

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Mathematics I		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE101			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGI	Semester of Delivery		1
Administering Department	Civil eng. Dep.	College	College. Of engineering	
Module Leader	Dr. Raghad A. Mustafa		e-mail	raghad.math@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D	
Module Tutor			e-mail	
Peer Reviewer Name	Amina A Khaleel	e-mail	amina.alshumam@uomosul.edu.iq	
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

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

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

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

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

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

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Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Prerequisites for calculus, coordinates and Graphs in the plane,
Week 2	Slope and Equations for lines, functions and their graphs
Week 3	Shifts, Circles and parabolas , A review of trigonometric functions.
Week 4	Limits and continuity, introduction to limit.
Week 5	The sandwich theorem and $\frac{\sin \theta}{\theta}$
Week 6	Limits involving infinity, continuous functions
Week 7	Derivatives, slopes, Tangent lines and derivatives
Week 8	Differentiations Rules, Derivatives of Trigonometric functions
Week 9	The chain rule, implicit differentiation and fractional powers

Week 10	Applications of derivatives, Related rates of change.
Week 11	Maxima, minima, curve sketching with y' and y''
Week 12	Graphing Rational functions, Asymptotes, Optimization
Week 13	Types of Matrices, operations sum, multiplication by scalar, multiplication between two matrices.
Week 14	Determinants, The adjoint of Matrix, inverse of Matrix
Week 15	Solving systems of linear equation using Matrices
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

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

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Thomas' Calculus by Finney and Thomas.	Yes
Recommended Texts	Calculus by Ron Larson, Bruce Edwards.	no
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Engineering Mechanics I		Module Delivery	
Module Type	C		☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE102			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGI	Semester of Delivery		1
Administering Department	Civil Eng. Dep.	College	College of Engineering	
Module Leader	Nuha Hameedi Jasim		e-mail	nuhahamedi.nh@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	MSc	
Module Tutor	Nuha Hameedi Jasim		e-mail	nuhahamedi.nh@uomosul.edu.iq
Peer Reviewer Name	Dr. Suhaib Y Al-darzi	e-mail	suhaib.qasim@uomosul.edu.iq	
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	This course aims to introduce the student to the system of units, types of forces, and types of quantities. How to analyze and compose forces. Finding the resultant force, Being able to calculate moments about different points and how to calculate the couple and transfer forces from one place to another. The student also learns about the effect of forces on static bodies and how to calculate reactions. And learn about the methods of analyzing some structures, such as trusses and frames.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognizing Newton's laws and the concept of force and the basic units used for it, and understanding how to analyze and compose forces. 2. Classification of the type of forces, are they concurrent or parallel or are they nonconcurrent forces, and how to find the resultant of each type of force. 3. Finding the moment of forces about any point and determine the couple, In addition to the transfer of forces from one point to another point. 4. Applying equilibrium equations to problems and finding reactions that make bodies in equilibrium. 5. Analysis of some engineering structures such as trusses and frames. 6. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics. 7. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics. 8. An ability to acquire and apply new knowledge and using appropriate learning strategies. 9. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Chapter 1 Introduction</u> Fundamental concept, Newton's laws, units of measurement, the international system of units, Scalars and Vectors [3 hrs] <u>Chapter 2 Forces system and Resultant</u> Forces, composition and resolution of forces, Parallelogram law, moment, Couples, Force analysis into force and couple, the resultant of any system of forces [20hrs] <u>Chapter 3 Equilibrium</u> Free-Body Diagrams, Equations of Equilibrium, Two- and Three-Force Members, The equilibrium of bodies subjected to non-concurrent forces [22hrs] <u>Chapter 4 Truss and Frames</u> <u>Part A</u> Introduction, Trusses, Assumptions of simple trusses analysis, Zero-Force Members, Analysis of trusses by joint method, Analysis of trusses by section method. [18 hrs] <u>Part B</u> Frames analysis. [12 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

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

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

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

Module Evaluation

تقييم المادة الدراسية

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

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

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	“Engineering Mechanics-statics”, (1990), (Book language: Arabic)	Yes
Recommended Texts	Engineering Mechanics-statics”,(2016), R.C. Hibbeler ,14th edition.	Yes
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Engineering Drawing I		Module Delivery	
Module Type	C		☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE103			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGI	Semester of Delivery		1
Administering Department	Civil Eng. Dep.	College	College of Engineering	
Module Leader	Ibtesam hazem/sura abd-alrazaaq		e-mail	ibtesam_alzubady_b-s@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	MSc	
Module Tutor	Name (if available)		e-mail	E-mail
Peer Reviewer Name	امينة احمد خليل	e-mail	amina.alshumam@uomosul.edu.iq	
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To know about different types of lines & use of different types of pencils in an Engineering Drawing 2. To know how to represents letters & numbers in drawing sheet. 3. To know how to draw graphic geometry. 4. To know about different types of projection 5. To know projection of points ,straight lines, solids etc. 6. To know development of different types of surfaces.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Identify and use of different grades of pencils and other drafting instruments which are used in engineering field . 2- Draw free hand sketches of various kinds of objects. 3- Utilize various types of lines used in engineering drawing. 4- Read and apply different dimensioning methods on drawing of objects. 5- Use different types of scales and their utilization in reading and reproducing drawings of objects and maps. 6- Draw 2 - dimensional view of different objects viewed from different angles (orthographic views) . 7- Draw and interpret complete inner hidden details of an object which are otherwise not visible in normal view. 8- An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics. 9- An ability to acquire and apply new knowledge and using appropriate learning strategies. 10- An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: Introduction about tools drawings and types of lines[4], Basic graphic &types of scales[6], graphic geometry , drawing polygons and ellipse ,reverse curve [12] , Orthographic Projection [18], Surface States[6] , Projection on Inclined Surfaces[8] , Tangent points [6].
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4

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

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي	
	Material Covered
Week 1	Introduction to drawing instruments, materials, layout and sizes of drawing sheets and drawing boards.
Week 2	Different types of lines in Engineering drawing & Practice of vertical, horizontal and inclined lines.
Week 3	Basic Graphic
Week 4	Types of scales
Week 5	Graphic Geometry: how to draw to parallel, perpendicular & divide line.
Week 6	Geometrical figures such as triangles, rectangles, circles, ellipses and curves, hexagonal, pentagon with the help of drawing instruments
Week 7	Reverse Curve or Ogee Curve
Week 8	Theory of orthographic projections
Week 9	Types of projection
Week 10	Projection with parallel and perpendicular rays
Week 11	Three views of orthographic projection of different objects. (At least one sheet in 3rd angle)
Week 12	Surface States
Week 13	Projection of cylinders
Week 14	Projection on Inclined Surfaces
Week 15	Tangent points in projection

Week 16	Final Exam
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Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Teaching students to use tools in the studio
Week 2	Teaching students how to draw H.W. No. 1 and how to draw angles correctly
Week 3	Application to engineering operations by giving several homework questions
Week 4	Apply the drawing scale by giving a class work
Week 5	A practical application on drawing parallel and perpendicular lines and learning how to draw polygons, ellipse.
Week 6	
Week 7	Teach students to draw an reverse curves and give examples
Week 8	Practical application to various issues related to the theory of orthographic projection through class assignments and giving homework
Week 9	
Week 10	
Week 11	
Week 12	Solve examples of surface states
Week 13	Solve examples of projection of cylinders
Week 14	A practical application of projection on inclined surfaces and teaching the student how to find points of tangent in the projections
Week 15	

