

First Level-Bologna System 2025-2026

MODULE DESCRIPTION FORM

Module Information			
Module Title	Computer I	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	
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 I	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

<p>Module Aims</p>	<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>
<p>Module Learning Outcomes</p>	<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.
<p>Indicative Contents</p>	<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. 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. 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	Semester of Delivery		2
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, print 4. 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		
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 2025-2026

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> <p>1-Stress:</p> <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 Mechanics 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 Hamed	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

Kalid 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. 2-Part B –Levelling and equipment used in it Definition of leveling and the equipment used in it (level), learn mistakes occur in leveling and methods of adjustments. Part C –Profile (cut and fill) 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.

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.Prof.Ahmed Mohammed Ahmed

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 II	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
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)			
In class lectures 75	78	Structured SWL (h/w)	5.2
In class tests 3		Regular weekly student load	
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 Amjad Hamed	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	2. Description and role: define engineering economics and describe its role in decision making. 3. Engineering economic study approach: understand and identify the steps in an engineering economic study. 4. Ethics and economics: identify areas in which economic decisions can present questionable ethics. 5. Interest rate: perform calculations for interest rates and rates of return. 6. Terms and symbols: identify and use engineering economic terminology and symbols. 7. Cash: flows understand cash flows and how to graphically represent them. 8. Economic equivalence: describe and calculate economic equivalence. 9. Simple and compound interest: calculate simple and compound interest amounts for one or more time periods. 10. MARR and opportunity cost: state the meaning and role of Minimum Attractive Rate of Return (MARR) and opportunity costs. 11. Spreadsheet functions: identify and use some Excel functions commonly applied in engineering economics.
Indicative Contents	Indicative content includes the following. 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	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.

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
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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.
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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 Level-Bologna System 2025-2026

MODULE DESCRIPTION FORM

Module Information			
Module Title	Theory of Structures I		Module Delivery
Module Type	C		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CE311		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	3	Semester of Delivery	5
Administering Department	CE	college	CENG
Module Leader	Abdullateif Abduljabar Hasan		Email latief.abd.h@uosamarra.edu.iq
Module Leader's Acad. Title	Asst. Lec.	Module Leader's Qualification	Master pf Civil Engineering
Module Tutor	None		Email None
Peer Reviewer Name	None		Email None
Scientific Committee Approval Date	2025-7-25	Version Number	None

Relation with other Modules			
Prerequisite module	CE221	Semester	5
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<ol style="list-style-type: none"> 1. Understand the fundamental concepts and assumptions in structural analysis 2. Analyze statically determinate structures such as beams 3. Trusses, and frames 4. Develop accurate shear force and bending moment diagrams for structural elements 5. Calculate structural deflections using the virtual work principle and energy methods 6. Evaluate the influence of moving loads through the application of influence lines
Module Learning Outcomes	<ol style="list-style-type: none"> 1. Distinguish types of structural systems and classify them based on their structural behavior and functional purpose 2. Identify the types of loads acting on structures and analyze their behavior and effects 3. Calculate various types of loads and their transfer through structural elements using systematic methods 4. Analyze statically determinate structures using principles of equilibrium and static equations 5. Evaluate stability and determinacy conditions in structures, distinguishing between stable and unstable systems 6. Analyze three-dimensional structures and balance the forces and moments acting on them 7. Classify different types of supports and evaluate their influence on structural behavior, including space-frame supports 8. Compute axial forces, shear forces, and bending moments in fundamental structural components 9. Apply the concept of influence lines in the analysis of statically determinate structures 10. Analyze the impact of moving loads using maximum influence lines 11. Interpret the behavior of beams, roof girders, and trusses and explain their structural characteristics 12. Determine maximum shear force and maximum bending moment values in structures and interpret their design significance 13. Calculate structural deflections using principles of elasticity and deflection diagrams 14. Interpret the relationship between the deflection diagram and the flexure curve, and understand the behavior of structural elements under loading <p>Apply the conjugate beam method to analyze deflections and internal forces in structural systems</p>
Indicative Contents	<p>Types of Structures and Types of Loads:</p> <p>Structural Types: Frames, trusses, arches, shells, and cable systems</p> <p>Load Types: Dead loads, live loads, wind loads, seismic loads, thermal loads</p> <p>Load Estimation: Determining applied loads per building codes and standards</p> <p>Load Transfer Mechanisms: From structural elements to foundations</p> <p>Analysis of Statically Determinate Structures:</p>

Determinate vs. Indeterminate Structures

Conditions for Equilibrium and Stability

Equilibrium Equations in Planar and Spatial Systems

Support Systems and 3D Structures:

Support Types: Pinned, roller, fixed, and internal hinges

Support Reactions Analysis: Calculating forces and moments

Space Structures: Three-dimensional trusses and frame configurations

Internal Forces in Structural Members:

Axial Forces: Tension and compression within members

Shear Forces: Transverse loading across sections

Bending Moments: Rotational effects due to external loads

Influence Lines for Determinate Structures:

Definition and Importance

Construction Techniques: For beams, girders, and trusses:-

Application to Moving Loads: Load positioning for maximum effect

Envelope Diagrams: For maximum influence under dynamic conditions

Structural Elements: Beams, Roof Girders, and Trusses:

Functional Roles: Load-bearing and distribution

Load Path Optimization: Efficiency and design considerations

Maximum Shear Force and Bending Moment:

Critical Load Cases

Graphical and Analytical Methods

Design Considerations Based on Peak Values

Structural Deflections (Displacements):

Principles of Deformation

Deflection Diagrams and Flexural Curves

Serviceability Limits and Criteria

Conjugate Beam Method:

Conceptual Foundation: Transforming real beams into conjugate systems

	<p>Application: Calculating deflections and rotations</p> <p>Advantages Over Other Techniques: Simplicity and accuracy</p>
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Learning and Teaching Strategies	
Strategies	<ol style="list-style-type: none"> 1. Lectures (Instructor-Centered Teaching): <ul style="list-style-type: none"> • 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): <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Videos and animations showing deflected shapes, influence lines, etc. 5. Homework Assignments and Take-Home Tasks: <ul style="list-style-type: none"> • Regular problem sets to reinforce lecture material and develop technical skills. • Include both numerical and conceptual questions. 6. Group Discussions and Peer Teaching: <ul style="list-style-type: none"> • Promote knowledge-sharing and collaborative problem-solving. • Use peer review or short group presentations on selected topics. 7. Formative Quizzes and Feedback: <ul style="list-style-type: none"> • Conduct regular short quizzes (paper-based or online). • Provide feedback to identify learning gaps and adjust teaching. 8. Office Hours and Individual Support: <ul style="list-style-type: none"> • Provide opportunities for one-on-one support, especially for complex topics or before exams.

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)	125		

Module Evaluation					
		Time/number	Weight (marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	10%	Continuous	LO #1 #3
	Assignments	2	20%	5 and 11	LO #1 #2 #4 #3 #8
	Projects / Lab.	1	5%	8	All
	Report	1	5%	10	LO #1 #3 #8
Summative assessment	Midterm Exam	2 hours	10%	9	All
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)	
	Covered Materials
Week 1	Types of Structures and Types of Loads
Week 2	Types of Structures, Types of Loads, Load Calculations, and Load Transfer
Week 3	Analysis of Statically Determinate Structures
Week 4	Statically Determinate Analysis, Stability, and Equilibrium
Week 5	Equilibrium in Three-Dimensional Structures
Week 6	Types of Supports, Analysis of Supports, and Space Supports (3D Trusses)
Week 7	Axial Forces, Shear Forces, and Bending Moments in Structural Elements
Week 8	Influence Lines for Statically Determinate Structures

Week 9	Influence Lines for Statically Determinate Structures (repeated for emphasis or phases) Beams, Roof Girders, and Trusses
Week 10	Envelopes of Maximum Influence Lines for Moving Loads on Determinate Structures
Week 11	Influence Lines for Statically Determinate Structures (summary phase or application)
Week 12	Maximum Shear Force and Maximum Bending Moment
Week 13	Structural Deflections (Displacements)
Week 14	Deflection Diagrams and Flexure Curves Conjugate Beam Method
Week 15	Final Exam

Learning and Teaching Resources		
	text	Available in the library?
Required Texts	R. C. Hibbeler, "Structural Analysis" (SI Units), 8th Edition, 2012.	Yes
Recommended Texts	Aslam Qassim Ali, "Structural Analysis" , 4th Edition, 2011.	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
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	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.

