

First Level-Bologna System 2024-2025

MODULE DESCRIPTION FORM

Module Information			
Module Title	Computer	Module Delivery	
Module Type	Basic	<input checked="" type="checkbox"/> theory <input type="checkbox"/> a lecture <input checked="" type="checkbox"/> laboratory <input type="checkbox"/> Tutorial <input type="checkbox"/> practical <input type="checkbox"/> seminar	
Module Code	UOE-1101		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	1		
Administering Department	CE	college	Civil Engineering Center
Module Leader	Dawoud Suleiman Ayed	Email	dawood.su .@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	Master of Civil Engineering
Module Tutor	None	Email	None
Peer Reviewer Name	None	Email	None
Scientific Committee Approval Date	06/17/2023	Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<ol style="list-style-type: none"> 1. This course covers computer basics. 2. Learn the basic components of a computer. 3- Learn about the Windows operating system, installation requirements, new features, and desktop components. 4. Develop computer skills and understand programs through computer applications. 5. Broad understanding of Word, Excel, PowerPoint and their applications. 6. To understand computer and software security issues.
Module Learning Outcomes	<p>Important: Write at least 6 learning outcomes, preferably equal to the number of weeks of study.</p> <ol style="list-style-type: none"> 1. Learn how computer components work. 2. Specify your Windows operating system, installation requirements, new features, and desktop components. 3. General description of Excel, Word and PowerPoint. 4. Understand the basic features of Word. 5. Learn the basic features of Excel. 6. Identify the basic features of PowerPoint. 7. Summarize what Microsoft Office is. 8. Practical application of Word program. 9. Practical application on Excel. 10. Practical application on PowerPoint.
Indicative Contents	<p>The guidance content includes:</p> <p>Part A - Computer Components and Microsoft Word (Theoretical and Laboratory Computer).</p> <p>Computer components - the physical parts of the computer, software entities and computer security, as well as computer software licenses and types, intellectual property and hacking. Definition of the operating system, objectives, classification, Windows operating system, installation requirements, desktop components, control panel, common computer settings, start menu, taskbar. General introduction to Microsoft, definition of Microsoft Word, inserting objects in Microsoft Word, additional tasks in Microsoft Word. [60 hours].</p> <p><u>Part B -Microsoft Excel and PowerPoint (theoretical and practical)</u></p> <p>Definition of Microsoft Excel, basic functions of Microsoft Excel, components of Microsoft Excel, explanation of the command bar in Excel, creating mathematical formulas in Microsoft Excel, additional tasks in Microsoft Excel PowerPoint definition, PowerPoint components, explanation of the components of the Home ribbon, explanation of the components of the Insert ribbon, explanation of animations in PowerPoint, definition of the Design ribbon in</p>

	PowerPoint, explanation of each of the slide shows, review and presentation of PowerPoint. [60 hours]. Tests and tests(3 hours) Problem Review Lessons [27 hours]
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Learning and Teaching Strategies	
Strategies	Write something like: The main strategy that will be followed in delivering this unit is to encourage students to participate in the exercises, while at the same time honing and expanding their critical thinking skills. This will be achieved through interactive classes and lessons and by considering the types of simple experiments that involve some sampling activities that interest the students.

Student Workload (SWL)			
Structured SWL (hr/sem)	63	SWL organization (hr/w) Regular weekly student load	4.2
Unstructured SWL (hr/sem)	12	Unstructured SWL (hr/w) Irregular student load per week	0.8
Total SWL (hr/sem)	75		

Module Evaluation					
		Time/number	Weight (marks)	Week Due	Relevant learning Outcome
Formative assessment	Quizzes	2	10% (10)	6 and 10	LO #1, #2, #5, #6 and #10,
	Assignment	2	10% (10)	2 and 12	LO #3, #4, #6, and #7
	Projects / Lab.	2	10% (10)	continuous	All
	Report	2	10% (10)	14	
Summative assessment	Midterm Exam	2 hours	10% (10)	7	
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)	
	Covered Materials
Week 1	Introduction - Difference between computer components
Week 2	Hardware parts of the computer
Week 3	Software entities
Week 4	Computer software licenses and their types
Week 5	Definition of operating system objectives, classification, Windows operating system,
Week 6	Microsoft Office Word Definition,
Week 7	Midterm Exam
Week 8	Additional tasks in Microsoft Office Word, Insert objects in Microsoft Word.
Week 9	Microsoft Office Excel definition, basic functions of Microsoft Office Excel,
Week 10	Components of Excel Microsoft Office Explanation of the main ribbon in Excel
Week 11	Create Mathematical Formulas in Microsoft Office Excel, Additional Tasks in Microsoft Office Excel
Week 12	Definition of Microsoft Office PowerPoint, components of Microsoft Office PowerPoint, explanation of the components of the Home ribbon.

Week 13	Explanation of the components of the insertion ribbon, explanation of animations in PowerPoint.
Week 14	Definition of the design ribbon in Microsoft Office PowerPoint
Week 15	Explain, review and present each slide show in PowerPoint.
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)	
	Covered Materials
Week 1	Introduction to Computer Components
Week 2	Learn about the hardware parts of a computer
Week 3	Learn about the operating system, Windows operating system
Week 4	Microsoft Office Word Definition
Week 5	Learn about the components of Microsoft Office Word
Week 6	Learn about additional tasks in Microsoft Office Word,
Week 7	Microsoft Excel definition, basic functions of Microsoft Excel
Week 8	Learn about the components of Microsoft Office Excel
Week 9	Explanation of the main ribbon in Microsoft Office Excel
Week 10	Create Mathematical Formulas in Microsoft Office Excel
Week 11	Additional tasks in Microsoft Office Excel
Week 12	Learn about Microsoft Office Power Point and Microsoft Office PowerPoint components
Week 13	Learn about the components of the Home ribbon, as well as animations in Microsoft Office PowerPoint.
Week 14	Applying the Insert Ribbon and Design Ribbon components in Microsoft Office PowerPoint
Week 15	Learn, review, and view slide shows in Microsoft Office PowerPoint
Week 16	Final Exam

Learning and Teaching Resources

	Text	Available in the library?
Required texts	Computer Basics and Office Applications	Yes
Recommended Texts		No
Websites		

Grading Scheme				
Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.
<p>Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.</p>				



Name and Signature of the
Course Instructor

Asst. Lec. Dawoud Suleiman Ayed

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Mathematics	Module Delivery	
Module Type	Basic	<input checked="" type="checkbox"/> theory <input checked="" type="checkbox"/> a lecture <input type="checkbox"/> laboratory <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> practical <input type="checkbox"/> seminar	
Module Code	CE112		
ECTS Credits	10		
SWL (hr/sem)	250		
Module Level	1		
Administering Department	CE	college	Civil Engineering Center
Module Leader	Hatem Abdul Karim Alwan	Email	Hatimhh2001@gmail.com Hatim@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant Lecture	Module Leader's Qualification	Master of Engineering
Module Tutor	None	Email	None
Peer Reviewer Name	None	Email	None
Scientific Committee Approval Date	17/6/2023	Version Number	1.0

Relation with other Modules			
Prerequisites Module	None	Semester	
Co-requirements Module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<p>The study of mathematics in the first stage of civil engineering is essential to develop the following outcomes:</p> <ol style="list-style-type: none">1. Understanding basic mathematical concepts and techniques: Students will gain an understanding of basic mathematical concepts such as algebra, trigonometry, calculus, matrices, and linear algebra.2. Problem-solving skills: The study of mathematics allows students to develop the analytical and problem-solving skills that are essential for solving complex civil engineering problems.3. Applying Mathematical Principles to Engineering Problems: Applying mathematical principles is very important in engineering. Students will learn how to apply mathematical concepts to solve real-world problems in civil engineering.4. Understanding Mathematical Models: Civil engineers need to understand how to build, use, and interpret mathematical models to solve complex engineering problems.5. Ability to analyze and interpret data: Mathematics, especially statistics and probability, are essential in data analysis in civil engineering. Students will learn how to interpret and analyze data to reach meaningful conclusions.6. Effective Communication: Studying mathematics enhances the communication skills needed to present complex engineering concepts and ideas to other professionals.
Module Learning Outcomes	<p>After studying this course, students should be able to:</p> <p>Understand the basic concepts related to this course.</p> <p>The student learns the concept of mathematical functions and the mathematical operations related to them.</p> <p>The student must understand some mathematical topics that he needs to understand to enter other courses in the Civil Engineering Department, such as matrices and mathematical operations on them.</p> <p>The student understands the concept of limits of mathematical functions.</p> <p>5- The student learns the concept of differentiation and its laws.</p> <p>Differentiation in different mathematical functions and how to apply differentiation to benefit from it in the rest of the department's courses Civil engineering.</p>

	<p>6- The student should understand how to apply differential and integral calculus to various engineering applications in general and applications related to his studies in the Civil Engineering Department in particular.</p> <p>7- Introducing the student to the various mathematical functions that he may need during his studies in the Civil Engineering Department, such as: Trigonometric, logarithmic, exponential, inverse functions, etc.</p> <p>8- The student understands how to represent mathematical functions and equations by drawing and finding maximum and minimum points, areas of increase and decrease, concavity and hump, and how to link the concepts of these topics to the practical reality of courses related to civil engineering.</p>
<p>Indicative Contents</p>	<p>The guidance content includes:</p> <p>Unit 1: Introduction to Calculus</p> <ul style="list-style-type: none"> - Equations and solution methods -Elements and groups <p>Real numbers and the real line</p> <ul style="list-style-type: none"> - Union of commas and intersections of commas - Inequality - Analytical geometry (coordinates in the plane), distance between points and <p>Midpoint formula and equation of a line</p> <p>Functions (sum of functions, difference, product, quotient of functions)</p> <p>Domain and range of functions (R)</p> <p>-Job structure:</p> <ul style="list-style-type: none"> -Absolute value function - Graph of functions (graph of curves). - Transformation, reduction and extension of functions <p>Trigonometric functions</p> <p>Unit 2: Boundaries and Continuity</p> <ul style="list-style-type: none"> -introduction -Definition of the properties of ohms <p>Right hand limits and left hand limits</p> <p>The limit that includes infinity</p> <p>ongoing job</p> <p>Algebraic Properties of Continuous Functions</p> <p>Unit 3: Derivatives</p> <ul style="list-style-type: none"> -identification - Derivatives by limits -Derivatives laws. - Second and higher degree derivative -Implicit differentiation. <p>Tangent lines and perpendicular lines</p>

- Chain rule
- Derivative of parametric equations.
- Derivatives of trigonometric functions
- Hyperbolic function
- Inverse of hyperbolic function
- Logarithm functions

Unit 4: Applications of Derivatives

Analysis of increasing and decreasing functions

Concavity and inflection points

Horizontal and vertical approaches

Oblique approaches

Graphing strategy for $y=x$

Related change rates

- Optimization. - Strategy for solving maximization and minimization problems.

Finding the solution of equations mean value theorem

L'Hopital's base

Unit 5: Integration

- introduction
- Integration rules
- Integration of trigonometric functions
- Applications of definite integration (area under curves, volume of functions rotated about an axis, length of curves, surface area of functions rotated about an axis.
- Methods of integration (by parts, product of powers of trigonometric functions, even powers of sine and cosine, trigonometric substitutions that replace $a^2 - u^2$, $a^2 + u^2$ and $u^2 - a^2$)
- Numerical integration (power series, Taylor polynomials, Taylor series of sine and cosine and binomial theorem)

Unit 6: Matrix

- Introduction to matrices: definition and notation of matrices, elements of a matrix, size or dimensions of a matrix, special types of matrices (rectangular square, row vector, column vector), equality of matrices.
- Matrix Operations Matrix Addition and Subtraction, Scalar Multiplication, Matrix Multiplication
- matrix determinant
- Matrix inverses
- matrix transfer
- System of linear equations

Learning and Teaching Strategies

Strategies	The main strategy that will be adopted in teaching mathematics in the first stage in civil engineering is necessary to build a strong foundation for the engineering principles and concepts that will be learned throughout the program.
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Student Workload (SWL)

SWL Organization (hr/sem)	123	SWL organization (hr/w) Regular weekly student load	8.2
Unstructured SWL (hr/sem)	127	Unstructured SWL (hr/w) Irregular student load per week	8.4
Total SWL (hr/sem)	250		

Module Evaluation

		Time/number	Weight (marks)	Week Due	Relevant learning Outcome
Formative assessment	Tests	2	10% (10)	5 and 10	LO #1, #2, #10, and #11
	Tasks	2	10% (10)	2 and 12	LO #3, #4, #6, and #7
	Projects / Lab. a report	1	10% (10)	continuous	All
		1	10% (10)	13	#LO #5, #8, and #10
Summative assessment	Midterm Exam	2 hours	10% (10)	7	#1 - #7 Goal
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)

	Covered Materials
Week 1	Coordinates and graphs in the plane, distance between two points, symmetry and intersections
Week 2	Slopes and equations of lines, point slope equation, point-intercept slope equation. Slope of non-vertical lines
Week 3	Functions and their graphs, domain and range, even and odd functions
Week 4	Limit Combinations Theorem, Limit of Trigonometric Functions
Week 5	Infinity as a limit, boundaries and continuity
Week 6	Derivatives rules, implicit differentiation and fractional powers, derivatives of the chain rule for trigonometric functions, exponential and logarithmic functions
Week 7	Mid-term Exam
Week 8	Applications on derivatives
Week 9	Indefinite integrals, inverse integrals, logarithmic and exponential integrals
Week 10	Applications of Definite Integration: Area between Curves Applications of Definite Integration: Volume of Objects of Revolution
Week 11	Methods of integration (by parts, product of powers of trigonometric functions)
Week 12	Integration methods (even powers of sine and cosine, trigonometric substitutions that replace $a^2 - u^2$, $a^2 + u^2$ and $u^2 - a^2$)
Week 13	Numerical integration (power series, Taylor polynomials, Taylor series of sine and cosine and binomial theorem)
Week 14	Introduction to matrices: definition and notation of matrices, elements of a matrix, size or dimensions of a matrix, special types of matrices (rectangular square, row vector, column vector), equality of matrices.
Week 15	Matrix operations: addition and subtraction of matrices, scalar multiplication, matrix multiplication, matrix determinant, matrix inverse, matrix transfer System of linear equations.
Week 16	Final Exam

Learning and Teaching Resources

	Text	Available in the library?
Required texts	Calculus and Analytical Geometry, George B. Thomas, Jr.; Addison-Wesley Publishing, 7th ed., 1988.	Yes
Recommended Texts	- Calculus; James Stewart, 10th Edition, 2003.	None
Websites	Not available	

Grading Scheme				
Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.
<p>Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.</p>				

Name and Signature of the
Course Instructor



Asst. Lec. Hatem Abdul Karim Alwan

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Engineering Drawing		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> theory <input type="checkbox"/> a lecture <input type="checkbox"/> laboratory <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> practical <input type="checkbox"/> seminar
Module Code	CE113		
ECTS Credits	8		
SWL (hr/sem)	200		
Module Level	1	Semester of Delivery	1
Administering Department	CE	college	Civil Engineering Center
Module Leader	Khaled Jamal Ahmed	Email	ce.kja90@gmail.com
Module Leader's Acad. Title	Assistant Lecture	Module Leader's Qualification	Master of Engineering
Module Tutor	None	Email	None
Peer Reviewer Name	None	Email	None
Scientific Committee Approval Date	06/15/2023	Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<ol style="list-style-type: none"> 1. This course covers the basic concept of engineering hand drawing. 2. To understand general engineering processes. 3. To complete the solid projections. 4. To find the hidden details of the isometric scale. 5. To develop skills and understanding of how to draw 3D shapes. 6. To understand the engineering departments.
Module Learning Outcomes	<ol style="list-style-type: none"> 1. Knowing the tools used in engineering drawing and how to use them correctly. 2. Developing the student's skill in using tools to draw geometric shapes. 3. The student's ability to understand and apply the basics of engineering drawing and translate engineering drawings and convert them into models. 4. Developing the student's geometric imagination by deducing the projections and sections of each geometric object and understanding its dimensions. Developing the student's skills by using the AutoCAD drawing program. 5. Connect with the most important ideas presented in the article through the Internet. 6. Developing the student's skill in using tools to draw geometric shapes. 7. Applications to various engineering processes.
Indicative Contents	<p>The guidance content includes:</p> <ol style="list-style-type: none"> 1- Introduction to the topic: Basics of engineering drawing and the difference between it and freehand drawing: engineering drawing, its elements, tools, and drawing methods. 2- Introduce students to paper sizes, drawing boards, and freehand drawing (lines, circles, etc.) 3- Fabric distribution (frame, table, etc.), types of lines in engineering drawing, rules for writing dimensions and measurements and recognizing symbols and their meanings, drawing scales (zoom in and out) 4- Construction and engineering operations: creating and dividing angles, dividing circles and drawing regular shapes in them, creating connecting lines between arcs and circles. 5- Drawing geometric perspectives, types of geometric perspectives and building them from projections, creating perspectives (drawing three-dimensional objects (isometric perspective)

	<p>6- Projection in orthogonal planes, methods of vertical projection, projection of geometric shapes.</p> <p>7- Distributing projections on the drawing board, deducing the third projection from two projections.</p> <p>8- Deriving isometric perspective from dimensional projections of simple and complex single geometric objects</p> <p>9- Sectors in engineering drawing, their importance, cutting levels, sector, shading, types of sectors and their classification</p>
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Learning and Teaching Strategies	
Strategies	<p>Planning a unit or lesson involves a number of instructional decisions. The teacher must determine: the content and processes to be covered, the strengths, needs, and interests of the students, the common core learnings to be integrated, and the most effective instructional methods. Such decisions are critical and must be made consciously and purposefully. It begins with the student's interest in the tools of geometry and the drawing board. To reach the highest level of understanding in applying all the theoretical and laboratory processes of the lessons.</p>

Student Workload (SWL)			
SWL Organization (hr/sem)	123	SWL organization (h/w) Regular weekly student load	8.2
Unstructured SWL (hr/sem)	77	Unstructured SWL (h/w) Irregular student load per week	5.1
Total SWL (hr/sem)	200		

Module Evaluation					
		Time/number	Weight (marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	15% (15)	5 and 10	LO #2 - #5 and #10
	Assignments	2	15% (15)	continuous	All
	Projects / Lab.	1	10% (10)	continuous	All
	Report	----	-----	----	-----
Summative assessment	Midterm Exam	2 hours	10% (10)	7	#1 - #7 Goal
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)	
	Covered Materials
Week 1	Introduction to engineering drawing and the use of drawing tools.
Week 2	Fonts, Font Types. Title Block. Drawing simple shapes using different types of fonts. How to use drawing tools.
Week 3	Simple geometric operations.
Week 4	Complex engineering operations.
Week 5	Introduction to geometric projections.
Week 6	Projection, its types and specifications.
Week 7	Midterm Exam
Week 8	Introduction to the sections.
Week 8	Types of sections.
Week 9	Introduction to Isometric Drawing
Week 10	isometric drawing
Week 11	Drawing isometric scale from three projections

Week 12	Draw the three projections from two projections and then draw the isometric figure.
Week 13	Review of projection examples.
Week 14	Review of projection examples and sections.
Week 15	Final exam

Delivery Plan (Weekly Lab. Syllabus)	
	Covered Materials
Week 1	no one
Week 2	Class work
Week 3	Homework
Week 4	Classwork
Week 5	Homework
Week 6	Class work
Week 7	Homework
Week 8	Class work
Week 9	Homework
Week 10	Class work
Week 11	Homework
Week 12	Class work

Learning and Teaching Resources

	text	Available in the library?
Required Texts	1 Engineering Drawing, Abdul Rasool Abdul Hussein Al-Khaffaf, Iraqi National Library and Archives, 1	Yes
Recommended Texts	[1] Engineering Drawing, by A. W. Boundy, 3rd edition, 1987, McGraw-Hill Books, Sydney.	No
Websites	https://www.youtube.com/watch?v=yhRDjplr11U , https://www.youtube.com/watch?v=fQNwVo2hWU4 https://www.youtube.com/watch?v=K8fQsse68Sc https://www.youtube.com/watch?v=BjROtC8rJkY&list=RDCMUCXtNIHrXwJSlsT6hRy9OUIg&start_radio=1&rv=BjROtC8rJkY&t=19	

Grading Scheme

Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.

Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.

Name and Signature of the
Course Instructor



Ass. Lec. Khaled Jamal Ahmed

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information				
Module Title	Construction materials		Module Delivery	
Module Type	Core		<input checked="" type="checkbox"/> theory <input checked="" type="checkbox"/> a lecture <input checked="" type="checkbox"/> laboratory <input type="checkbox"/> Tutorial <input type="checkbox"/> practical <input type="checkbox"/> seminar	
Module Code	CE114			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	1	Semester of Delivery		1
Administering Department	CE	college	Civil Engineering Center	
Module Leader	Anas Badr Hamid	Email	anasalsamaray@uosamarra.edu.iq	
Module Leader's Acad. Title	Assistant Lecture	Module Leader's Qualification	Master of Civil Engineering	
Module Tutor	None		Email	None
Peer Reviewer Name	None		Email	None
Scientific Committee Approval Date	06/17/2023	Version Number	1.0	

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<ol style="list-style-type: none"> 1. Understanding engineering materials and their properties 2. Identify the types of construction materials. 3. Identify the types of construction materials tests. 4. Study and implementation of construction materials tests. 5. Study and practice writing a test report. 6. Improve students' ability to understand the philosophy of tests, so they can discuss results and suggest solutions to problems. 7. Identify new construction materials, their advantages and disadvantages.
Module Learning Outcomes	<ol style="list-style-type: none"> 1. Knowledge of construction materials manufacturing technology. 2. Identify problems and faults in construction materials. 3. Developing the student's ability to deal with testing machines. 4. Recognizing and evaluating units of measurement 5. Developing the student's ability to write reports and discuss results. 6. Developing students' teamwork skills. 7. Encourage the student to make engineering decisions about failed tests. 8. Developing the student's ability to search online and use artificial intelligence. 9. Teach students to take responsibility for the following tests.
Indicative Contents	<p>The guidance content includes:-</p> <p><u>1-brick tests:</u> -Clay brick Manufacturing method, types, engineering properties of bricks, engineering specifications and types of tests.</p> <p><u>2-Binding material testing:</u> -Types of gypsum, its properties, additives and uses.</p> <p><u>3-Concrete block</u> -Road block Manufacturing method, types, properties of engineering blocks, types of tests.</p> <p><u>4-Tiles:</u> -Types of tiles, manufacturing method, engineering properties, types of tests.</p> <p><u>5-Reinforcing steel:</u> -Types of steel, diameters, grades and tests.</p> <p><u>6-Forests:</u> -Types of wood, their engineering properties and tests.</p>

	<p><u>7-Strengthening and rehabilitation of buildings:</u> -Reinforcement methods, types of materials, their advantages, disadvantages and the possibility of using them.</p> <p><u>8-Finishing materials:</u> -Types of materials, their properties and usage characteristics.</p> <p><u>9-Reinforced concrete:</u> -Definition, characteristics, implementation and use</p>
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Learning and Teaching Strategies	
Strategies	<p>Activities of interest to students.</p> <p>Focus on a deep understanding of materials behavior and encourage students to publicly discuss their interpretations of materials test results.</p> <p>Teaching and discussing scientific research skills using electronic research and artificial intelligence to improve their capabilities.</p> <p>Theory and practical work will go together to achieve true understanding and comprehension.</p>

Student Workload (SWL)			
SWL Organization (hr/sem)	63	SWL organization (h/w) Regular weekly student load	4.2
Unstructured SWL (hr/sem)	62	Unstructured SWL (h/w) Irregular student load per week	4.1
Total SWL (hr/sem)	100		

Module Evaluation					
		Time /Number	Weight (marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2, #10, and #11
	assignments	1	10% (10)	16	All
	laboratory.		10% (10)		All
	a report	15	10% (10)	continuous	All
Summative assessment	Midterm Exam	2 hours	10% (10)	continuous	#1 - #7 Goal
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)

	Covered Materials
Week 1	Classification of engineering materials and their mechanical properties
Week 2	Clay bricks: brick manufacturing stages
Week 3	Engineering clay brick specifications and types of clay bricks
Week 4	Other types of bricks: fire brick, concrete lime brick, glass block
Week 5	Brick efflorescence test.
Week 6	Bonding materials Manufacturing all types of gypsum according to British and Iraqi specifications. Other gypsum products and additives. Lime mortar: manufacturing, kiln, hydrated lime, specifications and use in construction.
Week 7	Midterm Exam
Week 8	Wood: its uses, advantages, factors affecting wood resistance, wood defects and types of wood
Week 9	Finishing materials: Tiles: Specifications, Properties, Advantages and Disadvantages, Types of Tiles.
Week 10	Other finishing materials: Ceramic, porcelain, marble.
Week 11	Finishing materials: clay tiles, gypsum boards, cement boards, aluminum panels, fiberglass and cork.
Week 12	Reinforced concrete
Week 13	Metals: Specifications, Types and Manufacturing, Cast Iron, Wrought Iron and Steel (Specifications and Use)
Week 14	Building stone: geological classification, use, engineering specifications and required tests.
Week 15	Building reinforcement and rehabilitation materials (steel, polymers and polymer fibres)
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)	
	Covered Materials
Week 1	Clay brick tests: dimensions, absorption
Week 2	Clay brick tests: compressive strength
Week 3	clay brick tests: blooming
Week 4	Gypsum test: softness, standard elasticity,
Week 5	Gypsum test: setting time,
Week 6	Gypsum test: compressive strength
Week 7	Gypsum percentage in soil
Week 8	Tile Tests: Face, Shape and Absorption Test
Week 9	Tile Tests: Modulus of Refraction
Week 10	Steel Tests: Tensile
Week 11	Steel Tests: Bending
Week 12	Stone Test: Absorption and Compressive Strength
Week 13	Wood Test: Water Content
Week 14	Wood Test: Compressed Content
Week 15	Wood Test: Tensile

Learning and Teaching Resources		
	Text	Available in the library?
Required texts	Construction Materials: Dr. Aziz Abdullah	Yes
Recommended Texts	Construction Materials Testing: Dr. Youssef Al-Dawaf	Yes
Websites		

Grading Scheme

Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.

Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.

Name and Signature of the
Course Instructor



Asst. Lec. Anas Badr Hamid

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Arabic	Module Delivery	
Module Type	Basic	<input checked="" type="checkbox"/> theory <input checked="" type="checkbox"/> a lecture <input checked="" type="checkbox"/> laboratory <input type="checkbox"/> Tutorial <input type="checkbox"/> practical <input type="checkbox"/> seminar	
Module Code	UOE-1102		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	1	Semester of Delivery	1
Administering Department	CE	college	Civil Engineering Center
Module Leader	Mohanad Abdul Jabbar Hassan	Email	mohanad.abduljabbar@uosamarra.edu.iq
Module Leader's Acad. Title	Lecture	Module Leader's Qualification	Ph.D in Arabic Language
Module Tutor	None	Email	None
Peer Reviewer Name	None	Email	None
Scientific Committee Approval Date	06/17/2023	Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<p>Course objectives .Enabling students to understand the eloquence of the Holy Quran and to appreciate the aesthetics of its language..</p> <p>Training students to use punctuation marks between sentences correctly.</p> <p>To broaden the students' literary horizons of ideas, meanings and moral values..</p> <p>Teaching students how to write correctly according to the basics of spelling, which enables them to write words correctly..</p>
Module Learning Outcomes	<p>- Cognitive objectives</p> <ol style="list-style-type: none"> 1- Knowing the basics of spelling in the Arabic language. 2- Getting to know world literature and their influence on Arabic literature. 3- Studying some Quranic verses to explore the linguistic and rhetorical aspects therein. <p>B - Course specific skill objectives.</p> <ol style="list-style-type: none"> 1- Writing correctly. 2- The ability to extract common errors in daily use. 3- The ability to identify the areas of Quranic eloquence and to know its effect on understanding the meanings.
Indicative Contents	<p>Guiding Contents</p> <p>Arabic language among the languages of the world, the emergence of spoken and written language, the grammatical system, Quranic rhetoric, the morphological system, the written system, numbers in the Arabic language, Arabic and Arabization, world literature and Orientalism.</p>

Learning and Teaching Strategies

Strategies	The main strategy that will be adopted in presenting this unit: It is to encourage students to engage in exercises while simultaneously honing and expanding their critical thinking skills. This will be achieved through interactive classes and tutorials and by considering the type of topics some of which include sampling activities that interest students."
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Student Workload (SWL)

SWL Organization (hr/sem)	33	SWL organization (h/w) Regular weekly student load	2.2
Unstructured SWL (hr/sem)	17	Unstructured SWL (h/w) Irregular student load per week	1.1
Total SWL (hr/sem)	50		

Module Evaluation

		Time/number	Weight (marks)	Week Due	Relevant Learning Outcome
Formative assessment	Tests	2	10% (10)	5 and 10	LO #1, #2, #10, and #11
	Verbal assignments	1	10% (10)	16	everyone
	laboratory.		10% (10)		everyone
	a report	15	10% (10)	continuous	everyone
Summative assessment	Midterm Exam	2 hours	10% (10)	continuous	#1 - #7 Goal
	Final Exam	3 hours	50% (50)	16	All
Overall Rating			100% (100 marks)		

Delivery Plan (Weekly Syllabus)	
	Covered Materials
Week 1	Arabic language, definition, origin, function
Week 2	Arabic language and the beginning of blogging
Week 3	Quranic eloquence and Surat Al-Fatihah
Week 4	Basic introduction to grammar
Week 5	Number in Arabic
Week 6	Writing system, ta Marbut and ta open
Week 7	Diminutive morphological system
Week 8	Midterm Exam
Week 9	For the written system A Hamzat al-Wasl and Hamzat al-Qat`
Week 10	Quranic eloquence and Surat Al-Kahf
Week 11	Synonyms in Arabic
Week 12	Poetic purposes in Arabic literature
Week 13	Writing system punctuation marks
Week 14	Mention and deletion in language
Week 15	Final exam

Learning and Teaching Resources		
	Text	Available in the library?
Required texts	The book is by Sibawayh, Secrets of Rhetoric by Al-Jurjani, Spelling and Punctuation in Arabic Writing by Abdul-Aleem Ibrahim.	Yes
Recommended Texts	The book is by Sibawayh, Secrets of Rhetoric by Al-Jurjani, Spelling and Punctuation in Arabic Writing by Abdul-Aleem Ibrahim.	Yes
Websites		

Grading Scheme				
Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.
<p>Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.</p>				



Name and Signature of the
Course Instructor

Lec. Dr. Mohanad Abdul Jabbar Hassan

Khalid H. Lateef

Name and Signature of the Head of
Department

Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Democracy and Human Rights	Module Delivery	
Module Type	Basic	<input checked="" type="checkbox"/> theory <input type="checkbox"/> a lecture <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> practical <input type="checkbox"/> seminar	
Module Code	UOE-12012		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	1	Semester of Delivery	1
Administering Department	CE	college	Civil Engineering
Module Leader	Qutaiba Mukhlef Abbas	Email	Qutiba.m.abbas@uosamarra.edu.iq
Module Leader's Acad. Title	Teacher	Module Leader's Qualification	Master's Political science
Module Tutor	None	Email	None
Peer Reviewer Name	None	Email	None
Scientific Committee Approval Date	06/01/2023	Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	UOE-12012	Semester	1

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<p>What is the purpose of human rights? Human rights seek to achieve fundamental interests while maintaining an understanding of the dignity and equality of people. They help express desires and respond to those who must fulfill them. Those desires. They are a universal language for humans, but they can be contributed to through the innovative use of tools such as visual indicators. Quantity and quality by increasing their understanding and implementation</p>
Module Learning Outcomes	<p>1-Students benefit from knowing the types of rights and their scope of application.. 2-Explaining the historical stages of human rights and their development. 3-Knowing the concept of freedoms and democracy correctly.</p> <p style="padding-left: 40px;">Providing the student with the moral values that must be adhered to and clarifying the most important rights and duties incumbent upon the individual.</p>
Indicative Contents	<p>1-Students benefit from knowing the types of rights and their scope of application.. 2-Explaining the historical stages of human rights and their development. 3-Knowing the concept of freedoms and democracy correctly.</p> <p style="padding-left: 40px;">Providing the student with the moral values that must be adhered to and clarifying the most important rights and duties incumbent upon the individual.</p>

Learning and Teaching Strategies

Strategies	<p>The learning and teaching strategy is designed to: Carefully cover the essential material and analytical techniques required in lectures, and demonstrate the concepts using appropriate (and where possible practical) examples. Give students sufficient time to practice the techniques using a large number of carefully selected learning problems.</p>
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Student Workload (SWL)			
Structured SWL (hr/sem) Lectures in Chapter 150 Tests in Chapter 3	33	Structured SWL (h/w) Regular weekly student load	2.2
Unstructured SWL (hr/sem)	17	Unstructured SWL (h/w) Irregular student load per week	1.1
Total SWL (hr/sem)	50		

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

Delivery Plan (Weekly Syllabus)

	Covered Materials
Week 1	Human rights in ancient times 1- Human rights in Greek civilization
Week 2	Human rights in ancient Egyptian civilization
Week 3	- Human rights in Mesopotamian civilization,
Week 4	Human rights in divine laws and religions Human Rights in Christianity and Judaism
Week 5	Human rights in Islamic law.
Week 6	International sources of human rights International sources and the Universal Declaration of Human Rights.
Week 7	Midterm Exam
Week 8	The two international covenants on human rights.
Week 9	Human rights guarantees At the international and local levels Constitutional guarantees.
Week 10	Legal guarantees
Week 11	Human rights guarantees in Islam.
Week 12	Charter of the United Nations.
Week 13	United Nations General Assembly.
Week 14	Legal guarantees International
Week 15	Final exam

Learning and Teaching Resources

	Text	Available in the library?
Required Texts	Human rights, children and democracy	Yes
Websites		

Grading Scheme

Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.

Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.



Name and Signature of the
Course Instructor

Asst. Lec. Qutaiba Mukhlef Abbas

Khalid H. Lateef

Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Engineering Mechanics		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> theory <input type="checkbox"/> a lecture <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> practical <input type="checkbox"/> seminar
Module Code	CE121		
ECTS Credits	12		
SWL (hr/sem)	300		
Module Level	1	Semester of Delivery	2
Administering Department	CE	College	Civil Engineering Center
Module Leader	Israa Khalel Jasem		Email israa.abc95@gmail.com
Module Leader's Acad. Title	Assistant Lecture		Module Leader's Qualification Master of Civil Engineering
Module Tutor	None		Email None
Peer Reviewer Name	None		Email None
Scientific Committee Approval Date	06/01/2023	Version Number	1.0

Relation with other Modules			
Prerequisite module	None		Semester
Co-requisites module	CE211		Semester 3

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<ol style="list-style-type: none"> 1. Provide a definition of force and torque vectors and give the necessary vector algebra. 2. Explain the concept of equilibrium of particles and solid bodies in flat space and three-dimensional space. 3. Provide information about types of support and give the ability to calculate supportive feedback. 4. Explain the balance of structures and internal forces in trusses and frames. 5. To give information about distributed loads. 6. Explain the center of gravity of objects and shapes. 7. To provide information about the moment of inertia.
Module Learning Outcomes	<ol style="list-style-type: none"> 1. Use conceptual and numerical techniques to solve engineering problems. 2. Analyze and develop free body diagrams for any system of forces in two and three dimensions. 3. Understand and use the general idea of particle equilibrium. 4. Understand and use the general ideas of force system outcomes. 5. Determine the moment of a force about an arbitrary point and/or axes. 6. Analysis of the equilibrium of rigid bodies under any system of forces. 7. Analysis of beams, trusses, frames and machinery. 8. Calculate center of gravity, points of gravity, and moments of inertia. 9. Apply frictional forces and analyze their various applications.
Indicative Contents	<p>The guidance content includes:</p> <ol style="list-style-type: none"> 1. Force Vectors (8 hours) 2. Power System Outcomes (8 hours) 3. Solid Body Balance (8 hours) 4. Friction (8 hours) 5. Center of gravity and center of gravity (6 hours) 6. Moments of stillness and virtual work (8 hours) 7. Structure (beams and frames) (10 hours)
Course Description	<p>The course covers the following topics; Statics of particles: Forces in the plane, Forces in space, Equilibrium, Moments of force, Moments of couple, Systems of equivalent forces on rigid bodies, Equilibrium in two dimensions, Equilibrium in three dimensions, Distributed forces: Center of gravity and center of gravity, Analysis of structures: Trusses, frames and machines, Internal forces in beams and cables, Friction, Moments of inertia of areas, Moments of inertia of masses.</p>

Learning and Teaching Strategies

Strategies	The learning and teaching strategy is designed to: Carefully cover the essential material and analytical techniques required in lectures, and demonstrate the concepts using appropriate (and where possible practical) examples. Give students sufficient time to practice the techniques using a large number of carefully selected learning problems.
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Student Workload (SWL)

SWL Organization (hr/sem) Lectures in Chapter 150 Tests in Chapter 3	153	SWL organization (h/w) Regular weekly student load	10.2
Unstructured SWL (hr/sem)	147	Unstructured SWL (h/w) Irregular student load per week	9.8
Total SWL (hr/sem)	300		

Module Evaluation

		Time (hour)	Weight (marks)	Due week	Related learning outcomes
Formative assessment	Tests	2	10% (10)	5, 10, 12, 14	LO #1, 2, 3, 4
	Homework	5	15% (15)	4,8,11,15	LO #1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 and 14
	Discussions	6	15% (15)	continuous	
Summative assessment	Midterm Exam	2	10% (10)	7	#LO 1-6
	Final Exam	3	50% (50)	16	All
Overall Rating			100% (100 marks)		

Delivery Plan (Weekly Syllabus)

	Covered Materials
Week 1	General principles, principles of statics, vectors
Week 2	Plane forces resulting from a system of forces
Week 3	Plane forces resulting from a system of forces
Week 4	Free body diagram, moment definition, moment pair
Week 5	Free body diagram, moment definition, moment pair
Week 6	2D equilibrium, free body diagrams, equilibrium equations
Week 7	Midterm Exam
Week 8	3D equilibrium, free body diagrams, equilibrium equations
Week 9	Structural supports and frames
Week 10	Structural supports and frames
Week 11	Center of mass, gravity, and center of gravity
Week 12	Lines, Areas and Volumes Centers
Week 13	Moments of inertia
Week 14	Moments of inertia
Week 15	Friction (dry friction)
Week 16	Final Exam

Learning and Teaching Resources

	Text	Available in the library?
Required texts	RC Hibler "Engineering Mechanics, Statics. Eleventh Edition in SIU nits.	Yes
Recommended Texts	Higdon, A. and Steeles, W.B. "Engineering Mechanics", 3rd Edition, Prentice Hall India, 1974.	No
	RC Hibler, "Engineering Mechanics", Pearson Prentice Hall, 2013.	
Websites	https://Mechanicsmap.psu.edu https://mathalino.com	

Grading Scheme

Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.

Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.



Name and Signature of the
Course Instructor

Asst. Lec. Israa Khalel Jasem

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	AutoCAD	Module Delivery	
Module Type	Support	<input checked="" type="checkbox"/> theory <input type="checkbox"/> a lecture <input checked="" type="checkbox"/> laboratory <input type="checkbox"/> Tutorial <input type="checkbox"/> practical <input type="checkbox"/> seminar	
Module Code	CE122		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1		
Administering Department	CE	College	Center of Excellence
Module Leader	Ahmed Diaa Abdel Latif	Email	c.eng.ahmed.7@gmail.com
Module Leader's Acad. Title	Assistant Lecture	Module Leader's Qualification	Master of Civil Engineering
Module Tutor	None	Email	None
Peer Reviewer Name	None	Email	None
Scientific Committee Approval Date	06/01/2023	Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	The student learns the basic principles and theories of engineering. Drawing and how to make different sketches using computer - Programs such as (AUTOCAD).
Module Learning Outcomes	<ol style="list-style-type: none">1. Definition of AutoCAD program, its features, and explanation of its interface and options.2. Explain how to use AutoCAD 2D tools.3. Practice using AutoCAD to apply engineering drawing rules and processes.4. Practice using AutoCAD tools through 2D drawings.5. Practice using the illustration and measurement tools in AutoCAD.6. Practice using AutoCAD to prepare drawings.7. Explain how to export, import and print AutoCAD drawings.
Indicative Contents	<p>The guidance content includes:</p> <ol style="list-style-type: none">1. Introduction - AutoCAD definition, AutoCAD features, AutoCAD interface, AutoCAD modules, AutoCAD options.2. AutoCAD 2D Drawing – Drawing tools, selection, modification tools, applying engineering operations using AutoCAD.3. AutoCAD drawing files – save and save as, export files, import files, print4. Drawings.

Learning and Teaching Strategies

Strategies	<p>Write something like: The main strategy that will be followed in delivering this unit is to encourage students to participate in the exercises, while at the same time honing and expanding their critical thinking skills. This will be achieved through interactive classes and lessons and by considering the types of simple experiments that involve some sampling activities that interest the students.</p>
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Student Workload (SWL)			
Structured SWL (hr/sem)	78	Structured SWL (h/w) Regular weekly student load	5.2
Unstructured SWL (hr/sem)	72	Unstructured SWL (h/w) Irregular student load per week	4.8
Total SWL (hr/sem)	150		

Module Evaluation					
		Time/number	Weight (marks)	Week Due	Relevant Learning Outcomes
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1-#3 and #3-#5
	Assignments	2	20% (20)	continuous	All
	Projects / Lab.	1	10% (10)	continuous	All
	Report	0	0	----	-----
Summative assessment	Midterm Exam	2 hours	10% (10)	7	#1 - #4
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Lab. Syllabus)

	Covered Materials
Week 1	Install and activate Auto Cad
Week 2	Definition of AutoCAD program, its interface, options and selection of units
Week 3	AutoCAD 2D Tools (Drawing and Editing Tools) and Options Explained
Week 4	Practical practice on using drawing and editing tools
Week 5	Midterm Exam
Week 6	Blocks, descriptions, control over their specifications, how they are formed, inserted, and modified.
Week 7	AutoCAD Commenting Tools and Engineering Measurement Rules with Practice
Week 8	Layers
Week 9	Description of engineering plans
Week 10	How to draw engineering drawings By AutoCAD
Week 11	Export, import and print AutoCAD drawing files

Learning and Teaching Resources

	Text	Available in the library?
Required texts	Proficiency in AutoCAD and AutoCAD LT/Omura/Sybex	No
Recommended Texts		
Websites		

Grading Scheme				
Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.
<p>Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.</p>				

Name and Signature of the
Course Instructor



Asst. Lect. Ahmed Diah Abdel Latif

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Engineering statistics	Module Delivery	
Module Type	Basic	<input checked="" type="checkbox"/> theory <input type="checkbox"/> a lecture <input type="checkbox"/> laboratory <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> practical <input type="checkbox"/> seminar	
Module Code	CE123		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	2
Administering Department	CE	College	Civil Engineering Center
Module Leader	Ahmed Hady Mahmoud	Email	Ahmed.ha.m@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant Lecture	Module Leader's Qualification	Master of Civil Engineering
Module Tutor	None	Email	None
Peer Reviewer Name	None	Email	None
Scientific Committee Approval Date	06/01/2023	Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1-To determine the role that statistics can play in the process of solving engineering problems.

	<p>2-To discuss the different methods engineers use to collect data.</p> <p>3-To determine the advantages of designed experiments over other methods of collecting engineering data.</p> <p>4-To explain the laws of probability.</p> <p>5-To explain descriptive statistics.</p> <p>6-To conduct analysis and make decision.</p> <p>7-To calculate the central measure and the variance measure.</p>
<p>Module Learning Outcomes</p>	<p>Important: Write at least 6 learning outcomes, preferably equal to the number of weeks of study.</p> <p>1-Ability to manipulate data to assist decision makers in making decisions.</p> <p>2-Statistics enable us to draw conclusions about the population as a whole based on the sample taken from the population.</p> <p>3-Understand and use general ideas of probability.</p> <p>4-Learn to use technology (hand calculators, Excel and SPSS) to perform statistical analysis.</p> <p>5-Ability to perform simple linear regression and correlation analysis.</p> <p>6-Data analysis application using SPSS.</p>
<p>Indicative Contents</p>	<p>Statistics is the science of collecting, analyzing, presenting, and interpreting data. Governments' needs for population data as well as information about a variety of economic activities provided much of the early impetus for the field of statistics. Today, the need to convert the large amounts of data available in many application areas into useful information has stimulated theoretical and practical developments in statistics.</p> <p>Descriptive statistics</p> <p>Procedures used to summarize, organize, and simplify data (data is a collection of measurements or observations) taken from a sample (i.e. mean, median, and mode). Examples:</p> <ul style="list-style-type: none"> • The mean score on the Rosenberg Self-Esteem Scale was 7.5. • 63% of the sample described themselves as Caucasian. <p>Inferential statistics</p> <p>Techniques that allow us to infer information about a population based on data we collect from a sample.</p> <ul style="list-style-type: none"> • Study results vary from sample to sample due to random chance (i.e. sampling error). • Inferential statistics allow us to determine how likely it is to obtain a set of outcomes from a single sample. • This is also known as a "statistical significance" test. <p>probability</p> <p>Probability is a subject that deals with uncertainty. In everyday terms, probability can be thought of as a numerical measure of the likelihood of a particular event occurring. Probability values are assigned on a scale from 0 to 1, with values close</p>

	to 0 indicating that the event is unlikely to occur and those close to 1 indicating that the event is likely to occur. A probability of 0.50 means that the event is either likely to occur or not occur.
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Learning and Teaching Strategies	
Strategies	The main strategy that will be followed in delivering this unit is to encourage students to participate in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through interactive classes and lessons and by looking at the types of simple experiments that involve some sampling activities that interest students.

Student Workload (SWL)			
Structured SWL (hr/sem)	63	Unstructured SWL (h/w) Regular weekly student load	4.2
Unstructured SWL (hr/sem)	62	Unstructured SWL (h/w) Irregular student load per week	4.1
Total SWL (hr/sem)	125		

Module Evaluation

		Time/number	Weight (marks)	Week Due	Relevant Learning Outcomes
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2, #10, and #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4, #6, and #7
	Projects / Lab.	1	10% (10)	continuous	All
	Report	1	10% (10)	13	#LO #5, #8, and #10
Summative assessment	Midterm Exam	2 hours	10% (10)	7	#1 - #7 Goal
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)

	Covered Materials
Week 1	Introduction and Definitions
Week 2	Summarize and graph data.
Week 3	Frequency distributions, histograms, and relative frequency histograms.
Week 4	Statistics for describing, exploring, and comparing data.
Week 5	Arithmetic mean and geometric mean.
Week 6	The median and the mode.
Week 7	Midterm Exam
Week 8	Measures of variance and dispersion, RN.
Week 9	Mean, variance and standard deviation.
Week 10	Basic concepts of probability.
Week 11	Discrete probability distributions.
Week 12	Continuous probability distribution.
Week 13	Correlation and regression analysis.
Week 14	Hypotheses and fitness tests.
Week 15	Test of variance, one-way test.
Week 16	Final Exam

Learning and Teaching Resources

	Text	Available in the library?
Required texts	Introduction to Statistics and Data Analysis, Roxy Beck, Chris Olsen, and Jay Devore. Third Edition.	None
Recommended Texts	Mario, N. R., and H. Smith, 1981, Applied Regression Analysis, 2nd ed., John Willow & Sons, New York.	None

Grading Scheme

Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.

Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.



Name and Signature of the
Course Instructor

Asst.Lec.Ahmed Hady Mahmoud

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Engineering Geology	Module Delivery	
Module Type	Core	<input checked="" type="checkbox"/> theory <input type="checkbox"/> a lecture <input type="checkbox"/> laboratory <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> practical <input type="checkbox"/> seminar	
Module Code	CE124		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1		Semester of Delivery
Administering Department	CE	College	Civil Engineering Center
Module Leader	Duaa Tawfiq Fadel	Email	Dpuua_alhaile88@yahoo.com
Module Leader's Acad. Title	Assistant Lecture	Module Leader's Qualification	Master of Civil engineering
Module Tutor	None	Email	None
Peer Reviewer Name	None	Email	None
Scientific Committee Approval Date	06/01/2023	Version Number	1.0

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	Develop the ability/skill to discover/innovate/create/synthesize areas of knowledge or apply academic knowledge to life problems, as demonstrated by students possessing critical thinking skills to evaluate ideas and acquiring research skills.
Module Learning Outcomes	<ol style="list-style-type: none"> 1. Identify and apply different reading skills in reading, referring to and summarizing engineering-related literature. 2. Identify the different skills of technical presentation and apply them in conducting a short technical presentation based on the information extracted from the reading. 3. Identify and apply technical discussion skills in planning and conducting simulated technical discussions characteristic of those in engineering contexts. 4. Identify and compare the structure and language characteristics of various types of written study reports and workplace reports characteristic of those produced primarily by engineering students and practicing engineers, and apply this knowledge in writing one of the latter. 5. Develop communication skills through active participation in classroom and group activities.
Indicative Contents	<p>The instructional content includes the following flow:</p> <ol style="list-style-type: none"> 1. Technical presentation 2. Conduct technical discussion on engineering projects 3. Writing technical documents

Learning and Teaching Strategies

Strategies	The learning strategy and technique are designed to: cover the essential material and necessary analytical techniques carefully in lectures, demonstrate the concepts through appropriate examples, and give students sufficient time to practice.
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Student Workload (SWL)

Structured SWL (hr/sem)	63	Unstructured SWL (h/w) Regular weekly student load	4.2
Unstructured SWL (hr/sem)	62	Unstructured SWL (h/w) Irregular student load per week	4.1
Total SWL(hr/sem)	125		

Module Evaluation					
		Time / Number	Weight (marks)	Week Due	Relevant Learning Outcomes
Formative assessment	Quizzes	2	10% (10)	5, 10, 12, 14	LO #1, 2, 3, 4
	Assegnments	6	18% (18)	2, 4, 6, 8, 10, 12	Goal No. 1, 2, 3, 4, 5 and 6
	Seminars	3	12% (12)	continuous	
Summative assessment	Midterm Exam	2	10% (10)	7	Goal No. 1-3
	Final Exam	3	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)	
	Covered Materials
Week 1	Geology, Engineering Geology: Definition and Purposes
Week 2	Earth and its components
Week 3	Rock formation and types: igneous rocks and metamorphic rocks
Week 4	Sedimentary rocks
Week 5	Weathering and soil types
Week 6	structural geology
Week 7	Midterm Exam
Week 8	Mechanical soil: definition
Week 9	Physical properties of soil
Week 10	Example: Physical properties of soil
Week 11	Geophysical methods
Week 12	Electric roads
Week 13	Hydrology
Week 14	Hydrogeology
Week 15	seminar
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

Week 1	Crystals
Week 2	Minerals
Week 3	Physical properties of minerals
Week 4	Rocks
Week 5	mechanical soil
Week 6	terrain maps
Week 7	Terrain sections

Learning and Teaching Resources

	Text	Available in the library?
Required texts	Engineering Geology and Mechanics 1980. Written by N. Duncan. Translated by Kanana Muhammad Thabet, Muhammad Alaa El-Din, Zuhair Rammo.	Yes
Recommended Texts	Biodata Fundamentals 2009. Dr. Michel Kamel. Black Engineering and Mechanical Geology, 1980, written by Majeed Aboud Al-Taie, University of Basra	Yes
Websites		

Grading Scheme				
Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.

Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.

Name and Signature of the
Course Instructor



Kalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Lec. Duaa Tawfiq Fadel

MODULE DESCRIPTION FORM

Module Information			
Module Title	English 1	Module Delivery	
Module Type	Basic	<input checked="" type="checkbox"/> theory <input checked="" type="checkbox"/> a lecture <input type="checkbox"/> laboratory <input type="checkbox"/> Tutorial <input type="checkbox"/> practical <input checked="" type="checkbox"/> seminar	
Module Code	UOE-12011		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	1		
Administering Department	CE	college	Civil Engineering Center
Module Leader	Moataz Ibrahim Ali	Email	Muitaz88@gmail.com
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D. in Civil Engineering
Module Tutor	None	Email	None
Peer Reviewer Name	None	Email	None
Scientific Committee Approval Date	06/01/2023	Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	-

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	Develop the ability/skill to discover/innovate/create, synthesize knowledge across disciplines or apply academic knowledge to real-life problems, as demonstrated by students possessing critical thinking skills to evaluate ideas, and acquiring research skills.								
Module Learning Outcomes	<ol style="list-style-type: none"> 1. Identify and apply different reading skills in reading, referencing, and summarizing engineering-related literature. 2. Identify different presentation skills and apply them in conducting short presentations based on information extracted from readings. 3. Identify and apply technical discussion skills in planning and conducting simulated technical discussions typical of those occurring in engineering contexts. 4. Identify and compare the structures and language features of different types of written reports for study and the workplace that are characteristic of those produced primarily by engineering students and practising engineers (e.g., accident reports, progress reports), and apply this knowledge in writing one such report. 5. Develop communication skills through active participation in classroom and group activities. 								
Indicative Contents	<p>The guidance content includes:</p> <table style="width: 100%; border: none;"> <tr> <td style="padding-left: 20px;">1. Artistic performances</td> <td style="text-align: right;">(5 hours)</td> </tr> <tr> <td style="padding-left: 20px;">2. Conducting technical discussions on engineering projects</td> <td style="text-align: right;">(5 hours)</td> </tr> <tr> <td style="padding-left: 20px;">3. Writing technical documents</td> <td style="text-align: right;">(5 hours)</td> </tr> <tr> <td style="padding-left: 20px;">4. Writing business correspondence</td> <td style="text-align: right;">(5 hours)</td> </tr> </table>	1. Artistic performances	(5 hours)	2. Conducting technical discussions on engineering projects	(5 hours)	3. Writing technical documents	(5 hours)	4. Writing business correspondence	(5 hours)
1. Artistic performances	(5 hours)								
2. Conducting technical discussions on engineering projects	(5 hours)								
3. Writing technical documents	(5 hours)								
4. Writing business correspondence	(5 hours)								

Learning and Teaching Strategies

Strategies	The learning and teaching strategy is designed to: cover the essential material and necessary analytical techniques carefully in lectures, and demonstrate concepts with appropriate (and where possible practical) examples that allow students to gain sufficient understanding. Practice techniques using a large number of carefully selected educational problems.
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Student Workload (SWL)			
Structured SWL (hr/sem)	33	Structured SWL (h/w) Regular weekly student load	2.2
Unstructured SWL (hr/sem)	17	Unstructured SWL (h/w) Irregular student load per week	1.1
Total SWL (hour/semester)	50		

Module Evaluation					
		Time /Number	Weight (marks)	Week Due	Relevant Learning Outcomes
Formative assessment	Quizzes	2	15% (15)	5, 10, 12, 14	LO #1, 2, 3, 4
	Assignments	6	15% (15)	2, 4, 6, 8, 10, 12	Goal No. 1, 2, 3, 4, 5 and 6
	Seminars	3	10% (10)	continuous	
Summative assessment	Midterm Exam	2	10% (10)	7	Goal No. 1-3
	Final Exam	3	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)

	Covered Materials
Week 1	English Basics
	Unit 1 (Grammar, Vocabulary, Reading, Writing, List)
Week 2	Workbook Unit 1 Test (Grammar, Vocabulary, Reading, Writing, List)
	Unit 2 (Grammar, Vocabulary, Reading, Writing, List)
Week 3	Workbook Unit 2 Test (Grammar, Vocabulary, Reading, Writing, List)
	How to make a CV
Week 4	Discussing some student CV projects
	How to Create (Business Email, Academic Email, Personal Email and Signature)
Week 5	Unit 3 (Grammar, Vocabulary, Reading, Writing, List)
	Workbook Unit 3 Test (Grammar, Vocabulary, Reading, Writing, List)
Week 6	Unit 4 (Grammar, Vocabulary, Reading, Writing, List)
	Workbook Unit 4 Test (Grammar, Vocabulary, Reading, Writing, List)
Week 7	Midterm Exam
Week 8	Class business meeting
	Class business meeting
Week 9	Unit 5 (Grammar, Vocabulary, Reading, Writing, List)
	Workbook Unit 5 Test (Grammar, Vocabulary, Reading, Writing, List)
Week 10	Unit 6 (Grammar, Vocabulary, Reading, Writing, List)
	Workbook Unit 6 Test (Grammar, Vocabulary, Reading, Writing, List)
Week 11	Unit 7 (Grammar, Vocabulary, Reading, Writing, List)
	Workbook Unit 7 Test (Grammar, Vocabulary, Reading, Writing, List)
Week 12	Class business meeting
	Class business meeting
Week 13	Unit 8 (Grammar, Vocabulary, Reading, Writing, List)
	Workbook Unit 8 Test (Grammar, Vocabulary, Reading, Writing, List)
Week 14	Unit 9 (Grammar, Vocabulary, Reading, Writing, List)
	Workbook Unit 9 Test (Grammar, Vocabulary, Reading, Writing, List)
Week 15	Discussion on (Civil Engineering Project)
	Discussion on (Civil Engineering Project)
Week 16	Preparation week before the final exam
	Final Exam

Learning and Teaching Resources

	Text	Available in the library?
Required texts	Advance Plus (Pre-Intermediate), John and Lizzie Sowers,Oxford.	Yes
Required texts	Plus Progress (Medium), John and Lizzie Sowers,Oxford.	Yes
Recommended Texts	DC Circuit Analysis: A Practical Approach Copyright: 2020, The Dissidents.	None
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

Grading Scheme

Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.

Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.

Name and Signature of the
Course Instructor



Asst.Prof. Dr. Moataz Ibrahim Ali

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Second Level-Bologna System 2024-2025

MODULE DESCRIPTION FORM

Module Information			
Module Title	Strength of Materials I	Module Delivery	
Module Type	Core	<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	CE211		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	2	Semester of Delivery	3
Administering Department	CE	College	CENGS
Module Leader	Ahmed Dheyaa Abdulateef	e-mail	ahmed.d.abd@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	Master of Civil Engineering
Module Tutor	None	e-mail	None
Peer Reviewer Name	None	e-mail	None
Scientific Committee Approval Date		Version Number	1.0

Relation with other Modules			
Prerequisite module	CE121	Semester	4
Co-requisites module	None	Semester	-

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<ol style="list-style-type: none"> 1) To learn the definition of stresses and strains. 2) To explain the concept of mechanical properties of materials. 3) To explain the axial Deformations. 4) To explain the bending. 5) To give information about methods for constructing shear and moment diagrams. 6) To explain Composite beams. 7) To explain Torsion.
Module Learning Outcomes	<ol style="list-style-type: none"> 1) Use both conceptual and numerical techniques to solve engineering problems. 2) Understanding the effect of any system of forces on a body. 3) Analyze and develop stresses and strains on the body due to forces. 4) Understand and use the mechanical properties of materials. 5) Understand the reasons and effects of Axial Deformations. 6) Analyze, Calculate bending. 7) Determine the moment and constructing shear and moment diagrams. Analyze the. 8) Calculate Torsion and Composite beams understanding its effects. <p>Indicative content includes the following.</p> <ol style="list-style-type: none"> 1-Stress 2-Strain 3-Mechanical Properties of Materials 4-Axial Deformations 5-Bending 6-Composite Beams 7-Torsion
Indicative Contents	<p>The course covers the following topics;</p> <ol style="list-style-type: none"> 1-Stress: <ul style="list-style-type: none"> - Average normal stress of axially loaded members - Average shear stress - Allowable stress - Simple connection design.

2-Strain:

- Normal strain
- Shear strain.

3-Mechanical Properties of Materials:

- Tension and Compression Test
- Stress - Strain Diagram
- Hooke's Law
- Strain Energy, Resilience, Toughness
- Poisson's Ratio
- Shear Stress - Strain Diagram,
- Creep, Fatigue, Hardness.

4-Axial Deformations:

- Elastic deformation of an axially loaded members
- Thermal stress

5-Bending:

- Equation method for constructing shear and moment diagrams
- Graphical method for constructing shear and moment diagrams
- moment diagrams by parts
- Bending deformation of a straight member
- The flexure formula
- Composite beams
- Unsymmetrical bending

6-Torsion:

- Torsional deformation of a circular shaft
- The torsion formula
- Angle of twist
- Solid noncircular shafts
- Thin-walled tubes having closed cross section

Learning and Teaching Strategies

Strategies	The learning and teaching strategy is designed to: Carefully cover in lectures the necessary fundamental material and analytical techniques, and demonstrate concepts with appropriate (and where possible practical) examples Allow students adequate time to practice the techniques using a large number of carefully selected tutorial problems .
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Student Workload (SWL)

Structured SWL (h/sem)	78	Structured SWL (h/w)	5.2
Unstructured SWL (h/sem)	72	Unstructured SWL (h/w)	4.8
Total SWL (h/sem)	150		

Module Evaluation

		Time/ Number (hr)	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	Continuous	LO #, 2, 3, 4, 5,6,7,8, and 9
	Assignments A-HomeWorks B- Reports	5	15% (15)	Continuous	LO #1, 2, 3, 4, 5,6,7,8, and 9
	Class work	4	15% (15)	Continuous	
Summative assessment	Mid-term Exam	2	10% (10)	8	LO #1-5
	Final Exam	3	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Average normal stress of axially loaded members, average shear stress
Week 2	Allowable stress, simple connection design.
Week 3	Normal strain, Shear strain.
Week 4	Tension and Compression Test, Stress - Strain Diagram, Hooke's Law
Week 5	Strain Energy, Resilience, Toughness, Poisson's Ratio, Shear Stress - Strain Diagram
Week 6	Creep, Fatigue, Hardness, Elastic deformation of an axially loaded members
Week 7	Elastic deformation of an axially loaded members, thermal stress
Week 8	Mid-term exam
Week 9	Equation method for constructing shear and moment diagrams
Week 10	Graphical method for constructing shear and moment diagrams
Week 11	Bending deformation of a straight member, Flexure formula, Unsymmetrical bending
Week 12	Composite beams
Week 13	Torsional deformation of a circular shaft, The torsion formula
Week 14	Angle of twist, solid noncircular shafts
Week 15	Solid noncircular shafts, Thin-walled tubes having closed cross section
Week 16	Final Exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Mechanics of Materials, 8th Edition; R. C. Hibbeler.	Yes
Recommended Texts	Mechanics of Materials, 6th Edition; James M. Gere.	No

Grading Scheme

Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.

Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.



Name and Signature of the
Course Instructor

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Asst. Lec. Ahmed Dheyaa Abdulateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Fluid I		Module Delivery
Module Type	Supportive		<input checked="" type="checkbox"/> theoretical <input checked="" type="checkbox"/> literature <input checked="" type="checkbox"/> experimental <input checked="" type="checkbox"/> discussion <input checked="" type="checkbox"/> experimental <input type="checkbox"/> presentation
Module Code	CE213		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	2	Semester of Delivery	3
Administering Department	CE	Collage	CENG
Module Leader	Laith Amjed	e-mail	laith.amjad@uosamarra.edu.iq
Scientific Title	Lecture	Module's Qualification	Master of Chemical Engineering
Module Tutor	None	e-mail	None
Peer Reviewer Name	None	e-mail	None
Scientific Committee Approval Date	None	Version Number	1.0

Relation with other Module			
Prerequisite Module	None	Semester	
Co-requisites Module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<ul style="list-style-type: none"> • Understanding fluid properties like pressure, density, and viscosity, and how they influence fluid motion and behavior. • Analyzing the impact of fluid forces on surrounding objects, with emphasis on fundamental laws like Bernoulli's Law and Navier-Stokes Equations. • Designing mechanical systems that handle fluids, such as pipes, pumps, and valves, ensuring efficiency and safe operation. • Applying principles of flow to study flow types (laminar and turbulent) and determine how to achieve optimal flow for specific applications. • Solving real-world problems across multiple fields like civil, mechanical, and aerospace engineering using fluid mechanics models and equations.
Module Learning Outcomes	<ul style="list-style-type: none"> • Analyze fluid properties and understand their effect on flow and fluid behavior in different situations. • Apply fundamental laws such as Bernoulli's and Navier-Stokes equations to solve fluid flow problems. • Design effective flow systems, including pipes, pumps, and turbines, taking into account performance factors. • Differentiate between flow types (laminar and turbulent) and apply suitable methods to analyze each. • Use simulation software to analyze flow and calculate pressure and speed variations in practical applications.
Indicative Contents	<ol style="list-style-type: none"> 1. Introduction to Fluid Properties: A basic explanation of concepts such as density, pressure, viscosity, and surface tension forces, and their importance in understanding fluid behavior. 2. Flow and Dynamic Behavior: Guidelines on how to analyze laminar and turbulent flow and understand the impact of various factors on flow stability and velocity. 3. Utilizing Laws and Equations: Practical application of Bernoulli's law, the continuity equation, and the Navier-Stokes equations to solve flow problems, with a focus on their applications in engineering.