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

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

	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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

-MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Geology		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE104			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGI	Semester of Delivery		1
Administering Department	Civil Eng. Dep.	College	College of Engineering	
Module Leader	Dr. Khawlah Ahmad		e-mail	Khawlah.ahmad@uomosul.edu.iq
Module Leader's Acad. Title	Ass. Prof		Module Leader's Qualification	Ph.D
Module Tutor				
Peer Reviewer Name	امينة احمد خليل		e-mail	amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025		Version Number	1.0

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

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

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

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

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

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

Module Evaluation

تقييم المادة الدراسية

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

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

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

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

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Statistics I		Module Delivery
Module Type	B		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code			
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	UGI	Semester of Delivery	
Administering Department	Civil Eng Dep	College	College of Engineering
Module Leader	Mohammed Ghanim	e-mail	Mohammed_g72@uomosul.edu.iq
Module Leader's Acad. Title	lecturer	Module Leader's Qualification	MSc
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	امينة احمد خليل	e-mail	amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.1

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

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

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

Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

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

Delivery Plan (Weekly Syllabus)	
المناهج الاسبوعي النظري	
	Material Covered
Week 1	General Introduction to Engineering Statistics
Week 2	Data Presentation: Tabular presentation /Creating Frequency Table.
Week 3	Graphical presentation (Histogram, Frequency Polygon).
Week 4	Measures of central tendency (Arithmetic mean, median and mode, the relation between the central tendency measures for unimodal distributions
Week 5	Measurement of dispersion and variation, absolute dispersion (ungrouped data)
Week 6	Measurement of dispersion and variation, absolute dispersion (grouped data)
Week 7	Measurement of dispersion and variation, absolute dispersion (grouped data)
Week 8	Probability: Basic Concepts of Probability Theory
Week 9	Rule of Probability Additional rule Two events, mutually and non-mutually events
Week 10	Three events, mutually and non-mutually events
Week 11	Multiplication rule, Two events, (independent and dependent events)

Week 12	The definition of conditional probability and their properties. Bayes' theorem
Week 13	The definition and classification of random variable (Discrete and Continuous), type of discrete distributions
Week 14	Discrete probability distributions (Binomial distribution)
Week 15	Discrete probability distributions Poisson distribution).
Week 16	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	مدخل الى الاحصاء، د. خاشع الراوي	Yes
Recommended Texts	Introduction to Probability and Statistics for Engineers, Holický, Milan	No
Websites		

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Democracy and Human Rights		Module Delivery	
Module Type	S		☐ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOM1040			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	UGI	Semester of Delivery		1
Administering Department	Civil Eng. Dep.	College	College of Engineering	
Module Leader	Zahraa Riyadh Ali Al-Taie		e-mail	Zahraa_riyadh@uomosul.edu.iq
Module Leader's Acad. Title		Module Leader's Qualification	MSc	
Module Tutor	Zahraa Riyadh Ali Al-Taie		e-mail	Zahraa_riyadh@uomosul.edu.iq
Peer Reviewer Name	امينة احمد خليل	e-mail	amina.alshumam@uomosul.edu.iq	
Scientific Committee Approval Date	1-9-2025	Version Number	1.1	

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The aim of studying the democracy and human rights topics is to: 1. Understand the concept of human rights and explore their sources, including international, regional, national, and religious sources. 2. Define administrative corruption, explore its types, and understand its detrimental effects on society. Study methods to combat administrative corruption and promote transparency, accountability, and good governance. 3. Trace the historical development and evolution of human rights, examining key milestones and movements that have shaped the modern understanding of human rights. 4. Differentiate between different categories of human rights, including civil and political rights, economic and social rights, and environmental, cultural, and developmental rights. 5. Explore legal, institutional, and societal guarantees to prevent human rights violations, including guarantees of human rights in Islam, national-level protections, and international safeguards. 6. Comprehend the concept of democracy, including its principles, values, and various forms of democratic governance such as direct, semi-direct, indirect, and digital democracy. Overall, studying these topics aims to develop a comprehensive understanding of human rights, democracy, and combating corruption, empowering individuals to actively promote and protect human rights and democratic values in society.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	After these module aims, students should be able to: 1. Demonstrate a comprehensive understanding of the concept of human rights and their sources, including international, regional, national, and religious sources. 2. Identify and explain the fundamental characteristics of human rights, such as universality, indivisibility, interdependence, and inalienability. 3. Analyze the historical emergence and evolution of human rights, including key milestones and movements that have shaped their development. 4. Differentiate between different categories of human rights, including civil and political rights, economic and social rights, and environmental, cultural, and developmental rights. 5. Evaluate and apply legal, institutional, and societal guarantees to prevent human rights violations, considering guarantees in Islam, at the national level, and within the international framework. 6. Understand and discuss the concept of democracy, including its principles, values, and different forms of democratic governance. 7. Evaluate the Islamic stance on democracy and engage in critical analysis of the strengths and weaknesses of the democratic system. 8. Recognize and assess the impact of administrative corruption on society and propose methods to combat and prevent corruption in administrative systems. 9. Demonstrate critical thinking skills by analyzing and evaluating different perspectives on human rights, democracy, and corruption. 10. Apply acquired knowledge and skills to promote and protect human rights, democracy, and good governance in personal, professional, and civic contexts. Overall, students should have a solid understanding of democracy and human rights, democracy, and corruption issues, and be able to apply this knowledge to contribute to

	the advancement of human rights and democratic values in society.
Indicative Contents المحتويات الإرشادية	The indicative content includes: 1. Definition and sources of democracy and human rights (international, regional, national, religious). [3h] 2. Characteristics of democracy and human rights: universality, indivisibility, interdependence, inalienability. [3h] 3. Emergence and evolution of human rights: historical development, key milestones, influential movements. [3h] 4. Types of human rights: civil and political, economic and social, environmental, cultural, and developmental. [3h] 5. Guarantees to prevent human rights violations: legal, institutional, societal safeguards, Islamic guarantees, national and international levels. [3h] 6. Concept of democracy: principles, values, forms of governance (direct, semi-direct, indirect). [3h] 7. Islamic stance on democracy: compatibility, strengths, weaknesses. [3h] 8. Critique of the democratic system: analysis of strengths and weaknesses. [3h] 9. Administrative corruption: definition, types, societal impact. [3h] 10. Methods to combat administrative corruption. [3h]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	When it comes to learning and teaching strategies for a human rights module, there are several approaches can be taken to enhance understanding and engagement. Here are some effective strategies: 1. Interactive Discussions: Encourage students to actively participate in discussions, debates, and group activities. This promotes critical thinking, allows for different perspectives to be shared, and fosters a deeper understanding of human rights issues. 2. Case Studies: Present real-life case studies that highlight human rights violations or achievements. Analyzing these cases helps students apply theoretical concepts to practical situations and develops their problem-solving skills. 3. Research Projects: Assign research projects on specific human rights topics or issues. This encourages independent learning, critical analysis, and the development of research skills. 4. Collaborative Learning: Foster collaboration among students through group projects or assignments. This encourages teamwork, peer learning, and the exchange of diverse perspectives. 5. Assessment Variety: Use a variety of assessment methods, including essays, presentations, debates, and quizzes, to assess students' understanding of human rights concepts and their ability to apply them to real-world situations.