MODULE DESCRIPTION FORM

Module Information			
Module Title	Reinforced Concrete Design I	Module Delivery	
Module Type	C	<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Seminar	
Module Code	CE312		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	3	Semester of Delivery	5
Administering Department	CE	college	CENG
Module Leader	Mohammed A.Hassan	Email	mohammed.a.hassan@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Master of Civil Engineering
Module Tutor	None	Email	None
Peer Reviewer Name	None	Email	None
Scientific Committee Approval Date	17/06/2025	Version Number	1.0

Relation with other Modules			
Prerequisites Module	None	Semester	5
Co-requirements Module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<ol style="list-style-type: none"> 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. <p>Interpret and apply design codes and standards relevant to reinforced concrete structures.</p>
Module Learning Outcomes	<ol style="list-style-type: none"> 1. Describe the mechanical properties of concrete and reinforcing steel. 2. Identify different load types and explain their impact on structural elements. 3. Analyze uncracked and cracked reinforced concrete sections using the working stress method. 4. Apply the ultimate strength method to evaluate the strength of reinforced concrete beams. 5. Distinguish between under-reinforced and over-reinforced sections and analyze their behavior. 6. Design singly reinforced concrete beams to meet strength and serviceability requirements. 7. Analyze and design doubly reinforced concrete beams for enhanced moment capacity. 8. Analyze and design T-beams considering effective flange width and reinforcement details. 9. Interpret and apply relevant reinforced concrete design codes and specifications. 10. Solve structural problems systematically and develop practical design solutions for reinforced concrete elements.
Indicative Contents	<p>Indicative content includes the following.</p> <p>Part A – Introduction to Reinforced Concrete.</p>

	<p>Part B – Working Stress Method</p> <p>Part C– Ultimate Strength Method</p> <ol style="list-style-type: none"> 1.Design of Singly Reinforced Concrete Beams 2. Analysis and design considerations for non-prismatic beams <p>Part D - Doubly Reinforced Concrete Beams</p> <ol style="list-style-type: none"> 1. Analysis and design procedures 2. Practical applications and detailing <p>Part E - T-Beams</p> <ol style="list-style-type: none"> 1. Analysis and design of reinforced concrete T-beams
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Learning and Teaching Strategies	
Strategies	<ol style="list-style-type: none"> 1.Lectures (Instructor-Centered Teaching): <ul style="list-style-type: none"> •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): <ul style="list-style-type: none"> •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: <ul style="list-style-type: none"> •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:

	<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 reinforced 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:</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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Student Workload (SWL)			
SWL Organization (hr/sem)	63	SWL organization (hr/w) Regular weekly student load	4.2
Unstructured SWL (hr/sem)	62	Unstructured SWL (hr/w) Irregular student load per week	4.1
Total SWL (hr/sem)	125		

Module Evaluation					
		Time/number	Weight (marks)	Week Due	Relevant learning Outcome
Formative assessment	Tests	4	10%	Continuou s	LO#1 #3
	Tasks	2	20%	5 and 11	LO #1 #2 #4 #3 #8
	Projects / Lab. a report	1	5%	8	All
		1	5%	10	LO #1 #3 #8
Summative assessment	Midterm Exam	2 hours	10%	9	All
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)	
	Covered Materials
Week 1	Introduction (concrete materials ,properties ,steel ,loads, ...etc) .
Week 2	Working Stresses method: Analysis of elastic uncracked sections.
Week 3	Analysis of elastic uncracked sections
Week 4	Analysis of elastic cracked sections.
Week 5	Ultimate strength method: Analysis of under Reinforced concrete beams .
Week 6	Analysis of over Reinforced concrete beams .
Week 7	Design of Singly Reinforced concrete beams.
Week 8	Design of tapered reinforced concrete beams.
Week 9	Doubly Reinforced rectangular beams .
Week 10	Analysis of Doubly Reinforced concrete beams .
Week 11	Design of Doubly Reinforced concrete beams.
Week 12	Mid-term Exam
Week 13	T-Beams: Analysis of Reinforced concrete T-Beams.
Week 14	Analysis of Reinforced concrete T-Beams.
Week 15	Design of Reinforced concrete T-Beams.
Week 16	Final Exam

Learning and Teaching Resources		
	Text	Available in the library?
Required texts	Design of Concrete Structures, 14th Edition; Arthur H. Nilson. (SI unit)	Yes
Recommended Texts	Reinforced Concrete, A Fundamental Approach, 6th Edition; Edward G. Nawy.	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.

MODULE DESCRIPTION FORM

Module Information			
Module Title	Soil mechanics I	Module Delivery	
Module Type	C	<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practice	
Module Code	CE313		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	3	Semester of Delivery	5
Administering Department	CE	college	CENG
Module Leader	Ahmed Hammad Hussein	Email	ahmed.hammad@uosamarra.edu.iq
Module Leader's Acad. Title	lecturer	Module Leader's Qualification	Ph.D of Civil Engineering
Module Tutor	None	Email	None
Peer Reviewer Name	None	Email	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	<p>The Aims of this course are to enable students to :</p> <p>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.</p>
Module Learning Outcomes	<ol style="list-style-type: none"> 1. Knowing the properties of soil 2. Knowing the classification of soil 3. Soil compaction ratio 4. Knowing the structural properties of soil 5. Knowing the variables related to soil bearing capacity 6. Application of soil theories
Indicative Contents	<p>This course introduces the student to the concepts and fundamentals of geotechnics, and includes conducting and interpreting the results of various soil tests and analyzing the behavioral characteristics of soil.</p>

Learning and Teaching Strategies	
Strategies	<p>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.</p>

Student Workload (SWL)			
SWL Organization (hr/sem)	78	SWL organization (h/w) Regular weekly student load	5.2
Unstructured SWL (hr/sem)	47	Unstructured SWL (h/w) Irregular student load per week	3.13
Total SWL (hr/sem)	125		

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	20% (20)	3, 7, 9, 11	1,2,3 and 4
	Report	15	10% (10)	The week later	1,2,3, 4 and 5
Summative assessment	Midterm Exam	2 hours	10 % (10)	16	All
	Final Exam	3 hours	50% (50)	4 and 11	1,2,3, and 4
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Covered Materials
Week 1	Soil deposits
Week 2	Grain size distribution
Week 3	Wight- volume relationships
Week 4	Soil consistency
Week 5	Soil classification : introduction
Week 6	Soil classification
Week 7	Soil compaction: introduction
Week 8	Field density and its calculation
Week 9	Hydraulic conductivity
Week 10	Soil permeability
Week 11	Stress in soil mass: introduction
Week 12	Effective stress
Week 13	Heaving in soil and vertical stress
Week 14	Problems
Week 15	Discussion
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

	Covered Materials
Week 1	Water Content Determination
Week 2	Specific Gravity of Soil Solids
Week 3	Sieve Analysis (Grain Size Distribution)
Week 4	Hydrometer Analysis
Week 5	Liquid Limit Test (Atterberg Limits)
Week 6	Plastic Limit Test (Atterberg Limits)
Week 7	Constant Head Permeability Test (Sand)
Week 8	Falling Head Permeability Test

Learning and Teaching Resources		
	Text	Available in the library?
Required texts	Fundamentals of Geotechnical Engineering, THIRD EDITION, Braja M. Das	Yes
Recommended Texts	Fundamentals of Geotechnical Engineering, THIRD EDITION, Braja M. Das	Yes
Websites	https://istasazeh-co.com/wp-content/uploads/2021/11/Fundamentals-of-Geotechnical-Engineering-Third-Edition.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.				