Learning and Teaching Strategies

Strategies	<p>The primary strategy to be adopted in this course is to encourage students to engage in both theoretical and practical exercises, in addition to honing and developing critical thinking skills. This is achieved through theoretical lessons, interactive discussions, conducting simple and complex practical experiments, and applied activities that contribute to solidifying .knowledge, refining skills, and fostering growth</p>
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Student Workload (SWL)			
Structured SWL (h/sem)	93	Structured SWL (h/w)	6.2
Unstructured SWL (h/sem)	57	Unstructured SWL (h/w)	3.8
Total SWL (h/sem)	150		

Module Evaluation					
		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	5% (5)	6 and 10	LO #1 #3
	Assignments	2	10% (10)	5 and 11	LO #1 #2 #4 #3 #8
	Projects/ Lab.	10	10% (10)	Continuous	LO #1 #2 #4 #3 #8
	Report	10	15% (15)	Continuous	LO #1 #3 #8
Formative assessment	Mid-term Exam	2hr	10% (10)	7	All
	Final exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction, dimensions
Week 2	Units, fluid properties
Week 3	Static fluid
Week 4	Static pressure
Week 5	Forces and its measurement
Week 6	Forces and its measurement

Week 7	Mid Exam
Week 8	Dynamics fluid
Week 9	Bouncy
Week 10	Open channel
Week 11	Systematic and non systematic flow
Week 12	Conservation law
Week 13	Continuity equation
Week 14	Euler equation
Week 15	Examples
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)	
Week	Material Covered
Week 1	Hydraulic Platform
Week 2	Hydraulic Platform
Week 3	Hydraulic Platform
Week 4	Center of Pressure
Week 5	Center of Pressure
Week 6	Center of Pressure
Week 7	Bernoulli's Principle
Week 8	Bernoulli's Principle
Week 9	Bernoulli's Principle
Week 10	Venturi
Week 11	Venturi
Week 12	Venturi
Week 13	Volumetric Flow Rate
Week 14	Volumetric Flow Rate
Week 15	Volumetric Flow Rate
Week 16	Exam

Learning and Teaching Resources

	Text	Availability in the library
Required Texts	Fluid Mechanics by Dr. Naama Hamad Amara, 1989.	Yes
Recommended Texts	Fluid Mechanics" by Frank M. White	Yes
websites	None	

Grading Scheme

Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.

Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.



Name and Signature of the
Course Instructor

Lec. Laith Amjed

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Mathematics II	Module Delivery	
Module Type	Basic	<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	CE213		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	2	Semester of Delivery	3
Administering Department	CE	College	CENGs
Module Leader	Muataz Ibrahim Ali	e-mail	muitaz88@gmail.com
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D in Civil Engineering
Module Tutor	Hatim Abdul-Kareem Alwan	e-mail	hatimhh2001@gmail.com
Peer Reviewer Name	None	e-mail	None
Scientific Committee Approval Date	17/6/2024	Version Number	1.0

Relation with other Modules			
Prerequisite module	Mathematics I	Semester	1
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<p>1-The study of mathematics in the first stage of civil engineering is essential for developing the following outcomes:</p> <p>2-Understanding of basic mathematical concepts and</p> <p>3-Students will gain an understanding of techniques fundamental mathematical concepts such as algebra, trigonometry, calculus, matrices, and linear algebra.</p> <p>4-Problem-solving skills: The study of mathematics enables students to</p> <p>5- develop analytical and problem-solving skills that are essential for solving complex civil engineering problems.</p> <p>6-Application of mathematical principles to engineering problems: The application of mathematical principles is critical in engineering.</p> <p>7-Students will learn how to apply mathematical concepts to solve real-world problems in civil engineering.</p> <p>8-Comprehension of mathematical models: Civil engineers need to understand how mathematical models are constructed, used, and interpreted to solve complex engineering problems.</p> <p>9-Ability to analyze and interpret data: Mathematics, especially statistics and probability, is essential in analyzing data in civil engineering.</p> <p>10-Students will learn how to interpret and analyze data to reach meaningful conclusions.</p> <p>11-Effective communication: The study of mathematics enhances communication skills necessary for presenting complex engineering concepts and ideas to other professionals.</p>
Module Learning Outcomes	<p>After studying this course, students should be able to</p> <p>1-understand the basic concepts related to this course.</p> <p>2-The student learns the concept of mathematical functions and the mathematical operations related to them.</p> <p>3-The student must understand some mathematical topics that he needs to understand in order to enter other courses in the Civil Engineering Department, such as matrices and mathematical operations on them.</p> <p>4-The student understands the concept of limits of mathematical functions and complex functions.</p> <p>5-That the student learns the concept of differentiation and its Ordinary differential equation and Power series in the rest of the department's civil engineering courses.</p> <p>6-The student should understand how to apply calculus to various engineering applications in general and applications related to his studies in the Department of Civil Engineering in particular.</p> <p>7-Introducing the student to the various mathematical functions that he may need during his studies in the Civil Engineering Department, such as: Taylor and maclurin, Fourier series, Directional derivatives, and inverse functions...etc.</p>
Indicative Contents	<p>Indicative content includes the following:</p>

	<ol style="list-style-type: none"> 1. Complex function 2. Catchy – Remain conditions 3. Ordinary differential equation 4. First order. DE 5. Second Order DE Applications 6. Higher order. DE 7. Simultaneously. DE 8. Sequences 9. Infinite series 10. Test for convergence 11. Alternating series 12. Power series 13. Taylor and Maclurin 14. Fourier series 15. Even and odd function 16. Partial derivatives 17. Directional derivatives 18. Min & Max points 19. Polar coordinate 20. Double Integrals 21. Physical Applications 22. Triple integrals 23. Vector in space 24. Equation of line – plane 25. Gradient / divergence / curl
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Learning and Teaching Strategies	
Strategies	<ol style="list-style-type: none"> 1. Collaborative Learning 2. Project-Based Learning 3. Inquiry-Guided Learning 4. Problem-Based Learning 5. Blended Learning 6. Self-Directed Learning 7. Discovery Learning 8. Simulation-Based Learning 9. Game-Based Learning 10. Flipped Learning 11. Critical Thinking-Based Learning

Student Workload (SWL)			
Structured SWL (h/sem)	63	Structured SWL (h/w) Regular weekly student load	4.2
Unstructured SWL (h/sem)	62	Unstructured SWL (h/w) Irregular student load per week	4.1
Total SWL (h/sem)	125		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	11	15% (15)	2 and 13	LO #1, #2 and #10, #11
	Assignments	11	15% (15)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	5% (5)	Continuous	All
	Report	1	5% (5)	13	LO #5, #8 and #10
Summative assessment	Mid-Term Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Complex function
	Complex function
Week 2	Catchy – Remain conditions
	Ordinary differential equation
Week 3	First order .DE
	First order .DE
Week 4	Second order DE Applications
	Second order DE Applications
Week 5	Higher order .DE

	Simultaneously .DE
Week 6	Sequences, Infinite series.
	Test for convergence
Week 7	Alternating series
	Mid-term Exam
Week 8	Power series
	Taylor and Maclurin
Week 9	Application
	Fourier series
Week 10	Even and odd function
	Partial derivatives
Week 11	Directional derivatives
	Min & Max points
Week 12	Polar coordinate
	Polar coordinate
Week 13	Double Integrals
	Physical Applications
Week 14	Triple integrals
	Vector in space
Week 15	Equation of line – plane
	Gradient / divergence / curl
Week 16	Final Exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Calculus and analytical geometry, George B. Thomas Jr.; Addison – Wesley publishing company, 7th edition, 1988.	Yes
Recommended Texts	Calculus; James Stewart, 10th edition, 2003.	No
Websites	None	

Grading Scheme				
Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.
<p>Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.</p>				

Name and Signature of the
Course Instructor



Asst.Lect. Hatim Abdul-Kareem Alwan

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Engineering Surveying I		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory
Module Code	CE214		<input checked="" type="checkbox"/> Lecture
ECTS Credits	6		<input checked="" type="checkbox"/> Lab
SWL (hr/sem)	150		<input checked="" type="checkbox"/> Tutorial
			<input checked="" type="checkbox"/> Practical
			<input type="checkbox"/> Seminar
Module Level	2	Semester of Delivery	3
Administering Department	CE	College	CENG
Module Leader	Ahmed Mohammed Ahmed	e-mail	ahmed_m@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Master of Civil Engineering
Module Tutor	None	e-mail	None
Peer Reviewer Name	None	e-mail	None
Scientific Committee Approval Date	06/17/2023	Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1- This course deals with the basics of Surveying. 2- Learn the basics of measurement. 3- Learn the tools and equipment used in measurement. 4- Learn the concept of leveling 5- Practice profile section calculations.
Module Learning Outcomes	1- Learn the measurements 2- Learn the errors that occur in measurement and its correction. 3- Learn the tools used in simple measurements. 4- Recognize the measurement obstacles and avoid it. 5- Know the main concept of leveling 6- Apply knowledge in solving engineering problems. 7- Design and conduct experiments, as well as analyze and interpret data. 8- The student acquires important information about the subject of engineering surveying. 9- Learn the mistakes that occur in leveling and its correction. 10- Know to project engineering plans.
Indicative Contents	Indicative content includes the following. 1-Part A – Measurements and mistakes occur in it Measurements and tools including tapes, errors occur in measurements, types of obstacles and the way to avoid it. <u>2-Part B –Levelling and equipment used in it</u> Definition of leveling and the equipment used in it (level), learn mistakes occur in leveling and methods of adjustments. <u>Part C –Profile (cut and fill)</u> Make some examples for calculating profile of projects and finding cut and fill values to fit the desired level of the project.

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

Student Workload (SWL)			
Structured SWL (h/sem)	93	Structured SWL (h/w) Regular weekly student load	6.2
Unstructured SWL (h/sem)	57	Unstructured SWL (h/w) Irregular student load per week	3.8
Total SWL (h/sem)	150		

Module Evaluation					
		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	5%	6 and 10	LO #1 #3
	Assignments	2	10%	5 and 11	LO #1 #2 #4 #3 #8
	Projects / Lab.	10	10%	Continuous	LO #1 #2 #4 #3 #8
	Report	10	15%	Continuous	LO #1 #3 #8
Summative assessment	Mid-Term Exam	2hr	10%	7	All
	Final Exam	3hr	50%	16	All
Total assessment			100%		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to Surveying
Week 2	Distance Measurement
Week 3	Measurement tools and equipment
Week 4	Mistake in measurement
Week 5	Levelling
Week 6	leveling instrument
Week 7	Mid-term Exam

Week 8	Levelling table
Week 9	Levelling mistake
Week 10	Longitudinal and transverse profile
Week 11	Cut and fill calculations
Week 12	Theodolite
Week 13	horizontal angle measurement
Week 14	Vertical angle measurement
Week 15	Directions and internal angles
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Measurement tools
Week 2	Distance measurement
Week 3	Horizontal angle measurement using measurement tape
Week 4	Orthogonal lines using measurement tape
Week 5	Projection of plans using tools principle
Week 6	Level
Week 7	Installation level
Week 8	Reading staff
Week 9	Levelling
Week 10	Diagnostic leveling
Week 11	Longitudinal profile
Week 12	Transverse profile
Week 13	Theodolite
Week 14	Measurement of horizontal and vertical angles using theodolite
Week 15	Projection of plans using theodolite
Week 16	Final Exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Engineering Surveyor / Yassin Obaid	Yes
Recommended Texts	Engineering Surveying – Sixth Edition (W. Schofield and M. Breach)	Yes
Websites	None	

Grading Scheme				
Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.
<p>Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.</p>				

Name and Signature of the
Course Instructor



Asst.Prof.Ahmed Mohammed Ahmed

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

A MODULE DESCRIPTION FORM

Module Information					
Module Title	English Language II	Module Delivery			
Module Type	Basic	<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input checked="" type="checkbox"/> Seminar			
Module Code	UOE-2306				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level		2	Semester of Delivery		3
Administering Department		CE	College	CENGs	
Module Leader	Ahmad Hidi	e-mail	Ahmed.ha.m@uosamarra.edu.iq		
Module Leader's Acad. Title		Assistant Lecturer	Module Leader's Qualification		Master of Civil Engineering
Module Tutor	None		e-mail	None	
Peer Reviewer Name		None	e-mail	None	
Scientific Committee Approval Date		06/01/2023	Version Number	1.0	

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	-

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	Develop the ability/skill needed to discover/innovate/create, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills.
Module Learning Outcomes	<p>1- Identify various reading skills and apply them in reading, referencing and summarizing literature on engineering</p> <p>2- Identify various skills of technical presentation and apply them in conducting short technical presentations based on information extracted from readings</p> <p>3- Identify technical discussion skills and apply these in planning and conducting simulated technical discussions characteristic of those that go on in engineering contexts.</p> <p>4- Identify and compare the structures and language engagement-ristics of various types of written study and workplace reports characteristic of those produced by engineering students and practicing engineers (eg, incident reports and progress reports) mainly, and applying this knowledge in writing one of the latter</p> <p>5- Develop communication skills through active participation in class and group activities.</p>
Indicative Contents	<p>Indicative content includes the following.</p> <p>1- Technical presentations (5 hrs)</p> <p>2- Conducting technical discussions about engineering projects (5 hrs)</p> <p>3- Writing technical documents (5 hrs)</p> <p>4- Writing business correspondence (5 hrs)</p>

Learning and Teaching Strategies

Strategies	<p>The learning and teaching strategy is designed to: Carefully cover in lectures the necessary fundamental material and analytical techniques, and demonstrate concepts with appropriate (and where possible practical) examples Allow students adequately time to practice the techniques using a large number of carefully selected tutorial problems.</p> <p>1- Collaborative Learning</p> <p>2- Project-Based Learning</p> <p>3- Inquiry-Guided Learning</p> <p>4- Blended Learning</p> <p>5- Self-Learning</p> <p>6- Simulation-Based Learning</p> <p>7- Game-Based Learning</p> <p>8- Technology-Based Learning</p>
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Student Workload (SWL)			
Structured SWL (h/sem)	33	Structured SWL (h/w) Regular weekly student load	2.2
Unstructured SWL (h/sem)	17	Unstructured SWL (h/w) Irregular student load per week	1.1
Total SWL (h/sem)	50		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	15% (15)	5, 10, 12, 14	LO #1, 2, 3, and 4
	Assignments	6	15% (15)	2, 4, 6, 8, 10, 12	LO # 1, 2, 3, 4, 5 and 6
	Seminars	3	10% (10)	Continuous	
Summative assessment	Midterm Exam	2	10% (10)	7	LO #1-3
	Final Exam	3	50% (50)	16	All
Total assessment			100% (100 Marks)		

(Weekly Syllabus)	
	Material Covered
Week 1	Basic English essentials
	Unit one (grammar, Vocabulary, Reading, writing, listing)
Week 2	Work book Unit one test (grammar, Vocabulary, Reading, writing, listing)
	How to Talk about Yourself
Week 3	Unit two (grammar, Vocabulary, Reading, writing, listing)
	Work book Unit two test (grammar, Vocabulary, Reading, writing, listing)

Week 4	Class working meet (Talk about yourself)
	Class working meet (Talk about yourself)
Week 5	Class working meet (Talk about yourself)
	How to make CV
Week 6	How to make (work email, academic email, personal email and sign(
	Discuss some CV project of student
Week 7	Discuss some CV project of student
	Mid-term Exam
Week 8	Unit three (grammar, Vocabulary, Reading, writing, listing)
	Work book Unit three test (grammar, Vocabulary, Reading, writing, listing)
Week 8	Unit four (grammar, Vocabulary, Reading, writing, listing)
	Work book Unit four test (grammar, Vocabulary, Reading, writing, listing)
Week 9	How to read questions in English and understand their meaning.
	How to read questions in English and understand their meaning.
Week 10	Class working meet (CV-job interview).
	Class working meet (CV-job interview).
Week 11	Class working meet (CV-job interview).
	Seminar (Famous Civil Engineers) (by Groups)
Week 12	Seminar (Famous Civil Engineers) (by Groups)
	Simulation (role exchange) of a lecture in mathematics in English (selecting some students).
Week 13	Unit five (grammar, Vocabulary, Reading, writing, listing)
	Work book Unit five tests (grammar, Vocabulary, Reading, writing, listing)
Week 14	Class working meet (Talk about yourself- CV job interview).
	Class working meet (Talk about yourself- CV job interview).
Week 15	Discuss about (project civil engineering)
	Discuss about (project civil engineering)
Week 16	Preparatory week before the final exam
	Final Exam

Grading Scheme

Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.

Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.

Name and Signature of the
Course Instructor



Asst.Lec. Ahmad Hidi

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Computer Programming	Module Delivery	
Module Type	UOE-2304	<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture Lab <input type="checkbox"/> <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input checked="" type="checkbox"/> Seminar	
Module Code	Basic		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	2	Semester of Delivery	3
Administering Department	CE	College	CENGS
Module Leader	Oras Fadhil Khalaf	e-mail	oras.fadil@uosamarra.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Master of Mechanical Engineering
Module Tutor	None	e-mail	None
Peer Reviewer Name	None	e-mail	None
Scientific Committee Approval Date	06/01/2023	Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	-
Co-requisites module	None	Semester	-

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1- The student will gain an understanding of the basic principles, structure, grammar, and uses of the C#.NET programming language. 2- Develop the ability and skill to write and compile C#.NET programs, including an understanding of the use of variables, data types, and operators. 3- Learn how to use control structures, including if-else statements, loops (while, for, and do-while), and switch statements to control program flow. 4- Building interfaces and windows and linking them to the programming code.
Module Learning Outcomes	After completing the course, students will be able to: 1. Develop custom desktop applications for civil engineering tasks, such as structural analysis, design, and project management. Engineers can create tools tailored to specific needs, such as calculating loads, designing structural elements, or automating repetitive tasks. 2. Analyze engineering data and visualize results. With libraries like Charting for .NET, engineers can create detailed graphs and charts that help in the interpretation of analysis results or the presentation of project data.
Indicative Contents	1. Introduction to computer programming 2. Introduction to C# Programming 3. C# Standard Library 4. Control flow in C# 5. Memory Management in C# 6. C# Application Development

Learning and Teaching Strategies	
Strategies	Conceptual Understanding: Practical Practice Code Review and Feedback Problem Solving Exercises

Student Workload (SWL)			
Structured SWL (h/sem)	63	Structured SWL (h/w) Regular weekly student load	4.2
Unstructured SWL (h/sem)	12	Unstructured SWL (h/w) Irregular student load per week	0.8
Total SWL (h/sem)	75		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5and10	
	Assignments	2	10% (10)	2and12	
	Projects /Lab.	1	10% (10)	continuous	
	Report	1	10% (10)	13	
Summative assessment	Midterm Exam	2hr	10% (10)	7	
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to computer program and programming languages
Week 2	Other components, helping to organize code and .avoid name conflicts
Week 3	.Variable declared within a class to store data
Week 4	C# Operators (Arithmetic operators, Bitwise operators, logical operators, and Relational operators)
Week 5	Mechanism to read, write, or compute the values of private fields within a class using get .and set accesses
Week 6	A basic building block in C#.NET that defines a data structure, encapsulating data and behavior
Week 7	.Mid-term Exam

Week 8	.Function and procedure defined within a class that performs a specific action
Week 9	.Methods to call an object of a class
Week 10	.Heredity and behavior are of another class
Week 11	.Define a set of methods and properties that a class must implement
Week 12	civil engineering application in C# project
Week 13	civil engineering application in C# project
Week 14	civil engineering application in C# project
Week 15	civil engineering application in C# project
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Visual C#.NET Window.
Week 2	Dealing with interfaces
Week 3	Main Menus
Week 4	Toolbars
Week 5	C# Libraries.
Week 6	C# User Input and output and Operators
Week 7	Mid-term Exam.
Week 8	If condition, Switch condition and Break and Continue.
Week 9	For loop, While loop and Do-while loop.
Week 10	Break and Continue statements.
Week 11	Solving exercises related to civil engineering

Week 12	Solving exercises related to civil engineering
Week13	Solving exercises related to civil engineering
Week 14	Solving exercises related to civil engineering
Week 15	Final Exam.

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Pro C# 10 with .NET 6: Foundational Principles and Practices in Programming.	No
Website	https://codefinity.com/courses/v2/07f06374-cc72-4ab1-87c6-393472e2175d?utm_source=google&utm_medium=cpc&utm_campaign=20955067105&utm_content=161128867347&utm_term=c%23&gad_source=1&gclid=Cj0KCQjwzva1BhD3ARIsADQuPnUCzyr8X83fc7V3zR0Eu3-DbODtDue6P4EaLUC7a7SRriye-fXKN2caAuc4EALw_wcB	

Grading Scheme				
Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.
<p>Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.</p>				

Name and Signature of the
Course Instructor



Lec. Oras Fadhil Khalaf

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Crimes of Al Ba'ath Regime in Iraq		Module Delivery
Module Type	Basic		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Tutorial <input type="checkbox"/> Seminar
Module Code	UOE-2303		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	2	Semester of Delivery	
Administering Department	Type Dept. Code	College	Type College Code
Module Leader	Fatin Tuama Kurdi	e-mail	fatin.ta.k@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant Lecture	Module Leader's Qualification	MSc
Module Tutor	Name (if available)	e-mail	None
Peer Reviewer Name	Name	e-mail	None
Scientific Committee Approval Date	01/10/2023	Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	This course aims to introduce students to the crimes committed by the Baath regime in Iraq.
Module Learning Outcomes	<p>The student will learn the following:</p> <ol style="list-style-type: none"> 1- Crimes of the Baath regime according to the Iraqi Supreme Criminal Court Law of 2005 AD 2 - Definition of crime and its types. 3 - Psychological and social crimes and their effects, and the most prominent violations of the Baathist regime in Iraq. 4- Environmental crimes of the Baath regime in Iraq. 5- Mass grave crimes. 6- Violations of Iraqi laws. 7- Crimes of the Baath regime according to the Iraqi Supreme Criminal Court Law of 2005 Crimes of the Baath regime according to the Law
Indicative Contents	<p>Iraqi Supreme Criminal Court in 2005. The concept of crimes and their types. Definition of crime in language and terminology. Types of crimes, crimes of the Baath regime according to the documentation of the Iraqi Supreme Criminal Court Law in 2005. Types of decisions issued by the Supreme Criminal Court. (8 hours). International crimes</p> <p>Crime mechanisms - Psychological and social crimes and their effects and the most prominent violations of the Baath regime in psychological crimes. Social crimes Militarization of society The Baath regime's position on religion Psychological effects of psychological crimes. Pictures of human rights violations and crimes of power Some decisions of violations of Iraqi political and military laws of the Baath regime, places of prisons and detention of the Baath regime. (8 hours) Destruction of cities .. Environmental crimes of the Baath regime in Iraq. War and radioactive pollution and mine explosions. Destruction of palm groves, trees, crops. and villages Scorched earth policy). Draining the marshes (5) hours</p> <p>Classification .. Mass graves crimes, genocide graves events in Iraq for the period 1963 AD - 2003 AD. Timeline of genocide graves (5) hours).</p>

Learning and Teaching Strategies

Strategies	<p>Participate in the class during the lecture by asking questions from the instructor</p> <p>Short surprise tests, sometimes involving students to explain information from the study material, directing students to some resources.</p>
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Student Workload (SWL)

Structured SWL (h/sem)	33	Structured SWL (h/w)	2.2
Unstructured SWL (h/sem)	17	Unstructured SWL (h/w)	1.1
Total SWL (h/sem)	50		

Module Evaluation

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

Delivery Plan (Weekly. Syllabus)

	Material Covered
Week 1	Crimes of the Baath regime according to the Iraqi Supreme Criminal Court Law of 2005 AD. The concept of crimes and their types
Week 2	Definition of crime in language and terminology. Crime sections
Week 3	Crimes of the Baath regime according to the documentation of the Iraqi Supreme Criminal Court Law of 2005 AD. Types of international crimes.
Week 4	Decisions issued by the Supreme Criminal Court. Psychological and social crimes, their effects, and the most prominent violations of the Baath regime in psychological crimes.
Week 5	Mechanisms of psychological crimes. Psychological effects of crimes
Week 6	Social crimes. Militarization of society
Week 7	The Baath regime's position on religion Violations of Iraqi laws
Week 8	Pictures of human rights violations and crimes of power Some decisions of the political and military violations of the Baath regime.
Week 9	exam
Week 10	Baath regime prisons and detention centers Environmental crimes of the Baath regime in Iraq
Week 11	War pollution, radioactivity and mine explosions. Destruction of cities and villages (scorched earth policy). Drying up the marshes.
Week 12	Destruction of palm groves, trees and crops. Mass grave crimes.
Week 13	Events of the genocide graves in Iraq for the period 1963 AD - 2003 AD.
Week 14	Chronological classification of genocide graves
Week 15	exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	According to the curriculum of the Ministry of Higher Education and Scientific Research... Crimes of the Defunct Ba'ath Party, 2023.	Yes
Recommended Texts	Crimes of the Ba'ath regime under the Iraqi High Criminal Court Law of 2005	Yes
Websites	None	

Grading Scheme

Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.

Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.



Name and Signature of the
Course Instructor

Asst. Lec. Fatin Tuama Kurdi

Khalid H. Lateef

Name and Signature of the Head of
Department

Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Strength of Materials II	Module Delivery	
Module Type	Core	<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	CE221		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	2	Semester of Delivery	4
Administering Department	CE	College	CENGs
Module Leader	Ahmed Dheyaa Abdulateef	e-mail	ahmed.d.abd@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	Master of Civil Engineering
Module Tutor	None	e-mail	None
Peer Reviewer Name	None	e-mail	None
Scientific Committee Approval Date		Version Number	1.0

Relation with other Modules			
Prerequisite module	CE211	Semester	4
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<ol style="list-style-type: none"> 1) To learn the concept of Transverse shear. 2) To explain the effect of Combined Stresses. 3) To understand the stress transformation. 4) To understand the Strain transformation. 5) To give information about methods calculating the Deflection of beams. 6) To explain the Buckling of columns.
Module Learning Outcomes	<ol style="list-style-type: none"> 1) Use both conceptual and numerical techniques to solve engineering problems. 2) Understanding the effect of any system of forces on a body. 3) Analyze and develop Transverse shear. 4) Understand the effect of combined stresses. 5) Understand the causes and effects of stress transformation. 6) Understand the causes and effects of strain transformation. 7) Determine the Deflection of beams and constructing elastic curve. 8) Determine the Buckling of columns.
Indicative Contents	<p>Indicative content includes the following.</p> <ul style="list-style-type: none"> • Transverse shear: • Combined Stresses: • Stress transformation: • Strain transformation: • Deflection of beams: • Buckling of columns:
Course Description	<ul style="list-style-type: none"> • Transverse shear: <ul style="list-style-type: none"> - Shear in straight members - The shear formula - Shear flow in built-up members - Shear flow in thin-walled members - Shear center for open thin-walled members • Combined Stresses: <ul style="list-style-type: none"> - Thin-walled pressure vessels - Combined loads and state of stress • Stress transformation: <ul style="list-style-type: none"> - Plane-stress transformation - General equation of plane-stress transformation - Principal Stresses and Maximum in-plane shear stress - Mohr's circle - plane stress - Absolute maximum shear stress

	<ul style="list-style-type: none"> • Strain transformation: <ul style="list-style-type: none"> - Plane strain - General equation of plane-strain - Mohr's circle plane-strain - Absolute maximum shear strain • Deflection of beams: <ul style="list-style-type: none"> - The elastic curve - Slope and displacement by integration - Slope and displacement by area moment - Method of Superposition • Buckling of columns: <ul style="list-style-type: none"> - Critical load - Ideal column with pin support - Columns having various types of supports
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Learning and Teaching Strategies	
Strategies	The learning and teaching strategy is designed to: Carefully cover in lectures the necessary fundamental material and analytical techniques, and demonstrate concepts with appropriate (and where possible practical) examples Allow students adequate time to practice the techniques using a large number of carefully selected tutorial problems .