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

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered

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

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

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

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?

Required Texts	ضمانات حقوق الانسان وحمايتها وفقا للقانون الدولي والتشريع الوطني / نبيل عبد الرحمن ناصر الدين	No
Recommended Texts	الديمقراطية وحقوق الانسان / د. امير عبد العزيز	No
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	English Language		Module Delivery
Module Type	S		☐ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	UOM1021		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	UGI	Semester of Delivery	1
Administering Department	Civil Eng. Dep.	College	College of Engineering
Module Leader	Rahma. E. AbdulKareem	e-mail	Rahma.aithar@uomosul.edu.iq
Module Leader's Acad. Title	Ass. Lecturer	Module Leader's Qualification	M. Sc
Module Tutor		e-mail	
Peer Reviewer Name	امينة احمد خليل	e-mail	amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.1

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Develop English vocabulary and oral communication skills. 2. Enable students to introduce themselves and engage in basic everyday conversations. 3. Develop students' ability to express their interests, social relationships, and personal preferences. 4. Enhance reading and comprehension skills through a variety of appropriate texts. 5. Improve listening skills through audio materials and interactive activities. 6. Develop basic and academic writing skills through various writing tasks. 7. Improve pronunciation and the accurate use of basic language structures. 8. Expand vocabulary through learning adjectives, question words, and common expressions. 9. Build confidence in using English for everyday communication 10. Improve overall language proficiency in speaking, reading, writing, and listening skill.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Developed a strong vocabulary and improved speaking skills for basic conversation and personal introductions. 2. Acquired knowledge about different countries, their cultures, and improved reading and speaking abilities to discuss them. 3. Gained proficiency in using personal pronouns (he/she/they) and possessive pronouns (his/her/their). 4. Enhanced reading and listening skills by understanding and responding to texts on topics such as jobs, personal information, and social expressions. 5. Strengthened reading and writing skills through activities focused on family, possessive forms, and the alphabet. 6. Expanded vocabulary related to sports, food, drinks, languages, nationalities, numbers, and prices, while improving pronunciation. 7. Developed the ability to ask questions using question words, use pronouns (me/him/us/them), and express preferences using adjectives. 8. Improved overall vocabulary and communication skills in both speaking and listening through various activities and exercises. 9. An ability to acquire and apply new knowledge and using appropriate learning strategies. 10. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A - Reading and Writing: <u>-Developing reading comprehension skills through texts and passages related to various topics.</u> <u>-Practicing writing skills through activities such as summarizing, paragraph writing, and essay writing. [30 hrs.]</u> Part B -Vocabulary: -Building vocabulary related to different themes and contexts, including greetings, personal information, occupations, sports, food, drinks, etc. -Expanding word knowledge through exercises, word associations, and contextual usage [10 hrs] Part C -Listening and Speaking: -Enhancing listening skills through audio materials, dialogues, and conversations. -Engaging in speaking activities to improve fluency, pronunciation, and communication skills. -Participating in discussions, role-plays, and presentations to develop oral proficiency. [7 hrs]

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

Student Workload (SWL) الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	50		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Unit 1- Hello.
Week 2	Vocabulary and speaking.
Week 3	Unit 2- your world. Countries • he/she/they, his/her • Where's he from?

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

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

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

Learning and Teaching Resources

مصادر التعلم والتدريس

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

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
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Fail Group (0 - 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work is required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Mathematics II		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE106			
ECTS Credits	7			
SWL (hr/sem)	175			
Module Level	UGI	Semester of Delivery		2
Administering Department	Civil engineering	College	College of Engineering	
Module Leader	Raghad A. Mustafa		e-mail	raghad.math@uomosul.edu.iq
Module Leader's Acad. Title	Lecture	Module Leader's Qualification	M.SC.	
Module Tutor			e-mail	
Peer Reviewer Name	Amina A Khaleel	e-mail	amina.alshumam@uomosul.edu.iq	
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

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

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

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

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

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

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Integrating , finding the area with x-axis
Week 2	Definite integrals, indefinite integrals
Week 3	Application of definite integrals, Areas between Curves
Week 4	Volumes of solids of revolution, Disks and Washers
Week 5	Cylindrical shells,
Week 6	length of curves in the plane
Week 7	Areas of surfaces of Revolution
Week 8	The calculus of transcended functions, inverse functions,
Week 9	$\ln x$, e^x and logarithmic differentiation

Week 10	General exponential and logarithmic function
Week 11	Indeterminate forms and l'Hopital's Rules, The inverse of trigonometric functions
Week 12	Techniques of integration, basic integration formulas
Week 13	Integration by parts
Week 14	Trigonometric integrals, Trigonometric substitution
Week 15	Rational functions and partial fractions
Week 16	Preparatory week before the final Exam

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

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

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Engineering Mechanics II		Module Delivery	
Module Type	C		☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE107			
ECTS Credits	7			
SWL (hr/sem)	175			
Module Level	UGI	Semester of Delivery		2
Administering Department	Civil engineering	College	College of engineering	
Module Leader	Nuha Hameedi Jasim Dr. Mohammed S. Al Jawahery		e-mail	nuhahamedi.nh@uomosul.edu.iq mohammed.aljawahery@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	MSc	
Module Tutor	Nuha Hameedi Jasim Dr. Mohammed S. Al Jawahery		e-mail	nuhahamedi.nh@uomosul.edu.iq mohammed.aljawahery@uomosul.edu.iq
Peer Reviewer Name	Dr. Suhaib Y Al-darzi	e-mail	suhaib.qasim@uomosul.edu.iq	
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		Semester	
Co-requisites module	Mechanic of Materials	Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	This course aims to introduce the student to Friction with application examples, concept of centroid and center of gravities, concept of moment of inertia. In additions to Introduction to dynamic's engineering mechanics.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Friction, with application examples. 2. Concept of Centroid and center of gravities. 3. Concept of Moment of inertia. 4. Introduction to dynamic's engineering mechanics. 5. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics. 6. An ability to acquire and apply new knowledge and using appropriate learning strategies. 7. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Chapter 1 Introduction</u> Fundamental concept, Reviewing for Engineering Mechanics-I with application examples [5 hrs]. <u>Chapter 2 Friction</u> Introduction, Characteristics of Dry Friction, with application examples [15 hrs] <u>Chapter 3 Centroids and Center of Gravities</u> <u>Part A:</u> Introduction, Centroid and center of gravities by integration. [10 hrs] <u>Part B:</u> Centroids for combined areas. [10 hrs] <u>Chapter 4 Moment of Inertia</u> <u>Part A:</u> Concept of Moment of inertia. [10 hrs] <u>Part B:</u> Moment of inertia for combined areas. [10 hrs] <u>Part C:</u> Moment of inertia for an area about inclined axes. [10 hrs] <u>Chapter 5 Dynamics</u> Introduction to dynamic (basics, definitions and concepts of projectiles). [20 hrs]
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