MODULE DESCRIPTION FORM

Module Information			
Module Title	Numerical and Engineering Analysis	Module Delivery	
Module Type	S	<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	CE314		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	3		
Administering Department	CE	college	CENG
Module Leader	Anas Badr Hameed	Email	anasalsamarai@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	21/04/2025	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

Course Objectives: Advanced Differential Equations and Numerical Techniques

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

Differential Equations

- Apply analytical techniques to solve first-order and second-order linear differential equations.
- Solve differential equations using Cauchy-Euler and Legendre methods for equations with variable coefficients.
- Utilize Laplace transforms to solve initial value problems and analyze system behavior in engineering contexts.

Fourier & Beam Applications

- Represent periodic functions using Fourier Series and assess convergence properties.
- Analyze and model beam deflection using Fourier methods in mechanical structures.

Linear Algebra Foundations

- Perform matrix operations including inversion and apply Gauss elimination to linear systems.
- Determine eigenvalues and eigenvectors to analyze system stability and modal behavior.

Interpolation & Equation Roots

- Implement interpolation methods to estimate intermediate values using discrete data.
- Apply numerical techniques to find roots of nonlinear equations efficiently and accurately.

Numerical Integration

- Use Gauss quadrature and other techniques to approximate definite integrals in mathematical models.

Numerical Solutions of Initial Value Problems

- Solve ordinary differential equations using Euler, Modified Euler, Runge-Kutta, and Taylor Series methods.
- Analyze error propagation and stability of various numerical schemes.

	<p>Boundary Value Problems</p> <ul style="list-style-type: none"> • Solve boundary value problems using the finite difference method, focusing on structural mechanics applications such as beam deflection. • Interpret physical implications of numerical solutions and validate with theoretical models. <p>Final Integration</p> <ul style="list-style-type: none"> • Integrate knowledge from all units to solve comprehensive mathematical problems. • Demonstrate mastery through written assessments and applied projects in the final examination.
<p>Module Learning Outcomes</p>	<p>Course Learning Outcomes</p> <p>Upon successful completion of this course, students will be able to:</p> <p>Differential Equations</p> <ul style="list-style-type: none"> • Solve first-order and second-order linear differential equations analytically and interpret solutions in practical contexts. • Apply Cauchy-Euler and Legendre techniques to solve differential equations with variable coefficients. • Utilize Laplace transforms to handle complex initial value problems and simplify systems of equations. <p>Fourier Series and Engineering Applications</p> <ul style="list-style-type: none"> • Construct Fourier Series representations for periodic functions and assess their convergence. • Model structural problems such as beam deflection using Fourier Series in engineering contexts. <p>Linear Algebra Techniques</p> <ul style="list-style-type: none"> • Perform advanced matrix operations, including matrix inversion, to solve systems of equations. • Apply Gauss elimination effectively to reduce matrices and solve linear algebraic problems. • Determine eigenvalues and eigenvectors to analyze system stability, resonance, and transformations. <p>Interpolation and Root-Finding</p> <ul style="list-style-type: none"> • Implement various interpolation techniques (e.g., Newton, Lagrange) to estimate data points and construct approximating functions. • Use numerical methods to find roots of nonlinear equations with appropriate precision and efficiency. <p>Numerical Integration</p> <ul style="list-style-type: none"> • Apply Gaussian quadrature and related techniques to approximate definite integrals in analytical models. <p>Numerical Solutions of Initial Value Problems</p> <ul style="list-style-type: none"> • Solve ordinary differential equations using Euler, Modified Euler, Runge-Kutta, and Taylor Series approaches. • Evaluate and compare the accuracy, efficiency, and stability of different

	<p>solution methods.</p> <p>Boundary Value Problems and Finite Differences</p> <ul style="list-style-type: none"> • Solve boundary value problems using finite difference methods, with a special focus on beam deflection analysis. • Translate physical conditions into discrete numerical models and analyze results within engineering frameworks. <p>Final Integration and Assessment</p> <ul style="list-style-type: none"> • Synthesize learning across topics to solve multi-step real-world problems. • Demonstrate comprehensive mastery through analysis, computation, and theoretical exposition in the final examination
<p>Indicative Contents</p>	<p>Instructional Content for the Course</p> <p>Differential Equations</p> <ul style="list-style-type: none"> • Introduction to differential equations and their role in modeling dynamic systems • Solving first-order linear differential equations using integrating factor method • Analyzing second-order linear differential equations with constant coefficients • Application of Cauchy-Euler equations to variable coefficient problems • Legendre’s differential equation and solution techniques using special functions <p>Transform Methods</p> <ul style="list-style-type: none"> • Laplace transform: Definition, properties, and inverse • Application of Laplace transform to initial value problems and systems of ODEs <p>Fourier Analysis</p> <ul style="list-style-type: none"> • Construction of Fourier Series for periodic functions • Convergence criteria and orthogonality of trigonometric components • Application to beam deflection in mechanical systems using Fourier modeling <p>Linear Algebra Applications</p> <ul style="list-style-type: none"> • Matrix operations: multiplication, inversion, and determinants • Solving linear systems using Gauss elimination • Eigenvalues and eigenvectors: definitions, computation, and applications in system stability <p>Numerical Methods</p> <ul style="list-style-type: none"> • Interpolation Techniques• Newton and Lagrange forms • Use in data fitting and estimation • Root-Finding Algorithms• Bisection, Newton-Raphson, Secant method • Convergence and computational efficiency • Numerical Integration• Gauss quadrature methods • Comparison with Trapezoidal and Simpson’s rules <p>Initial Value Problem Solvers</p> <ul style="list-style-type: none"> • Euler method: basic approach and limitations • Modified Euler method: improved accuracy

	<ul style="list-style-type: none"> • Runge-Kutta methods: order analysis and implementation • Taylor Series method: derivation and application <p>Boundary Value Problem Solvers</p> <ul style="list-style-type: none"> • Finite Difference method: formulation for second-order boundary problems • Beam deflection modeling using discretization techniques • Stability and error analysis in boundary approximations <p>Assessment Integration</p> <ul style="list-style-type: none"> • Midterm and final exams assessing both theoretical understanding and computational skills • Problem sets, lab simulations, and project-based evaluations
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Learning and Teaching Strategies	
Strategies	<p>Teaching and Learning Strategies for Advanced Mathematics and Numerical Methods</p> <p>Conceptual Lectures & Demonstrations</p> <ul style="list-style-type: none"> • Present core theories through interactive lectures using real-life examples. • Employ visual aids like graphs, animations, and software simulations for abstract concepts (e.g., Laplace transform or beam deflection). <p>Problem-Based Learning (PBL)</p> <ul style="list-style-type: none"> • Structure sessions around real-world problems: such as modeling physical systems with differential equations. • Encourage students to propose models, solve them, and analyze accuracy. <p>Collaborative Group Work</p> <ul style="list-style-type: none"> • Assign group projects on topics like numerical integration or solving boundary value problems using finite difference methods. • Foster peer teaching, where students explain concepts like Runge-Kutta or matrix inversion to one another. <p>Computational Labs and Software Tools</p> <ul style="list-style-type: none"> • Introduce tools such as MATLAB, Python, or Wolfram Mathematica. • Use them for numerical methods, matrix operations, Fourier analysis, and solving ODEs and BVPs. <p>Scaffolded Practice</p> <ul style="list-style-type: none"> • Start with guided examples, then gradually remove support as students gain mastery. • Apply this to methods like Gauss elimination, interpolation, or Taylor Series expansion. <p>Socratic Questioning</p>