Student Workload (SWL)			
Structured SWL (h/sem)		Structured SWL (h/w)	
In class lectures 75	78	Regular weekly student load	5.2
In class tests 3			
Unstructured SWL (hr/sem)	72	Unstructured SWL (h/w)	4.8
Irregular student load per week			
Total SWL (h/sem)	150		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	Continuous	LO #, 2, 3, 4, 5,6,7, and 8
	Assignments A-HomeWorks B- Reports	5	15% (15)	Continuous	LO # 1, 2, 3, 4, 5,6,7, and 8
	Class work	4	15% (15)	Continuous	
Summative assessment	Mid-term Exam	2	10% (10)	8	LO #1-5
	Final Exam	3	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Shear in straight members & The shear formula.
Week 2	Shear flow in built-up members.
Week 3	Shear flow in thin-walled members Shear & center for open thin-walled members.
Week 4	Thin-walled pressure vessels.
Week 5	Combined loads and state of stress.
Week 6	Plane-stress transformation & General equation of plane-stress transformation.
Week 7	General equation of plane-stress transformation & Principal Stresses and Maximum in-plane shear stress
Week 8	Mohr's circle-plane stress & Absolute maximum shear stress
Week 9	Mid-term exam
Week 10	Plane strain & General equation of plane-strain.
Week 11	Mohr's circle plane-strain & Absolute maximum shear strain
Week 12	The elastic curve & slope and displacement by integration
Week 13	Slope and displacement by area moment & Method of Superposition
Week 14	Critical load & Ideal column with pin support.
Week 15	Ideal column with pin support & Columns having various types of supports.
Week 16	Final Exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Mechanics of Materials, 8th Edition; R. C. Hibbeler.	Yes
Recommended Texts	Mechanics of Materials, 6th Edition; James M. Gere.	No

Grading Scheme				
Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.
<p>Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.</p>				



Name and Signature of the
Course Instructor

Asst. Lec. Ahmed Dheyaa

Khalid H. Lateef

Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information					
Module Title	Fluid Mechanics II	Module Delivery			
Module Type	S	<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical			
Module Code	CE222				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level		2	Semester of Delivery		4
Administering Department		CE	College	ENG	
Module Leader	Marwah Qaddoori	e-mail	marwa-q@uosamarra.edu.iq		
Module Leader's Acad. Title		lecturer	Module Leader's Qualification		Master of Civil Engineering
Module Tutor	Layth amjed	e-mail	laith.amjad@uosamarra.edu.iq		
Peer Reviewer Name		None	e-mail	None	
Scientific Committee Approval Date			Version Number		1.0

Relation with other Modules			
Prerequisite module	CE212	Semester	4
Co-requisites module	None	Semester	-

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<p>The Aims of this course are to enable students to:</p> <ol style="list-style-type: none"> 1. The course will introduce fluid mechanics and establish its relevance in civil engineering 2. Develop the fundamental principles underlying the subject. 3. Demonstrate how these are used for the design of simple hydraulic components. 4. Apply concepts of mass, momentum and energy conservation to flows.
Module Learning Outcomes	<p>By the end of successful completion of this course, the student will be able to:</p> <ol style="list-style-type: none"> 1. Describe the SI unit system and convert units & Explain the fundamental properties of fluids. 2. Fluid Statics, pressure measures and hydrostatic forces. 3. Derive, describe and apply Bernoulli's equation and Momentum equation. 4. Understand the dynamics of fluid flows and the governing parameters. 5. Define friction and friction factor, pipe head loss, apply the Moody Diagram and determine minor losses.
Indicative Contents	<p>.This course introduces the student to fluid mechanics' concepts and fundamentals. The course also includes the topics such as Properties of fluids, Fluid Statics, Momentum and energy equations and applications. Bernoulli equation and applications, Dimensional analysis and similitude, Introduction to viscous flows and boundary layers, internal flows, laminar and turbulent flows, head loss and friction factor, Flow over immersed bodies (external flow), and Lift and drag.</p>

Learning and Teaching Strategies

Strategies	<p>Fluid mechanics course requires effective learning and teaching strategies to ensure Students develop a strong understanding of complex concepts and their practicality applications. The range of strategies that can enhance the learning experience for Students in Fluid mechanics are; lecture-based teaching, practical applications, Problem-solving assignments, group work and discussions, assessments and Feedback, continuous learning, and encouraging self-directed learning.</p>
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Student Workload (SWL)

Structured SWL (h/sem)	93	Structured SWL (h/w) Regular weekly student load	6.2
Unstructured SWL (hr/sem)	57	Unstructured SWL (h/w) Irregular student load per week	3.8
Total SWL (h/sem)	150		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	3, 7, 10	1,2,3 and 4
	Assignments	3-4	10% (10)	3, 7, 9, 11	1,2,3 and 4
	Projects /Lab.	1	10% (20)	14	4 and 5
	Report	15	10% (10)	3	1,2,3,4 and 6
Summative assessment	Midterm Exam	2 hours	50% (50)	16	All
Total assessment			100% (100)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Fluid Kinematics
Week 2	Derive, describe and apply Bernoulli's equation.
Week 3	Derive, describe and apply Bernoulli's equation/Examples
Week 4	State the applications of Momentum equation.
Week 5	State the applications of Momentum equation/Examples
Week 6	State the applications of Momentum equation/ jet
Week 7	Define friction and friction factor, pipe head loss
Week 8	Mid term exam
Week 9	Major losses and apply the Moody Diagram
Week 10	minor losses
Week 11	Losses in pipes/ Examples
Week 12	Solve problems involving pipe networks
Week 13	Pumps and Turbines
Week 14	Pumps and Turbines/ examples
Week 15	Describe the open channels and types of flow.
Week 16	Final exam

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	Flow through an Orifice
Week 2	Impact of jet
Week 3	Flow over Weirs

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Lecture Notes Yes	Yes
Recommended Texts	Bruce R. Munson, Donald F. Young, Theodore H. Okiishi, and Wade W. Huebsch, Fundamentals of Fluid Mechanics, John Wiley & Sons, 6th ed., 2009	Yes
Websites		

Grading Scheme				
Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.
<p>Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.</p>				

Name and Signature of the
Course Instructor



Lec.Marwah Qaddoori

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Concrete Technology	Module Delivery	
Module Type	Core	<input type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	CE223		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	2	Semester of Delivery	4
Administering Department	CE	College	CENGs
Module Leader	Khaled Jamal Ahmed	e-mail	ce.kja90@gmail.com
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	Master of Civil Engineering
Module Tutor	None	e-mail	None
Peer Reviewer Name	None	e-mail	None
Scientific Committee Approval Date		Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<ol style="list-style-type: none"> 1) To learn the definition of concrete materials. 2) To explain the concept of concrete technology. 3) To define the hydration reaction. 4) To explain the concrete performance in fresh and hardened states. 5) To describe factors which control the properties of concrete. 6) To learn the methods of determining the properties of concrete.
Module Learning Outcomes	<p>On successful completion of this module, the learner will be able to: -</p> <ol style="list-style-type: none"> 1- Calculate standard concrete properties and classify a concrete sample. 2- Carry out laboratory tests for preliminary engineering assessment of concrete sample. 3- Specify the essential features and requirements of concrete permeability. 4- Calculate stresses in concrete under various load conditions, and determine the shear strength
Indicative Contents	<p>Indicative content includes the following.</p> <ol style="list-style-type: none"> 1- Materials (cement, aggregate, admixture) 2- Hydration 3- Fresh concrete 4- Hardened concrete 5- Curing of concrete

Learning and Teaching Strategies

Strategies	<p>The learning and teaching strategy is designed to: Carefully cover in lectures the necessary fundamental material and analytical techniques, and demonstrate concepts with appropriate (and where possible practical) examples Allow students adequate time to practice the techniques using a large number of carefully selected tutorial problems .</p>
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Student Workload (SWL)			
Structured SWL (h/sem)	63	Structured SWL (h/w)	4.2
In class lectures 75 In class tests 3		Regular weekly student load	
Unstructured SWL (hr/sem)	37	Unstructured SWL (h/w)	2.4
		Irregular student load per week	
Total SWL (h/sem)	100		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	5% (5)	Continuous	LO #, 2, 3, 4, 5,6,7,8, and 9
	Assignments A-HomeWorks B- Reports	5	20% (20)	Continuous	LO #1, 2, 3, 4, 5,6,7,8, and 9
	Class work	4	15% (15)	Continuous	
Summative assessment	Mid-term Exam	2	10% (10)	8	LO #1-5
	Final Exam	3	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction on Cement and Manufacturing of Cement and its composition.
Week 2	Hydration of cement
Week 3	Products of Hydration
Week 4	Tests of Cement, Types of Cemen
Week 5	Aggregate, Classification of Aggregate, and properties of Aggregate
Week 6	Sand & gravel
Week 7	Sieve Analysis
Week 8	Mid-term exam
Week 9	Fresh Concrete
Week 10	Workability of Concrete & Tests
Week 11	Factors affecting Workability, Segregation & Bleeding

Week 12	Compacting of Concrete
Week 13	Hardened Concrete
Week 14	Factors affecting strength of concrete
Week 15	Curing of concrete
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Introduction on Cement Laboratory Testing.
Week 2	Setting Time Test and Standard Consistency of cement
Week 3	Strength test of cement mortar
Week 4	Introduction on Aggregate Laboratory Testing.
Week 5	Aggregate taking sample method,
Week 6	Sieve Analysis
Week 7	Density tests: Specific Gravity, Bulk Density
Week 8	Mid-term exam
Week 9	Aggregate Absorption Ratio
Week 10	Workability of Concrete & Tests :cone test
Week 11	Compacting of Concrete test
Week 12	Compression test
Week 13	Tensile test
Week 14	Modulus of rupture test
Week 15	Review
Week 16	Final Exam

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Concrete Technology by M. Nouri, Khalaf & Hana Abed Yousif.	Yes
Recommended Texts	Concrete Technology by AM Neville	Yes

Grading Scheme				
Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.
<p>Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.</p>				

Name and Signature of the
Course Instructor



Asst.Lec. Khaled Jamal Ahmed

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Building Construction		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory
Module Code	CE224		<input checked="" type="checkbox"/> Lecture
ECTS Credits	4		<input type="checkbox"/> Lab
SWL (hr/sem)	100		<input type="checkbox"/> Tutorial
			<input type="checkbox"/> Practical
			<input checked="" type="checkbox"/> Seminar
Module Level	2	Semester of Delivery	4
Administration Department	CE	College	CENG
Module Leader	Anas Badr Hameed	e-mail	anasalsamarai@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	Master of Civil Engineering
Module Tutor	None	e-mail	None
Peer Reviewer Name	None	e-mail	None
Scientific Committee Approval Date	11/08/2024	Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<ol style="list-style-type: none"> 1. Understand the building construction principles 2. To identify parts of building. 3. To identify the details of building parts. 4. Study method of materials site implementation and lying. 5. Distinguish and assess the validity of the different types of construction materials being used. 6. Improve students' ability to understand the philosophy of alternative materials choices based on green building path. 7. To identify new construction materials and its advantages and disadvantages.
Module Learning Outcomes	<ol style="list-style-type: none"> 1. Knowing construction materials places. 2. Recognize construction materials using and its implementation. 3. Develop students' ability to manage construction materials in the market, including purchasing decisions. 4. Understand building parts details and sub parts. 5. Encourage student to make engineering decisions regarding building materials choosing.
Indicative Contents	<p>Indicative content includes the following.</p> <ol style="list-style-type: none"> 1. Showing building materials in the class. 2. Show introductory videos about materials and how to use them. 3. Slide show of materials with description. 4. site photos for building materials. 5. Visit building materials showrooms to ensure positive relationship between student and market.

Learning and teaching strategies

Strategies	<ol style="list-style-type: none"> 1. Explain the topics depend on book included sections site experience. 2. Use interactive strategy to ensure student participate in knowledge operation. 3. Simplify the information 4. Discuss practical project challenges and behaviors to stand against. 5. Develop critical mindset of student foe materials deal with.
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Student Workload (SWL)			
Structured SWL (h/sem)	63	Structured SWL (h/w) Regular weekly student load	4.2
Unstructured SWL (h/sem)	37	Unstructured SWL (h/w) Irregular student load per week	2.4
Total SWL (h/sem)	125		

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

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Introduction
Week 2	Building construction stages
Week 3	Site work
Week 4	Foundations
Week 5	Construction structure
Week 6	Build using bricks.
Week 7	Stone work Arches and lintels
Week 8	Beams, girders and columns Floors and ceilings
Week 9	Forms and scaffoldings
Week 10	Finishing of wall and ceiling
Week 11	Doors and windows
Week 12	Water proof works
Week 13	Meanings of moving between levels
Week 14	Materials Chemicals
Week 15	Site visit
Week 16	Final Exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Building Construction Zuhair Sako and Artin Livon	Yes
Recommended Texts	Construction Materials Test: by Dr, Yousif Al-Dawwaf	yes
Websites		

Grading Scheme

Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.

Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.



Name and Signature of the
Course Instructor

Asst. Lec. Anas Badr Hameed

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Engineering Economics	Module Delivery	
Module Type	Supportive	<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	CE225		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	2	Semester of Delivery	4
Administering Department	CE	College	CENGs
Module Leader	Ahmed Hadi Mahmood	e-mail	Ahmed.ha.m@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	Master of civil Engineering
Module Tutor	None	e-mail	None
Peer Reviewer Name	None	e-mail	None
Scientific Committee Approval Date		Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	1. Engineering economy involves formulating, estimating, and evaluating the expected economic outcomes of alternatives designed to accomplish a defined purpose
Module Learning Outcomes	<p>2. Description and role: define engineering economics and describe its role in decision making.</p> <p>3. Engineering economic study approach: understand and identify the steps in an engineering economic study.</p> <p>4. Ethics and economics: identify areas in which economic decisions can present questionable ethics.</p> <p>5. Interest rate: perform calculations for interest rates and rates of return.</p> <p>6. Terms and symbols: identify and use engineering economic terminology and symbols.</p> <p>7. Cash: flows understand cash flows and how to graphically represent them.</p> <p>8. Economic equivalence: describe and calculate economic equivalence.</p> <p>9. Simple and compound interest: calculate simple and compound interest amounts for one or more time periods.</p> <p>10. MARR and opportunity cost: state the meaning and role of Minimum Attractive Rate of Return (MARR) and opportunity costs.</p> <p>11. Spreadsheet functions: identify and use some Excel functions commonly applied in engineering economics.</p>
Indicative Contents	<p>Indicative content includes the following.</p> <ol style="list-style-type: none"> 1. Description and role (4 hrs) 2. Engineering economic study approach (4 hrs) 3. Ethics and economics (6 hrs) 4. Interest rate (6 hrs) 5. Terms and symbols (4 hrs) 6. Cash flows (9 hrs) 7. Economic equivalence (8 hrs) 8. Simple and compound interest (6 hrs) 9. MARR and opportunity cost (8 hrs) 10. Spreadsheet functions (8 hrs)
Course Description	<p>The need for engineering economy is primarily motivated by the work that engineers do in performing analyses, synthesizing, and coming to a conclusion as they work on projects of all sizes. In other words, engineering economy is at the heart of making decisions. These decisions involve the fundamental elements of cash flows of money, time, and interest rates. This course introduces the basic concepts and terminology necessary for an engineer to combine these three essential elements in organized, mathematically correct ways to solve problems that will lead to better decisions.</p>

Learning and Teaching Strategies

Strategies	The learning and teaching strategy is designed to: Carefully cover in lectures the necessary fundamental material and analytical techniques, and demonstrate concepts with appropriate (and where possible practical) examples Allow students adequate time to practice the techniques using a large number of carefully selected tutorial problems .
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Student Workload (SWL)

Structured SWL (hr/sem)	63	Structured SWL (hr/w)	4.2
In class lectures 63 In class tests 3		Regular weekly student load	
Unstructured SWL (hr/sem)	37	Unstructured SWL (hr/w)	2.4
		Irregular student load per week	
Total SWL (hr/sem)	100		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1-#3 and #3-#5
	Assignments	2	20% (20)	Continuous	All
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	0	0	----	-----
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week1	General principles, principles of economy
Week 2	Description and role in decision making
Week 3	Performing an engineering economic study
Week 4	Performing an engineering economic study
Week 5	Professional ethics and economic decisions
Week 6	Interest Rate and Rate of Return
Week 7	Mid-term exam
Week 8	Terminology and symbols
Week 9	Cash flows: estimation and diagramming
Week 10	Cash flows: estimation and diagramming
Week 11	Cash flows: estimation and diagramming
Week 12	Economic equivalence
Week 13	Simple and compound interest
Week 14	Minimum attractive rate of return
Week 15	Minimum attractive rate of return
Week 16	Final Exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Blank-Tarquin “ENGINEERING ECONOMY Seventh Edition Seventh Edition.”	No
Recommended Texts	R. . Panneerselvam, Engineering economics. Prentice-Hall India, 2008-2001.	No
Websites	https://www.uoanbar.edu.iq/eStoreImages/Bank/6298.pdf https://www.hzu.edu.in/engineering/engineering%20economy.pdf	

Grading Scheme

Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.

Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.



Name and Signature of the
Course Instructor

Asst.Lec. Ahmed Hadi Mahmood

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Construction Drawing	Module Delivery	
Module Type	Core	<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	CE226		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	2	Semester of Delivery	4
Administration Department	CE	College	CENGs
Module Leader	Humam Thamer Salman	e-mail	Humam.th.aljumaili@uosamarra.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Master of Civil Engineering
Module Tutor	None	e-mail	None
Peer Reviewer Name	None	e-mail	None
Scientific Committee Approval Date		Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<ol style="list-style-type: none"> 1) Definition of different structural components. 2) Explain different types of buildings. 3) Demonstration of different types of foundations and how to draw them by using AutoCAD. 4) Demonstration of different types of Beams and columns and how to draw them by using AutoCAD. 5) Demonstration of different types of slabs and how to draw them using AutoCAD.
Module Learning Outcomes	<ol style="list-style-type: none"> 1-Knowing how to use AutoCAD, and how to sketch different types of 1 structural components. 2-Understand the main differences of different types of structures. 3-Understanding the structural drawing details. 4-Understanding the function of each structural component.
Indicative Contents	<p>Indicative content includes the following.</p> <ul style="list-style-type: none"> • Different types of structure • Foundations • Beams • Columns • Slabs • Stairs
Course Description	<ul style="list-style-type: none"> • The course covers the following topics; • Definition of tools and equipment used in structural drawings • Definition of various types of foundations • Definition of different types of beams. • Definition of different types of Columns. • Definition of different types of slabs. • Definition of different types of stairs.

Learning and Teaching Strategies

Strategies	The learning and teaching strategy is designed to: Carefully cover in lectures the necessary fundamental material and analytical techniques, and demonstrate concepts with appropriate (and where possible practical) examples Allow students adequate time to practice the techniques using a large number of carefully selected tutorial problems .
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Student Workload (SWL)

Structured SWL (h/sem)	63	Structured SWL (h/w)	4.2
In class lectures In class tests		Regular weekly student load	
Unstructured SWL (h/sem)	37	Unstructured SWL (h/w)	2.4
Ir		Irregular student load per week	
Total SWL (h/sem)	100		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	Continuous	LO #, 2, 3, 4, 5,6,7,8, and 9
	Assignments A-HomeWorks B- Reports	5	15% (15)	Continuous	LO #1, 2, 3, 4, 5,6,7,8, and 9
	Class work	4	15% (15)	Continuous	
Summative assessment	Mid-term Exam	2	10% (10)	8	LO #1-5
	Final Exam	3	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Introduction of Structural Drawings
Week 2	Definition of different types of structures
Week 3	Definition of different types of foundations
Week 4	How to draw different types of foundations
Week 5	Definition of different types of Columns
Week 6	How to draw Slender Columns
Week 7	How to draw Short Columns
Week 8	Mid-term Exam
Week 9	Definition of different types of beams
Week 10	How to draw Simply supported Beams
Week 11	How to draw Continuous Beams
Week 12	How to draw Cantilever Beams
Week 13	Definition of different types of slabs
Week 14	How to draw Solid Slabs
Week 15	How to draw Flat Slabs
Week 16	Final Exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Understanding Construction Drawings 7 th	Yes
Recommended Texts	Understanding Construction Drawings 7 th	Yes

Grading Scheme

Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
	D-Satisfactory	middle	60 - 69	Fair but with major flaws
	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.

Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.



Name and Signature of the
Course Instructor

Lec.Humam Thamer Salman

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

MODULE DESCRIPTION FORM

Module Information			
Module Title	Arabic II	Module Delivery	
Module Type	Basic	<input checked="" type="checkbox"/> theory <input checked="" type="checkbox"/> a lecture <input checked="" type="checkbox"/> laboratory <input type="checkbox"/> Tutorial <input type="checkbox"/> practical <input type="checkbox"/> seminar	
Module Code	UOE-2305		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	2	Semester of Delivery	4
Administering Department	CE	college	Civil Engineering Center
Module Leader	Mohanad Abdul Jabbar Hassan	Email	mohanad.abduljabbar@uosamarra.edu.iq
Module Leader's Acad. Title	Lecture	Module Leader's Qualification	Ph.D in Arabic Language
Module Tutor	None	Email	None
Peer Reviewer Name	None	Email	None
Scientific Committee Approval Date	06/17/2023	Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<p>Course objectives</p> <p>.Enabling students to understand the eloquence of the Holy Quran and to appreciate the aesthetics of its language..</p> <p>Training students to use punctuation marks between sentences correctly.</p> <p>To broaden the students' literary horizons of ideas, meanings and moral values..</p> <p>Teaching students how to write correctly according to the basics of spelling, which enables them to write words correctly..</p>
Module Learning Outcomes	<p>- Cognitive objectives</p> <p>1- Knowing the basics of spelling in the Arabic language.</p> <p>2- Getting to know world literature and their influence on Arabic literature.</p> <p>3- Studying some Quranic verses to explore the linguistic and rhetorical aspects therein.</p> <p>B - Course specific skill objectives.</p> <p>1- Writing correctly.</p> <p>2- The ability to extract common errors in daily use.</p> <p>3- The ability to identify the areas of Quranic eloquence and to know its effect on understanding the meanings.</p>
Indicative Contents	<p>Guiding Contents</p> <p>Arabic language among the languages of the world, the emergence of spoken and written language, the grammatical system, Quranic rhetoric, the morphological system, the written system, numbers in the Arabic language, Arabic and Arabization, world literature and Orientalism.</p>

Learning and Teaching Strategies

Strategies	<p>The main strategy that will be adopted in presenting this unit:</p> <p>It is to encourage students to engage in exercises while simultaneously honing and expanding their critical thinking skills. This will be achieved through interactive classes and tutorials and by considering the type of topics some of which include sampling activities that interest students."</p>
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Student Workload (SWL)			
SWL Organization (hr/sem)	33	SWL organization (h/w) Regular weekly student load	2.1
Unstructured SWL (hr/sem)	17	Unstructured SWL (h/w) Irregular student load per week	1.1
Total SWL (hr/sem)	50		

Module Evaluation					
		Time/number	Weight (marks)	Week Due	Relevant Learning Outcome
Formative assessment	Tests	2	10% (10)	5 and 10	LO #1, #2, #10, and #11
	Verbal assignments	1	10% (10)	16	everyone
	laboratory.		10% (10)		everyone
	a report	15	10% (10)	continuous	everyone
Summative assessment	Midterm Exam	2 hours	10% (10)	continuous	#1 - #7 Goal
	Final Exam	3 hours	50% (50)	16	All
Overall Rating			100% (100 marks)		

Delivery Plan (Weekly Syllabus)

	Covered Materials
Week 1	Arabic language, definition, origin, function
Week 2	Arabic language and the beginning of blogging
Week 3	Quranic eloquence and Surat Al-Fatihah
Week 4	Basic introduction to grammar
Week 5	Number in Arabic
Week 6	Writing system, ta Marbut and ta open
Week 7	Diminutive morphological system
Week 8	Midterm Exam
Week 9	For the written system A Hamzat al-Wasl and Hamzat al-Qat`
Week 10	Quranic eloquence and Surat Al-Kahf
Week 11	Synonyms in Arabic
Week 12	Poetic purposes in Arabic literature
Week 13	Writing system punctuation marks
Week 14	Mention and deletion in language
Week 15	Final exam

Learning and Teaching Resources

	Text	Available in the library?
Required texts	The book is by Sibawayh, Secrets of Rhetoric by Al-Jurjani, Spelling and Punctuation in Arabic Writing by Abdul-Aleem Ibrahim.	Yes
Recommended Texts	The book is by Sibawayh, Secrets of Rhetoric by Al-Jurjani, Spelling and Punctuation in Arabic Writing by Abdul-Aleem Ibrahim.	Yes
Websites		

Grading Scheme				
Group	Degree	Appreciation	Marks %	Definition
Success Group (50 - 100)	A-excellent	privilege	90 - 100	Outstanding performance
	for-very good	very good	80 - 89	Above average with some errors
	C-good	good	70 - 79	Work with noticeable errors
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	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 - 49)	FX -fail	Precipitate (under central processing)	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.
<p>Note: Decimal places above or below 0.5 will be rounded to the highest or lowest full mark (e.g. a mark of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54). The University has a zero tolerance policy for 'near-pass failures', so the only adjustment to marks awarded by the original examiners will be the automatic rounding described above.</p>				



Name and Signature of the
Course Instructor

Asst. Prof. Mohanad Abdul Jabbar Hassan

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Third Stage-Semester System 2024-2025

Course Description Form

1. Course Name:	
Theory of Structures I	
2. Course Code:	
CE311	
3. Semester / Year :	
2024 – 2025 / First Semester	
4. Description Preparation Date:	
2024 - 2025	
5. Available Attendance Forms	
Theoretical Lectures	
6. Number of Credit House (Total) / Number of Units (Total)	
45 Credit Hours / 3 Units	
7. Course administrator's name (mention all , if more than one name)	
Name: Asst. Lec. Abdullateif Abduljabar Hasan Email: latief.abd.h@uosamarra.edu.iq	

8. Course Objectives	
Course Objectives	<ol style="list-style-type: none">1.Understand the fundamental concepts and assumptions in structural analysis2.Analyze statically determinate structures such as beams3.Trusses, and frames4.Develop accurate shear force and bending moment diagrams for structural elements5.Calculate structural deflections using the virtual work principle and energy methods6.Evaluate the influence of moving loads through the application of influence lines

9. Teaching and Learning Strategies

Strategies

1. Lectures (Instructor-Centered Teaching):

- Deliver key theoretical concepts, derivations, and formulas.
- Use diagrams, animations, and step-by-step examples to illustrate complex structural behavior.
- Recommended to be interactive with frequent questions or polling.

2. Problem-Based Learning (PBL):

- Present real-world structural problems and guide students to solve them through group collaboration or individually.
- Encourage analysis, assumption-checking, and multiple solution paths.

3. Active Learning:

- In-class exercises where students work on small problems in groups or pairs.
- Think-pair-share activities: students reflect individually, then discuss with a peer before sharing with the class.

4. Visual and Simulation Tools:

- Videos and animations showing deflected shapes, influence lines, etc.

5. Homework Assignments and Take-Home Tasks:

- Regular problem sets to reinforce lecture material and develop technical skills.
- Include both numerical and conceptual questions.

6. Group Discussions and Peer Teaching:

- Promote knowledge-sharing and collaborative problem-solving.
- Use peer review or short group presentations on selected topics.

7. Formative Quizzes and Feedback:

- Conduct regular short quizzes (paper-based or online).
- Provide feedback to identify learning gaps and adjust teaching.

	<p>8. Office Hours and Individual Support:</p> <ul style="list-style-type: none"> • Provide opportunities for one-on-one support, especially for complex topics or before exams.
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10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	Distinguish types of structural systems and classify them based on their structural behavior and functional purpose	Types of Structures and Types of Loads	Lecture and Practice	Exams and Discussion
Week 2	3	Identify the types of loads acting on structures and analyze their behavior and effects	Types of Structures, Types of Loads, Load Calculations, and Load Transfer	Lecture and Practice	Exams and Discussion
Week 3	3	Calculate various types of loads and their transfer through structural elements using systematic methods	Analysis of Statically Determinate Structures	Lecture and Practice	Exams and Discussion
Week 4	3	Analyze statically determinate structures using principles of equilibrium and static equations	Statically Determinate Analysis, Stability, and Equilibrium	Lecture and Practice	Exams and Discussion
Week 5	3	Evaluate stability and determinacy conditions in structures, distinguishing between stable and unstable systems	Equilibrium in Three-Dimensional Structures	Lecture and Practice	Exams and Discussion
Week 6	3	Analyze three-dimensional structures and balance the forces and moments acting on them	Types of Supports, Analysis of Supports, and Space Supports (3D Trusses)	Lecture and Practice	Exams and Discussion
Week 7	3	Classify different types of supports and evaluate their influence on structural behavior, including space-frame supports	Axial Forces, Shear Forces, and Bending Moments in Structural Elements	Lecture and Practice	Exams and Discussion

Week 8	3	Compute axial forces, shear forces, and bending moments in fundamental structural components	Influence Lines for Statically Determinate Structures	Lecture and Practice	Exams and Discussion
Week 9	3	Apply the concept of influence lines in the analysis of statically determinate structures	Influence Lines for Statically Determinate Structures (repeated for emphasis or phases) Beams, Roof Girders, and Trusses	Lecture and Practice	Exams and Discussion
Week 10	3	Analyze the impact of moving loads using maximum influence lines	Envelopes of Maximum Influence Lines for Moving Loads on Determinate Structures	Lecture and Practice	Exams and Discussion
Week 11	3	Interpret the behavior of beams, roof girders, and trusses and explain their structural characteristics	Influence Lines for Statically Determinate Structures (summary phase or application)	Lecture and Practice	Exams and Discussion
Week 12	3	Determine maximum shear force and maximum bending moment values in structures and interpret their design significance	Maximum Shear Force and Maximum Bending Moment	Lecture and Practice	Exams and Discussion
Week 13	3	Calculate structural deflections using principles of elasticity and deflection diagrams	Structural Deflections (Displacements)	Lecture and Practice	Exams and Discussion
Week 14	3	Interpret the relationship between the deflection diagram and the flexure curve, and understand the behavior of structural elements under loading Apply the conjugate beam method to analyze deflections and internal forces in structural systems	Deflection Diagrams and Flexure Curves Conjugate Beam Method	Lecture and Practice	Exams and Discussion
Week 15	3		Exams		

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	R. C. Hibbeler, "Structural Analysis" (SI Units), 8th Edition, 2012.
Main references (sources)	Aslam Qassim Ali, "Structural Analysis" , 4th Edition, 2011.
Recommended books and references (scientific journals, reports ...)	--
Electronic References, Websites	--

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Asst.Lec. Abdullateif Abduljabar Hasan

Name and Signature of the Head of
Department

Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Reinforced Concrete Design I
2. Course Code
CE312
3. Semester / Year :
2024-2025/ First Semester
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms
Theory Tutorial
6. Number of Credit House (Total) / Number of Units (Total)
45 hours / 3 units
7. Course administrator's name (mention all , if more than one name)
Name: Asst. Prof. Mohammed A.Hassan Email : mohammed.a.hassan@uosamarra.edu.iq

8.Course Objectives

Course Objectives

1. Understand the fundamental properties and behavior of concrete and reinforcing steel.
2. Recognize different types of loads and their effects on reinforced concrete structures.
3. Analyze elastic uncracked and cracked reinforced concrete sections using the working stress method.
4. Apply the ultimate strength method for analyzing and designing under-reinforced and over-reinforced beams.
5. Design singly reinforced concrete beams according to structural design principles.
6. Analyze and design doubly reinforced concrete beams for situations where additional reinforcement is necessary.
7. Analyze and design T-beams considering flange and web behavior.
8. Interpret and apply design codes and standards relevant to reinforced concrete structures.

9. Teaching and Learning Strategies

Strategies

1. Lectures (Instructor-Centered Teaching):

- Delivery of theoretical concepts and principles with real-world examples.
- Explanation of analysis and design procedures step-by-step.
- Recommended to be interactive with frequent questions or polling.

2. Problem-Based Learning (PBL):

- Analyze complex structural situations involving reinforced concrete elements.
- Identify key issues, determine appropriate methods of analysis or design, and propose effective engineering solutions.
- Work individually or in small groups to foster teamwork, communication, and problem-solving abilities.
- Develop the ability to interpret and apply design codes and standards to real-life engineering challenges.
- Reflect on their solutions and evaluate the efficiency, safety, and practicality of their designs.

3. Active Learning:

- Participate in interactive problem-solving sessions during lectures and tutorials.
- Engage in think-pair-share activities to discuss and solve structural analysis and design problems collaboratively.
- Work on in-class exercises that require immediate application of lecture material.
- Analyze case studies and real-life structural failures to understand the importance of correct design practices.
- Present solutions and design projects to the class, developing communication and professional presentation skills.
- Reflect on their learning progress through self-assessment and instructor feedback.

4. Visual and Simulation Tools:

- Use graphical methods to draw shear force and bending moment diagrams.
- Analyze stress and strain distributions across reinforced concrete sections visually.
- Observe simulated structural behavior under different loading conditions using software demonstrations or videos.
- Employ computer-aided design (CAD) tools for the detailing of reinforced concrete beams and T-beams.

5. Homework Assignments and Take-Home Tasks:

- Regular problem sets to reinforce lecture material and develop technical skills.
- Include both numerical and conceptual questions.

6. Group Discussions and Peer Teaching:

- Promote knowledge-sharing and collaborative problem-solving.
- Use peer review or short group presentations on selected topics.

7. Formative Quizzes and Feedback:

- Conduct regular short quizzes (paper-based or online).
- Provide feedback to identify learning gaps and adjust teaching.

8. Office Hours and Individual Support:

	Provide opportunities for one-on-one support, especially for complex topics or before exams
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10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	Cognitive skills	Introduction (concrete materials ,properties ,steel ,loads, ...etc) .	Theory	Tutorial
Week 2	3	Cognitive with practice on solving applied questions	Working Stresses method: Analysis of elastic uncracked sections.	Theory Tutorial	Discussion Homework assignments
Week 3	3	Cognitive with practice on solving applied questions	Analysis of elastic uncracked sections	Theory Tutorial	Discussion Homework assignments
Week 4	3	Cognitive with practice on solving applied questions	Analysis of elastic cracked sections.	Theory Tutorial	Discussion Homework assignments
Week 5	3	Cognitive with practice on solving applied questions	Ultimate strength method: Analysis of under Reinforced concrete beams .	Theory Tutorial Theory Tutorial	Discussion Homework assignments
Week 6	3	Cognitive with practice on solving applied questions	Analysis of over Reinforced concrete beams .	Theory Tutorial	Discussion Homework assignments

Week 7	3	Cognitive with practice on solving applied questions	Design of Singly Reinforced concrete beams.	Theory Tutorial	Discussion Homework assignments
Week 8	3	Cognitive with practice on solving applied questions	Design of tapered reinforced concrete beams.	Theory Tutorial	Discussion Homework assignments
Week 9	3	Cognitive with practice on solving applied questions	Doubly Reinforced rectangular beams .	Theory Tutorial	Discussion Homework assignments
Week 10	3	Cognitive with practice on solving applied questions	Analysis of Doubly Reinforced concrete beams .	Theory Tutorial	Discussion Homework assignments
Week 11	3	Cognitive with practice on solving applied questions	Design of Doubly Reinforced concrete beams.	Theory Tutorial	Discussion Homework assignments
Week 12	3	Cognitive with practice on solving applied questions	Mid-term Exam	-----	Discussion Homework assignments
Week 13	3	Cognitive with practice on solving applied questions	T-Beams: Analysis of Reinforced concrete T-Beams.	Theory Tutorial	Discussion Homework assignments
Week 14	3	Cognitive with practice on solving applied questions	Analysis of Reinforced concrete T-Beams.	Theory Tutorial	Discussion Homework assignments
Week 15	3	Cognitive with practice on solving applied questions	Design of Reinforced concrete T-Beams.	Theory Tutorial	Discussion Homework assignments

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Design of Concrete Structures, 14th Edition; Arthur H. Nilson. (SI unit)
Main references (sources)	Reinforced Concrete, A Fundamental Approach, 6th Edition; Edward G. Nawy.
Recommended books and references (scientific journals, reports ...)	-----
Electronic References, Websites	-----

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Asst. Prof. Mohammed A.Hassan

Name and Signature of the Head of
Department

Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Soil mechanics I
2. Course Code:
CE313
3. Semester / Year :
2024-2025/ First Semester
4. Description Preparation Date:
2025-2024
5. Available Attendance Forms
Theoretical lectures Discussion lectures Laboratory hours
6. Number of Credit House (Total) / Number of Units (Total)
60 hours / 3 units
7. Course administrator's name (mention all , if more than one name)
Name: Lec. Dr. Ahmed Hammad Hussein Email: ahmed.hammad@uosamarra.edu.iq

8. Course Objectives	
Course Objectives	The Aims of this course are to enable students to : The course aims to introduce students to the principles of soil mechanics and its engineering behavior, so that the student can obtain theoretical information and gain practical experience and employ this knowledge, which enables him to judge the soil from an engineering perspective and its suitability for the engineering project established on it, or the suitability of this soil if the purpose for which it is used is a construction material.