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

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

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction, Basic concepts, Reviewing for Engineering Mechanics-I with application examples
Week 2	Concepts of friction (definitions and application examples)
Week 3	Problems
Week 4	Concept of centroids and center of gravities
Week 5	Centroid by integration

Week 6	Centroids for combined areas
Week 7	Problems
Week 8	Concept of Moment of inertia
Week 9	Moment of inertia for combined areas
Week 10	Product of inertia of an area
Week 11	Problems
Week 12	Moment of inertia for an area about inclined axes
Week 13	Problems
Week 14	Introduction to dynamic (basics, definitions and concepts of projectiles)
Week 15	Problems
Week 16	Preparatory week before the final Exam

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	“Engineering Mechanics-Dynamic”, (1990), (Book language: Arabic)	Yes
Recommended Texts	Engineering Mechanics-Dynamic”, (2010), R.C. Hibbeler ,12 edition. (Book language: English)	Yes
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Engineering Drawing II		Module Delivery	
Module Type	C		☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE108			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGI	Semester of Delivery		2
Administering Department	Civil engineering	College	College of Engineering	
Module Leader	Ibtesam hazem/sura abd-alrazaaq		e-mail	ibtesam_alzubady_b-s@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	MSc	
Module Tutor	Name (if available)		e-mail	E-mail
Peer Reviewer Name	امينة احمد خليل	e-mail	amina.alshumam@uomosul.edu.iq	
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To know about isometric projection. 2. Different lines used for representation of different Engineering Sections. 3. To know how to estimate missing view. 4. Qualifying students to use AutoCAD for engineering drawings efficiently in order to help them in their designs & projects.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Identify and use of different grades of pencils and other drafting instruments which are used in engineering field . 2- Draw free hand sketches of various kinds of objects. 3- Generate isometric (3D) drawing from different 2D (orthographic) views/sketches. 4- Identify conventions for different engineering materials, symbols, sections of regular objects and general fittings used in Civil and Electrical household appliances. 5- Find the missing views. 6- students will be able to use Autocad commands to make drawings, create annotations, create & insert symbols, dimension a drawing, create blocks, and plot drawings with certain scales. 7- An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics. 8- An ability to acquire and apply new knowledge and using appropriate learning strategies. 9- An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: Introduction in in Isometric drawing then explain its type , Circles Isometric [10] , Inclined Surfaces in Isometric [4] , Missing View [6] , Sectional Views, Parts not sectioned [10] , Autocad commands [30].
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4

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

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

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

Week 13	Modify III. 1- Array, Offset, Fillet, Chamfer, Trim, Extend, Lengthen, Mirror,Break, Join, Explode.
Week 14	Annotation I, Modify IV, Inquiry: 1-Style, Text, Mtext, Ddedit,. 2- ID, Dist, Area, Massprop
Week 15	Annotation II: 1- Dimensions & Leaders.
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)		
المنهاج الاسبوعي للمختبر		
	Material Covered	
Week 1		
Week 2		
Week 3		
Week 4		
Week 5		
Week 6		
Week 7		
Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Engineering Drawing and Graphic Technology, By French & Vierk , Twelve edition Autodesk Autocad 2020 online Help	yes
Recommended Texts	Technical drawing with engineering	No
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Computer 1		Module Delivery
Module Type	B		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	UOM 1031		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	1	Semester of Delivery	
Administering Department	Civil Eng. Dept.	College	College of Engineering
Module Leader	Rowida Salih	e-mail	Rowida.alkhafagi@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	M.Sc
Module Tutor		e-mail	
Peer Reviewer Name	Amina A Khaleel		amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The Module aim is to prepare student to deal with computers. In addition to, teach the student the fundamentals of computers and its components. Furthermore, learning how to use two of Microsoft Office applications (Word and Excel).
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	It is expected from the student who passes this module learn the following topics: 1. Computers and Operating System 2. Software and Hardware Interaction 3. Windows File Management 4. Operating System Customization 5. Computer Hardware 6. Monthly LAB Exam 7. Exploring Microsoft Office 2013 8. Getting Started with Word Essentials 9. Editing and Formatting Documents 10. Getting Started with Excel Essentials 11. Organizing and Enhancing Worksheets 12. Creating Formulas and Charting Data 13. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics. 14. An ability to acquire and apply new knowledge and using appropriate learning strategies. 15. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Computers and Operating System [6 hr] Software and Hardware Interaction [6 hr] Windows File Management [3 hr] Operating System Customization [3 hr] Computer Hardware [6 hr] Exploring Microsoft Office 2013 [3 hr] Getting Started with Word Essentials [3 hr] Editing and Formatting Documents [3 hr] Getting Started with Excel Essentials [3 hr] Organizing and Enhancing Worksheets [3 hr] Creating Formulas and Charting Data [3 hr]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the Lab activities, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, laboratory and by considering type of external search involving some of computer technology that are interesting to the students.
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Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعاً			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	27	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

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

Delivery Plan (Weekly Syllabus) المنهاج الأسبوعي النظري	
	Material Covered
Week 1	Computers and Operating System
Week 2	Computers and Operating System (Continued)
Week 3	Software and Hardware Interaction
Week 4	Software and Hardware Interaction (Continued)
Week 5	Windows File Management
Week 6	Operating System Customization
Week 7	Computer Hardware
Week 8	Computer Hardware (Continued)
Week 9	Monthly Exam
Week 10	Exploring Microsoft Office 2013
Week 11	Getting Started with Word Essentials
Week 12	Editing and Formatting Documents
Week 13	Getting Started with Excel Essentials

Week 14	Organizing and Enhancing Worksheets
Week 15	Creating Formulas and Charting Data
Week 16	Preparatory week before the final Exam

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

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

Grading Scheme

مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Statistics II		Module Delivery
Module Type	B		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	CE109		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	UGI	Semester of Delivery	
Administering Department	Civil engineering	College	College of Engineering
Module Leader	Noora Suhail	e-mail	
Module Leader's Acad. Title	Assistant lecture	Module Leader's Qualification	MSc
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	امينة احمد خليل	e-mail	amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.1

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Introduce the student to collecting and presenting statistical data 2. Classifying and tabular the engineering information in a manner consistent with the data and the field of academic work 3. an ability to conduct experiments, analyze and interpret data 4. The ability to identify and solve engineering problems. 5. Take the appropriate decision through scientific analysis of information
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1 Develop a clear and concise description of the problem. 2 Identify, at least tentatively, the important factors that affect this problem or that may play a role in its solution. 3 Propose a model for the problem, using scientific or engineering knowledge of the phenomenon being studied. State any limitations or assumptions of the model. 4 Conduct appropriate experiments and collect data to test or validate the tentative model or conclusions made 5 Refine the model on the basis of the observed data. 6 Manipulate the model to assist in developing a solution to the problem. 7 Conduct an appropriate experiment to confirm that the proposed solution to the problem is both effective and efficient. 8 Draw conclusions or make recommendations based on the problem solution. 9 An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics. 10 An ability to acquire and apply new knowledge and using appropriate learning strategies. 11 An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	- Introduction: nature of statistics. [8 hr] - The statistical terms: nature of statistical data, Distributions, Measures of central location, Measures of variation or dispersion. [12 hr] - Elementary probability theory, Probability distribution , Discrete probability distribution . [14 hr] - Continues probability distribution, Sampling theory, Estimation theory, Statistical decision theory, Simple regression and correlation. [14 hr]