	<ul style="list-style-type: none"> • Pose layered, analytical questions during lessons to test reasoning (e.g., “Why does the Legendre equation arise in spherical problems?”). • Engage students in mathematical justifications and counterexamples. <p>Concept Mapping & Visual Summaries</p> <ul style="list-style-type: none"> • Ask students to create diagrams connecting topics (e.g., how Euler’s method relates to Runge-Kutta). • Use mind maps to reinforce relationships between transforms, series, and equations. <p>Blended Learning and Online Modules</p> <ul style="list-style-type: none"> • Integrate digital platforms for self-paced study and quizzes. • Include interactive simulations for Fourier Series applications in beam deflection or Laplace transforms. <p>Formative Assessments</p> <ul style="list-style-type: none"> • Frequent low-stakes quizzes and reflective journals to gauge understanding. • Feedback cycles enhance learning before major exams. <p>Cumulative Projects</p> <ul style="list-style-type: none"> • Capstone assignments to model and solve full-scale systems (e.g., deflection of beams using numerical methods). • Encourage documentation, presentation, and peer review. <p>Final Exam Preparation</p> <ul style="list-style-type: none"> • Offer review sessions focusing on synthesis rather than repetition. • Use past papers and mock exams for exam technique training.
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Student Workload (SWL)			
Structured SWL (hr/sem)	93	SWL organization (hr/w) Regular weekly student load	8.2
Unstructured SWL (hr/sem)	57	Unstructured SWL (hr/w) Irregular student load per week	5.13
Total SWL (hr/sem)	150		

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 and 7 LO #8,9,10 and 12 LO #13,14 and 15
	Assignment	2	10% (10)	4 and 8	All
	Projects / Lab.	-	-	-	-
	Report		10% (10)		All
Summative assessment	Midterm Exam	2 hours	10% (10)	8	LO #1 - #7
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Covered Materials
Week 1	First-Order Linear Differential Equations
Week 2	Second-Order Linear Differential Equations
Week 3	Solving differential equations using Cauchy- Euler
Week 4	Solving differential equations using Legendre
Week 5	Laplace transform Fourier Series
Week 6	Fourier Series. Deflection of the beams
Week 7	Matrices -Matrix inverse
Week 8	Gauss elimination
Week 9	Eigenvalues and Eigenvectors Interpolation
Week 10	Roots of Equations Numerical Integration (Gauss squares).
Week 11	Numerical Solution for Initial Value Problems. -Euler method. -Modified Euler method.

Week 12	Numerical Solution for Initial Value Problems. Runge -Kutta method. -Taylor Series
Week 13	Numerical solution for Boundary Value Problems -Finite Difference method - Deflection of the beams
Week 14	Finite Difference method - Deflection of the beams
Week 15	Numerical solution for Boundary Value Problems ,Deflection of the beams
Week 16	Final Exam

Learning and Teaching Resources		
	Text	Available in the library?
Required texts	ADVANCED ENGINEERING MATHEMATICS, 10th Edition; ERWIN KREYSZIG. A FIRST COURSE IN DIFFERENTIAL EQUATIONS with Modeling Applications, 10th Edition; DENNIS G. ZILL.	Yes
Recommended Texts	Differential Equations for Engineers, Wei-Chau Xie, 1 st edition 2010 Numerical Analysis, Richard L. Burden	No
Websites	https://istasazeh-co.com/wp-content/uploads/2021/11/Fundamentals-of-Geotechnical-Engineering-Third-Edition.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.

MODULE DESCRIPTION FORM

Module Information			
Module Title	Environmental Engineering		Module Delivery
Module Type	C		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CE315		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	3	Semester of Delivery	5
Administering Department	CE	college	CENGS
Module Leader	Mohammed Jameel Mahdi		Email mdj7878g@uosamarra.edu.iq
Module Leader's Acad. Title	Lecture	Module Leader's Qualification	PhD. of Environmental Engineering
Module Tutor	None		Email None
Peer Reviewer Name	None		Email None
Scientific Committee Approval Date	25/2/2025	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 concept of Environmental engineering, Ecosystems, ecological balance. 2. To explain the effect of different type of filters and machine to removal pollutant. 3. To understand the mechanize of removal. 4. To understand the different Types of pollution. 5. To give information about methods calculate the solid waste product. 6. To explain Effect of climate change on human health. 7. To give information Sustainable development - Renewable energy.
Module Learning Outcomes	<ol style="list-style-type: none"> 1. Use both conceptual and numerical techniques to solve environmental engineering problems. 2. Understanding the effect of types of pollution on the ecosystem. 3. Analyses and develop the system for collecting, transferring, and disposable solid waste. 3. Determine the area of sanitary land for solid waste. 4. Understand the effect of pollution on environment and humans. 5. Understand and determine the effect of noise pollution, thermal pollution. 6. Determine the new directions of Sustainable development - Renewable energy.
Indicative Contents	<p>Indicative content includes the following.</p> <ol style="list-style-type: none"> 1. Principles of Ecology - Ecosystems, Ecological Balance 2. Air Pollution 3. Noise Pollution 4. Solid Waste 5. Thermal Pollution 6. Radioactive Pollution <p>Sustainable Development - Renewable Energy.</p>
Course Description	<p>To achieve this strategy, the following will be achieved during the presentation of the course curriculum:</p> <ul style="list-style-type: none"> • Promoting active participation: Encouraging students to participate in exercises, reflection, and research makes them more engaged in the learning process, increasing their comprehension of the material. • Developing critical thinking skills: Refining and expanding critical thinking skills enables students to analyze and evaluate information and solve problems more effectively. • Connecting concepts to reality: Encouraging students to connect course content to real-life situations helps them understand the practical applications of the material and appreciate its importance. • Developing problem-solving skills: By attempting to find solutions to real-life environmental problems, students acquire valuable problem-solving and decision-making skills.

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) Lectures in Chapter 60 Tests in Chapter 3	63	Structured SWL (h/w) Regular weekly student load	4.2
Unstructured SWL (hr/sem)	37	Unstructured SWL (h/w) Irregular student load per week	2.47
Total SWL (hr/sem)	100		

Module Evaluation

		Time	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	Continuous	LO #1, 2, 3, 4, 5,6,7, and 8
	Assignments A-HomeWorks B- Reports	5	10% (10)	Continuous	LO # 1, 2, 3, 4, 5,6,7, and 8
	Class work	4	10% (10)	Continuous	
Summative assessment	Mid-term Exam	2 hours	10% (10)	8	LO # 1-5
	Final Exam	3 hours	60% (60)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Covered Material
Week 1	Introduction - Principles of Ecology - Ecosystems, Ecological Balance, Nutrients and Food Chain - Definition of Pollution - Types of Pollution.
Week 2	Introduction to air pollution - Sources of air pollutants and pollutant emissions - Units of measurement of gaseous pollutants - Control of air pollutants - Engineering techniques for air pollution control - Sedimentation chambers - Collectors - Cyclones - Particulate separation by washing and filtration - Electrostatic precipitation.
Week 3	Introduction to noise pollution - Noise measuring devices - Negative effects of noise - Noise control.
Week 4	Solid waste - sources and characteristics of solid waste - municipal, agricultural and industrial waste - hazardous waste - chemical and physical characteristics of solid waste - collection of solid waste - disposal (throwing out) of solid waste.
Week 5	Solid waste disposal methods - Sanitation method - Advantages and disadvantages of the common sanitation method - Site selection and backfilling methods.
Week 6	Solid waste collection and transportation - Calculation of the number of compactors - Waste transportation systems in multi-storey buildings.
Week 7	Land area required for sanitary landfill - Sanitary landfill site design - Calculation of methane gas produced by solid waste.
Week 8	Thermal pollution - Sources of thermal pollution - Power plants - Cooling systems in power plants.
Week 9	Mid-term exam
Week 10	Cooling systems for thermal waste - Evaporative systems - Cooling ponds - Spray ponds - Wet cooling towers - Dry cooling systems - Utilization of hot thermal waste.
Week 11	Effect of climate change on human health.
Week 12	The environmental burden resulting from cooling towers to control thermal pollution through the effect on the atmosphere and water pollution.
Week 13	Radioactive pollution - The nature of radiation, its characteristics and units of measurement - Sources of radiation.
Week 14	The effects of radiation on the environment and humans - Radiation specifications.
Week 15	Sustainable development - Renewable energy.
Week 16	Final Exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Environmental Engineering by: Peavy. H.S , Rowe. D. R. , and Tchobanoglous. McGraw Hill Book Company. 1986	Yes
Recommended Texts	Environmental Science A Global Concern by William P. Cunningham , Mary Ann Cunningham and Barbara Woodworth Saigo. McGraw Hill Book Company 2007 , 9 th edition.	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
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	H-enough	acceptable	50 - 59	Work meets minimum standards
Failed group (0 – 49)	FX -fail	Legally acceptable	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.