9. Teaching and Learning Strategies	
Strategies	The set of strategies that can enhance the learning experience for students in soil mechanics are lecture-based teaching, practical applications, problem-solving assignments, group work and discussions, assessments and feedback, continuous learning, and encouraging self-directed learning.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	4	Knowing the properties of soil	Soil deposits	Lectures (theory, discussion laboratory)	Quiz
Week 2	4	Knowing the properties of soil	Grain size distribution	Lectures (theory, discussion laboratory)	Quiz
Week 3	4	Knowing the properties of soil	Wight- volume relationships	Lectures (theory, discussion laboratory)	Quiz
Week 4	4	Knowing the properties of soil	Soil consistency	Lectures (theory, discussion laboratory)	Quiz
Week 5	4	Knowing the classification of soil	Soil classification introduction	Lectures (theory, discussion laboratory)	Quiz
Week 6	4	Knowing the classification of soil	Soil classification	Lectures (theory, discussion laboratory)	Quiz
Week 7	4	Soil compaction ratio	Soil compaction: introduction	Lectures (theory, discussion laboratory)	Quiz

Week 8	4	Soil compaction ratio	Field density and its calculation	Lectures (theory, discussion laboratory)	Quiz
Week 9	4	Knowing the structural properties of soil	Hydraulic conductivity	Lectures (theory, discussion laboratory)	Quiz
Week 10	4	Knowing the structural properties of soil	Soil permeability	Lectures (theory, discussion laboratory)	Quiz
Week 11	4	Knowing the variables related to soil bearing capacity	Stress in soil mass: introduction	Lectures (theory, discussion laboratory)	Quiz
Week 12	4	Knowing the variables related to soil bearing capacity	Effective stress	Lectures (theory, discussion laboratory)	Quiz
Week 13	4	Knowing the variables related to soil bearing capacity	Heaving in soil and vertical stress	Lectures (theory, discussion laboratory)	Quiz
Week 14	4	Application of soil theories	Problems	Lectures (theory, discussion laboratory)	Quiz
Week 15	4	Application of soil theories	Discussion	Lectures (theory, discussion laboratory)	Quiz

10. Course Structure Lab					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	2	Determine the water content of soil samples and understand its significance in soil behavior.	Water Content Determination	Experimental	report
Week 2	2	Measure the specific gravity of soil solids and use it in weight-volume relationships.	Specific Gravity of Soil Solids	Experimental	report
Week 3	2	Perform grain size distribution analysis for soil classification.	Sieve Analysis (Grain Size Distribution)	Experimental	report
Week 4	2	Determine particle size distribution for fine-grained soils	Hydrometer Analysis	Experimental	report
Week 5	2	Determine the liquid limit and interpret soil plasticity .	Liquid Limit Test (Atterberg Limits)	Experimental	report
Week 6	2	Determine the plastic limit and calculate the plasticity index.	Plastic Limit Test (Atterberg Limits)	Experimental	report
Week 7	2	Measure permeability of granular soils and calculate hydraulic conductivity	Constant Head Permeability Test (Sand)	Experimental	report
Week 8	2	Measure permeability of fine-grained soils.	Falling Head Permeability Test	Experimental	report

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Fundamentals of Geotechnical Engineering, THIRD EDITION, Braja M. Das
Main references (sources)	Fundamentals of Geotechnical Engineering, THIRD EDITION, Braja M. Das
Recommended books and references (scientific journals, reports ...)	Fundamentals of Geotechnical Engineering, THIRD EDITION, Braja M. Das
Electronic References, Websites	https://istasazeh-co.com/wp-content/uploads/2021/11/Fundamentals-of-Geotechnical-Engineering-Third-Edition.pdf

11. Course Evaluation

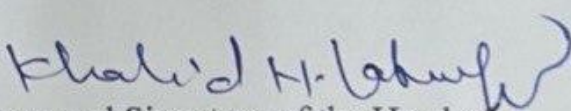
Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	5
Lab	14	15
Mid term Exam	1	20
Final Exam	1	50
Total		100



Name and Signature of the Course
Instructor

Lec. Dr. Ahmed Hammad Hussein


Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Numerical Engineering Analysis
2. Course Code:
CE314
3. Semester / Year :
2024-2025/ First Semester
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms:
Theoretical and Discussion
6. Number of Credit House (Total) / Number of Units (Total):
45hrs, 2Units
7. Course administrator's name (mention all , if more than one name)
Name: Asst.Lec. Anas Badr Hameed Email: anasalsamarai@uosamarra.edu.iq

8. Course Objectives	
Course Objectives	<ol style="list-style-type: none">1. Learn how to solve ordinary differential equations using different methods2. Learn how to solve partial differential equations3. Learn numerical solution methods for solving differential equations4. Learn computer-based applications5. Solve some civil engineering problems using the above methods

9. Teaching and Learning Strategies

Strategies	<ol style="list-style-type: none"> 1. Interactive lectures – Combining theoretical foundations with practical demonstrations of numerical techniques using digital tools and visualizations. 2. Case study analysis – Examining real-world engineering problems (such as structural deflection, heat transfer) to illustrate practical applications of numerical methods. 3. Collaborative problem solving – Implementing group projects where students work together to develop numerical solutions for complex engineering scenarios. 4. Flipped classroom approach – Students study theoretical concepts independently before class, allowing more time for hands-on problem solving during sessions. 5. Continuous assessment – Using periodic quizzes, practical assignments, and mini-projects to monitor understanding and provide immediate feedback.
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	Cognitive with practice on solving applied questions	Fourier Series. Deflection of the beams	Theory and Solve equation	Discussion
Week 2	3	Cognitive with practice on solving applied questions	Fourier Series. Deflection of the beams	Theory and Solve equation	Discussion and quiz
Week 3	3	Cognitive with practice on solving applied questions	Matrices -Matrix inverse	Theory and Solve equation	Discussion
Week 4	3	Cognitive with practice on solving applied questions	Gauss elimination	Theory and Solve equation	
Week 5	3	Cognitive with practice on solving applied questions	Eigenvalues and Eigenvectors	Theory and Solve equation	Discussion and quiz
Week 6	3	Cognitive with practice on solving applied questions	Interpolation	Theory and Solve equation	Discussion

Week 7	3	Cognitive with practice on solving Applied questions	Interpolation	Theory and Solve equation	Discussion
Week 8	3	Cognitive with practice on solving Applied questions	Roots of Equations	Theory and Solve equation	Discussion and quiz
Week 9	3	Cognitive with practice on solving Applied questions	Roots of Equations	Theory and Solve equation	Discussion
Week 10	3	Cognitive with practice on solving Applied questions	Numerical Integration (Gauss squares).	Theory and Solve equation	Discussion
Week 11	3	Cognitive with practice on solving Applied questions	Numerical Solution for Initial Value Problems. -Euler method. - Modified Euler method.	Theory and Solve equation	Discussion
Week 12	3	Cognitive with practice on solving Applied questions	Numerical Solution for Initial Value Problems. Runge-Kutta method. - Taylor Series	Theory and Solve equation	Discussion and quiz
Week 13	3	Cognitive with practice on solving Applied questions	Numerical solution for Boundary Value Problems -Finite Difference method - Deflection of the beams	Theory and Solve equation	Discussion
Week 14	3	Cognitive with practice on solving Applied questions	Finite Difference method - Deflection of the beams	Theory and Solve equation	Discussion
Week 15	3	Cognitive with practice on solving Applied questions	Numerical solution for Boundary Value Problems ,Deflection of the beams	Theory and Solve equation	Discussion and quiz

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	ADVANCED ENGINEERING MATHEMATICS, 10th Edition; ERWIN KREYSZIG. A FIRST COURSE IN DIFFERENTIAL EQUATIONS with Modeling Applications, 10th Edition; DENNIS G. ZILL.
Main references (sources)	Numerical Analysis, Richard L. Burden
Recommended books and references (scientific journals, reports ...)	-----
Electronic References, Websites	-----

11. Course Evaluation

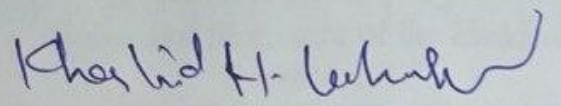
Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Asst.Lec. Anas Badr Hameed


Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Water Resources
2. Course Code:
CE315
3. Semester / Year :
2024-2025/ First Semester
4. Description Preparation Date:
3/7/2025
5. Available Attendance Forms
Theoretical Lectures Discussion Lectures
6. Number of Credit House (Total) / Number of Units (Total)
45hours / 2 units
7. Course administrator's name (mention all , if more than one name)
Name: Lect. Marwah Qaddorri Majeed Email: Marwa_q@uosamarra.edu.iq

8. Course Objectives	
Course Objectives	This course aims to enable students to: 1- Introduce water resources and establish their importance in civil engineering. 2- Develop the fundamental principles on which the subject is based. 3- Demonstrate how to use them in designing simple hydraulic components. 4- Apply concepts of floods, sedimentation, and wells.

9. Teaching and Learning Strategies

Strategies	The Water Resources course requires effective teaching and learning strategies to ensure students develop a strong understanding of complex concepts and their practical applications. The strategies that enhance students' learning experience include lecture-based teaching, practical applications, problem-solving tasks, group work and discussions, evaluations and feedback, continuous learning, and promoting self-directed learning.
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10. Course Structure

Week	Hours	Learning Outcomes	Topic	Learning Method	Assessment
Week 1	3	Introduction to irrigation systems	Introduction to irrigation – basics – types of irrigation systems	Theoretical	–
Week 2	3	Introduction to hydrology and its cycle	Introduction to hydrology – hydrological cycle – probability	Theoretical	–
Week 3	3	Understanding sedimentation in rivers	Sedimentation	Theoretical	–
Week 4	3	Estimating evaporation	Evaporation from reservoirs	Discussion	–
Week 5	3	Measuring streamflow	Flow measurement methods	Discussion	–
Week 6	3	Streamflow examples	Water flow in streams / examples	Daily exams	–
Week 7	3	Hydrograph analysis	Discharge vs. time analysis	Discussion	–
Week 8	3	Hydrograph analysis examples	Intensive analysis methods	Daily exams	–
Week 9	3	Floods overview	Introduction to floods and timing	Discussion	–
Week 10	3	Flood calculation methods	Examples of flood calculation methods	Daily exams	–
Week 11	3	Flood routing	Consequences of floods	Discussion	–

Week 12	3	Flood routing theories	Routing theories	Daily exams	–
Week 13	3	Introduction to groundwater	Groundwater basics	Discussion	–
Week 14	3	Aquifer examples	Types of formations	Daily exams	–
Week 15	3	Midterm Exam	–	–	–

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	lectures
Main references (sources)	Required Textbook: <i>Water Resources Engineering</i> by Larry W. Mays, 2nd Edition, Wiley, 2010
Recommended books and references (scientific journals, reports ...)	-----
Electronic References, Websites	-----

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Lect. Marwah Qaddorri Majeed

Name and Signature of the Head of
Department

Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Environmental Engineering
2. Course Code:
CE316
3. Semester / Year :
2024 – 2025/ First Semester
4. Description Preparation Date:
2024 – 2025
5. Available Attendance Forms
Theory lecture Tutorial
6. Number of Credit House (Total) / Number of Units (Total)
45 hours / 2 units
7. Course administrator's name (mention all , if more than one name)
Name: Lect. Dr. Mohammed Jameel Mahdi E-mail: mdj7878g@uosamarra.edu.iq

8. Course Objectives

Course Objectives

- Understanding the concept of environmental engineering, ecosystem dynamics, and ecological balance.
- Explaining the impact of various types of filters and mechanical systems in removing pollutants.
- Comprehending pollutant removal mechanisms.
- Gaining insight into different types of pollution.
- Providing information on methods for calculating solid waste generation.
- Explaining the effects of climate change on human health.
- Presenting information on sustainable development and renewable energy.

9. Teaching and Learning Strategies

Strategies

To achieve this strategy, the following approaches will be adopted during the delivery of the course content:

- **Enhancing Active Participation:** Encouraging students to engage in exercises, critical thinking, and research activities promotes deeper involvement in the learning process, thereby improving their comprehension of the subject matter.
- **Developing Critical Thinking Skills:** Refining and expanding students' critical thinking abilities enables them to analyse information, evaluate evidence, and solve problems more effectively.
- **Connecting Concepts to Real-Life Contexts:** Motivating students to relate course content to real-world scenarios helps them understand the practical applications of the material and recognize its relevance.
- **Improving Problem-Solving Skills:** By working on real environmental challenges, students acquire valuable skills in problem-solving and decision-making

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	Understanding the concept of environmental engineering, ecosystems, and ecological balance.	introduction – Principles of Ecology – Ecosystems, Ecological Balance, Nutrient Cycles, and Food Chains – Definition and Types of Pollutions	Classroom Lectures	Attendance
Week 2	3	Understanding the impact of different types of pollution on the ecosystem. Understanding removal equipment types and operational mechanisms	introduction to Air Pollution – Sources and Emissions – Gaseous Pollutant Measurement Units – Air Pollution Control – Engineering Technologies for Air Pollution Control – Settling Chambers – Collectors – Cyclones – Scrubbing and Filtration – Electrostatic Precipitation	Classroom Lectures Problem-Solving	Attendance Participation in solving Examples
Week 3	3	Understanding and identifying the impact of noise pollution	Introduction to Noise Pollution – Noise Measurement Devices – Negative Impacts of Noise – Noise Control	lectures (Classroom + Video)	Attendance
Week 4	3	Providing information on methods for calculating solid waste generation	solid Waste – Sources and Characteristics – Municipal, Agricultural, and Industrial Waste – Hazardous Waste – Physical and Chemical Properties – Waste Collection – Disposal Methods	classroom Lectures Interactive Example	Attendance Participation
Week 5	3	Explaining different solid waste disposal methods	Solid Waste Disposal Methods – Sanitary Landfilling – Advantages and Disadvantages of Sanitary Landfills – Site Selection and Landfilling Techniques	Classroom Lectures	Attendance Daily Quiz
Week 6	3	Analyzing and developing systems for solid waste collection, transportation, and disposal	Solid Waste Collection and Transportation – Compactor Requirements – Waste Transport in Multi-Story Buildings	Classroom Lectures Practical Numerical Exercises	Attendance Participation
Week 7	3	Determining sanitary landfill area for solid waste.	Required Land Area for Landfilling – Landfill Site Design – Methane Gas Estimation from Solid Waste.	Classroom Lectures Design Examples	Attendance Participation

Week 8	3	Identifying and explaining the impact of thermal pollution	Thermal Pollution – Sources – Power Plants – Cooling Systems in Power Plants	Classroom Lectures Daily Quiz	Attendance Daily Quiz
Week 9	3		Midterm Examination		
Week 10	3	explaining various methods used for controlling thermal pollution	Cooling Systems for Thermal Discharges – Evaporative Systems – Cooling Ponds – Spray Ponds – Wet Cooling Towers – Dry Cooling Systems – Utilization of Heated Effluents	Classroom Lectures	Attendance Participation
Week 11	3	explaining the effects of climate change on human health	Impact of Climate Change on Human Health	Classroom Lectures	Attendance Participation
Week 12	3	identifying environmental burdens of cooling towers and their impact on air and water pollution	Environmental Impact of Cooling Towers in Controlling Thermal Pollution	Classroom Lectures	Attendance
Week 13	3	understanding radiation and radioactive pollution	Radioactive Pollution – Nature, Properties, and Units of Radiation – Radiation Sources	Classroom Lectures Real-World Examples	Attendance daily quiz
Week 14	3	explaining the harmful effects of radiation on the environment and human health	Radiation Effects on the Environment and Human Health – Radiation Specifications	Classroom Lectures Video Sessions	Attendance Participation
Week 15	3	Providing information on sustainable development and renewable energy.	Sustainable Development – Renewable Energy	Video Lectures Case Studies	Attendance

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	-----
Main references (sources)	Environmental Engineering by: Peavy. H.S , Rowe. D. R. , and Tchobanoglous.G McGraw Hill Book Company 1986
Recommended books and references (scientific journals, reports ...)	Environmental Science A Global Concern by William P. Cunningham , Mary Ann Cunningham and Barbara Woodworth Saigo. McGraw Hill Book Company 2007 , 9th edition.
Electronic References, Websites	General

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Lect. Dr. Mohammed Jameel Mahdi

Name and Signature of the Head of
Department

Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Traffic Engineering
2. Course Code:
CE 317
3. Semester / Year :
2024 -2025/ First Semester
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms
Theoretical lectures Discussion lectures
6. Number of Credit House (Total) / Number of Units (Total)
45 hours / 2 units
7. Course administrator's name (mention all , if more than one name)
Name: Asst. Lect. Dawod Suleman Ayed Email: dawood.so.a@uosamarra.edu.iq

8. Course Objectives

Course Objectives

Generally, recognizing road network design and organizing vehicular and pedestrian traffic safely and appropriately.

In addition to:

1. Understanding the general principles of traffic engineering and its characteristics
2. Understanding the role of traffic engineering within transportation engineering
3. The study, analysis, and classification of intersections of all types on the road network
4. Traffic characteristics data analysis and design

9. Teaching and Learning Strategies

Strategies

definition of traffic engineering, as well as to develop the ability to identify, define, analyze, and address major engineering and mathematical issues within the field. This encompasses various categories of roads distributed across urban and rural transportation networks. Furthermore, the student should be capable of proposing appropriate immediate and long-term solutions, and of formulating suitable design and planning strategies tailored to each specific context, This is achieved through:

- 1- Interactive lectures that combine theoretical foundations with practical aspects during instruction, while linking the presented information to real-world engineering applications
- 2- Studying and analyzing traffic problems within road networks through traffic flow analysis and other traffic characteristics.
- 3- Continuous assessment through the use of periodic and surprise quizzes, practical assignments, and mini-projects.
- 4- Solving course-related mathematical exercises through homework assignments.
- 5- Assigning students group activities and collaborative tasks
- 6- A specific portion of the overall course grade is allocated to daily assignments, quizzes, scientific reports, in addition to midterm and final examinations.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	The ability to evaluate and analyze various types of urban and rural roads by determining their capacity and level of service, and to learn the principles of future road design and planning based on this information	Introduction: General principles of transportation engineering	Attendance in the classroom is ensured through the use of available educational tools, along with conducting selected site visits. Students are also assigned to prepare technical reports and present them for discussion within a specified time frame during class sessions.	According to the tasks assigned to the student, such as daily assignments, homework, daily and oral exams, monthly " tests, reports, and in-class activities
Week 2	3		Road Users: Human limitations-Definition of a good driver-Physical ,Physiological and modifying characteristics of driver-Driving task and information-Pedestrian control		
Week 3	3		Vehicle: Static and operation characteristics of vehicle-General requirement of vehicle		
Week 4	3		Travel time and Delay studies: Definition-Applications-Methods of measurements-Intersection delay-Mathematical analysis		
Week 5	3		Traffic Elements: Fundamental speed-flow-density relationships (Linear and Non-Linear) Spacing ,headway, gap and clearance relationships-Statistical and Mathematical analysis		
Week 6	3		Traffic Elements: Fundamental speed-flow-density relationships (Linear and Non-Linear) Spacing ,headway, gap and clearance relationships-Statistical and Mathematical analysis		
Week 7	3		Spot-Speed studies: Definition-Applications-Methods of measurements-Statistical analysis		
Week 8	3		Traffic Volume Studies: Definition-Types-Applications-Methods of measurements-Traffic volume counts-Expending and adjusting of short counts-Mathematical analysis.		
Week 9	3		Background of Highway Capacity: Definition-Types-Factors affecting capacity-Level of service types		
Week 10	3		Headway distribution (double exponential distribution)		
Week 11	3		Intersections (general): Classification-types and shapes-Design principles- at-grade intersections-Interchange warrants		
Week 12	3		Intersections (general): Classification-types and shapes-Design principles- at-grade intersections-Interchange warrants		
Week 13	3		Signalized Intersections: Definition-Types and shapes-Design principles (Webster and HCM methods)		

Week 14	3		Parking Studies: Definition-Classification-Types-Design principles		
Week 15	3		Exams		

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Traffic and highway engineering, Nicholas J.Garber , Lester A.Hoel, 4th edition 2010 ,SI Unit
Recommended books and references (scientific journals, reports ...)	Traffic Engineering (4th Edition) Roger P. Roess, Elena S. Prassas, William R. Mc Shane .
Electronic References, Websites	Not specifically defined, only within traffic engineering and according to the topics outlined in the curriculum
Percentage Rate of Curriculum/Syllabus Update	-----

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Asst. Lect. Dawod Suleman Ayed

Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:	
English Language II	
2. Course Code:	
CE318	
3. Semester / Year :	
2024 – 2025 / First Semester	
4. Description Preparation Date:	
2024 - 2025	
5. Available Attendance Forms	
Theoretical Lectures	
6. Number of Credit House (Total) / Number of Units (Total)	
30 Credit Hours / 2 Units	
7. Course administrator's name (mention all , if more than one name)	
Name: Asst. Lect. Ahmed Hadi Mahmood Email: Ahmed.ha.m@uosamarra.edu.iq	

8. Course Objectives	
Course Objectives	Develop the ability and skill needed to discover, innovate and create, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills.

9. Teaching and Learning Strategies

Strategies	<p>The learning and teaching strategy is designed to: Carefully cover in lectures the necessary fundamental material and analytical techniques, and demonstrate concepts with appropriate (and where possible practical) examples Allow students adequate time to practice the techniques using a large number of carefully selected tutorial problems.</p> <ol style="list-style-type: none"> 1. Collaborative Learning 2. Project-Based Learning 3. Inquiry-Guided Learning 4. Blended Learning 5. Self-Learning 6. Simulation-Based Learning 7. Game-Based Learning 8. Technology-Based Learning
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	2	Recognize core components of English grammar, vocabulary, reading comprehension, writing structure, and listening strategies.	Basic English essentials.	Lecture and Practice	Exams and Discussion
Week 2	2	Understand commonly used classroom language and basic professional terminology related to self-introduction and career development.	(grammar, Vocabulary, Reading, writing, listing).	Lecture and Practice	Exams and Discussion
Week 3	2	Interpret different types of questions in English accurately, with awareness of linguistic cues and response expectations.	test (grammar, Vocabulary, Reading, writing, listing).	Lecture and Practice	Exams and Discussion

Week 4	2	Demonstrate the ability to speak about oneself in personal and academic contexts.	How to Talk about yourself.	Lecture and Practice	Exams and Discussion
Week 5	2	Express personal and academic information clearly during class interviews and discussion sessions.	Class working meet (Talk about yourself).	Lecture and Practice	Exams and Discussion
Week 6	2	Apply English skills in constructing a professional curriculum vitae (CV) that highlights academic achievements and skills.	How to make C.V.	Lecture and Practice	Exams and Discussion
Week 7	2	Participate in guided classroom discussions and peer feedback sessions focused on student CVs and self-presentation.	Discuss some C.V project of student .	Lecture and Practice	Exams and Discussion
Week 8	2	Engage in mock job interviews using English, showcasing preparedness, confidence, and effective communication.	How to read questions in English and understand their meaning.	Lecture and Practice	Exams and Discussion
Week 9	2	Participate in guided classroom discussions and peer feedback sessions focused on student CVs and self-presentation.	Class working meet (CV -job interview).	Lecture and Practice	Exams and Discussion
Week 10	2	Collaborate in group seminars highlighting well-known civil engineers and their contributions to the field.	Seminar (Famous Civil Engineers) (by Groups).	Lecture and Practice	Exams and Discussion
Week 11	2	Engage in mock job interviews using English, showcasing preparedness, confidence, and effective communication.	Simulation (role exchange) of a lecture in mathematics in English (selecting some students).	Lecture and Practice	Exams and Discussion
Week 12	2	Produce written and oral responses that reflect clarity and accuracy during classroom assessments and practical speaking tasks.	Class working meet (Talk about yourself-CV job interview).	Lecture and Practice	Exams and Discussion

Week 13	2	Participate in role-exchange simulations of academic lectures, enhancing listening and presentation skills in technical English.	test (grammar, Vocabulary, Reading, writing, listing).	Lecture and Practice	Exams and Discussion
Week 14	2	Contribute to class activities and evaluation exercises (Unit One Workbook, grammar, vocabulary, reading, writing, listening) with measurable progress in language proficiency.	Class working meet (Talk about yourself-CV job interview).	Lecture and Practice	Exams and Discussion
Week 15	2		Exams		

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Headway plus (pre- intermediate), John and LZiz Soars, Oxford.
Main references (sources)	Headway plus (intermediate), John and LZiz Soars, Oxford.
Recommended books and references (scientific journals, reports ...)	DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents.
Electronic References, Websites	https://www.coursera.org/browse/physical-science-and-engineering/electricalengineering

11. Course Evaluation

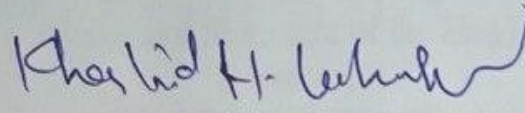
Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Asst. Lect. Ahmed Hadi Mahmood


Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:	
Theory of Structures II	
2. Course Code:	
CE321	
3. Semester / Year :	
2024 – 2025 / Second Semester	
4. Description Preparation Date:	
2024 - 2025	
5. Available Attendance Forms	
Theoretical Lectures	
6. Number of Credit House (Total) / Number of Units (Total)	
45 Credit Hours / 3 Units	
7. Course administrator's name (mention all , if more than one name)	
Name: Asst. Prof. Ahmed Mohammed Ahmed	
Email: ahmed_m@uosamarra.edu.iq	

8. Course Objectives	
Course Objectives	<ol style="list-style-type: none">1. Build a sufficient knowledge about methods of analyzing statically indeterminate structures.2. Practice the approximate analysis of statically indeterminate structures.3. Learn the analysis of vertically and laterally loaded frames.4. Practice the analysis of statically indeterminate structures using force method.5. Learn the analyses of statically indeterminate trusses.6. Learn the analyses of statically indeterminate beams and frames.

9. Teaching and Learning Strategies	
Strategies	<ol style="list-style-type: none"> 1. Interactive Lectures – Combining theoretical foundations with practical demonstrations that establish the principles of structural analysis. 2. Discussion-Based Lectures – During which selected problems are solved and certain analytical theories are applied to them. 3. Project Implementation – Each group of students undertakes analytical projects on complex structures throughout the semester. 4. Video Presentations – Showing illustrative video clips to students to facilitate understanding of practical topics. 5. Continuous Assessment – Using periodic tests, practical assignments, and mini-projects to monitor understanding and provide immediate feedback.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	The ability to perform approximate analysis of statically indeterminate structures.	Approximate Analysis of Statically Indeterminate Structures	Lecture and Practice	Exams and Discussion
Week 2	3	The ability to analyze structures subjected to vertical loads.	Frames under vertical Loads	Lecture and Practice	Exams and Discussion
Week 3	3	The ability to analyze structures subjected to lateral loads.	Frames under Lateral Loads	Lecture and Practice	Exams and Discussion
Week 4	3	Performing approximate analysis of structures.	Portal & Cantilevered Methods	Lecture and Practice	Exams and Discussion
Week 5	3	The ability to analyze statically indeterminate trusses using the force method.	Analysis of Statically Indeterminate Structures Force Method : Trusses	Lecture and Practice	Exams and Discussion
Week 6	3	The ability to analyze statically indeterminate beams using the force method.	Analysis of Statically Indeterminate Structures Force Method : Beams	Lecture and Practice	Exams and Discussion
Week 7	3	The ability to analyze statically indeterminate	Analysis of Statically Indeterminate	Lecture and Practice	Exams and Discussion

		structures using the force method.	Structures Force Method : Frames		
Week 8	3	The ability to analyze statically indeterminate beams using the displacement method	Displacement Method (Slope - Deflection) : Beams	Lecture and Practice	Exams and Discussion
Week 9	3	The ability to analyze statically indeterminate frames using the displacement method	Displacement Method (Slope - Deflection) : Frames	Lecture and Practice	Exams and Discussion
Week 10	3	The ability to analyze statically indeterminate beams using the displacement method	Displacement Method (Moment Distribution) : Beams	Lecture and Practice	Exams and Discussion
Week 11	3	The ability to analyze statically indeterminate frames using the displacement method	Displacement Method (Moment Distribution) : Frames	Lecture and Practice	Exams and Discussion
Week 12	3	The ability to analyze Nonpragmatic structural members.	Analysis of Nonpragmatic Structural Members	Lecture and Practice	Exams and Discussion
Week 13	3	The ability to manually analyze structures using the matrix method.	Analysis by Stiffness Method (Matrix Analysis) - Manually : -Trusses, Beams, Frames.	Lecture and Practice	Exams and Discussion
Week 14	3	The ability to analyze structures using the matrix method with computer software.	Analysis by Stiffness Method (Matrix Analysis) - by Software: -Trusses, Beams, Frames	Lecture and Practice	Exams and Discussion
Week 15	3		Exams		

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	R. C. Hibbeler, "Structural Analysis" (SI Units), 8th Edition, 2012.
Main references (sources)	Aslam Qassim Ali, "Structural Analysis" , 4th Edition, 2011.
Recommended books and references (scientific journals, reports ...)	-----
Electronic References, Websites	-----

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Asst. Lect. Ahmed Hadi Mahmood

Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Reinforced Concrete Design II
2. Course Code:
CE322
3. Semester / Year :
2024-2025/ Second Semester
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms
Theory Tutorial
6. Number of Credit House (Total) / Number of Units (Total)
45 hrs / 3 Units
7. Course administrator's name (mention all , if more than one name)
Name: Asst. Prof. Mohammed A. Hassan Email: mohammed.a.hassan@uosamarra.edu.iq

8. Course Objectives

Course Objectives

1. Understand the analysis and design of irregular reinforced concrete sections, including handling complex geometric shapes and load distributions.
2. Apply shear design principles to reinforced concrete beams, ensuring safety against shear failures.
3. Gain expertise in designing continuous beams and one-way slabs, focusing on efficient structural layouts for various building and bridge designs..
4. Learn the design and analysis of compression members (columns) under different loading conditions, including:
5. Design of short axially loaded columns to resist vertical loads.
6. Design of eccentrically loaded short columns using interaction diagrams under uniaxial and biaxial loading conditions.
7. Analyze and design long columns, considering their slenderness effects and stability requirements

9. Teaching and Learning Strategies

Strategies

1. Lectures (Instructor-Centered Teaching):

- Delivery of theoretical concepts and principles with real-world examples.
- Explanation of analysis and design procedures step-by-step.
- Recommended to be interactive with frequent questions or polling.

2. Problem-Based Learning (PBL):

- Analyze complex structural situations involving reinforced concrete elements.
- Identify key issues, determine appropriate methods of analysis or design, and propose effective engineering solutions.
- Work individually or in small groups to foster teamwork, communication, and problem-solving abilities.
- Develop the ability to interpret and apply design codes and standards to real-life engineering challenges.
- Reflect on their solutions and evaluate the efficiency, safety, and practicality of their designs.

3. Active Learning:

- Participate in interactive problem-solving sessions during lectures and tutorials.
- Engage in think-pair-share activities to discuss and solve structural analysis and design problems collaboratively.