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

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Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

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

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

Week 9	Test of the Mean with Unknown Population Variance using t statistic
Week 10	Test of the mean with unknown population variance using t statistic & confidence interval
Week 11	Test of the Mean with Unknown Population Variance using t statistic. applications
Week 12	F-test, applications
Week 13	F-test, applications
Week 14	χ^2 - distribution
Week 15	χ^2 -test, applications
Week 16	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	مدخل الى الاحصاء ، د. خاشع الراوي	Yes
Recommended Texts	Introduction to Probability and Statistics for Engineers, Holický, Milan	No
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتنياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Electrical Engineering	Module Delivery	
Module Type	B	☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE110		
ECTS Credits	2		
SWL (hr./sem)	50		
Module Level	UGI		
Administering Department	Civil eng. Dep.	College	College of Engineering
Module Leader	Mr. Yehia Rehab hamdy	e-mail	Yehia.rehab@uomosul.edu.iq
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name	Amina A Khaleel	e-mail	amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.1

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

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

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

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem)	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1

الحمل الدراسي غير المنتظم للطالب خلال الفصل		
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50	

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Basic Concept & Units: Electricity & atomic structure of substance, current and current density, current flow, electric circuit, E.M. F& potential difference
Week 2	international system of unit, abbreviation for multiples & sub-multiples, quantities derived from SI units, units of force-energy-torque and power, relation between energy and heat, electric units, efficiency & percentage efficiency, electromechanical equivalent of element
Week 3	Ohm's law, resistivity & conductivity
Week 4	temperature affect, internal resistance of a source, open circuit & short circuit
Week 5	equivalent resistance: Series-parallel-circulating current method-floating source method & grouping of E.M.F. sources, double subscript
Week 6	power calculation in D.C circuit
Week 7	Energy calculation in D.C circuit
Week 8	Mid-term Exam
Week 9	General rules for the prevention of electric shock
Week 10	Grounding resistor calculation
Week 11	Grounding installation for houses and buildings
Week 12	Protection and prevention from electric lightning
Week 13	Distribution of electrical appliances and equipment within residential buildings
Week 14	Conducting inspections of electrical devices
Week 15	Voltage drop calculations for transmission lines

Week 16	Final Exam
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Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	

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

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Arabic Language		Module Delivery
Module Type	S		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	Uom1011		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	UGI	Semester of Delivery	
Administering Department	Civil engineering	College	College of engineering
Module Leader	Abeer Turki	e-mail	
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor	Abeer Turki	e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	1-9-2025	Version Number	1.1

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

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

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

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	الإستراتيجية الرئيسية التي سيتم تبنيها في تقديم هذه الوحدة هي تشجيع الطلاب على المشاركة على المشاركه في الكلام العربي وكتابتة بالصورة الصحيحة ، مع تحسين مهارات التفكير النقدي وتوسيعها في نفس الوقت. سيتم تحقيق ذلك من خلال الفصول والبرامج التعليمية التفاعلية ومن خلال النظر في أنواع التجارب البسيطة التي تتضمن بعض أنشطة أخذ العينات التي تهم الطلاب.

Student Workload (SWL) الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	50		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	الكلام العربي: تعريفه، اقسامه، وعلامات كل قسم.
Week 2	الجملة العربية: تعريفها ، اقسامها : الاسمية والفعلية
Week 3	حركات الاعراب: اصلية، فرعية
Week 4	العفل العربي: من حيث الصحة والاعلال
Week 5	الفعل العربي من حيث اللزوم والتعدي

Week 6	الفعل العربي من حيث الزم
Week 7	امتحان
Week 8	العدد: تذكرة، وتانيته
Week 9	علامات الترقيم في الكلام
Week 10	قواعد رسم الهمزة
Week 11	الناء المربوطة، والمبسوطة
Week 12	قل ولا تقل: الأخطاء الشائعة لدى المتكلمين والكتاب
Week 13	الأسلوب الخبري،
Week 14	والأسلوب الإنشائي
Week 15	مهارات لغوية: تنمية الذوق اللغوي، وتحسين الأسلوب لدى المتعلمين
Week 16	امتحان نهاية الفصل

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	جامع الدروس العربية: الشيخ مصطفى الغلاييني	no
Recommended Texts	الجملة العربية: تأليفها وأقسامها د. فاضل السامرائي	No
Websites	https://www.almrsl.com/post/923401	

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Mathematics III		Module Delivery
Module Type	C		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	CE201		
1ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGII	Semester of Delivery	
Administering Department	CE	College	ENG
Module Leader	Asaad Al-Omari	e-mail	asaad.alomari@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Revan Nahith	e-mail	revan.nahith@uomosul.edu.iq
Peer Reviewer Name	Asaad Al-Omari	e-mail	asaad.alomari@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0

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

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

Learning and Teaching Strategies			
استراتيجيات التعلم والتعليم			
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students’ participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering simple experiments involving some sampling activities that are interesting to the students.		
Student Workload (SWL)			
الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem)	78	Structured SWL (h/w)	5
الحمل الدراسي المنتظم للطلاب خلال الفصل		الحمل الدراسي المنتظم للطلاب أسبوعيا	
Unstructured SWL (h/sem)	72	Unstructured SWL (h/w)	5
الحمل الدراسي غير المنتظم للطلاب خلال الفصل		الحمل الدراسي غير المنتظم للطلاب أسبوعيا	
Total SWL (h/sem)	150		
الحمل الدراسي الكلي للطلاب خلال الفصل			

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Partial Derivative.
Week 2	Second Order Partial Derivative, Higher Order Partial Derivative
Week 3	Chain Rule,
Week 4	Maximum and Minimum & Saddle Point
Week 5	Lagrange Multipliers
Week 6	Introduction to Multiple Integration

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

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

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

Learning and Teaching Resources

مصادر التعلم والتدريس

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

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Mechanics of Materials I		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE202			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGII	Semester of Delivery		3
Administering Department	CE	College	ENG	
Module Leader	Dr. Ali Natheer Abdul Baki		e-mail	aliabdulbaki@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.	
Module Tutor	Dr. Khalid Ahmed Abdullah		e-mail	khalid.alnuaemie75@uomosul.edu.iq
Peer Reviewer Name	Dr. Ali Natheer Abdul Baki		e-mail	aliabdulbaki@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

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

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

	shear and the bending moment in a beam are greatly facilitated if V and M are plotted against the distance x measured from one end of the beam. Both of the equations method and the area method are utilized to draw the shear and moment diagram. [20 hrs] <u>Deflection in beams</u> From a structural perspective, deflection in a beam means the movement of a beam or node respecting its original location. The deflection is happened due to applied loads. The double integration method and area method are utilized to calculate deflection and rotation at any point on the beam. [20 hrs]
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy for delivering this module is to encourage students' participation in exercises while refining and expanding their critical thinking skills. This will be achieved through classes and interactive tutorials.