Note:

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.

MODULE DESCRIPTION FORM

Module Information				
Module Title	English Language III	Module Delivery		
Module Type	B	<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar		
Module Code	CE316			
ECTS Credits	3			
SWL (hr/sem)	75			
Module Level		3	Semester of Delivery	5
Administering Department		CE	college	CENGs
Module Leader	Muataz Ibrahim Ali	Email	Muitaz88@gmail.com	
Module Leader's Acad. Title		Assistant Professor	Module Leader's Qualification	PhD of Civil Engineering
Module Tutor	None	Email	None	
Peer Reviewer Name		None	Email	None
Scientific Committee Approval Date			Version Number	1.0

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

Module Aims, Module Learning Outcomes, Indicative Contents and Brief Description	
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	<ol style="list-style-type: none"> 1. Identify various reading skills and apply them in reading, referencing and summarizing literature on engineering. 2. Identify various skills of technical presentation and apply them in conducting short technical presentations based on information extracted from readings. 3. Identify technical discussion skills and apply these in planning and conducting simulated technical discussions characteristic of those that go on in engineering contexts. 4. Identify and compare the structures and language characteristics of various types of written study and workplace reports characteristic of those produced by engineering students and practicing engineers (e.g. incident reports and progress reports) mainly, and applying this knowledge in writing one of the latter. 5. Develop communication skills through active participation in class and group activities.
Indicative Contents	<p>Indicative content includes the following.</p> <ol style="list-style-type: none"> 1. Technical presentations 2. Conducting technical discussions about engineering projects 3. Writing technical documents 4. Writing business correspondence
Course Description	<p>1-Transverse shear:</p> <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 - center for open thin-walled members <p>2- Combined Stresses:</p> <ul style="list-style-type: none"> -Thin-walled pressure vessels - Combined loadings and state of stress <p>3- Stress transformation:</p> <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 <p>4- Strain transformation:</p> <ul style="list-style-type: none"> - Plane strain - General equation of plane-strain - Mohr's circle plane-strain

	<ul style="list-style-type: none"> - Absolute maximum shear strain <p>5- Deflection of beams:</p> <ul style="list-style-type: none"> - The elastic curve - Slope and displacement by integration - Slope and displacement by area moment - Method of Superposition <p>6- Buckling of columns:</p> <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)		48	Structured SWL (h/w)	
In class lectures	35		3.2	
In class tests	7			
Seminars	6			
Unstructured SWL (h/sem)		27	Unstructured SWL (h/w)	
Library, dorm, home memorizing			1.8	
Preparation for tests				
10				
HomeWorks				
7				
Project				
4				
Total SWL (h/sem)		75		

Module Evaluation

		Time /Number (hr)	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10, 12, 14	LO #1, 2, 3, and 4
	A-HomeWorks B- Reports	6	15% (15)	2, 4, 6, 8, 10, 12	LO # 1, 2, 3, 4, 5 and 6
	Class work	3	15% (15)	Continuous	
Summative assessment	Mid-term Exam	2 hours	10% (10)	7	LO # 1-3
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (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). Unit two (grammar, Vocabulary, Reading, writing, listing).
Week 3	Work book Unit two test (grammar, Vocabulary, Reading, writing, listing). How to make C.V .
Week 4	Discuss some C.V project of student. Howe to make (work email , academic email, personal email and sign.
Week 5	Unit three (grammar, Vocabulary, Reading, writing, listing). Work book Unit three test (grammar, Vocabulary, Reading, writing, listing).
Week 6	Unit four (grammar, Vocabulary, Reading, writing, listing). Work book Unit four test (grammar, Vocabulary, Reading, writing, listing).
Week 7	Mid-term Exam
Week 8	Class working meet Class working meet
Week 9	Unit five (grammar, Vocabulary, Reading, writing, listing) Work book Unit five test (grammar, Vocabulary, Reading, writing, listing)
Week 10	Unit six (grammar, Vocabulary, Reading, writing, listing) Work book Unit six test (grammar, Vocabulary, Reading, writing, listing)
Week 11	Unit seven (grammar, Vocabulary, Reading, writing, listing) Work book Unit seven test (grammar, Vocabulary, Reading, writing, listing)
Week 12	Class working meet Class working meet
Week 13	Unit eight (grammar, Vocabulary, Reading, writing, listing) Work book Unit eight test (grammar, Vocabulary, Reading, writing, listing)
Week 14	Unit nine (grammar, Vocabulary, Reading, writing, listing) Work book Unit nine test (grammar, Vocabulary, Reading, writing, listing)
Week 15	Discuss about (project civil engineering) Discuss about (project civil engineering)
Week 16	Preparatory week before the final Exam Final Exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Headway plus (pre- intermediate), John and LZiz Soars, Oxford.	Yes
Recommended Texts	Headway plus (intermediate), John and LZiz Soars, Oxford.	Yes
Recommended Texts	DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents.	No
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.

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	06/17/2025	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
	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.

MODULE DESCRIPTION FORM

Module Information			
Module Title	Theory of Structures II	Module Delivery	
Module Type	C	<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	CE321		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	3	Semester of Delivery	6
Administering Department	CE	college	CENG
Module Leader	Ahmed Mohammed Ahmed	Email	ahmed_m@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Master pf Civil Engineering
Module Tutor	None	Email	None
Peer Reviewer Name	None	Email	None
Scientific Committee Approval Date	17/06/2025	Version Number	None

Relation with other Modules			
Prerequisite module	CE311	Semester	5
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<ol style="list-style-type: none"> 1. Understand the fundamental concepts and assumptions in structural analysis. 2. Analyze statically determinate structures such as beams, trusses, and frames. 3. Construct shear force and bending moment diagrams. 4. Calculate deflections in structures using virtual work and energy methods. 5. Evaluate the influence of moving loads using influence lines. 6. Apply classical methods (moment distribution, slope deflection) to statically indeterminate structures. 7. Understand basic principles of matrix structural analysis. <p>Develop problem-solving strategies for real-world structural systems</p>
Module Learning Outcomes	<ol style="list-style-type: none"> 1. Learn the measurements 2. Learn the mistakes occur in measurement and its correction. 3. Learn the tools used in simple measurements. 4. Recognize the measurement obstacles and avoiding 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 occur in leveling and its correction. <p>Know to project engineering plans.</p>
Indicative Contents	<p>Indicative content includes the following.</p> <p>Part A – Deflections by Virtual Work Method</p> <p>Part B – Analysis of Statically Indeterminate Structures by The Force Method</p> <p>Part C – Analysis of Statically Indeterminate Structures by The Slope Deflection Method</p> <p>Part D - Analysis of Statically Indeterminate Structures by The Moment Distribution Method</p>

Learning and Teaching 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.
8. Office Hours and Individual Support:
 - Provide opportunities for one-on-one support, especially for complex topics or before exams.