	<ul style="list-style-type: none"> • Work on in-class exercises that require immediate application of lecture material. • Analyze case studies and real-life structural failures to understand the importance of correct design practices. • Present solutions and design projects to the class, developing communication and professional presentation skills. • Reflect on their learning progress through self-assessment and instructor feedback. <p>4. Visual and Simulation Tools:</p> <ul style="list-style-type: none"> • Use graphical methods to draw shear force and bending moment diagrams. • Analyze stress and strain distributions across reinforced concrete sections visually. • Observe simulated structural behavior under different loading conditions using software demonstrations or videos. • Employ computer-aided design (CAD) tools for the detailing of reinforced concrete beams and T-beams. <p>5. Homework Assignments and Take-Home Tasks:</p> <ul style="list-style-type: none"> • Regular problem sets to reinforce lecture material and develop technical skills. • Include both numerical and conceptual questions. <p>6. Group Discussions and Peer Teaching:</p> <ul style="list-style-type: none"> • Promote knowledge-sharing and collaborative problem-solving. • Use peer review or short group presentations on selected topics. <p>7. Formative Quizzes and Feedback:</p> <ul style="list-style-type: none"> • Conduct regular short quizzes (paper-based or online). • Provide feedback to identify learning gaps and adjust teaching. <p>8. Office Hours and Individual Support: Provide opportunities for one-on-one support, especially for complex topics or before exams</p>
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10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	Cognitive skills	Introduction to Irregular sections .	Theory	Tutorial
Week 2	3	Cognitive with practice on solving applied questions	Analysis of Irregular concrete sections.	Theory Tutorial	Discussion Homework assignments

Week 3	3	Cognitive with practice on solving applied questions	Design of Irregular concrete sections.	Theory Tutorial	Discussion Homework assignments
Week 4	3	Cognitive with practice on solving applied questions	Introduction to shear design in beams.	Theory Tutorial	Discussion Homework assignments
Week 5	3	Cognitive with practice on solving applied questions	Shear design and analysis in beams problems.	Theory Tutorial Theory Tutorial	Discussion Homework assignments
Week 6	3	Cognitive with practice on solving applied questions	Introduction to Continuous beams.	Theory Tutorial	Discussion Homework assignments
Week 7	3	Cognitive with practice on solving applied questions	Analysis and design of Continuous beams.	Theory Tutorial	Discussion Homework assignments
Week 8	3	Cognitive with practice on solving applied questions	Introduction to one way slabs.	Theory Tutorial	Discussion Homework assignments
Week 9	3	Cognitive with practice on solving applied questions	Analysis and design of one way slabs.	Theory Tutorial	Discussion Homework assignments
Week 10	3	Cognitive with practice on solving applied questions	Introduction to Compression Members(Columns).	Theory Tutorial	Discussion Homework assignments
Week 11	3	Cognitive with practice on solving applied questions	Analysis and design of Axially loaded (short columns).	Theory Tutorial	Discussion Homework assignments
Week 12	3	Cognitive with practice on solving applied questions	Mid-term Exam		Discussion Homework assignments

Week 13	3	Cognitive with practice on solving applied questions	Interaction Diagrams(Analysis& Design of columns under uniaxial loading).	Theory Tutorial	Discussion Homework assignments
Week 14	3	Cognitive with practice on solving applied questions	Analysis and design of columns under biaxial loading.	Theory Tutorial	Discussion Homework assignments
Week 15	3	Cognitive with practice on solving applied questions	Long Columns(Analysis& Design).	Theory Tutorial	Discussion Homework assignments

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Design of Concrete Structures, 14th Edition; Arthur H. Nilson. (SI unit)
Main references (sources)	Reinforced Concrete, A Fundamental Approach, 6th Edition; Edward G. Nawy.
Recommended books and references(scientific journals, reports ...)	-----
Electronic References, Websites	-----

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Asst. Prof. Mohammed A. Hassan

Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Soil mechanics II
2. Course Code:
CE323
3. Semester / Year :
2024-2025 / Second Semester
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms
Theoretical lectures discussion lectures laboratory hours
6. Number of Credit House (Total) / Number of Units (Total)
60 hours / 3 units
7. Course administrator's name (mention all , if more than one name)
Name: Lec. Dr. Ahmed Hammad Hussein Email: ahmed.hammad@uosamarra.edu.iq

8. Course Objectives

Course Objectives	The Aims of this course are to enable students to : The course aims to introduce students to the principles of soil mechanics and its engineering behavior, so that the student can obtain theoretical information and gain practical experience and employ this knowledge, which enables him to judge the soil from an engineering perspective and its suitability for the engineering project established on it, or the suitability of this soil if the purpose for which it is used is a construction material.
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9. Teaching and Learning Strategies

Strategies	The set of strategies that can enhance the learning experience for students in soil mechanics are lecture-based teaching, practical applications, problem-solving assignments, group work and discussions, assessments and feedback, continuous learning, and encouraging self-directed learning.
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	4	Understanding the consolidation process of clayey soils	Consolidation theory: Introduction	Lectures (theory, discussion + laboratory)	Quiz
Week 2	4	Understanding the consolidation process of clayey soils	Soil compressibility, consolidation	Lectures (theory, discussion + laboratory)	Quiz
Week 3	4	Understanding the consolidation process of clayey soils	Consolidation mechanism	Lectures (theory,	Quiz

				discussion + laboratory)	
Week 4	4	Understanding the consolidation process of clayey soils	Consolidation settlement	Lectures (theory, discussion + laboratory)	Quiz
Week 5	4	Understanding the consolidation process of clayey soils	Consolidation test	Lectures (theory, discussion + laboratory)	Quiz
Week 6	4	. In-depth knowledge of time-rate relationships in the consolidation process.	Degree of consolidation	Lectures (theory, discussion + laboratory)	Quiz
Week 7	4	. In-depth knowledge of time-rate relationships in the consolidation process.	Coefficients of consolidation	Lectures (theory, discussion + laboratory)	Quiz
Week 8	4	. In-depth knowledge of time-rate relationships in the consolidation process.	problems	Lectures (theory, discussion + laboratory)	Quiz
Week 9	4	Understanding the shear strength of soils.	Shear strength of soil	Lectures (theory, discussion + laboratory)	Quiz
Week 10	4	Understanding the shear strength of soils.	Shear strength equation: columb	Lectures (theory, discussion + laboratory)	Quiz
Week 11	4	Understanding the shear strength of soils.	Mohor - columb failure criterion	Lectures (theory, discussion + laboratory)	Quiz
Week 12	4	Understanding the shear strength of soils.	Direct shear test	Lectures (theory, discussion + laboratory)	Quiz
Week 13	4	Understanding the .shear strength of soils	Triaxial test	Lectures (theory, discussion + laboratory)	Quiz
Week 14	4	Application of soil theories	Problems	Lectures (theory, discussion + laboratory)	Quiz
Week 15	4	Application of soil theories	Discussion	Lectures (theory, discussion + laboratory)	Quiz

10. Course Structure Lab					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	2	Determine optimum moisture content and maximum dry density for compaction.	Standard Proctor Compaction Test	Experimental	report
Week 2	2	Assess the effect of compaction energy on soil density and moisture.	Modified Proctor Compaction Test	Experimental	report
Week 3	2	Determine in-situ soil density for compaction quality control.	Field Density by Sand Cone Method	Experimental	report
Week 4	2	Measure shear strength and friction angle of granular soils.	Direct Shear Test	Experimental	report
Week 5	2	Determine unconfined compressive strength of cohesive soils.	Unconfined Compression Test	Experimental	report
Week 6	2	Assess compressibility and calculate settlement parameters of soils.	Consolidation Test	Experimental	report

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Fundamentals of Geotechnical Engineering, THIRD EDITION, Braja M. Das
Main references (sources)	Fundamentals of Geotechnical Engineering, THIRD EDITION, Braja M. Das
Recommended books and references (scientific journals, reports ...)	Fundamentals of Geotechnical Engineering, THIRD EDITION, Braja M. Das
Electronic References, Websites	https://istasazeh-co.com/wp-content/uploads/2021/11/Fundamentals-of-Geotechnical-Engineering-Third-Edition.pdf

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	5
Lab	14	15
Mid term Exam	1	20
Final Exam	1	50
Total		100



Name and Signature of the Course
Instructor

Lec. Dr. Ahmed Hammad Hussein

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:	
Engineering Analysis	
2. Course Code:	
CE324	
3. Semester / Year :	
2024-2025 / Second Semester	
4. Description Preparation Date:	
2024-2025	
5. Available Attendance Forms	
Theoretical Discussion lectures	
6. Number of Credit House (Total) / Number of Units (Total)	
45 hours / 2 units	
7. Course administrator's name (mention all , if more than one name)	
Name: Asst. Prof.Dr. Ali Awaid Habeeb	
Email: envalihabeeb@gmail.com	

8. Course Objectives	
Course Objectives	<ol style="list-style-type: none">1. Learning the solution of first order differential equation with its application.2. Learning the solution of second order differential equation with its application.3. Learning Cauchy-Euler to solve differential equation.4. Learning Legendre method to solve differential equation.5. Laplace transform.

9. Teaching and Learning Strategies

Strategies	<p>1.Problem-Based Learning.</p> <p>2.Active Learning.</p> <p>3.Collaborative Learning.</p> <p>4.Using Models and Visual Aids.</p> <p>5.Simulation Using Software.</p> <p>6.Linking Theory to Practice.</p> <p>7.Effective Feedback.</p> <p>8.Using Educational Videos and Recorded Lectures.</p> <p>Progressive Learning.</p>
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9.Course Structure

Week	Hours	Required learning outcomes	Unit title	Learning method	Evaluation method
Week 1	3	Cognitive	First-Order Linear Differential Equations	Theoretical Explanation	Discussion
Week 2	3	Cognitive with practice in solving application questions	First-Order Linear Differential Equations	Theoretical explanation with solved questions	Discussion with homework and quizzes
Week 3	3	Cognitive with practice in solving application questions	Second-Order Linear Differential Equations	Theoretical explanation with solved questions	Discussion with homework and quizzes
Week 4	3	Cognitive	Second-Order Linear Differential Equations	Theoretical explanation with	Discussion with homework

				solved questions	rk and quizzes
Week 5	3	Cognitive with practice in solving application questions	Solving differential equations using Cauchy-Euler	Theoretical explanation with solved questions	Discussion with homework and quizzes
Week 6	3	Cognitive	Solving differential equations using Cauchy-Euler	Theoretical explanation with solved questions	Discussion with homework and quizzes
Week 7	3	Cognitive with practice in solving application questions	Solving differential equations using Legendre	Theoretical explanation with solved questions	Discussion with homework and quizzes
Week 8	3	Cognitive with practice in solving application questions	First monthly mid-term exam		Monthly exam
Week 9	3	Cognitive with practice in solving application questions	Solving differential equations using Legendre	Theoretical explanation with solved questions	Assignments
Week 10	3	Cognitive	Laplace transform	Theoretical explanation with solved questions	Assignments
Week 11	3	Cognitive with practice in solving	Laplace transform	Theoretical explanation	Assignments

		application questions		on with solved questions	
Week 12	3	Cognitive with practice in solving application questions	Laplace transform	Theoretical explanation with solved questions	Assignments
Week 13	3	Cognitive	Fourier Series	Theoretical Explanation	Discussion with homework and quizzes
Week 14	3	Cognitive with practice in solving application questions	Fourier Series	Theoretical Explanation	Assignments
Week 15	3		Second monthly mid-term exam		Monthly exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	ADVANCED ENGINEERING MATHEMATICS, 10 th Edition; ERWIN KREYSZIG. A FIRST COURSE IN DIFFERENTIAL EQUATIONS with Modeling Applications, 10 th Edition; DENNIS G.. ZILL
Differential Equations for Engineers, Wei-Chau Xie, 1st edition 2010	Differential Equations for Engineers, Wei-Chau Xie, 1 st edition 2010
Recommended books and references (scientific journals, reports ...)	YouTube
Electronic References, Websites	https://istasazeh-co.com/wp-content/uploads/2021/11/Fundamentals-of-Geotechnical-Engineering-Third-Edition.pdf

11. Course Evaluation

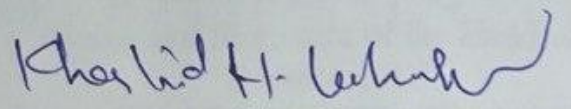
Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Asst. Prof. Dr. Ali Awaid Habeeb


Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Estimation and Construction methods
2. Course Code:
CE325
3. Semester / Year :
2024-2025
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms:
Theoretical and Discussion
6. Number of Credit House (Total) / Number of Units (Total):
45hrs, 2Units
7. Course administrator's name (mention all , if more than one name)
Name: Asst. Lect. Anas Badr Hameed Name : Asst. Lect. Dawood Sulaiman Ayed Email: anasalsamarai@uosamarra.edu.iq Email:dawood.so.a@uosamarra.edu.iq

8. Course Objectives

<p>Course Objectives</p>	<ol style="list-style-type: none"> 1. Understanding the factors influencing the selection of construction equipment and how to apply engineering principles in their operation. 2. Analyzing equipment productivity and its relationship to project cost and execution time. 3. Studying soil stabilization techniques and ground improvement methods to ensure structural durability. 4. Identifying concrete mixing techniques and formwork design to guarantee construction quality. 5. Developing effective project planning skills using appropriate construction equipment. <p>Teaching students how to design concrete formwork that meets project requirements.</p>
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9. Teaching and Learning Strategies

<p>Strategies</p>	<ol style="list-style-type: none"> 1. Delivering course topics based on textbook sections incorporating field experience 2. Implementing interactive learning strategies to ensure active student engagement 3. Connecting theoretical knowledge with practical applications using real-world case studies 4. Discussing practical project challenges and construction site behaviors along with problem-solving approaches 5. Developing students' critical thinking skills for proper equipment selection tailored to each project
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	Cognitive with practice on solving applied questions	Introduction	Theory and Solve equation	Discussion

Week 2	3	Cognitive with practice on solving applied questions	Construction equipment	Theory and Solve equation	Discussion and quiz
Week 3	3	Cognitive with practice on solving applied questions	Factors effecting the selection of an equipment	Theory and Solve equation	Discussion
Week 4	3	Cognitive with practice on solving applied questions	Factors effecting the selection of an equipment	Theory and Solve equation	
Week 5	3	Cognitive with practice on solving applied questions	Engineering fundamentals of an equipment	Theory and Solve equation	Discussion and quiz
Week 6	3	Cognitive with practice on solving applied questions	Engineering fundamentals of an equipment	Theory and Solve equation	Discussion
Week 7	3	Cognitive with practice on solving applied questions	Productivity of an equipment	Theory and Solve equation	Discussion
Week 8	3	Cognitive with practice on solving applied questions	Productivity of an equipment	Theory and Solve equation	Discussion and quiz
Week 9	3	Cognitive with practice on solving applied questions	soil Stabilization	Theory and Solve equation	Discussion
Week 10	3	Cognitive with practice on solving applied questions	soil Stabilization	Theory and Solve equation	Discussion
Week 11	3	Cognitive with practice on solving applied questions	Productivity of concrete mixers	Theory and Solve equation	Discussion
Week 12	3	Cognitive with practice on Solving applied questions	Productivity of concrete mixers	Theory and Solve equation	Discussion and quiz
Week 13	3	Cognitive with practice on solving applied questions	Design of forms in concrete structure	Theory and Solve equation	Discussion
Week 14	3	Cognitive with practice on Solving applied questions	Design of forms in concrete structure	Theory and Solve equation	Discussion
Week 15	3	Cognitive with practice on Solving applied questions	Site Visits	Theory and Solve equation	Discussion and quiz

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Construction Quantity Surveying, Donald Towey, 2012
Main references (sources)	-----
Recommended books and references (scientific journals, reports ...)	-----
Electronic References, Websites	-----

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Asst. Lect. Anas Badr Hameed

Name and Signature of the Head of
Department

Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Sanitary Building Services
2. Course Code:
CE 326
3. Semester / Year :
2024 – 2025
4. Description Preparation Date:
2024 – 2025
5. Available Attendance Forms
Theoretical Lectures Discussion-Based Lectures
6. Number of Credit House (Total) / Number of Units (Total)
45 Hours – 2 UNIT
7. Course administrator's name (mention all , if more than one name)
Name: Lect. Dr. Mohameed Jameel Mahdi Name: Asst.Lect. Abd-alhameed sadeq Email: mdj7878g" uosamarra.edu.iq Email: abd.sa.h@uosamarra.edu.iq

8. Course Objectives

Course Objectives

To provide students with the fundamental scientific knowledge in the field of sanitary engineering and to enhance their professional competencies toward

1. analytical and creative thinking through the use of information technologies, data analysis, and modern experimental methods in problem formulation and solving.
2. To prepare well-qualified engineers capable of advancing environmental engineering activities and managing related challenges across all aspects of life.
3. To conduct academically oriented scientific research in alignment with global scientific progress, and to engage in applied research that translates engineering knowledge and theories into practical solutions addressing the country's challenges in various sectors.
4. To contribute—through design, supervision, follow-up, and consultation—to the reconstruction of the country across its various engineering sectors, including factories, buildings, bridges, and infrastructure, as well as to provide engineering consultancy, feasibility studies, project designs, and technical services.

9. Teaching and Learning Strategies

Strategies

- Interactive Lectures – Integrating theoretical foundations with practical demonstrations of sanitary building service technologies using digital tools and visualizations.
- Case Study Analysis – Examining real-world engineering problems (e.g., sewer drainage issues and the role of ventilation in odor prevention).
- Collaborative Problem Solving – Implementing group projects where students work together to develop solutions for complex engineering scenarios in multi-story buildings.
- Flipped Classroom Approach – Students study theoretical concepts independently before class, allowing for more hands-on problem-solving during in-class sessions.
- Continuous Assessment – Utilizing periodic quizzes, practical assignments, and mini-projects to monitor understanding and provide immediate feedback

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	General Orientation	Introduction	Classroom Lecture	Attendance and Interaction
Week 2	3	Understanding Optimal Solutions	Pipes, Valves, Pumps, and Their Types	Classroom Lecture	Attendance and Interaction
Week 3	3	Identifying Different Tools and Understanding Their Applications	Various Types of Sanitary Equipment and Fixtures	Classroom Lecture + Video	Attendance and Interaction
Week 4	3	Understanding Engineering Methods for Supplying Water to Buildings	Methods of Water Supply for Buildings	Classroom Lecture	Attendance + Daily Exam
Week 5	3	Understanding How to Calculate Water Storage Requirements	Calculation of Required Water Volume for the Tank	Classroom Lecture	Attendance and Interaction
Week 6	3	Understanding How to Calculate Water Storage Requirements	Calculation of Required Water Volume for the Tank	Classroom Lecture	Attendance and Interaction
Week 7	3	Understanding the Design and Sizing of Cold Water Supply Pipes	Design of Cold Water Supply Network	Classroom Lecture + Video	Attendance + Daily Exam
Week 8	3	Understanding the Design and Sizing of Hot Water Supply Pipes	Design of Hot Water Supply Network	Classroom Lecture	Attendance and Interaction
Week 9	3		Midterm Exam		
Week 10	3	Understanding the Required Water Volume and Determining Tank Capacities According to Building Type	Design of Overhead and Underground Water Tanks	Classroom Lecture + Video	Attendance and Interaction
Week 11	3	Understanding the Types of Pipes, Their Uses, and Installation Methods	Design of Wastewater Drainage	Classroom Lecture	Attendance and Interaction

			Network for Buildings		
Week 12	3	Understanding the Types of Pipes for Various Wastewater Types and Ventilation Pipes	Design of Wastewater Drainage Network for Buildings	Classroom Lecture	Attendance + Daily Exam
Week 13	3	Understanding Optimal Placement and Sizing of Rainwater Drainage Pipes	Design of Rainwater Drainage Network	Classroom Lecture + Video	Attendance and Interaction
Week 14	3	Understanding Pipe Diameters and the Number of Sprinkler Nozzles	Design of Firefighting Network	Classroom Lecture + Video	Attendance and Interaction
Week 15	3	understanding the Specifications and Dimensions of Swimming Pools	Swimming Pool Specifications and Dimensions	Classroom Lecture	Attendance + Daily Exam

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Water Supply and Sewerage Systems, by Sattel and McKay, translated by Dr. Fadhel Hassan Ahmed, University of Salahaddin, 1990
Main references (sources)	Environmental Engineering by: Peavy, H.S., Rowe, D.R., and Chologogues, G., McGraw-Hill Book Company, 1986.
Recommended books and references (scientific journals, reports ...)	Environmental Engineering, by Srinivasan D., BHI Education Private Limited, New Delhi, 2009. Mechanical and Electrical Equipment for Construction, by Walter T. Grondzik, Alison J. Cook, Benjamin Stein, and John S. Reynolds, John Wiley & Sons, Ltd., 2010.
Electronic References, Websites	-----

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Lect. Dr. Mohameed Jameel Mahdi

Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Engineering Computer
2. Course Code:
CE327
3. Semester / Year :
2024-2025
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms
Lecture and Practical
6. Number of Credit House (Total) / Number of Units (Total)
45 hr./2 units
7. Course administrator's name (mention all , if more than one name)
Name: Asst. Lect. Anwer M. Ali Name: Asst. Lect. Ahmed Hadi Mahmood Email: anwer.m.a@uosamarra.edu.iq Email: Ahmed.ha.m@uosamarra.edu.iq

8. Course Objectives

Course Objectives

1. To enable students to use Revit Structural for 3D structural modeling.
2. To train students in the modeling of structural elements such as columns, beams, foundations, and slabs.
3. To generate detailed construction drawings and quantity schedules from the digital model.
4. To develop an understanding of the relationship between modeling and structural design in accordance with engineering codes.
5. To prepare students for professional application of Revit in engineering practice within a BIM-based environment.

6. To enable students to use SPSS software for statistical data analysis and interpretation.
7. To train students in data entry, management, and transformation for accurate statistical processing.
8. To apply descriptive and inferential statistical methods using SPSS, including hypothesis testing, regression analysis, and ANOVA.
9. To develop an understanding of how statistical analysis supports research conclusions and decision-making in engineering and social sciences.
10. To prepare students for the professional use of SPSS in academic research and applied projects within data-driven environments.

9. Teaching and Learning Strategies

Strategies	<p>The teaching strategy in this course relies on hands-on practical training in the lab, where students are guided step-by-step in using both Revit Structural and SPSS for their respective applications. For Revit, an interactive demonstration approach is used to explain and perform structural modeling tools in front of students, enhancing their visual and practical understanding of 3D modeling of structural elements. For SPSS, interactive instruction is applied to conduct statistical data analysis, with analyses performed live to connect theory with practice.</p> <p>Students are assigned progressively challenging mini-projects and exercises, covering structural modeling in Revit and statistical analysis in SPSS, which helps develop balanced skills across both domains. The learning process is structured around weekly tasks and activities, focusing each week on specific modeling or analytical components, such as column and beam design in Revit, or descriptive statistics and hypothesis testing in SPSS.</p> <p>During sessions, individual guidance is provided to help students overcome technical and conceptual difficulties. Continuous formative assessment is applied to monitor progress and ensure the achievement of learning outcomes related to the professional application of Revit and SPSS in real-world, multidisciplinary environments.</p>
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	Understand BIM basics, Revit interface, project setup, levels, and grids	Introduction to Revit & BIM Environment, Project Setup	Lecture & Practical	Homework, Classwork, Daily Quiz
Week 2	3	Model structural columns and walls using Revit	Modeling Structural Columns and Walls	Lecture & Practical	Homework, Classwork, Daily Quiz
Week 3	3	Model beams, slabs, and foundations; integrate structural elements	Modeling Beams, Slabs, and Foundations	Lecture & Practical	Homework, Classwork, Daily Quiz
Week 4	3	Model foundations and coordinate elements within the model	Modeling Foundations & Element Coordination	Lecture & Practical	Homework, Classwork, Daily Quiz

Week 5	3	Prepare structural details and ensure integration of elements	Detailing & Internal Coordination	Lecture & Practical	Homework, Classwork, Daily Quiz
Week 6	3	Extract structural plans and sections; create schedules and quantity take-offs using Revit	Extracting Plans, Sections, Schedules, and Quantities	Lecture & Practical	Homework, Classwork, Daily Quiz
Week 7	3	Apply previous skills in a comprehensive mini project	Mini Project (Integrated Structural Model)	Lecture & Practical	Homework, Classwork, Daily Quiz
Week 8	3	Comprehensive assessment and review of the first half of the course	Midterm Exam + General Review		
Week 9	3	Understand basics of statistics, importance of data, types of data and variables, intro to descriptive and inferential stats	Introduction to Statistics and Statistical Analysis	Lecture & Practical	Homework, Classwork, Daily Quiz
Week 10	3	Detail types of variables (qualitative, quantitative), data measurement, and collection methods	Variables, Types, and Statistical Data	Lecture & Practical	Homework, Classwork, Daily Quiz
Week 11	3	Explain mean, median, mode, standard deviation, variance, and range with practical examples	Descriptive Statistics: Central Tendency & Dispersion	Lecture & Practical	Homework, Classwork, Daily Quiz
Week 12	3	Principles of probability, normal and binomial distributions, importance in statistical analysis	Probability Concepts & Statistical Distributions	Lecture & Practical	Homework, Classwork, Daily Quiz
Week 13	3	Principles of hypothesis testing, null and alternative hypotheses, Type I/II errors, significance level	Hypothesis Testing	Lecture & Practical	Homework, Classwork, Daily Quiz
Week 14	3	Explanation of T-tests (for different groups), Chi-square test, and ANOVA (theoretical)	Basic Statistical Tests	Lecture & Practical	Homework, Classwork, Daily Quiz

Week 15	3	<p>Introduction to Regression and Correlation</p> <p>Comprehensive assessment of all course learning outcomes</p>	<p>Concepts of linear correlation, simple and multiple regression, interpreting relationships between variables</p>	Lecture & Practical	Homework, Classwork, Daily Quiz
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12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	-----
Main references (sources)	Official Revit and SPSS User Guide – available through Autodesk's official website.
Recommended books and references (scientific journals, reports ...)	Instructor-provided training files including project templates, pre-built models, and guided exercises.
Electronic References, Websites	-----

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	5
Lab	14	15
Mid term Exam	1	20
Final Exam	1	50
Total		100



Name and Signature of the Course
Instructor

Asst. Lect. Anwer M. Ali

Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Forth Stage-Semester System 2024-2025

Course Description Form

1. Course Name:
Sanitary Engineering I
2. Course Code:
CE411
3. Semester / Year :
2024-2025/ First Semester
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms
lectures
6. Number of Credit House (Total) / Number of Units (Total)
60 Hours / 3 units
7. Course administrator's name (mention all , if more than one name)
Name: Kaled Hameed Lateef Email :eng.khalid.hameed@gmail.com

8. Course Objectives

Course Objectives

Course Objectives: Teaching and Learning Strategies in Water Resources and Distribution Systems

By the end of this course, students will be able to:

1. Apply cognitive and conceptual teaching methods to explain core topics such as water consumption, population forecasting, and water demand variation.
2. Utilize problem-based and inquiry-driven learning approaches to analyze real-world challenges in water supply systems, including fire demand forecasting and source identification.
3. Design interactive and visual learning models representing components such as surface and groundwater sources, water storage methods, and distribution networks.
4. Facilitate collaborative learning projects focused on hydraulic flow analysis and pipeline network design using industry-standard tools and simulations.
5. Evaluate water quality standards and treatment processes through structured learning strategies like case studies, lab demonstrations, and technical flow diagrams.
6. Incorporate experiential learning practices to reinforce understanding of water intake procedures, coagulation and flocculation, sedimentation, filtration, special treatments, and disinfection.
7. Implement technology-enhanced instructional methods using software and digital resources for modeling, forecasting, and quality assurance in water management.
8. Develop critical reflection and feedback mechanisms to assess student learning outcomes and adapt strategies for optimal engagement with engineering content.

9. Teaching and Learning Strategies

Strategy

Teaching and Learning Strategies:

1. Conceptual Strategies

- Lecture-Based Instruction

Used for introducing topics such as Water Consumption, Population Forecasting, and Sources of Water Supply.

- Concept Mapping

Effective for visualizing relationships among processes like Coagulation, Flocculation, and Filtration.

2. Inquiry-Based Strategies

- Problem-Based Learning (PBL)

Learners solve real-world scenarios such as designing a Water Distribution Network or improving Water Quality Standards.

- Case Study Analysis

Applied to explore Water Treatment Plant Designs and Disinfection techniques from global practice.

3. Active Learning Strategies

- Hands-on Lab Work

For topics like Flow in Pipelines, Sedimentation, and Storage of Water using simulations or physical models.

- Role-Playing or Simulations

Learners act as environmental consultants tasked with forecasting Fire Demand or assessing Groundwater Sources.

4. Collaborative Strategies

- Team-Based Projects

Collaborative design of a full-scale Water Treatment Flow Diagram or Pipeline System.

- Peer Instruction

Students teach each other complex subjects such as Water Demand Variation or Special Treatments.

5. Technological Strategies

- Use of Software Tools

Modeling systems using tools like EPANET or Water CAD for Pipeline Design and Network Flow Analysis.

- Digital Simulations

Virtual walkthroughs of Treatment Plants, examining processes such as Water Intake and Disinfection.

6. Assessment and Feedback Strategies

- Formative Assessments

Quizzes, diagrams, and flow charts for ongoing feedback.