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

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

Delivery Plan (Weekly Syllabus)

المناهج الاسبوعي النظري

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

Learning and Teaching Resources

مصادر التعلم والتدريس

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

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Fluid Mechanics		Module Delivery	
Module Type	B		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE203			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGII	Semester of Delivery		3
Administering Department	CE	College	ENG	
Module Leader	Dr. Khansaa Abdulelah AHMED		e-mail	khansaa.abd@uomosul.edu.iq
Module Leader's Acad. Title	lecture	Module Leader's Qualification	Ph.D.	
Module Tutor	Dr. Khansaa Abdulelah AHMED		e-mail	khansaa.abd@uomosul.edu.iq
Peer Reviewer Name	Riffa dalli hamad	e-mail	Reffashlla@uomosul.edu.iq	
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

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

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

	and flow distribution. [8 hrs]
	9. Flow in open channels: Types of Flow, Channel Geometry, Flow Velocity and Discharge, Manning Equation. [10 hrs]

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

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

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

assessment	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #6 and 8
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

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

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Reynold Number.
Week 2	Lab 2: Impact of Jet.
Week 3	Lab 3: Center of Pressure.
Week 4	Lab 4: Bernoulli equation.
Week 5	Lab 5: Venturi meter.
Week 6	Lab 6: Friction factor for pipes.
Week 7	Lab 7: Flow through orifice.

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

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Concrete Technology I		Module Delivery
Module Type	C	☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE204		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGII	Semester of Delivery	3
Administering Department	CE	College	ENG
Module Leader	Dr. Sufyan Younis Ahmad	e-mail	sofyan1975@uomosul.edu.iq
Module Leader's Acad. Title	Assistance Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Zeena Adel Mohammed	e-mail	zena.adal@uomosul.edu.iq
Peer Reviewer Name	Riffa dalli hamad	e-mail	Reffashlla@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	Concrete Technology II	Semester	4

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. Introducing all construction materials, specifically cement and aggregate. 2. Finding the composition of different types of cement and the properties of cement with all tests that used to determine cement properties. 3. Study the properties of aggregate with all tests that conducted to find these properties. 4. Study the effect of cement and aggregate properties on the properties of concrete based on workability, strength, and durability. 5. Study how to calculate the bulking factor in aggregate to calculate the actual volume provided in site. 6. Study how to correct the weight of fine and coarse aggregate based on their humidity conditions. 7. Focus on sustainable materials (friendly environmental materials) that can be used as a replacement of construction materials including supplementary cementitious materials and recycling aggregate. 8. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics. 9. An ability to acquire and apply new knowledge and using appropriate learning strategies. 10. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Identify the standard specification of quality control for construction materials (cement, aggregate, and water) based on ASTM, BS EN, IQS. 2. Learn how to conduct all tests to determine the properties of all construction materials specially cement and aggregate and recognize the importance of these properties and their effect on the properties of concrete mixture. 3. Focus on the properties of plastic concrete including workability, and precautions that should be considered when concreting in hot and cold weather. 4. Learn how to determine concrete mix ratios (by weight) and convert it to volumes. 5. Learn how to correct the volume and weight of fine and coarse aggregate based on their moisture. 6. Identify the importance of using sustainable materials to improve the properties of plastic concrete.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A – Concrete Technology I / Theory • Introduction – Introduction of all construction materials. [5 hrs] • Cement - Focusing in Cement Composition, main compounds of

	cement and their effect on hydration process, types of cements, manufacturing and their uses, Rule of water in hydration, properties of cement according to the specifications. [25 hrs] - Aggregate – Identifying the properties of coarse and fine aggregate and their effect on concrete properties, and correct the weight of aggregate based on its humidity. [15 hrs] - Determine concrete mix ratios (by weight) and how to convert it to volume ratios. [5 hrs] - Properties of fresh concrete including workability and consistency of concrete, rheology of concrete and its plasticity. [10 hrs] - Temperature effect on fresh concrete properties and precautions considered in concreting under cold and hot weathers. [10 hrs] - Sustainable materials – including supplementary cementitious materials and recycling aggregate. [5 hrs] <u>Part B – Concrete Technology I / Lab</u> - Writing a good technical report [5 hrs] - Tests for ordinary Portland cement including (normal consistency, setting time, compressive strength, tensile strength and the effect on curing conditions on strength development). [25 hrs] - Tests of fine and coarse aggregate to determine all its properties including (sieve analysis, specific gravity, unit weight, moisture content, absorption). [20 hrs] - Tests of clay and concrete blocks, tests of tiles, and tensile test of steel. [20 hrs]
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم			
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students’ participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.		
Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem)	63	Structured SWL (h/w)	4

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

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

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

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

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

Learning and Teaching Resources

مصادر التعلم والتدريس

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

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Engineering Surveying I		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE205			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGII	Semester of Delivery		3
Administering Department	CE	College	ENG	
Module Leader	Yezin A. Alnajjar		e-mail	Yazinalnajjar@uomosul.edu.iq
Module Leader's Acad. Title	lecturer		Module Leader's Qualification	Ph.D.
Module Tutor	Zeena A. Al-Kazzaz		e-mail	Zeena.kazzaz@uomosul.edu.iq
Peer Reviewer Name	Yezin A. Alnajjar		e-mail	Yazinalnajjar@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025		Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. To develop problem solving skills and understanding of surveying theory through the application of techniques. 2. To understand linear and level measurements. 3. This course deals with the basic concept of surveying. 4. This is the basic subject for surveying. 5. To understand instruments. 6. To understand contouring.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Define surveying and types. 2. Angle units and conversions. Error types. 3. Scale types. 4. Basic surveying tools. 5. Distance measurements by tape. 6. Levels types and calculations. 7. Earth curvature and refraction. 8. Reciprocal leveling. 9. Two peg test. 10. Longitudinal and cross sections. 11. Contour lines. 12. An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics. 13. An ability to acquire and apply new knowledge and using appropriate learning strategies. 14. An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A: theory</u> Definition and types, history. Types of error- mistakes, systematic and random. [6 hrs] Different formats of angles. How to convert, Scales, stations, basic map contents.[6 hrs] Revision problem classes [5 hrs] Leveling definitions and basics. Method of leveling. Types of levels, effects of Earth curvature and refraction. [14 hrs] Longitudinal and cross sections. Contours. [10 hrs] <u>Part B: Lab</u> Basic Surveying Instruments and Tools, Definition and Care (3hrs) Measuring distances with tape and other methods (3hrs) Surveying a building using the direct method (3hrs) Establishing and dropping vertical columns (3hrs) Measuring distances in the presence of obstacles (3hrs) Identifying the leveling instrument and its components (3hrs) Setting up the leveling instrument and taking readings (3hrs) Using the leveling instrument for transferring point elevations (fly leveling) (3hrs)

	Using the leveling instrument for precision leveling (3hrs) Finding intermediate point elevations (3hrs) Finding negative point elevations (3hrs) Conducting the two-peg test (3hrs) Conducting the reverse leveling (3hrs) Longitudinal profiles (3hrs) Cross-sectional profiles (3hrs)
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	participation in classroom and field exercises while developing their analytical, problem-solving, and critical-thinking skills. This will be achieved through lectures, interactive tutorials, practical surveying activities, and field measurements using surveying instruments. These activities will enhance students' understanding of surveying principles, measurement techniques, contouring, and the practical applications of surveying in engineering projects
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Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ أسبوعاً

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

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

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

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

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

Week 13	Lab 13: Conducting the reverse leveling.
Week 14	Lab 14: Longitudinal profiles.
Week 15	Lab 15: Cross-sectional profiles.