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)	125		

Module Evaluation					
		Time /Number (hr)	Weight (marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	10%	Continuous	LO #1 #3
	Assignments	2	20%	5 and 11	LO #1 #2 #4 #3 #8
	Projects / Lab. Report	1	5%	8	All
		1	5%	10	LO #1 #3 #8
Summative assessment	Midterm Exam	2 hours	10%	9	All
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)	
	Covered Materials
Week 1	Deflections by Virtual Work Method (Trusses)
Week 2	Deflections by Virtual Work Method (Beams)
Week 3	Deflections by Virtual Work Method (Frames)
Week 4	Castigliano's Theorem : Beams, Frames, Trusses
Week 5	Approximate Analysis of Statically Indeterminate Structures
Week 6	Analysis of Statically Indeterminate Structures by The Force Method (Trusses)
Week 7	Analysis of Statically Indeterminate Structures by The Force Method (Beams)
Week 8	Analysis of Statically Indeterminate Structures by The Force Method (Frames)
Week 9	Mid-term Exam
Week 10	Analysis of Statically Indeterminate Structures by The Slope Deflection Method
Week 11	Analysis of Statically Indeterminate Structures by The Slope Deflection Method
Week 12	Analysis of Statically Indeterminate Structures by The Slope Deflection Method
Week 13	Analysis of Statically Indeterminate Structures by The Moment Distribution Method
Week 14	Analysis of Statically Indeterminate Structures by The Moment Distribution Method
Week 15	Analysis of Statically Indeterminate Structures by The Moment Distribution Method
Week 16	Final Exam

Learning and Teaching Resources		
	text	Available in the library?
Required Texts	R. C. Hibbeler, " Structural Analysis " , (SI Units), 8th Edition, 2012.	Yes
Recommended Texts	Aslam QassimAli, " Structural Analysis " , 4th Edition, 2011	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.				

MODULE DESCRIPTION FORM

Module Information			
Module Title	Reinforced Concrete Design II		Module Delivery
Module Type	C		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CE322		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	3	Semester of Delivery	5
Administering Department	CE	college	CENG
Module Leader	Mohammed A. Hassan		Email mohammed.a.hassan@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Master of Civil Engineering
Module Tutor	None		Email None
Peer Reviewer Name	None		Email None
Scientific Committee Approval Date	17/06/2025	Version Number	1.0

Relation with other Modules			
Prerequisites Module	CE312	Semester	5
Co-requirements Module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	<ol style="list-style-type: none"> 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
Module Learning Outcomes	<ol style="list-style-type: none"> 1. Cognitive Skills Refers to the mental abilities related to thinking, understanding, analyzing, interpreting, and reasoning, which are employed in processing information and making decisions. 2. Cognitive Skills Integrated with Practice in Solving Applied Problems Refers to the combination of mental capabilities with hands-on training in solving real-world problems, enhancing the ability to apply theoretical knowledge in diverse practical situations.
Indicative Contents	<p>Irregular Concrete Sections</p> <ul style="list-style-type: none"> • Introduction to Irregular Cross-Sections• Concepts of non-standard geometry in beam and slab elements • Common applications in architectural and structural systems • Analysis of Irregular Concrete Sections• Stress distribution and internal force calculations • Moment of inertia and transformation methods • Design of Irregular Concrete Sections• Reinforcement detailing and design considerations • Code compliance and challenges in non-standard shapes <p>Shear Design in Beams</p> <ul style="list-style-type: none"> • Introduction to Shear Behavior• Shear stress, diagonal tension, and failure modes • Shear Design and Analysis in Beams• V-n diagram interpretation and reinforcement layout • Solving design problems based on shear capacity and spacing <p>Continuous Beam Systems</p> <ul style="list-style-type: none"> • Introduction to Continuous Beams• Indeterminacy and load sharing across spans • Analysis and Design of Continuous Beams• Moment distribution method, slope-deflection, and support moments • Reinforcement design for negative and positive moment zones <p>One-Way Slab Systems</p> <ul style="list-style-type: none"> • Introduction to One-Way Slabs• Structural function and applications

- Analysis and Design of One-Way Slabs• Load distribution and span reinforcement
- Deflection and serviceability checks
- Compression Members (Columns)
 - Introduction to Compression Members• Column types, loading conditions, slenderness effects
 - Analysis and Design of Axially Loaded Short Columns• Capacity calculations under pure axial load
 - Transverse reinforcement and buckling limits
- Mid-Term Exam
 - Covers content from: Irregular Sections, Shear Design, Continuous Beams, and One-Way Slabs
 - Includes theoretical questions, problem-solving, and interpretation of design codes
- Interaction Diagrams for Columns
 - Analysis & Design under Uniaxial Loading• P-M (Axial load-Moment) interaction curves
 - Reinforcement detailing and section behavior
 - Analysis and Design under Biaxial Loading• Combined loading effects in rectangular and circular sections
 - Use of design charts and software tools
- Long Columns
 - Analysis and Design Considerations• Slenderness ratios, effective length, buckling criteria
 - Moment magnification and stability design
- Final Exam
 - Comprehensive coverage of course material
 - Includes both analytical and design-based problem-solving
 - May include interpretation of interaction diagrams, reinforcement detailing, and evaluation of failure modes

Learning and Teaching 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 reinforced 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

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

Module Evaluation					
		Time /Number (hr)	Weight (marks)	Week Due	Relevant learning Outcome
Formative assessment	Tests	4	10%	Continuou s	LO#1 #3
	Tasks	2	20%	5 and 11	LO #1 #2 #4 #3 #8
	Projects / Lab. a report	1	5%	8	All
		1	5%	10	LO #1 #3 #8
Summative assessment	Midterm Exam	2 hours	10%	9	All
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Syllabus)	
	Covered Materials
Week 1	Introduction to Irregular sections .
Week 2	Analysis of Irregular concrete sections.
Week 3	Design of Irregular concrete sections.
Week 4	Introduction to shear design in beams.
Week 5	Shear design and analysis in beams problems.
Week 6	Introduction to Continuous beams.
Week 7	Analysis and design of Continuous beams.

Week 8	Introduction to one way slabs.
Week 9	Analysis and design of one way slabs.
Week 10	Introduction to Compression Members(Columns).
Week 11	Analysis and design of Axially loaded (short columns).
Week 12	Mid-term Exam
Week 13	Interaction Diagrams(Analysis& Design of columns under uniaxial loading).
Week 14	Analysis and design of columns under biaxial loading.
Week 15	Long Columns(Analysis& Design).
Week 16	Final Exam

Learning and Teaching Resources

	Text	Available in the library?
Required texts	Design of Concrete Structures, 14th Edition; Arthur H. Nilson. (SI unit)	Yes
Recommended Texts	Reinforced Concrete, A Fundamental Approach, 6th Edition; Edward G. Nawy.	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.

MODULE DESCRIPTION FORM

Module Information			
Module Title	Soil mechanics II	Module Delivery	
Module Type	C	<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical	
Module Code	CE323		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	3	Semester of Delivery	6
Administering Department	CE	college	CENG
Module Leader	Ahmed Hammad Hussein	Email	ahmed.hammad@uosamarra.edu.iq
Module Leader's Acad. Title	lecturer	Module Leader's Qualification	Ph.D of Civil Engineering
Module Tutor	None	Email	None
Peer Reviewer Name	None	Email	None
Scientific Committee Approval Date		Version Number	

Relation with other Modules			
Prerequisite module	CE313	Semester	5
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	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.
Module Learning Outcomes	By the end of successful completion of this course, the student will be able to: 1. Understanding the consolidation process of clayey soils. 2. In-depth knowledge of time-rate relationships in the consolidation process. 3. Understanding the shear strength of soils. 4. Understanding soil settlement and soil compressibility.
Indicative Contents	This course introduces the student to the concepts and fundamentals of geotechnics, and includes conducting and interpreting the results of various soil tests and analyzing the behavioral characteristics of soil.