- Summative Projects

	Final design of a Water Supply System encompassing all stages from Intake to Treatment and Distribution
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10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	4	<ul style="list-style-type: none"> • Explain the importance of sustainable water management in urban and rural development. • Describe the scope and challenges of modern water supply systems 	Introduction	Structured Topic-Based Study	Discussion Quizzes Homework Exams
Week 2	4	<ul style="list-style-type: none"> • Analyze patterns of domestic, industrial, and agricultural water consumption. • Estimate per capita demand and its influencing factors 	Water consumption	Structured Topic-Based Study	Discussion Quizzes Homework Exams
Week 3	4	<ul style="list-style-type: none"> • Apply statistical models to predict future population growth. • Assess how population changes impact water supply planning 	Population forecasting	Conceptual Understanding	Discussion Quizzes Homework Exams
Week 4	4	<ul style="list-style-type: none"> • Define fire flow requirements according to local and international standards. • Calculate water storage capacity needed for firefighting purposes 	Fir demand	Conceptual Understanding	Discussion Quizzes Homework Exams

Week 5	4	<ul style="list-style-type: none"> • Interpret temporal and spatial variations in water demand. • Design systems accounting for peak demand and seasonal fluctuations 	Water demand variation	Applied Learning and Experimentation	Discussion Quizzes Homework Exams
Week 6	4	<ul style="list-style-type: none"> • Identify major water sources: surface water and groundwater. • Evaluate environmental and economic impacts of source selection 	Sources of water supply	Applied Learning and Experimentation	Discussion Quizzes Homework Exams
Week 7	4	<ul style="list-style-type: none"> • Compare hydrological characteristics, quality, and reliability. • Discuss sustainable extraction and recharge practices 	Surface water ; ground water	Technical Report Writing	Discussion Quizzes Homework Exams
Week 8	4	<ul style="list-style-type: none"> • Explain types of water storage: balancing, equalizing, and emergency reserves. • Design service reservoirs considering demand and elevation 	Storage of water , service storage	Technical Report Writing	Discussion Quizzes Homework Exams
Week 9	4	<ul style="list-style-type: none"> • Analyze different water distribution networks: grid, ring, radial, and dead-end. • Identify materials and types of pipes used in distribution systems 	Distribution of water , types of network , types of pipes	Problem-Solving Exercises	Discussion Quizzes Homework Exams
Week 10	4	<ul style="list-style-type: none"> • Apply principles of fluid mechanics to calculate flow and pressure losses • Design efficient pipeline layouts using head loss equations 	Flow in pipeline ; design of pipelines and networks	Problem-Solving Exercises	Discussion Quizzes Homework Exams
Week 11	4	<ul style="list-style-type: none"> • Interpret water quality parameters: physical, chemical, and biological • Assess compliance with WHO, EPA, or local regulatory standards 	Water quality and standards	Collaborative & Interactive Learning	Discussion Quizzes Homework Exams
Week 12	4	<ul style="list-style-type: none"> • Describe the sequence of unit operations in conventional treatment • Sketch and analyze treatment flow diagrams for various plant types 	Water treatment plant (flow diagram)	Collaborative & Interactive Learning	Discussion Quizzes Homework Exams

Week 13	4	<ul style="list-style-type: none"> •Design intake structures suitable for different sources • Explain mechanisms of coagulation and flocculation in water purification 	Water intake, Coagulation & flocculation process, flocculants and Coagulants	Continuous Assessment and Reflection	Discussion Quizzes Homework Exams
Week 14	4	<ul style="list-style-type: none"> • Describe theory and operation of sedimentation basins and filter units. • Compare types of filtration: rapid sand, slow sand, and pressure filters • Discuss advanced processes: activated carbon, membrane technologies, UV, ozonation. • Evaluate disinfection techniques and their effectiveness against pathogens 	Sedimentation, Filtration ,Special treatments, Disinfection	Continuous Assessment and Reflection	Discussion Quizzes Homework Exams
Week 15	4		Exams		

10.Course Structure					
Lab					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	2	Measure dissolved oxygen (DO) and evaluate its critical role in supporting biological processes.	Measurement of Dissolved Oxygen in Water	practical experience	Submit a report
Week 2	2	Analyze total suspended solids (TSS) and correlate findings with sedimentation efficiency and physical treatment performance.	Measurement of Total Suspended Solids (TSS) in Water	practical experience	Submit a report
Week 3	2	Assess total water hardness by examining the effects of calcium and magnesium on domestic and industrial water usage.	Measurement of Total Hardness in Water	practical experience	Submit a report

Week 4	2	Determine magnesium concentration and interpret its relationship to overall hardness and mineral composition of water.	Measurement of Magnesium Concentration in Water	practical experience	Submit a report
Week 5	2	Identify calcium concentration and analyze its contribution to scaling potential and chemical interactions.	Measurement of Calcium Concentration in Water	practical experience	Submit a report
Week 6	2	Evaluate water alkalinity as a pH buffering agent and its importance in maintaining ecosystem stability.	Measurement of Water Alkalinity	practical experience	Submit a report
Week 7	2	Measure chloride levels and associate them with contamination sources such as seawater intrusion or industrial effluent.	Measurement of Chloride Levels in Water	practical experience	Submit a report
Week 8	2	Assess water acidity and examine its influence on water quality, corrosiveness, and chemical reactivity.	Measurement of Water Acidity	practical experience	Submit a report

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Water supply and sewerage by Steel and McGhee 1979, 5th edition
Main references (sources)	-----
Recommended books and references (scientific journals, reports ...)	-----
Electronic References, Websites	-----

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	5
Lab	14	15
Mid term Exam	1	20
Final Exam	1	50
Total		100



Name and Signature of the Course
Instructor

Asst.Prof. Dr. Kaled Hameed Lateef

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Design of steel structures I
2. Course Code:
CE412
3. Semester / Year :
2024-2025/ First Semester
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms
Class lectures
6. Number of Credit House (Total) / Number of Units (Total)
45 Hours / 4 units
7. Course administrator's name (mention all , if more than one name)
Name: Humam Th. Salman Email :humam.thamer90@gmail.com

8. Course Objectives	
Course Objectives	<p>A- Cognitive objectives</p> <ul style="list-style-type: none"> • The graduating student must be able to - • A1- He organizes cognitive information and keeps it in his memory in preparation for practical use • A2- Applies the information he has acquired and practices it practically in engineering work sites • A3- Analyzes problems and obstacles through a good analysis of the results • A4- Continues thinking and creativity based on scientific engineering data <p>B - The skills objectives of the course. The graduating student must be able to: -</p> <ul style="list-style-type: none"> • B1 - He thinks geometrically, relying on a solid scientific basis • B2 - He works to solve obstacles intellectually and according to the available data B3 - He works in a team spirit

9. Teaching and Learning Strategies	
Strategy	<ol style="list-style-type: none"> 1- Class lectures 2- Scientific laboratories 3- Means of explanation (data show) 4- Workshops 5- Seminars.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	Student understanding	Design style: Safety factor, work pressure Allowed, flexible method, Plastics method	3	Class lectures
Week 2	3	Student understanding	Design style: Safety factor, work pressure Allowed, flexible method, Plastics method	3	Class lectures

Week 3	3	Student understanding	Design style: Safety factor, work pressure Allowed, flexible method, Plastics method	3	Class lectures
Week 4	3	Student understanding	Design of compression members	3	Class lectures
Week 5	3	Student understanding	Built-in compression members	3	Class lectures
Week 6	3	Student understanding	Built-in compression members	3	Class lectures
Week 7	3	Student understanding	Tethered columns	3	Class lectures
Week 8	3	Student understanding	Tethered columns	3	Class lectures
Week 9	3	Student understanding	Permissible pressures in columns	3	Class lectures
Week 10	3	Student understanding	Permissible pressures in columns	3	Class lectures
Week 11	3	Student understanding	Permissible pressures in columns	3	Class lectures
Week 12	3	Student understanding	Column delimiters	3	Class lectures
Week 13	3	Student understanding	Column delimiters	3	Class lectures
Week 14	3	Student understanding	Column delimiters	3	Class lectures
Week 15	3		Exams		

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Structural Steel Design, fourth edition by Jack C. McCormac, Prentice Hall
Main references (sources)	Steel Structures: Design and Behavior. 5th ed. by Salmon, G. Charles, Johnson, E. John and Malhas A. Far
Recommended books and references (scientific journals, reports ...)	Prentice Hall, 2008. Design of Steel Structures. 3rd ed. By Gaylord, E.H., Gaylord, C.N. and Stallmeyer J.E., McGraw-Hill, 1992.
Electronic References, Websites	social media website YouTube Scientific and Engineering Forums Virtual Library

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Lect. Humam Th. Salman

Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Foundation Engineering I
2. Course Code:
CE413
3. Semester / Year :
2025-2024/ First Semester
4. Description Preparation Date:
2025-2024
5. Available Attendance Forms
Theoretical lectures discussion lectures
6. Number of Credit House (Total) / Number of Units (Total)
45 hours / 3 units
7. Course administrator's name (mention all , if more than one name)
Name: Lec. Dr. Ahmed Hammad Hussein Email: ahmed.hammad@uosamarra.edu.iq

8. Course Objectives

Course Objectives

1. Safe Load Transfer to the Ground

The main goal is to transfer structural loads from columns or walls safely to the near-surface soil layers without causing failure or excessive settlement.

2. Control of Settlement

The foundation must be designed to ensure that total and differential settlements remain within acceptable limits, preventing structural cracks or deformation.

3. Structural Stability

Ensure that the foundation provides adequate stability under vertical and lateral loads, such as wind, seismic forces, or horizontal earth pressure.

9. Teaching and Learning Strategies

Strategies

The set of strategies that can enhance the learning experience for students in foundation are lecture-based teaching, practical applications, problem-solving assignments, group work and discussions, assessments and feedback, continuous learning, and encouraging self-directed learning.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	Knowing the properties of soil	Site investigation1	Lectures (theory, discussion)	Quiz
Week 2	3	Knowing the properties of soil	Site investigation2	Lectures (theory, discussion)	Quiz
Week 3	3	Knowing the properties of soil	Site investigation3	Lectures (theory, discussion)	Quiz
Week 4	3	Load analysis and soil bearing capacity	Bearing capacity	Lectures (theory, discussion)	Quiz
Week 5	3	Load analysis and soil bearing capacity	Bearing capacity	Lectures (theory, discussion)	Quiz
Week 6	3	Load analysis and soil bearing capacity	Bearing capacity	Lectures (theory, discussion)	Quiz
Week 7	3	Load analysis and soil bearing capacity	Bearing capacity	Lectures (theory, discussion)	Quiz
Week 8	3	Load analysis and soil bearing capacity	Design of spread footing	Lectures (theory, discussion)	Quiz
Week 9	3	Load analysis and soil bearing capacity	Design of footing under eccentricity loading.	Lectures (theory, discussion)	Quiz
Week 10	3	Load analysis and soil bearing capacity	Design of combined Rectangular footing.	Lectures (theory, discussion)	Quiz
Week 11	3	Load analysis and soil bearing capacity	Design of combined Trapezoidal footing.	Lectures (theory, discussion)	Quiz
Week 12	3	Load analysis and soil bearing capacity	Design of strap footing.	Lectures (theory, discussion)	Quiz
Week 13	3	Load analysis and soil bearing capacity	Heaving in soil and vertical stress	Lectures (theory, discussion)	Quiz
Week 14	3	Load analysis and soil bearing capacity	Design of raft foundation.	Lectures (theory, discussion)	Quiz

Week 15	3	Application of soil theories	problems	Lectures (theory, discussion)	Quiz
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12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Fundamentals of Geotechnical Engineering, THIRD EDITION, Braja M. Das
Main references (sources)	Fundamentals of Geotechnical Engineering, THIRD EDITION, Braja M. Das
Recommended books and references (scientific journals, reports ...)	Fundamentals of Geotechnical Engineering, THIRD EDITION, Braja M. Das
Electronic References, Websites	https://istasazeh-co.com/wp-content/uploads/2021/11/Fundamentals-of-Geotechnical-Engineering-Third-Edition.pdf

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Lec. Dr. Ahmed Hammad Hussein

A handwritten signature in blue ink.

Name and Signature of the Head of
Department

Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Surveying Engineering II
2. Course Code:
CE414
3. Semester / Year :
2025-2024/ First Semester
4. Description Preparation Date:
2025-2024
5. Available Attendance Forms
Theoretical lectures Laboratory
6. Number of Credit House (Total) / Number of Units (Total)
60 hours / 3 units
7. Course administrator's name (mention all , if more than one name)
Name: Asst. Prof. Dr. Ali Awaid Habeeb Email: envalihabeeb@gmail.com

8. Course Objectives

Course Objectives

1. Directions, including bearing and azimuth in their various types: true, magnetic, and assumed, as well as the angle of deflection and the calculation of vertical and horizontal coordinates and projections.
2. Area calculations using various mathematical methods, as well as by using vertical and horizontal coordinates and projections, in addition to the planimeter method.
3. Horizontal curves, including circular curves and their types: simple, compound, reverse, and transitional curves.
4. Contour maps: their characteristics, the factors affecting the selection of contour intervals, and the method of creating contour maps.
5. Earthwork volume calculations using various mathematical methods and from contour maps for different engineering projects.

9. Teaching and Learning Strategies

Strategies

1. Using various teaching methods such as lectures and discussions.
2. Linking the theoretical aspect with the practical application through the surveying laboratory.
3. Conducting scientific field trips to projects related to the subject of surveying engineering.

10.Course Structure

Week	House	Unit or subject name	Required Learning Outcomes	Learning method	Evaluation method
Week 1	4	Cognitive	Directions: Azimuth and bearings in their types – true, magnetic, and assumed.	Theoretical Explanation	Discussion
Week 2	4	Cognitive with practice in solving application questions	Calculation of azimuths and bearings for members of geometric shapes.	Theoretical explanation with solved questions	Discussion with homework and quizzes
Week 3	4	Cognitive with practice in solving application questions	Calculation of horizontal and vertical coordinates, and horizontal and vertical projections.	Theoretical explanation with solved questions	Discussion with homework and quizzes
Week 4	4	Cognitive	Area calculation for geometric shapes using mathematical methods.	Theoretical explanation with solved questions	Discussion with homework and quizzes
Week 5	4	Cognitive with practice in solving application questions	Calculation of horizontal and vertical coordinates, and projections, including the use of a planimeter.	Theoretical explanation with solved questions	Discussion with homework and quizzes
Week 6	4	Cognitive	Horizontal circular curves: simple, compound, and reverse types.	Theoretical explanation with solved questions	Discussion with homework and quizzes
Week 7	4	Cognitive with practice in solving application questions	Transition curve.	Theoretical explanation with	Discussion with homework and quizzes

				solved questions	
Week 8	4	Cognitive with practice in solving application questions	First monthly mid-term exam		Monthly exam
Week 9	4	Cognitive with practice in solving application questions	Transition curve.	Theoretical explanation with solved questions	Assignments
Week 10	4	Cognitive	Contour maps: their characteristics and the factors affecting contour interval selection.	Theoretical explanation with solved questions	Assignments
Week 11	4	Cognitive with practice in solving application questions	Method of creating contour maps.	Theoretical explanation with solved questions	Assignments
Week 12	4	Cognitive with practice in solving application questions	Calculation of earthwork volumes using various mathematical methods.	Theoretical explanation with solved questions	Assignments
Week 13	4	Cognitive	Calculation of earthwork volumes using contour maps.	Theoretical Explanation	Discussion with homework and quizzes
Week 14	4	Cognitive with practice in solving application questions	Comprehensive review of the course material.	Theoretical Explanation	Assignments
Week 15	4		Second monthly mid-term exam		Monthly exam

Surveying Engineering Practical Laboratory

Week 1	2	Training on the Use of Engineering Surveying Instruments	Calculation of azimuths and bearings	Practical Explanation	laboratory reports
Week 2	2	Training on the Use of Engineering Surveying Instruments	Calculation of deflection angle	Practical Explanation	laboratory reports
Week 3	2	Training on the Use of Engineering Surveying Instruments	Calculation of coordinates and horizontal & vertical projections	Practical Explanation	laboratory reports
Week 4	2	Training on the Use of Engineering Surveying Instruments	Calculation of areas of geometric shapes using horizontal and vertical projections	Practical Explanation	laboratory reports
Week 5	2	Training on the Use of Engineering Surveying Instruments	Area calculation using the planimeter	Practical Explanation	laboratory reports
Week 6	2	Training on the Use of Engineering Surveying Instruments	Setting out the circular curve	Practical Explanation	laboratory reports
Week 7	2	Training on the Use of Engineering Surveying Instruments	Setting out the transition curve	Practical Explanation	laboratory reports
Week 8	2	Training on the Use of Engineering Surveying Instruments	Setting out the transition curve	Practical Explanation	laboratory reports
Week 9	2	Training on the Use of Engineering Surveying Instruments	Creating the contour map	Practical Explanation	laboratory reports
Week 10	2	Training on the Use of Engineering	Creating the contour map	Practical Explanation	laboratory reports

		Surveying Instruments			
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12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Surveying Engineering / Yaseen Obeid Ahmed
Main references (sources)	-----
Recommended books and references (scientific journals, reports ...)	-----
Electronic References, Websites	-----

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	5
Lab	14	15
Mid term Exam	1	20
Final Exam	1	50
Total		100



Name and Signature of the Course
Instructor

Asst. Prof. Dr. Ali Awaid Habeeb

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Specifications and Estimates
2. Course Code:
CE415
3. Semester / Year :
2024-2025 /First Semester
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms
Theoretical Lectures Discussion Sessions
6. Number of Credit House (Total) / Number of Units (Total)
45 hours -3Units
7. Course administrator's name (mention all , if more than one name)
Name: Asst .Lect. Ahmed Hadi Mahmood Email: Ahmed.ha.m@uosamarra.edu.iq

8. Course Objectives

Course Objectives

- 1. Understanding** cost estimation principles and their application in various stages of construction projects.
- 2. Analyzing** engineering specifications and technical standards related to materials and construction methods.
- 3. Evaluating** tender documents, contracts, and BoQ (Bill of Quantities) to ensure cost-effective project delivery.
- 4. Applying** value engineering techniques to optimize project cost and quality.
- 5. Identifying** methods of quality control and assurance in accordance with local and international standards.
- 6. Developing** skills to prepare technical specifications and cost estimates that align with project requirements and resources.

9. Teaching and Learning Strategies

Strategies

1. Developing students' critical thinking skills for proper equipment selection tailored to each project
2. Connecting theoretical knowledge with practical applications using real-world case studies: Presenting real-world case studies that integrate cost estimation and material selection, discussing the impact of material choices on project costs.
3. Discussing practical project challenges and construction site behaviors along with problem-solving approaches: Analyzing the challenges encountered in construction projects, particularly in cost estimation and material selection, and exploring practical problem-solving techniques to address these issues on-site.
4. Developing students' critical thinking skills for proper material selection and cost estimation tailored to each project: Encouraging students to apply critical thinking when selecting materials and estimating costs, using comparative analysis and identifying the most suitable solutions based on project.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	Identify the importance of engineering specifications in projects	Introduction to Specifications and Estimation	Interactive Lecture	Diagnostic Test
Week 2	3	Understand contract classifications and contractual documents	Types of Contracts and Documents	Presentation + Discussion	Written Assignment
Week 3	3	Analyze general and special specification details	General and Special Specifications	Lecture + Case Study	Short Quiz
Week 4	3	Quantify elements of construction projects	Quantity Take-Off	Practical Training	Practical Report
Week 5	3	Apply preliminary cost estimation skills	Introduction to Estimation	Lecture + Exercises	Homework
Week 6	3	Professionally use Bills of Quantities (BOQ)	BOQ Preparation	Workshop	Practical Evaluation
Week 7	3	Estimate costs using unit and linear meter methods	Traditional Estimation Methods	Case Study + Discussion	Quiz
Week 8	3				Mid exam
Week 9	3	Differentiate between estimated and actual prices	Price Analysis	Lecture + Practical Exercise	Analytical
Week 10	3	Estimate using ratios and indicators	Ratio-based Estimation	Problem Solving	Analytical Report
Week 11	3	Develop evaluation and review skills	Review of Past Projects	Student Presentations	Oral Evaluation
Week 12	3	Estimate indirect costs and site expenses	Indirect Costs	Lecture + Case Scenarios	Home Assignment
Week 13	3	Understand price analysis and preparation of price tables	Price Analysis	Applied Examples	Short Exam
Week 14	3	Analyze risk in cost estimation	Estimation Risks	Group Discussion	Critical Report
Week 15	3	Comprehensive review and final exam preparation	General Review	Interactive Lecture	Oral Evaluation

12. Learning and Teaching Resources	
Main references (sources)	Faraj Allah, Shakir Mahmoud. (2006). Specifications and Estimation. University of Baghdad, College of Civil Engineering
Recommended books and references (scientific journals, reports ...)	<ul style="list-style-type: none"> • Spiegel, Leonard. Estimating in Building Construction, 7th Edition, Pearson Education. • Dagostino, Frank. Estimating in Heavy Construction, Prentice Hall.
Electronic References, Websites	https://www.engineeringtoolbox.com https://www.cmu.edu/project-management

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	5
Lab	14	15
Mid term Exam	1	20
Final Exam	1	50
Total		100



Name and Signature of the Course
Instructor

Asst .Lect. Ahmed Hadi Mahmood

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Highway Engineering I
2. Course Code:
CE416
3. Semester / Year :
2024-2025/First Semester
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms
Theoretical Lectures Laboratory
6. Number of Credit House (Total) / Number of Units (Total)
48Hours/ 4 Units
7. Course administrator's name (mention all , if more than one name)
Name: Ass.Lect. Sarah Adnan Saeed Name: Ass. Lect. Anwar Munir Ali Email: sara.a.sa@uosamarra.edu.iq Email: Eng.anwar2012@gmail.com

8. Course Objectives	
Course Objectives	<ol style="list-style-type: none">1-Highway Survey and Location2-Functional Classification of the Road3-Characteristics of Driver, Pedestrian and Vehicle4-Road Characteristics5-Cross-Section elements for Highway6-Horizontail Alignment7-Super Elevation and pavement widening8-Vertical Alignment and Grades9-Symmetrical Vertical Curves (Crest+Sag)10-Unsemmetrical Vertical Curves(Crest+Sag)11-Embankment Foundation12-Earth works and Mass Haul Diagram

9. Teaching and Learning Strategies

Strategies	<p>1-Theoretical lectures with a Power Point presentation for each lecture to communicate the idea and identify the types of roads and classify them according to the function of each road.</p> <p>2-practical experiments</p> <p>3-Knowing the characteristics of roads and taking cross section to identify the elements if the cross section and taking the horizontal curve with mathematical problems and knowing the method of designing the road slope, design of the vertical curve (sag,crest),calculation of the mass distribution according to each section and each curve and the amount of earthwork required</p> <p>4-Lecture discussion ,participation of all students and assignment</p>
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	4	General introduction	Road site survey	theoretical	Daily exam
Week 2	4	Discrimination and analysis	Road functional classification	theoretical	Daily exam
Week 3	4	Know all requirements	Driver, pedestrian and vehicle characteristics	theoretical	Daily exam or monthly
Week 4	4	Discrimination of road characteristics	road characteristics	theoretical	Daily exam or monthly
Week 5	4	Analyze and design	Cross section elements	Theoretical + lab	Daily exam or monthly
Week 6	4	design	Horizontal curve	Theoretical + lab	Daily exam or monthly
Week 7	4	Design and analysis	Super elevation and widening	Theoretical	Daily exam or monthly
Week 8	4	design	Vertical curve	Theoretical + lab	Daily exam or monthly
Week 9	4	Design and analysis	Symmetrical vertical curve	Theoretical	Daily exam or monthly
Week 10	4	Design and analysis	unsymmetrical vertical curve	Theoretical	Daily exam or monthly
Week 11	4	foundation	Embankment foundation	Theoretical	Daily exam or monthly
Week 12	4	Quantity calculation	Earth work	Theoretical + lab	Daily exam or monthly

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Traffic and Highway Engineering, Nicholas J.Garber ,Lester A.Hoel , 4 th Edition 2010
Main references (sources)	Traffic and Highway Engineering, Nicholas J.Garber ,Lester A.Hoel , 4 th Edition 2010
Recommended books and references (scientific journals, reports ...)	Traffic and Highway Engineering, Nicholas J.Garber ,Lester A.Hoel , 5 th edition
Electronic References, Websites	-----

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	5
Lab	14	15
Mid term Exam	1	20
Final Exam	1	50
Total		100



Name and Signature of the Course
Instructor

Ass.Lect. Sarah Adnan Saeed

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Hydraulic structure
2. Course Code:
CE417
3. Semester / Year :
2024-2025/First Semester
4. Description Preparation Date:
3/7/2025
5. Available Attendance Forms
Theoretical Lectures Discussion Lectures
6. Number of Credit House (Total) / Number of Units (Total)
45 hours / 4units
7. Course administrator's name (mention all , if more than one name)
Name: Lect. Marwah Qaddorri Majeed Email: marwa_q@uosamarra.edu.iq

8. Course Objectives	
Course Objectives	This course aims to enable students to: <ul style="list-style-type: none">• Introduce hydraulic structures and emphasize their importance in civil engineering.• Develop the basic principles upon which the subject is based.• Demonstrate how to use them to design basic hydraulic components.• Apply concepts of seepage, dam design, and various other structures.

9. Teaching and Learning Strategies

Strategies	The hydraulic structures course requires effective teaching and learning strategies to ensure that students develop a solid understanding of complex concepts and their practical applications. Strategies that enhance the student learning experience include lecture-based teaching, practical applications, problem-solving tasks, teamwork and discussions, assessments and feedback, continuous learning, and encouraging self-directed learning.
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10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Week 1	3	Introduction to the subject	Introduction	Theoretical	-
Week 2	3	Seepage through soil	Seepage Theories	Theoretical	-
Week 3	3	Seepage theories (Khosla's theory)	Seepage Theories / Khosla's Theory	Theoretical + Discussion	-
Week 4	3	Types of hydraulic jumps	Hydraulic Jump	Theoretical + Discussion	-
Week 5	3	Energy dissipation methods	Energy Dissipation	Theoretical + Discussion	-
Week 6	3	Major energy dissipation methods	Energy Dissipation Theories	Discussion + Daily Exams	Daily Exams
Week 7	3	Introduction to barrages	Barrages	Theoretical + Discussion	-
Week 8	3	Design of barrages	Barrage Design	Discussion + Daily Exams	Daily Exams
Week 9	3	Types and discharge formulas	Weirs	Theoretical + Discussion	-
Week 10	3	Gate types and design	Sliding Gates	Discussion + Daily Exams	Daily Exams
Week 11	3	Types of dams and loading	Dams	Theoretical + Discussion	-
Week 12	3	Gravity dams and examples	Gravity Dams / Examples	Discussion + Theoretical	-

Week 13	3	Earthen dams design	Earthen Dams	Theoretical + Exams	-
Week 14	3	Safety factor calculations	Earthen Dams / Examples	Discussion + Daily Exams	Daily Exams
Week 15	3	Midterm Exam	-	-	-

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	lectures
Main references (sources)	Hydraulic Structures, P. Novak & R. Narayanan, 4th edition, 2014
Recommended books and references (scientific journals, reports ...)	-----
Electronic References, Websites	-----

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Lect. Marwah Qaddorri Majeed

Name and Signature of the Head of
Department

Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Sanitary Engineering II
2. Course Code:
CE421
3. Semester / Year :
2024-2025/ Second Semester
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms
lectures
6. Number of Credit House (Total) / Number of Units (Total)
45 Hours / 3 units
7. Course administrator's name (mention all , if more than one name)
Name: Kaled Hameed Lateef Email :eng.khalid.hameed@gmail.com

8. Course Objectives	
Course Objectives	By the end of this course, students will be able to: <ol style="list-style-type: none">1. Understand wastewater generation and behavior based on human and industrial activities.2. Characterize wastewater components using physical, chemical, and biological parameters.3. Evaluate hydraulic design principles related to sewer systems and peak flow estimation.4. Design and assess treatment units across all stages: preliminary, primary, and secondary.5. Apply environmental standards and sustainability concepts in wastewater management.6. Interpret and compare sewer system types and design techniques for stormwater and sanitary sewers.

9. Teaching and Learning Strategies

Strategy

Academic Teaching & Learning Strategies:

Course Title: Wastewater Engineering

Scope: Covers all listed topics from wastewater quantity to sewer system design

1. Lectures and Concept Delivery

- Objective: Introduce theoretical foundations and technical principles.

- Strategies:• Use multimedia presentations with diagrams, flowcharts, and case studies.

- Integrate real-world examples from municipal or industrial wastewater systems.

- Encourage student questions and live problem solving.

2. Textbook and Literature Review

- Assign key readings from:• Wastewater

Engineering: Treatment and Resource Recovery by Metcalf & Eddy

- Research articles from environmental engineering journals

- Encourage concept mapping to summarize readings.

3. Problem-Based Learning (PBL)

- Present scenarios such as designing a sewer system for a new residential area.

- Divide students into teams to research, plan, and solve design tasks.

- Encourage documentation, justification of choices, and presentation of results.

4. Simulation and Modeling

- Use software like Storm CAD, Sewer CAD, or AutoCAD Civil 3D to:• Simulate flow in sewers

- Design storm and sanitary systems

- Optimize treatment plant layouts

5. Laboratory Practical

- Analyze wastewater samples for BOD, COD, TSS, pH, and nutrient concentration.

- Operate basic treatment units to understand process efficiency.

- Compare theoretical vs actual performance of treatment stages.

6. Interactive Discussions and Seminars

- Facilitate debates on combined vs separate sewer systems.

- Invite experts from environmental agencies for guest lectures.

- Use flipped classroom sessions to promote active participation.

7. Technical Report Writing

	<ul style="list-style-type: none"> • Assign technical reports on field visits, lab findings, or design exercises. • Practice academic writing with correct referencing styles (APA/IEEE). • Evaluate based on clarity, depth, and engineering accuracy. <p>8. Formative Assessments</p> <ul style="list-style-type: none"> • Weekly quizzes, design tasks, and reflections. • Use rubrics to assess analytical thinking and problem-solving. • Provide constructive feedback for improvement. <p>9. Field Visits and Case Studies</p> <ul style="list-style-type: none"> • Organize site visits to wastewater treatment plants. • Analyze real operations, challenges, and innovations. • Conduct interviews or collect operational data for small projects.
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10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	<ul style="list-style-type: none"> • Estimate total wastewater generation from domestic, commercial, and industrial sources. • Determine influencing factors: population, water usage habits, and climate 	Quantity of Westwater	Structured Topic-Based Study	Discussion Quizzes Homework Exams
Week 2	3	Analyze physical, chemical, and biological characteristics (e.g., BOD, COD, pH, temperature). <ul style="list-style-type: none"> • Interpret implications for treatment processes and environmental impact 	Wastewater characteristics	Structured Topic-Based Study	Discussion Quizzes Homework Exams
Week 3	3	<ul style="list-style-type: none"> • Calculate peak flow factors using empirical formulas and population data. • Understand the importance of peaking in 	Estimation of peaking factor	Conceptual Understanding	Discussion Quizzes Homework Exams

		system design and load management			
Week 4	3	<ul style="list-style-type: none"> • Determine average daily wastewater generation per capita. • Compare regional data and global benchmarks 	Per person wastewater production	Conceptual Understanding	Discussion Quizzes Homework Exams
Week 5	3	<ul style="list-style-type: none"> • Describe objectives: pollution removal, public health protection, and environmental sustainability. • Distinguish between centralized and decentralized systems 	Concept of wastewater treatment	Applied Learning and Experimentation	Discussion Quizzes Homework Exams
Week 6	3	<ul style="list-style-type: none"> • Identify and sequence flow units from influent to final discharge. • Illustrate process flow using engineering diagrams 	Wastewater treatment flow units	Applied Learning and Experimentation	Discussion Quizzes Homework Exams
Week 7	3	<ul style="list-style-type: none"> • Describe screening, grit removal, and flow equalization techniques. • Understand function and design of preliminary units 	Preliminary treatment	Technical Report Writing	Discussion Quizzes Homework Exams
Week 8	3	<ul style="list-style-type: none"> • Explain sedimentation and sludge separation. • Assess effectiveness and limitations of primary processes 	Primary treatment	Technical Report Writing	Discussion Quizzes Homework Exams
Week 9	3	<ul style="list-style-type: none"> • Describe biological treatment methods (e.g., activated sludge, trickling filters). • Evaluate removal of organic matter and nutrient reduction strategies 	Secondary treatment	Problem-Solving Exercises	Discussion Quizzes Homework Exams
Week 10	3	<ul style="list-style-type: none"> • Identify types of sewer systems: sanitary, storm, and combined. • Understand system layout, materials, and maintenance practices 	Sewer systems	Problem-Solving Exercises	Discussion Quizzes Homework Exams
Week 11	3	<ul style="list-style-type: none"> • Apply hydraulic formulas to estimate sewer flow rates. • Assess peak flow, infiltration, and extraneous water impacts 	Estimation of flow in sewers	Collaborative & Interactive Learning	Discussion Quizzes Homework Exams

Week 12	3	<ul style="list-style-type: none"> • Compare design, functionality, and environmental implications of each system. • Analyze historical development and modern adaptation 	Separate Vs. Combined sewers	Collaborative & Interactive Learning	Discussion Quizzes Homework Exams
Week 13	3	<ul style="list-style-type: none"> • Apply rainfall intensity and runoff coefficients to calculate design flow. • Design channels and culverts considering urban flood control 	Design of storm sewer systems	Continuous Assessment and Reflection	Discussion Quizzes Homework Exams
Week 14	3	<ul style="list-style-type: none"> • Implement design standards for sanitary and storm sewers independently. • Integrate slope, velocity, material selection, and access points 	Design of separate sewer systems	Continuous Assessment and Reflection	Discussion Quizzes Homework Exams
Week 15	3		Exams		

10. Course Structure Lab					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	2	Measure water temperature and analyze its impact on environmental and chemical processes	Measure water temperature and assess its implications on chemical and biological processes	practical experience	Submit a report
Week 2	2	Determine water pH levels and evaluate their implications in acid–base equilibrium	Evaluate water pH levels and understand its role in acid–base balance	practical experience	Submit a report
Week 3	2	Assess water turbidity using standardized techniques and interpret its effects on treatment and visual clarity	Analyze water turbidity and determine its effects on treatment and clarity	practical experience	Submit a report
Week 4	2	Measure Total Dissolved Solids (TDS) and correlate values with dissolved pollution levels in water	Measure Total Dissolved Solids (TDS) and relate concentrations to pollution indicators	practical experience	Submit a report

Week 5	2	Determine electrical conductivity to understand ionic concentration and evaluate mineral content	Determine electrical conductivity as an indicator of ionic content and mineralization	practical experience	Submit a report
Week 6	2	Analyze sulfate concentrations and identify their sources and environmental consequences	Assess sulfate concentration and its environmental significance	practical experience	Submit a report
Week 7	2	Measure residual chlorine to verify disinfection efficiency and regulate applied dosages	Measure residual chlorine to evaluate disinfection efficiency	practical experience	Submit a report
Week 8	2	Monitor environmental noise levels in treatment sites and assess their health-related impact	Monitor ambient noise levels in water and treatment facilities	practical experience	Submit a report

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Water supply and sewerage by Steel and McGhee 1979, 5th edition
Main references (sources)	-----
Recommended books and references (scientific journals, reports ...)	-----
Electronic References, Websites	-----

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Asst. Prof. Dr. Kaled Hameed Lateef

Name and Signature of the Head of
Department

Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Design of steel structures II
2. Course Code:
CE422
3. Semester / Year :
2024-2025/ Second Semester
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms
Class lectures
6. Number of Credit House (Total) / Number of Units (Total)
45 Hours / 3 units
7. Course administrator's name (mention all , if more than one name)
Name: Humam Th. Salman Email :humam.thamer90@gmail.com