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

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
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	F – Fail	راسب	(0-44)	Considerable amount of work required

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	The crimes of the Baath regime in Iraq		Module Delivery
Module Type	S		☐ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	UOM2050		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	UGII	Semester of Delivery	
Administering Department	CE	College	ENG
Module Leader	Shaza Jagan		e-mail
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	M.Sc
Module Tutor		e-mail	
Peer Reviewer Name	Asaad Al-Omari	e-mail	asaad.alomari@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. توعية الطلاب بالجرائم التي ارتكبها البعث في العراق.. 2. توجيه الطلاب للإلمام والمعرفة بالجرائم..... 3. توعية الطلاب بخطورة الجرائم
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. فهم تاريخي ومعرفي :أن يكون لدى الطلاب فهم عميق للجرائم التي ارتكبها البعث في العراق، بما في ذلك السياق التاريخي والأسباب والنتائج. 2. تطوير الوعي النقدي :أن يتمكن الطلاب من تحليل وتقييم الأحداث التاريخية بشكل نقدي، وفهم تأثيرها على المجتمع العراقي. 3. تعزيز القيم الإنسانية :أن يتعلم الطلاب أهمية حقوق الإنسان والعدالة، وأن يكونوا قادرين على التعرف على انتهاكات حقوق الإنسان والتصدي لها.
Indicative Contents المحتويات الإرشادية	• مفهوم الجرائم وأقسامها : ○ تعريف الجريمة. ○ أنواع الجرائم (جنائية، سياسية، اجتماعية، إلخ). ○ أمثلة على كل نوع. • أنواع الجرائم الدولية : ○ تعريف الجرائم الدولية. ○ أمثلة على الجرائم الدولية (جرائم الحرب، الجرائم ضد الإنسانية، الإبادة الجماعية). ○ القوانين والمعاهدات الدولية المتعلقة بالجرائم الدولية:. • الجريمة السياسية : ○ تعريف الجريمة السياسية. ○ أمثلة على الجرائم السياسية. ○ تأثير الجرائم السياسية على المجتمع والدولة. ○ مراجعة شاملة للمواضيع التي تم تغطيتها في الأسابيع الثلاثة الأولى. ○ امتحان قصير لتقييم فهم الطلاب. • الجريمة الاجتماعية : ○ تعريف الجريمة الاجتماعية. ○ أمثلة على الجرائم الاجتماعية. • جريمة قمع الانتفاضة الشعبانية : ○ خلفية تاريخية عن الانتفاضة الشعبانية. ○ تفاصيل الجرائم المرتكبة خلال قمع الانتفاضة. • الجرائم النفسية وآثارها : ○ تعريف الجرائم النفسية. ○ أمثلة على الجرائم النفسية. ○ الآثار النفسية والاجتماعية لهذه الجرائم. • جرائم نظام البعث وفق قانون المحكمة الجنائية العراقية العليا 2005 : ○ نظرة عامة على قانون المحكمة الجنائية العراقية العليا. ○ أمثلة على الجرائم التي ارتكبها نظام البعث والتي تم محاكمتها بموجب هذا القانون. • جرائم أحداث صلاة الجمعة : ○ خلفية عن أحداث صلاة الجمعة.

	○ تفاصيل الجرائم المرتكبة خلال هذه الأحداث. ● جرائم المقابر الجماعية : ○ تعريف المقابر الجماعية. ○ أمثلة على المقابر الجماعية في العراق. ● قصف العتبات المقدسة : ○ خلفية عن قصف العتبات المقدسة. ○ تفاصيل الجرائم المرتكبة خلال هذه الأحداث. ● الهجوم الكيميائي على حلبجة : ○ خلفية عن الهجوم الكيميائي على حلبجة. ○ تفاصيل الجرائم المرتكبة خلال هذا الهجوم. ● استعمال الأسلحة المحرمة دولياً : ○ تعريف الأسلحة المحرمة دولياً. ○ أمثلة على استخدام هذه الأسلحة في العراق. ○ تأثير هذه الجرائم على المجتمع. ○ مراجعة شاملة للمواضيع التي تم تغطيتها في الأسابيع السابقة. ○ امتحان لتقييم فهم الطلاب. ● الجرائم البيئية لنظام البعث في العراق: ○ تعريف الجرائم البيئية. ○ أمثلة على الجرائم البيئية التي ارتكبتها نظام البعث. ● أحداث المقابر والإبادة الجماعية المرتكبة من النظام البعثي في العراق: ○ خلفية عن أحداث المقابر والإبادة الجماعية. ○ تفاصيل الجرائم المرتكبة خلال هذه الأحداث.
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	تتمثل الاستراتيجية المعتمدة في تدريس هذا المقرر في تقديم محاضرات تفاعلية تشجع مشاركة الطلبة من خلال المناقشات وطرح الأسئلة واستخدام الوسائل التعليمية المتنوعة، إلى جانب تبني أسلوب التعلم القائم على القيم من خلال مناقشة الأبعاد الإنسانية والأخلاقية للموضوعات المطروحة، بما يسهم في تعزيز الوعي بالقيم الإنسانية وتنمية مهارات التفكير النقدي والتحليلي لدى الطلبة.

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

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

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

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	كتاب المقرر جرائم نظام البعث في العراق من قبل وزارة التعليم العالي والبعث العلمي	No
Recommended Texts		No
Websites		