Learning and Teaching 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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Student Workload (SWL)

SWL Organization (hr/sem)	78	SWL organization (h/w) Regular weekly student load	5.2
Unstructured SWL (hr/sem)	47	Unstructured SWL (h/w) Irregular student load per week	3.13
Total SWL (hr/sem)	125		

Module Evaluation					
		Time /Number (hr)	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	3, 7, 10	1,2,3 and 4
	Assignments	3-4	20% (20)	3, 7, 9, 11	1,2,3 and 4
	Report	15	10% (10)	The week later	1,2,3, 4 and 5
Summative assessment	Midterm Exam	2 hours	10 % (10)	16	All
	Final Exam	3 hours	50% (50)	4 and 11	1,2,3, and 4
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Covered Materials
Week 1	Consolidation theory: Introduction
Week 2	Soil compressibility, consolidation
Week 3	Consolidation mechanism
Week 4	Consolidation settlement
Week 5	Consolidation test
Week 6	Degree of consolidation
Week 7	Coefficients of consolidation
Week 8	problems
Week 9	Shear strength of soil
Week 10	Shear strength equation: columb
Week 11	Mohor - columb failure criterion
Week 12	Direct shear test
Week 13	Triaxial test
Week 14	problem
Week 15	Mid-term Exam

Delivery Plan (Weekly Lab. Syllabus)

	Covered Materials
Week 1	Standard Proctor Compaction Test
Week 2	Modified Proctor Compaction Test
Week 3	Field Density by Sand Cone Method
Week 4	Direct Shear Test
Week 5	Unconfined Compression Test
Week 6	Consolidation Test

Learning and Teaching Resources

	Text	Available in the library?
Required texts	Lecture Notes	Yes
Recommended Texts	Fundamentals of Geotechnical Engineering, THIRD EDITION, Braja M. Das	Yes
Websites	https://istasazeh-co.com/wp-content/uploads/2021/11/Fundamentals-of-Geotechnical-Engineering-Third-Edition.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.

MODULE DESCRIPTION FORM

Module Information			
Module Title	Water resource	Module Delivery	
Module Type	C	<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture	
Module Code	CE324		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	3	Semester of Delivery	6
Administering Department	CE	college	CENG
Module Leader	Marwah Qaddoori	Email	marwa-q@uosamarra.edu.iq
Module Leader's Acad. Title	lecturer	Module Leader's Qualification	Master of Civil Engineering
Module Tutor	None	Email	None
Peer Reviewer Name	None	Email	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	<p>The Aims of this course are to enable students to:</p> <ol style="list-style-type: none"> 1.The course will introduce Water resource 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 floods, precipitations and wells.
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 precipitations system and floods routing. 2.water flows in streams. 3.methods for calculates discharge . 4.Understand the dynamics of fluid flows and the governing parameters.
Indicative Contents	<p>This course introduces the student to water resource concepts and fundamentals. The course also includes the topics such as Properties of precipitations , flow in rivers ,floods and flood routing. Bernoulli equation and velocity area method</p>

Learning and Teaching Strategies	
Strategies	<p>Water resource course requires effective learning and teaching strategies to ensure students develop a strong understanding of complex concepts and their practical applications. The range of strategies that can enhance the learning experience for students in Water resource are; lecture-based teaching, practical applications, problem-solving assignments, group work and discussions, assessments and feedback, continuous learning, and encouraging self-directed learning.</p>

Student Workload (SWL)			
SWL Organization (hr/sem)	63	SWL organization (h/w) Regular weekly student load	4.2
Unstructured SWL (hr/sem)	37	Unstructured SWL (h/w) Irregular student load per week	2.4
Total SWL (hr/sem)	100		

Module Evaluation					
		Time /Number (hr)	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	3, 7, 10	1,2,3 and 4
	Assignments	3-4	20% (20)	3, 7, 9, 11	1,2,3 and 4
	Report	15	10% (10)	The week later	1,2,3, 4 and 5
Summative assessment	Midterm Exam	2 hr	50 % (50)	16	All
	Final Exam	3 hr	10% (10)	4 and 11	1,2,3, and 4
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Covered Materials
Week 1	Introduction to irrigation -Fundamentals of irrigation structure-types of irrigation systems
Week 2	introduction to hydrology-hydrologic cycle –probability in hydrology
Week 3	Precipitation
Week 4	evaporation
Week 5	Water in stream flow
Week 6	Water in stream flow/examples
Week 7	Hydrograph Analysis
Week 8	Hydrograph Analysis/examples
Week 9	Floods
Week 10	Floods calculation methods
Week 11	Flood routing
Week 12	Flood routing theories
Week 13	groundwater
Week 14	Groundwater/ examples
Week 15	Mid-term Exam

Learning and Teaching Resources		
	Text	Available in the library?
Required texts	Lecture Notes Yes	Yes
Recommended Texts	Water Resources Engineering by Larry W. Mays 2010 Wiley 2nd edition.	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.				

MODULE DESCRIPTION FORM

Module Information			
Module Title	Estimation and Construction methods	Module Delivery	
Module Type	C	<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	CE325		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	3	Semester of Delivery	6
Administering Department	CE	college	CENG
Module Leader	Anas Badr Hameed	Email	anasalsamarai@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	Master of Civil Engineering
Module Tutor	Ahmed Hadi	Email	Ahmed.ha.m@uosamarra.edu.iq
Peer Reviewer Name	Dawood Suleiman Ayed	Email	dawood.so.a@uosamarra.edu.iq
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. 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.
6. Teaching students how to design concrete formwork that meets project requirements.
7. Understanding cost estimation principles and their application in various stages of construction projects.
8. Analyzing engineering specifications and technical standards related to materials and construction methods.
9. Evaluating tender documents, contracts, and BoQ (Bill of Quantities) to ensure cost-effective project delivery.
10. Applying value engineering techniques to optimize project cost and quality.
11. Identifying methods of quality control and assurance in accordance with local and international standards.
12. Developing skills to prepare technical specifications and cost estimates that align with project requirements and resources.

Module Learning Outcomes

1. Ability to analyze the characteristics of construction equipment and select the most suitable type based on project requirements.
2. Understanding the computational principles related to equipment productivity, cost estimation, and time scheduling.
3. Applying engineering knowledge to assess equipment performance and enhance its efficiency.
4. Designing effective solutions for soil stabilization and improving bearing capacity.
5. Calculating the productivity of concrete mixers and designing formwork according to technical standards.
6. Developing planning and organizational skills to ensure efficient and high-quality project execution.
7. Enabling students to evaluate types of concrete mixers and design formwork for reinforced concrete structures.
8. Ability to estimate construction project costs using standard engineering methodologies and tools.
9. Understanding the structure and content of technical specifications and how to interpret them accurately.
10. Preparing and analyzing Bill of Quantities (BoQ) and tender documents.
11. Applying value engineering principles to evaluate cost-effective alternatives to construction.
12. Identifying and applying quality control and assurance procedures in line with

	<p>project specifications.</p> <p>13. Developing technical specifications for materials and execution methods according to engineering standards.</p> <p>14. Evaluate project bids and contractor proposals based on technical and financial criteria.</p>
<p>Indicative Contents</p>	<ol style="list-style-type: none"> 1. Presentation of images showcasing modern construction equipment. 2. Introductory videos on the engines of construction machinery and their operational methods. 3. Visual demonstrations of soil testing equipment. 4. Real-site images of formwork and installation techniques. 5. Field visits to construction sites to observe construction equipment in action. 6. Real-life project cost estimation and BoQ examples: Presenting actual projects with BoQ and cost analysis for various materials (e.g., concrete, steel, insulation). 7. Cost estimation videos using construction materials: educational videos demonstrating cost estimation based on material properties and market prices. 8. Case studies on cost and material impact: Analyzing real projects to assess how material choices (e.g., reinforced vs. regular concrete) influence costs. 9. Material specification workshops: Practical workshops on preparing accurate material specifications and calculating material quantities for projects.