8. Course Objectives

Course Objectives	<p>A- Cognitive objectives</p> <ul style="list-style-type: none"> • The graduating student must be able to - • A1- He organizes cognitive information and keeps it in his memory in preparation for practical use • A2- Applies the information he has acquired and practices it practically in engineering work sites • A3- Analyzes problems and obstacles through a good analysis of the results • A4- Continues thinking and creativity based on scientific engineering data <p>B - The skills objectives of the course. The graduating student must be able to: -</p> <ul style="list-style-type: none"> • B1 - He thinks geometrically, relying on a solid scientific basis • B2 - He works to solve obstacles intellectually and according to the available data B3 - He works in a team spirit
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9. Teaching and Learning Strategies

Strategy	<ol style="list-style-type: none"> 1- Class lectures 2- Scientific laboratories 3- Means of explanation (data show) 4- Workshops 5- Seminars.
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	Student understanding	Design procedures for bridges	3	Class lectures
Week 2	3	Student understanding	Design procedures for bridges	3	Class lectures
Week 3	3	Student understanding	Estimation of form works quantities for lintels, beams, roofs, tie beams, columns and arches	3	Class lectures

Week 4	3	Student understanding	Reinforcement calculations for beams, roofs, columns and footings, specifications	3	Class lectures
Week 5	3	Student understanding	Pregnancy deviation	3	Class lectures
Week 6	3	Student understanding	Pregnancy deviation	3	Class lectures
Week 7	3	Student understanding	Bridge design - columns	3	Class lectures
Week 8	3	Student understanding	Bridge design - columns	3	Class lectures
Week 9	3	Student understanding	Telecommunications	3	Class lectures
Week 10	3	Student understanding	Telecommunications	3	Class lectures
Week 11	3	Student understanding	Bridge plates: column base plate	3	Class lectures
Week 12	3	Student understanding	Load bearing	3	Class lectures
Week 13	3	Student understanding	Analysis and design of plate girder	3	Class lectures
Week 14	3	Student understanding	Composite package: analysis, design, Shear connectors, cyclic loading	3	Class lectures
Week 15	3		Exams		

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Structural Steel Design, fourth edition by Jack C. McCormac, Prentice Hall
Main references (sources)	Steel Structures: Design and Behavior. 5th ed. by Salmon, G. Charles, Johnson, E. John and Malhas A. Far
Recommended books and references (scientific journals, reports ...)	Prentice Hall, 2008. Design of Steel Structures. 3rd ed. By Gaylord, E.H., Gaylord, C.N. and Stallmeyer J.E., McGraw-Hill, 1992.
Electronic References, Websites	social media website YouTube Scientific and Engineering Forums Virtual Library

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Lect. Humam Th. Salman

Name and Signature of the Head of
Department

Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Highway Engineering II
2. Course Code:
CE423
3. Semester / Year :
2024-2025/Second Semester
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms
Theoretical Lectures Laboratory
6. Number of Credit House (Total) / Number of Units (Total)
40 Hours/ 3 Units
7. Course administrator's name (mention all , if more than one name)
Name: Asst. Lect. Sarah Adnan Saeed Name: Asst. Lec. Anwar Munir Ali Email: sara.a.sa@uosamarra.edu.iq Email: Eng.anwar2012@gmail.com

8. Course Objectives

Course Objectives	<ul style="list-style-type: none"> 1-Soil grade and soil classification 2-Soil Stabilization 3-Paving Materials 4-Asphalt Concrete properties 5-Aggregate Combination 6-Mixture Design and Properties 7-Flexible Pavement Design 8-Rigid Pavement Design
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9. Teaching and Learning Strategies

Strategies	<ul style="list-style-type: none"> 1-Theoretical lectures with a Power Point presentation for each lecture to communicate the idea and know the material used ,their types and forms in soil and asphalt mixture 2-practical experiments 3-taking the students on a scientific visit to Al-Muthanna ring road paving project in Samarra city to familiarize them with the street paving process , the method of spreading the asphalt mixture and its location , and to know the obstacles facing the civil engineer on site due to delay in the arrival of the mixture and the spreader at the same time 4-Give the characteristics of flexible paving and rigid paving, know the difference between the two method and the location of use of each mixture and take mathematical problems for the purpose of designing street according to the type of mixture rigid or flexible, and calculating the expected design loads.
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	4	General introduction	Soil type and classification	theoretical	Daily exam
Week 2	4	Understanding	Soil stabilization	theoretical	Daily exam
Week 3	4	Knowing the materials	Paving materials	theoretical +lab	Daily exam or monthly
Week 4	4	Knowing of asphalt properties	Paving materials +Asphalt Concrete properties	Theoretical + lab	Daily exam or monthly
Week 5	4	Asphalt mixture properties	Asphalt Concrete properties +Aggregate Combination	Theoretical + lab	Daily exam or monthly

Week 6	4		Aggregate Combination	Theoretical + lab	Daily exam or monthly
Week 7	4	design	Mixture design and properties	Theoretical +lab	Daily exam or monthly
Week 8	4	understanding	Flexible pavement design	Theoretical	Daily exam or monthly
Week 9	4	understanding	Rigid pavement design	Theoretical	Daily exam or monthly
Week 10	4	Final Exam			Exams

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Traffic and Highway Engineering, Nicholas J.Garber ,Lester A.Hoel , 4 th Edition 2010
Main references (sources)	Traffic and Highway Engineering, Nicholas J.Garber ,Lester A.Hoel , 4 th Edition 2010
Recommended books and references (scientific journals, reports ...)	Traffic and Highway Engineering, Nicholas J.Garber ,Lester A.Hoel , 5 th edition
Electronic References, Websites	-----

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	5
Lab	14	15
Mid term Exam	1	20
Final Exam	1	50
Total		100



Name and Signature of the Course
Instructor

Asst. Lect. Sarah Adnan Saeed

Khalid H. Lateef
Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Rienforced Concrete Desigen III
2. Course Code:
CE424
3. Semester / Year :
2024-2025/ Second Semester
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms
lectures
6. Number of Credit House (Total) / Number of Units (Total)
45 Hours / 3 units
7. Course administrator's name (mention all , if more than one name)
Name: Asst. Prof. Mohamed Abdel Jabbar Hassan Email :mohammedcivileng5@gmail.com

8. Course Objectives

Course Objectives

Academic Objectives:

1. Two-Way Slabs

- Understand the structural behavior and load distribution in two-way slabs.
- Learn methods for designing two-way slabs using direct design and equivalent frame methods.
- Analyze reinforcement detailing and serviceability criteria.

2. Flat Slabs

- Study the concept and advantages of flat slabs in building construction.
- Evaluate the effect of punching shear and design solutions for column-slab connections.
- Apply appropriate codes and detailing practices for flat slab design.

3. One-Way and Two-Way Ribbed Slabs

- Differentiate between one-way and two-way ribbed (waffle) slabs based on geometry and support conditions.
- Calculate load transfer and structural efficiency in ribbed systems.
- Learn architectural and structural applications of ribbed slabs.

4. Circular Slabs

- Understand the behavior and moment distribution in circular slabs.
- Explore the use of symmetry in design and analysis.
- Design reinforcement layout for circular slab systems.

5. Opening in Slabs

- Investigate the impact of slab openings on structural integrity and load paths.
- Learn reinforcement techniques around openings to maintain performance.
- Apply practical guidelines for locating and shaping openings.

6. Staircase

- Study the types of staircases and their structural components.
- Perform load analysis and design of stairs in reinforced concrete.
- Address safety, ergonomics, and aesthetics in staircase design.

7. Corbels

- Examine the behavior and shear transfer mechanism in corbels.
- Design corbels to resist concentrated loads using code-based methods.

- Analyze reinforcement detailing and anchorage.
8. Yield Line Theory
- Introduce the fundamentals of yield line theory for slab analysis.
 - Use the theory to predict collapse mechanisms and ultimate load capacity.
 - Compare yield line results with other methods like finite element analysis.
9. Prestress Concrete Beams
- Understand the principles of prestressing and its benefits in beam design.
 - Learn methods of prestressing (pre-tensioning and post-tensioning).
 - Perform stress analysis and calculate losses in prestressed members.
10. Structural Frames in Concrete (Slabs, Beams & Columns) Load Transfer
- Analyze load paths and transfer mechanisms in concrete structural frames.
 - Integrate design principles for slabs, beams, and columns in composite action.
 - Apply principles of stability, ductility, and redundancy in frame design.

9. Teaching and Learning Strategies

Strategy

Teaching & Learning Strategies:

1. Two-Way Slabs

- Use lab demonstrations to show load distribution patterns.
- Assign design exercises with varied support conditions.
- Encourage group problem-solving for slab reinforcement detailing.

2. Flat Slabs

- Use case studies of real buildings using flat slabs.
- Integrate software modeling (e.g., ETABS, SAFE) in tutorials.
- Conduct debates on the pros and cons versus conventional slabs.

3. One-Way and Two-Way Ribbed Slabs

- Use visual comparisons through 3D sketches and BIM models.
- Assign research projects on energy efficiency and architectural use.
- Organize site visits to observe formwork and reinforcement.

4. Circular Slabs

- Explore symmetry and design through interactive geometry tools.
- Facilitate presentations on iconic structures with circular slabs.
- Assign analytical calculations using radial and tangential forces.

5. Opening in Slabs

- Explore reinforcement strategies through design examples.
- Use design games or challenges to place openings strategically.
- Assign evaluation of code provisions for slab openings.

6. Staircase

- Encourage sketching and modeling of different types of stairs.
- Include construction sequence analysis and formwork planning.
- Conduct mini-lectures on architectural integration and safety.

7. Corbels

- Use mini-labs with scaled corbel models to observe load transfer.
- Assign design tasks for corbels in industrial buildings.
- Incorporate review sessions of code design equations and detailing.

8. Yield Line Theory

- Use graphical and interactive methods to explore collapse mechanisms.
- Compare results from yield line theory with finite element analysis.
- Assign research papers or presentations on historical development.

9. Prestress Concrete Beams

- Use animations or physical models to illustrate prestressing effects.
- Study case examples from bridges and long-span structures.
- Include calculation tasks for prestress loss and deflection.

10. Structural Frames in Concrete (Slabs, Beams & Columns)

- Apply system-based learning by studying load paths and interactions.
- Use simulations to analyze behavior under seismic or gravity loads.
- Encourage interdisciplinary design with architecture and MEP teams.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	6	<ul style="list-style-type: none"> • Demonstrate the ability to analyze and design two-way slab systems under various load and support conditions. • Identify critical regions for reinforcement based on moment distribution. • Apply relevant design codes in preparing slab reinforcement layouts 	Two way slabs	Analytical Learning Collaborative Learning	Discussion Quizzes Exams
Week 2	6	<ul style="list-style-type: none"> • Evaluate the structural behavior of flat slabs, including punching shear around column connections. • Design flat slab systems using simplified and advanced methods. • Discuss architectural and construction advantages of flat slab systems 	Flat slabs	Case-Based Learning Simulation-Based Learning	Discussion Quizzes Exams
Week 3	6	<ul style="list-style-type: none"> • Compare the structural performance and applications of one-way vs. two-way ribbed slabs. • Analyze load distribution and economy of ribbed slab systems. • Design rib layout and reinforcement using appropriate standards 	One way and two way ribbed slabs	Comparative Learning	Discussion Quizzes Exams
Week 4	2	<ul style="list-style-type: none"> • Analyze circular slabs using appropriate symmetrical assumptions. • Calculate radial and tangential moments and determine reinforcement needs. • Understand common applications of circular slabs in architectural structures 	Circular slabs	Conceptual Learning Project-Based Learning	Discussion Quizzes Exams
Week 5	2	<ul style="list-style-type: none"> • Assess how openings affect the structural 	Opening in slabs	Problem-Based Learning	Discussion Quizzes

		<p>behavior and integrity of slabs.</p> <ul style="list-style-type: none"> • Apply design principles to reinforce slabs around openings effectively. • Interpret code requirements regarding slab modifications 		Practical Learning	Exams
Week 6	3	<ul style="list-style-type: none"> • Design structural staircases based on geometry, support type, and loading. • Recognize the integration of stairs with overall building structure and design. • Detail reinforcement and safety considerations for various stair configurations 	Staircase	Design-Based Learning Integrated Learning	Discussion Quizzes Exams
Week 7	2	<ul style="list-style-type: none"> • Analyze corbel behavior under concentrated loads. • Design corbels using standard equations for shear and bearing. • Develop reinforcement plans accounting for anchorage and crack control 	Corbels	Experimental Learning Reflective Learning	Discussion Quizzes Exams
Week 8	6	<ul style="list-style-type: none"> • Explain the principles and assumptions behind yield line theory. • Predict failure mechanisms and ultimate load capacity of slabs. • Compare yield line predictions with other analysis techniques 	Yield line theory	Theoretical Learning Visual Learning	Discussion Quizzes Exams
Week 9	6	<ul style="list-style-type: none"> • Describe prestressing techniques and their influence on beam behavior. • Perform calculations related to prestress losses, deflections, and ultimate strength. • Design and detail prestressed concrete beams for various applications 	Prestress concrete beams	Inquiry-Based Learning Application-Based Learning	Discussion Quizzes Exams

Week 10	3	<ul style="list-style-type: none"> Analyze load paths through slabs, beams, and columns in concrete frames. Integrate structural components to achieve stability and efficient load transfer. Design structural frames considering gravity and lateral loads 	Structural frames in concrete (slabs ,beams &columns) load transfer	Systemic Learning Holistic Learning	Discussion Quizzes Exams
Week 11	3		Exams		Discussion Quizzes Exams

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Reinforced Concrete, A Fundamental Approach, 6th Edition; Edward G. Newy
Main references (sources)	Design of Concrete Structures, 14th Edition; Arthur H. Nilson. Structure concrete theory and design ,4thEdition; M.NadimHassoun and Akthem Al-Manaseer
Recommended books and references (scientific journals, reports ...)	-----
Electronic References, Websites	-----

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Asst. Prof. Mohamed Abdel Jabbar Hassan

Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:	
Project Management	
2. Course Code:	
CE425	
3. Semester / Year :	
2024-2025/ Second Semester	
4. Description Preparation Date:	
2024-2025	
5. Available Attendance Forms	
Theoretical Lectures Discussion Sessions	
6. Number of Credit House (Total) / Number of Units (Total)	
45 hours / 3 units	
7. Course administrator's name (mention all , if more than one name)	
Name: Asst. Lect. Ahmed Hadi Mahmood Email: Ahmed.ha.m@uosamarra.edu.iq	

8. Course Objectives	
Course Objectives	<ol style="list-style-type: none">1. To understand the fundamental principles of project management, including project life cycle, time, cost, and scope control.2. To develop effective planning and organizational skills to ensure successful project execution within resource constraints.

	<ol style="list-style-type: none"> 3. To enhance the ability to analyze risks and make informed decisions throughout various project stages, especially under uncertainty. 4. To master modern project management tools and techniques, such as scheduling software, earned value analysis, and monitoring systems. 5. To understand contractual and legal frameworks governing engineering projects, focusing on procurement and stakeholder relations. 6. To foster leadership and communication skills required to manage multidisciplinary teams and achieve integrated project goals.
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9. Teaching and Learning Strategies

9. Teaching and Learning Strategies	
Strategies	<ol style="list-style-type: none"> 1. Interactive Lectures: Delivering theoretical concepts of project management supported by real-world examples. 2. Case Study Analysis: Utilizing real project scenarios to explore practical challenges and apply management tools. 3. Practical Workshops: Training students on project management software such as Microsoft Project and Primavera. 4. Group Projects: Assigning mock planning and execution tasks to build teamwork and collaboration skills. 5. Presentations and Class Discussions: Enhancing communication, critical thinking, and dialogue facilitation skills. 6. Continuous Assessment: Applying quizzes, homework, and periodic reports to monitor progress and support learning.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	Understand the fundamentals of engineering project management	Introduction to Engineering Project Management	Interactive Lecture	Preliminary Test
Week 2	3	Identify the project life cycle phases	Project Life Cycle	Lecture + Discussion	Written Assignment
Week 3	3	Understand project organization and stakeholder roles	Project Organizational Structure	Lecture + Case Studies	Short Quiz
Week 4	3	Apply project planning techniques	Scheduling Principles	Practical Exercise	PERT/CPM Network Drawing
Week 5	3	Understand project representation using Arrow Network	Arrow Network Method	Network Drawing and Analysis	Applied Exercise
Week 6	3	Differentiate between Node Network and Arrow Network methods	Node Network Method	Lecture + Practical Application	Network Drawing
Week 7	3	Apply PERT technique and estimate project durations	PERT Analysis and Time Estimation	Lecture + Case Studies	Problem Solving with Probabilities
Week 8	3				Mid Exam
Week 9	3	Monitor project progress and evaluate performance	Monitoring and Evaluation Techniques	Student Presentation + Discussion	Midterm Exam
Week 10	3	Manage quality in engineering projects	Quality Principles and Control	Lecture + Practical Activity	Short Quiz
Week 11	3	Control change and resolve conflicts	Change and Conflict Management	Case Discussion	Critical Report
Week 12	3	Use software tools in project management	Software Tools (MS Project)	Computer Lab Training	Practical Evaluation
Week 13	3	Understand contracting and procurement	Contract and Procurement Management	Lecture + Case Studies	Short Exam
Week 14	3	Deliver and close out the project	Project Closeout	Final Lecture	Final Assignment
Week 15	3	Comprehensive review and final exam preparation	Comprehensive Review	Interactive Review	Review

12. Learning and Teaching Resources	
Main references (sources)	<ol style="list-style-type: none"> 1. Harold Kerzner, Project Management: A Systems Approach to Planning, Scheduling, and Controlling, 11th Edition, McGraw-Hill, 2013. 2. A Guide to the Project Management Body of Knowledge (PMBOK Guide), 7th Edition, Project Management Institute (PMI), 2021.
Recommended books and references (scientific journals, reports ...)	<ol style="list-style-type: none"> 1. Ibrahim Abdullah, Construction Project Management, Safwa Publishing, 2018. 2. Youssef Ahmed, Computer Applications in Project Management, University of Technology, 2017.
Electronic References, Websites	<ul style="list-style-type: none"> • https://www.pmi.org • https://www.projectmanager.com • https://www.engineeringmanagementinstitute.org

11. Course Evaluation

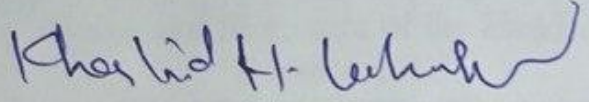
Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Asst. Lect. Ahmed Hadi Mahmood


Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
English Language III
2. Course Code:
CE426
3. Semester / Year :
2024-2025/ Second Semester
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms
Theoretical lectures
6. Number of Credit House (Total) / Number of Units (Total)
30 hours / 2 units
7. Course administrator's name (mention all , if more than one name)
Name: Asst. Lect. Ahmed Hadi Mahmood Email: Ahmed.ha.m@uosamarra.edu.iq

8. Course Objectives

Course Objectives

1. Knowledge & Application
 - Demonstrate understanding of basic civil engineering terminology used in design and construction.
 - Recognize the role of English as a professional and academic tool in the field of civil engineering.
 - Apply grammar and technical vocabulary in professional writing tasks including project reports and formal correspondence.
2. Technical & Writing Proficiency
 - Write structured engineering reports including introduction, methodology, and results.
 - Prepare summaries and critical analyses of technical specifications, drawings, and research articles.
 - Compose academic essays discussing ethical practices, sustainability, and safety in civil engineering.
3. Career Communication Skills
 - Write targeted CVs and cover letters that highlight engineering experience and academic training.
 - Produce clear professional emails and respond appropriately to engineering inquiries.
 - Use practical English for site communication including progress reports and issue documentation.
4. Presentation & Collaboration
 - Deliver technical presentations such as feasibility studies and infrastructure proposals.
 - Lead and participate in seminars discussing global infrastructure projects and their societal impact.
 - Engage in simulated engineering meetings to practice negotiation and design coordination.
5. Research & Project Development
 - Analyze civil engineering blueprints and international standards.
 - Develop a mid-term proposal addressing engineering challenges like traffic or infrastructure upgrades.
 - Produce a final comprehensive report and presentation offering technical solutions to engineering problems.
 - Participate in peer review and feedback sessions to enhance clarity and professionalism of presentations.

9. Teaching and Learning Strategies

Strategies

1. Content-Based Instruction (CBI)

- Integrate English learning with civil engineering concepts, ensuring students acquire language in context.
- Use authentic materials such as engineering drawings, blueprints, project reports, and standards documents to promote subject relevance.

2. Task-Based Language Learning (TBLL)

- Design real-world tasks: writing infrastructure proposals, analyzing road structures, responding to project inquiries.
- Emphasize completion of engineering-specific tasks, such as technical summaries and issue reports, to motivate meaningful use of English.

3. Workshop-Based Learning

- Conduct hands-on writing and reading workshops focused on:
 - Project report writing
 - Technical blueprint analysis
 - Email and correspondence drafting

4. Collaborative Learning

- Use group projects to foster communication and teamwork:
 - Case study presentations
 - Simulation of engineering meetings
 - Role-playing site communication between engineers and teams

5. Academic Literacy Development

- Strengthen academic English through:
 - Summarizing civil engineering research
 - Writing essays on ethical and sustainable engineering practices
 - Structuring formal reports (introduction, methodology, results, conclusion)

6. Presentation & Public Speaking

- Encourage oral communication via:
 - Feasibility study presentations
 - Student-led seminars on global infrastructure projects
 - Group discussions and Q&A sessions

7. Assessment-Based Strategies

- Use formative and summative evaluations:
 - Unit tests (Grammar, Vocabulary, Reading, Writing, Listening)
 - Midterm project proposal development
 - Final project report and oral defense
 - CV and cover letter writing assignment

8. Career-Oriented Instruction

- Include modules aimed at professional development:
 - Writing CVs and job applications tailored to engineering fields
 - Preparing for workplace communication (site reporting, issue documentation)
 - Practicing negotiation and decision-making in meetings

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	2	<ul style="list-style-type: none"> Recognize the significance of English as a global language in the civil engineering profession. Identify and appropriately use basic technical terminology relevant to construction and structural design. 	<p>Introduction: The importance of English in civil engineering. Basic engineering terminology used in construction and design.</p>	Lectures (theory, discussion)	Quiz Homework Assignments
Week 2	2	<ul style="list-style-type: none"> Demonstrate familiarity with engineering documentation formats such as project reports, specifications, and technical summaries. Understand and interpret international engineering standards and technical specifications. Explain fundamental ethical considerations in civil engineering practices, including sustainability and safety. 	<p>Grammar and vocabulary for writing project reports. Workshop: Writing a technical summary on an infrastructure project.</p>	Lectures (theory, discussion)	Quiz Homework Assignments
Week 3	2	<ul style="list-style-type: none"> Apply relevant grammar and technical vocabulary in writing engineering documents and correspondence. Compose accurate and coherent technical summaries of infrastructure projects. 	<p>Writing engineering project reports: Structure (introduction, methodology, results). Practical exercise: Writing a report on the analysis of a road or structure.</p>	Lectures (theory, discussion)	Quiz Homework Assignments
Week 4	2	<ul style="list-style-type: none"> Produce structured engineering reports that reflect analytical thinking and use 	Reading and analyzing technical specifications and international	Lectures (theory, discussion)	Quiz Homework Assignments

		<p>appropriate academic language.</p> <ul style="list-style-type: none"> • Read and interpret engineering research papers and technical blueprints effectively. 	<p>engineering standards.</p> <p>Workshop: Understanding and analyzing engineering drawings and blueprints.</p>		
Week 5	2	<ul style="list-style-type: none"> • Develop a professionally written CV and cover letter tailored to civil engineering career paths. 	<p>Writing professional emails: Focus on engineering correspondence</p> <p>Case study: Responding to inquiries about an infrastructure project.</p>	Lectures (theory, discussion)	Quiz Homework Assignments
Week 6	2	<ul style="list-style-type: none"> • Write professional engineering emails and respond effectively to technical inquiries. 	<p>Engineering presentation skills: Presenting feasibility studies and project reports.</p> <p>Group activity: Presenting a case study on a recent construction project.</p>	Lectures (theory, discussion)	Quiz Homework Assignments
Week 7	2	<ul style="list-style-type: none"> • Collaborate in group settings to present construction-related case studies and engage in technical discussions. 	<p>Mid-term project: Developing a proposal to address an engineering issue such as infrastructure improvement or traffic reduction</p>	Lectures (theory, discussion)	Quiz Homework Assignments
Week 8	2	<p>well-structured presentations on feasibility studies, project proposals, and case analyses.</p>	<p>Negotiation skills in engineering meetings.</p> <p>Workshop: Simulating a meeting to discuss project design or execution schedule.</p>	Lectures (theory, discussion)	Quiz Homework Assignments
Week 9	2	<ul style="list-style-type: none"> • Participate in simulated engineering meetings demonstrating 	<p>Unit four (grammar, Vocabulary,</p>	Lectures (theory, discussion)	Quiz Homework Assignments

		negotiation, critical thinking, and decision-making skills.	Reading, writing, listing) Work book Unit four test (grammar, Vocabulary, Reading, writing, listing)		
Week 10	2	Communicate effectively in workplace scenarios including reporting progress, addressing issues, and managing project teams.	Reading and analyzing research papers on civil engineering topics (e.g., concrete development, construction techniques). Writing academic summaries and critical analyses.	Lectures (theory, discussion)	Quiz Homework Assignments
Week 11	2	<ul style="list-style-type: none"> Develop and present an engineering proposal that addresses challenges such as infrastructure development or traffic management 	Student-led seminar: Presenting reports on "Key Global Infrastructure Projects and Their Impact". Group discussion and Q&A.	Lectures (theory, discussion)	Quiz Homework Assignments
Week 12	2	<ul style="list-style-type: none"> Lead seminars and discussions on global infrastructure projects and their societal impact. 	Writing an engineering-focused CV: Highlighting academic projects and practical training. Writing a cover letter tailored to civil engineering job applications.	Lectures (theory, discussion)	Quiz Homework Assignments
Week 13	2	<ul style="list-style-type: none"> Write analytical essays on ethical standards and practices in engineering. 	Practical English for construction sites: Progress reports, issue reporting, and team management. Role-play: Communication between engineers, project	Lectures (theory, discussion)	Quiz Homework Assignments

			managers, and teams.		
Week 14	2	<ul style="list-style-type: none"> Prepare a final comprehensive report and oral presentation that outlines a technical solution to a defined engineering problem. 	<p>Ethical issues in civil engineering: Topics like sustainability and safety.</p> <p>Writing essays on the importance of adhering to ethical standards in engineering projects.</p>	Lectures (theory, discussion)	Quiz Homework Assignments
Week 15	2	<ul style="list-style-type: none"> Engage in feedback sessions aimed at refining academic and professional communication skills. 	<p>Final project preparation: Comprehensive report and presentation on an engineering problem and its technical solutions</p> <p>Feedback session to refine final presentations</p>	Lectures (theory, discussion)	Quiz Homework Assignments

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	"English for Specific Purposes: A Learning-Centred Approach" by Tom Hutchinson and Alan Waters
Main references (sources)	-----
Recommended books and references (scientific journals, reports ...)	-----
Electronic References, Websites	-----

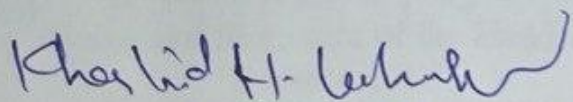
11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor


Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef

Course Description Form

1. Course Name:
Foundation Engineering II
2. Course Code:
CE427
3. Semester / Year :
2024-2025/ Second Semester
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms
Theoretical lectures Discussion lectures
6. Number of Credit House (Total) / Number of Units (Total)
45 hours / 3 units
7. Course administrator's name (mention all , if more than one name)
Name: Lec. Dr. Ahmed Hammad Hussein Email: ahmed.hammad@uosamarra.edu.iq

8. Course Objectives

Course Objectives

1. Cost Efficiency

Shallow foundations are often chosen because of their lower construction cost compared to deep foundations, especially when suitable bearing capacity is available at shallow depth.

2. Ease of Construction and Maintenance

They are easier to construct, inspect, and maintain compared to deep foundations, which require more complex equipment and techniques.

3. Utilizing Good Surface Soil Properties

When the surface soils have adequate bearing capacity, shallow foundations make use of these layers without the need to excavate deeper.

4. Uniform Load Distribution

Design ensures that loads are evenly distributed over the soil, minimizing the risk of localized shear failure or uneven settlement.

9. Teaching and Learning Strategies

Strategies

The set of strategies that can enhance the learning experience for students in foundation are lecture-based teaching, practical applications, problem-solving assignments, group work and discussions, assessments and feedback, continuous learning, and encouraging self-directed learning.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	3	Knowing the properties of soil	Definition, Types of Piles and Their Structural Characteristics	Lectures (theory, discussion +	Quiz
Week 2	3	Knowing the properties of soil	Estimating Pile Length, Point Bearing Piles, Friction Piles	Lectures (theory, discussion +	Quiz
Week 3	3	Knowing the properties of soil	Installation of piles, Load transfer mechanism	Lectures (theory, discussion +	Quiz
Week 4	3	Load analysis and soil bearing capacity	pile capacity in cohesive soils, pile capacity in cohesionless soils	Lectures (theory, discussion +	Quiz
Week 5	3	Load analysis and soil bearing capacity	pile capacity for c-q soils, pile capacity of tension piles	Lectures (theory, discussion +	Quiz
Week 6	3	Load analysis and soil bearing capacity	determination of pile capacity from in situ tests, negative skin friction of piles	Lectures (theory, discussion +	Quiz
Week 7	3	Load analysis and soil bearing capacity	Group efficiency, Capacity of a pile group, Efficiency formulas	Lectures (theory, discussion +	Quiz
Week 8	3	Load analysis and soil bearing capacity	pile groups subjected to moments, settlement of pile and pile groups, Pile Load Tests, ASTM DI 143. Determination of Ultimate load capacity from pile load test	Lectures (theory, discussion +	Quiz
Week 9	3	Load analysis and soil bearing capacity	Introduction, Rankine active earth pressure (horizontal surface), Rankine passive earth	Lectures (theory, discussion +	Quiz

			pressure (horizontal surface) [1857], Rankine active earth pressure (inclined surface)		
Week 10	3	Load analysis and soil bearing capacity	Rankine passive earth pressure (inclined surface), Coulomb theory, active earth pressure, passive earth pressure, problems on lateral earth pressure	Lectures (theory, discussion +	Quiz
Week 11	3	Load analysis and soil bearing capacity	Definition, types of retaining walls, Proportioning of retaining walls	Lectures (theory, discussion +	Quiz
Week 12	3	Load analysis and soil bearing capacity	Design methods, stability of retaining walls, sliding, overturning	Lectures (theory, discussion +	Quiz
Week 13	3	Load analysis and soil bearing capacity	Analysis and design of retaining walls, Problems on analysis and design of retaining walls	Lectures (theory, discussion +	Quiz
Week 14	3	Load analysis and soil bearing capacity	types of sheet piles, applications, sheet piles driving method, design methods, sheet piles penetrating in sand, problems	Lectures (theory, discussion +	Quiz
Week 15	3	Load analysis and soil bearing capacity Application of soil theories	sheet piles penetrating in clay, Cantilever sheet piles, supplementary problems on analysis and design of sheet piles	Lectures (theory, discussion +	Quiz

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Fundamentals of Geotechnical Engineering, THIRD EDITION, Braja M. Das
Main references (sources)	Fundamentals of Geotechnical Engineering, THIRD EDITION, Braja M. Das
Recommended books and references (scientific journals, reports ...)	Fundamentals of Geotechnical Engineering, THIRD EDITION, Braja M. Das
Electronic References, Websites	https://istasazeh-co.com/wp-content/uploads/2021/11/Fundamentals-of-Geotechnical-Engineering-Third-Edition.pdf

11. Course Evaluation

Grade distribution out of 100 based on the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.

Tasks	Quantity	Percentage %
Attendance and Participation	--	4
Assignments	4	6
Quizzes	5	10
Mid term Exam	1	20
Final Exam	1	60
Total		100



Name and Signature of the Course
Instructor

Lec. Dr. Ahmed Hammad Hussein

Name and Signature of the Head of
Department
Asst. Prof. Dr. Kalid Hameed Lateef