011.
Recommended books and references (scientific journals, reports...)	-----
Electronic References, Websites	-----

Course Description Form

1. Course Name: Sanitary and Environmental Engineering					
2. Course Code: CIV026					
3. Semester / Year: 2nd semester/ 2024-2025					
4. Description Preparation Date: 15-May-2025					
5. Available Attendance Forms: In class					
6. Number of Credit Hours (Total) / Number of Units (Total)					
4 Cr.Hrs / 45Hrs (lec.)+ 15Hrs(Tutorial) + 30Hrs (Lab)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Ahmed Rahomi Rajab Email: ahmed.rahomi2@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives		<ol style="list-style-type: none"> 1. To study the various sources and characteristics of water. 2. To qualify water demand and population forecasting. 3. To study the types and sources of water pollution. 4. To understand the properties and the design criteria of the conventional water treatment plant (WTP). 			
9. Teaching and Learning Strategies					
Strategy		Lectures Tutorial Lab.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	1	Introduction - water resources	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignments
2	4	2	Water demand and Population forecasting.	Lectures, Tutorial, Lab.	Written Exams Quizzes

					Homework assignments
3	4	3	Water pollution	Lectures, Tutorial, Lab	Written Exams Quizzes Homework assignments
4	4	4	Introduction to WTP	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignments
5	4	4	Water-intakes design criteria	Lectures, Tutorial,	Written Exams Quizzes Homework assignments
6			Progress Exam 1	-----	Written Exams Quizzes Homework assignments
7	4	4	Pumping station	Lectures, Tutorial,	Written Exams Quizzes Homework assignments
8	4	4	Flash-mixer units design	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignments
9	4	4	flocculation units design	Lectures, Tutorial,	Written Exams Quizzes Homework assignments
10	4	4	flocculation units design	Lectures, Tutorial,	Written Exams Quizzes Homework assignments
11			Progress Exam 2	Lectures, Tutorial,	Written Exams Quizzes Homework assignments
12	4	4	Sedimentation tank design	Lectures, Tutorial,	Written Exams Quizzes Homework assignments
13	4	4	Filtration unit design	Lectures, Tutorial,	Written Exams Quizzes Homework assignments
14	4	4	Filtration unit design	Lectures, Tutorial,	Written Exams Quizzes Homework assignments
15	4	4	Disinfection and storage tank design	Lectures, Tutorial, Lab.	Written Exams Quizzes Homework assignments

Course Evaluation

Assessment Tool(s)**	Date	Weight (%)
Semester activities: These include, Homeworks, Quizzes, Seminar	At the end of each major topic	16%
Progress Exams (1 & 2)	According to department schedule	24%
Lab reports	Report per each experiment	10%

Final Exam	Week-16	50%
Total		100%
11. Learning and Teaching Resources		
Required textbooks (curriculum books, if any)	<ul style="list-style-type: none"> Warren Viessman Jr., Mark J. Hammer, Elizabeth M. Perez, Paul A. Chadik, Water Supply & Pollution Control, Prentice Hall, 8th ed., 2009. 	
Main references (sources)		
Recommended books and references (scientific journals, reports...)	<ul style="list-style-type: none"> Water and wastewater engineering, by Davis, 2010, Mc. Graw-Hill 	
Electronic References, Websites		

Course Description Form

1. Course Name:	
Steel Structures II	
2. Course Code:	
CIV028	
3. Semester / Year:	
Second/ 2024-2025	
4. Description Preparation Date:	
15/5/2024	
5. Available Attendance Forms:	
Class attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours/	
7. Course administrator's name (mention all, if more than one name)	
Name: Sheelan Mahmoud Hama Email: drsheelan@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> Introduce to the students, the principal types of steel structures Provide the students with a basic understanding of the essential steps involved in the design of steel structures. Develop an understanding of the behavior of steel structures under different types of loading Perform basic analyses to solve problems related to steel structures with the given procedures, understand their limitations.
9. Teaching and Learning Strategies	
Strategy	<p>Steel structures courses require effective learning and teaching strategies to ensure students develop a strong understanding of complex concepts and their practical applications. A range of strategies that can enhance the learning experience for students in steel structures courses. These strategies include lecture-based teaching, practical applications, problem-solving assignments, group work and discussions, technology integration, field trips, site visits, guest speakers, assessments and feedback, continuous learning, and encourage self-directed learning. By incorporating these strategies, educators can create an engaging and comprehensive learning environment that equips students with the knowledge, skills, and critical thinking abilities necessary for success in the field of steel structures design analysis.</p>

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	4	Identify various loading conditions that are important in structural design and determine/select the critical loading.	Design of Beams for Moments, shear and deflection: Introduction, Plastic behavior (zone1), beam weight estimates, design of beams - zone1 (full plastic moment), lateral supports of beams, inelastic buckling (zone 2). bending coefficients, moment capacities (zone 2).	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 2	4	Identify various loading conditions that are important in structural design and determine/select the critical loading.	design of beams – zone 3, elastic buckling (zone 3), AISC beam design charts, noncompact sections. design for shear, deflections,	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 3	4	To perform the appropriate structural analysis based on the loading determined above and design the overall structure, determining the required member sizes capable of supporting the loads.	unsymmetrical bending, and design of purlins.	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 4	4	They will have to apply the knowledge they acquired in the prerequisite courses such as determining maximum moments and forces and finding the strength of each member.	Design of base plates for concentrically loaded columns, Bending and axial compression, Beam – Columns, first order and second order moments.	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 5	4	Be knowledgeable with the national, regional, and local codes and engineering standards and be familiar with the professional practice and requirements of structural engineers.	analysis, effective length, approximate second order analysis method, magnification factors, moment modification factors	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 6	4		design of beam-columns in braced frames, design of beam-columns in unbraced frames, AISC-Part6 Tables, and equivalent axial load	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 7	4		Types of bolts, high-strength bolts, snug-tight joints, pretension joints, slip-critical joints, fully pretensioning methods,	Lectures	daily preparation, daily oral, monthly, or written exams, reports

			bearing-type connections, slip-resistance connections		
Week 8	4		, shear strength and bearing strength for bearing type connections (load passes through the center of gravity of connection), strength for slip-critical connections(load passes through center of gravity of connection),	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 9	4		sizes of bolt holes, load transfer, lap joint, butt joint, failure of bolted joints, and minimum and maximum spacing and edge distances.	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 10	4		Bolts subjected to eccentric shear, AISC-Part7 Tables, bearing-type connections subjected to shear and tension,	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 11	4		Elastic analysis method, reduced eccentricity method, instantaneous center of rotation method,	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 12	4		slip-critical connections subjected to shear and tension.	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 13	4		Welding advantages, types of welding, classification of welds, type of weld, type of joints, fillet welds, plug and slot welds, welding symbols, strength of welds,	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 14	4		AISC requirements, size and length limitations of fillet welds, design of simple fillet welds, strength of fillet welds loaded transversely, design of welded connections with both longitudinal and transverse fillet welds,	Lectures	daily preparation, daily oral, monthly, or written exams, reports
Week 15	4		design of fillet welds for truss members, the strength of plug and slot welds.	Lectures	daily preparation, daily oral, monthly, or written exams, reports

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)	<ul style="list-style-type: none">• (15th) AISC - Steel Construction Manual 15th Edition-AISC (2017)
Main references (sources)	<ul style="list-style-type: none">• McCormac, Jack C.-Structural steel design- (2018)
Recommended books and references (scientific journals, reports...)	<ul style="list-style-type: none">• William T. Segui. Steel Design, 6th ed, 2018
Electronic References, Websites	