<p style="text-align: center;">Learning and Teaching Strategies</p>	
<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 6. 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. 7. 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. 8. 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

Student Workload (SWL)			
SWL Organization (hr/sem) Lectures in Chapter 150 Tests in Chapter 3	93	SWL organization (h/w) Regular weekly student load	8.2
Unstructured SWL (hr/sem)	57	Unstructured SWL (h/w) Irregular student load per week	5.1
Total SWL (hr/sem)	150		

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

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Introduction
	Introduction to Cost Estimation and Construction Materials
Week 2	Construction equipment
	Types of Construction Materials and Their Properties
Week 3	Factors effecting the selection of an equipment
	Principles of Cost Estimation and Material Selection
Week 4	Factors effecting the selection of an equipment
	Factors Affecting Cost and Material Selection
Week 5	Engineering fundamentals of an equipment
	Technical Specifications and Engineering Standards for Materials
Week 6	Engineering fundamentals of an equipment
	Quantity Takeoff and Preparation of Bill of Quantities (BoQ)
Week 7	Productivity of an equipment
	Cost Estimation Techniques and Calculation Methods
Week 8	Productivity of an equipment
	Market Analysis and Material Price Fluctuations
Week 9	soil Stabilization
	Mid term
Week 10	soil Stabilization
	Cost-Effective Material Alternatives

Week 11	Productivity of concrete mixers
	Practical Applications of Cost Estimation in Projects
Week 12	Productivity of concrete mixers
	Comparative Analysis of Material Costs
Week 13	Design of forms in concrete structure
	Case Studies on Real-World Cost Estimation Projects
Week 14	Design of forms in concrete structure
	Tender Documents and Bidding Procedures
Week 15	Site Visits
Week 16	Final Exam

Learning and Teaching Resources		
	Text	Available in the library?
Required texts	Construction Quantity Surveying, Donald Towey, 2012	Yes
Recommended Texts	Construction Planning Equipment, and Methods, R. L. Peorifoy. Second Edition, 1970.	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	Legally acceptable	(45-49)	More work needed but credit given
	F-fail	Failed	(0-44)	A lot of work is required.

Note:

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.

MODULE DESCRIPTION FORM

Module Information			
Module Title	Engineering Computer	Module Delivery	
Module Type	S	<input type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	CE326		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	3		
Administering Department	CE	college	CENGS
Module Leader	Anwer M. Ali	Email	anwer.m.a@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	Master of Civil Engineering
Module Tutor	Ahmed Hadi Mahmood	Email	ahmed.ha.m@uosamarra.edu.iq
Peer Reviewer Name	None	Email	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 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.
Module Learning Outcomes	<ol style="list-style-type: none"> 1. Create 3D structural models using Revit Structural. 2. Accurately model structural elements including columns, beams, slabs, and foundations. 3. Extract detailed drawings and quantity schedules from the digital model. 4. Apply design adjustment and modeling tools within the BIM environment. 5. Utilize Revit in real-world engineering projects within multidisciplinary teams. 6. Perform statistical data analysis using SPSS software. 7. Accurately input, manage, and transform datasets for analysis. 8. Apply statistical techniques such as descriptive statistics, correlation, regression, and hypothesis testing. 9. Interpret SPSS output and translate statistical findings into meaningful conclusions. 10. Use SPSS to support research and decision-making in engineering, social sciences, and interdisciplinary projects.
Indicative Contents	<p>Indicative content includes the following.</p> <ul style="list-style-type: none"> • Introduction to Revit and the BIM environment. • Familiarization with the Revit interface, project setup, levels, and grids. • Modeling of structural elements: columns, walls, beams, slabs, and foundations. • Coordination and integration of structural systems within a single model. • Basic reinforcement detailing (visual modeling only, no structural analysis). • Insertion of reinforcement elements in a representative form. • Generation of structural drawings and schedules. • Creation of schedules, plans, sections, and detail views. • Execution of a complete applied project that consolidates all modeling components. • Introduction to SPSS and statistical analysis in research.

	<ul style="list-style-type: none"> • Navigating the SPSS interface: data view and variable view. • Data entry, coding, cleaning, and importing from Excel. • Descriptive statistics and data visualization. • Inferential statistics: T-tests, Chi-square, ANOVA, correlation. • Regression analysis: simple and multiple. • Hypothesis testing and interpretation of results. • Generating outputs for reports and research. • Applied statistical project using real or simulated data.
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Learning and Teaching 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>

Student Workload (SWL)				
Structured SWL (h/sem)				
In class lectures	75	63	Structured SWL (h/w)	4.2
In class tests	3			
Unstructured SWL (h/sem)		12	Unstructured SWL (h/w)	0.8
Total SWL (h/sem)				75

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

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to Revit and BIM environment, project setup, levels & grids
Week 2	Modeling structural columns and walls
Week 3	Modeling beams and slabs
Week 4	Modeling foundations and coordinating structural elements
Week 5	Detailing basics and visual reinforcement modeling
Week 6	Generating plans, sections, schedules, and quantity take-offs
Week 7	Applied mini project – complete structural model
Week 8	Mid Exam + general review
Week 9	Introduction to Statistics and Importance of Statistical Analysis An overview of statistics, the role of data, types of data and variables, and basic concepts of descriptive and inferential statistics.
Week 10	Variables and Types of Statistical Data Detailed explanation of variable types (categorical, numerical), measurement scales, and data collection methods.
Week 11	Descriptive Statistics: Measures of Central Tendency and Dispersion Concepts of mean, median, mode, standard deviation, variance, and range with illustrative examples.
Week 12	Probability Concepts and Statistical Distributions Basics of probability theory, normal distribution, binomial distribution, and their importance in statistical analysis.
Week 13	Hypothesis Testing Fundamentals Principles of hypothesis testing, null and alternative hypotheses, Type I and II errors, and significance levels.

Week 14	Basic Statistical Tests Theoretical understanding of t-tests (various types), chi-square test, and analysis of variance (ANOVA).
Week 15	Introduction to Correlation and Regression Concepts of linear correlation, simple and multiple regression, and interpreting relationships between variables.
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Getting started with Revit: interface overview, project setup, levels & grids
Week 2	Modeling structural columns and walls
Week 3	.and slabs Modeling beams
Week 4	Modeling foundations and coordinating structural elements
Week 5	Adding doors, windows, wall openings, and setting up element relationships
Week 6	Generating plans, sections, and structural schedules
Week 7	Practical mini project – creating a complete structural model
Week 8	Mid exam + general review
Week 9	Getting Familiar with SPSS Interface and Creating New Projects Navigating the SPSS environment, entering data, and saving projects.
Week 10	Data Entry, Importing, and Cleaning Manual data entry, importing datasets from Excel, cleaning data, and coding variables.
Week 11	Performing Descriptive Statistics and Creating Tables and Graphs Applying descriptive statistics, generating frequency tables, and creating charts such as histograms and pie charts.
Week 12	Conducting Hypothesis Tests: T-Tests and Chi-Square Test Running basic inferential tests on data and understanding output results.
Week 13	Applying ANOVA and Correlation Analysis Performing one-way and factorial ANOVA, conducting correlation analysis, and interpreting findings.
Week 14	Performing Simple and Multiple Regression Analysis Building regression models and analyzing the influence of independent variables on a dependent variable.
Week 15	Interpreting SPSS Outputs and Preparing an Applied Report Reading SPSS output, translating results into conclusions, and preparing a comprehensive data analysis report.
Week 16	Final Exam

Learning and Teaching Resources

	Text	Available in the library?
Required texts	Official Revit and SPSS User Guide – available through Autodesk's official website	No
Recommended Texts	Instructor-provided training files including project templates, pre-built models, and guided exercises.	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.

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.

MODULE DESCRIPTION FORM

Module Information			
Module Title	Computer II		
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	2		
SWL (hr/sem)	50		
Module Level	2	Semester of Delivery	3
Administering Department	CE	College	CENGs
Module Leader	Ama a Mady	e-mail	
Module Leader's Acad. Title	Asst. Lecturer	Module Leader's Qualification	Master of Computer Engineering
Module Tutor	None	e-mail	None
Peer Reviewer Name	None	e-mail	None
Scientific Committee Approval Date	06/01/2025	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)	33	Structured SWL (h/w) Regular weekly student load	4.2
Unstructured SWL (h/sem)	17	Unstructured SWL (h/w) Irregular student load per week	0.8

Total SWL (h/sem)	50
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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.

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.