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	اللغة العربية	Module Delivery	
Module Type	S	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☒ Seminar	
Module Code	UOM2012		
ECTS Credits	2		
SWL (hr/sem) الحمل الكلي	50		
Module Level	UGII	Semester of Delivery	3
Administering Department	Civil Eng Dept	College	College of Engineering
Module Leader	Dr. Abeer Turki Fathi	e-mail	abeer_altaee@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	M.Sc.
Module Tutor	-----	e-mail	-----
Peer Reviewer Name	Asaad Al-Omari	e-mail	asaad.alomari@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	الهدف من هذا الفصل الدراسي هو تمكين الطالب من القراءة الصحيحة، وأن يكتسب القدرة على استعمال اللغة استعمالاً صحيحاً في الاتصال مع الآخرين؛ كالسرعة وجودة الإلقاء وحسن التعبير، وتعيده حسن الاستماع وتنمية الذوق الأدبي لدى الطالب وتعيده على التعبيرات السليمة الواضحة.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	CLO1: تعريف الطالب بضرورة ممارسة قواعد الكتابة والكلام باللغة العربية الفصيحة. CLO2: تعريف الطالب بمستويات نظام اللغة العربية CLO3: تعميق اتصال الطالب بالتراث العربي والإسلامي. CLO4: تعزيز البحث العلمي في مجال اللغة العربية وعلومها لإعداد الدراسات والبحوث. CLO5: إظهار جمال اللغة العربية واتساع معانيها واساليبها الإنشائية. CLO6: تمكين الطالب من تجاوز الأخطاء اللغوية وتصحيحها. CLO7: تنمية الذوق الأدبي لدى الطالب لإدراك النواحي الجمالية في أسلوب الكلام وصوره ومعانيه. CLO8: التعريف بأبرز شعراء العصر العباسي.
Indicative Contents المحتويات الإرشادية	الجزء الأول: (6 ساعات) • قواعد اللغة العربية (النحو) • المبتدأ والخبر • نواسخ المبتدأ والخبر الجزء الثاني: (6 ساعات) • كان واخواتها • إن واخواتها • ظن واخواتها الجزء الثالث: (6 ساعات) • الامتحان الفصلي • الأسماء المنصوبة • المفعول المطلق الجزء الرابع: (4 ساعات) • الأخطاء اللغوية • الأملاء الجزء الخامس: (8 ساعات) • الادب في العصر العباسي • الشاعر المتنبي • الشاعر أبو تمام • الشاعر أبو فراس الحمداني
Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies الاستراتيجيات	إنَّ الغاية الأساسية من دروس اللغة العربية هو القضاء على الصعوبة والجمود الذي قد يصاحب مواضيع بعض هذه الدروس، بالإضافة إلى إيصال الأفكار والمعلومات المطلوبة إلى الطلاب بطرق مفهومة وتناسب الفروقات الفردية بينهم، ومن أبرز ما تم التركيز عليه في المحاضرات هو قواعد اللغة العربية والأدب وتتمثل الدراسة بالمحاضرات والامتحانات والواجبات داخل الصف والمناقشة والواجبات المنزلية.
Student Workload (SWL)	
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعاً	

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

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative Assessment	Quizzes	3	5% (15)	4,8 and 10	All
	H.W Assignments	2	5% (10)	6, 7	CLO4, CLO5, and CLO6
	Seminars	1	5% (5)	12	All
	On-site Assignment	2	5% (10)	6, 10	CLO4, CLO5, and CLO6
Summative Assessment	Midterm Exam	2 hrs	10% (10)	7	All
	Final Exam	3 hrs	50% (50)	16	All
Total Assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

	Material Covered / المواضيع المغطاة
Week 1	قواعد اللغة العربية (النحو)
Week 2	المبتدأ والخبر
Week 3	نواسخ المبتدأ والخبر
Week 4	كان واخواتها
Week 5	إن واخواتها
Week 6	ظن واخواتها
Week 7	ظن واخواتها
Week 8	الأسماء المنصوبة
Week 9	المفعول المطلق
Week 10	الأخطاء اللغوية
Week 11	الأملاء
Week 12	الادب في العصر العباسي
Week 13	الشاعر المتنبي
Week 14	الشاعر أبو تمام
Week 15	الشاعر أبو فراس الحمداني
Week 16	الامتحان النهائي

Delivery Plan (Weekly Lab. Syllabus)				
	Material Covered / المواضيع المغطاة			
Week 1	لا يوجد			
Week 2	لا يوجد			
Week 3	لا يوجد			
Week 4	لا يوجد			
Week 5	لا يوجد			
Week 6	لا يوجد			
Week 7	لا يوجد			
Learning and Teaching Resources				
مصادر التعلم والتدريس				
	Text الاسم	Available in the Library? هل متوفر في المكتبة؟		
Required Texts المنهج المطلوب	النحو الوافي / عباس حسن	نعم		
Recommended Texts المنهج الموصى به	في الأدب العباسي / محمد مهدي البصير	نعم		
Websites المواقع الالكترونية	https://uomosul.edu.iq/en/engineering/environmental-engineering-dept/			
Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Mathematics IV		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE206			
1ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGII	Semester of Delivery		4
Administering Department	CE	College	ENG	
Module Leader	Asaad Al-Omari		e-mail	asaad.alomari@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Professor		Module Leader's Qualification	Ph.D.
Module Tutor	Revan Nahith		e-mail	revan.nahith@uomosul.edu.iq
Peer Reviewer Name	Asaad Al-Omari		e-mail	asaad.alomari@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Provide the fundamental base for elementary mathematics for Vectors and differential equations 2. Use mathematical information in vectors to solve some engineering problems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Know the student the three-dimensional coordinate system. 2. Find the dot and cross product and angle between vectors 3. Know the equation and parametric equation. 4. Solve the differential equations in first-order first-degree. 5. Solve linear differential equations of high order.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A</u> Three-Dimensional Coordinate Systems, The Distance Between two points, Vectors, Component Form, Vector Algebra Operations, Properties of Vector Operations, Midpoint of a Line Segment, The Dot Product, Angle Between Vectors [8 hrs] The Angle Between Two Nonzero Vectors u and v, Orthogonal Vectors, Dot Product Properties and Vector Projections. The Cross Product, The Cross Product of Two Vectors in Space, Parallel Vectors. [8 hrs] Properties of the Cross Product, Area of a Parallelogram, Calculating the Cross Product as a Determinant Lines and Planes in Space. Lines and Line Segments in Space. Parametric Equations for a Line, [8 hrs] The Distance from a Point to a Line in Space. An Equation for a Plane in Space, Equation for a Plane, Lines of Intersection, The Distance from a Point to a Plane, Angles Between Planes [4 hrs] <u>Part B</u> Differential Equations: Definition, Classification, order and degree of Des Homogeneity and linearity of the DEs, Generation of the DEs. Solution of DEs (First order First degree DEs by Separable method). Homogenous and non-homogenous DEs method). [8 hrs] Solution of DEs (First order First degree DEs by Linear and nonlinear method). Exact and non-exact method [8 hrs] Second order DEs for X-is missing, y-missing Solution of DEs (higher order DEs – Complementary solution + Particular solution). [16 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy for delivering this module is to encourage students' participation in exercises while refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials, and simple experiments involving sampling activities that interest the students

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

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

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

Week 9	DEs Homogeneity and linearity of the DEs, Generation of the Des
Week 10	First order First degree DEs by Separable method
Week 11	First order First degree DEs by linear and nonlinear DEs method
Week 12	First order First degree DEs by Exact and non-Exact DEs method
Week 13	Second order DEs for X-is missing, y-missing
Week 14	Higher Order DEs – Complementary solution + Solution).
Week 15	Higher Order DEs – Complementary solution + Solution).
Week 16	Final Exam

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

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

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Mechanics of Materials II		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE207			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGII	Semester of Delivery		4
Administering Department	CE	College	ENG	
Module Leader	Dr. Ali Natheer Abdul Baki		e-mail	aliabdulbaki@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.	
Module Tutor	Dr. Khalid Ahmed Abdullah		e-mail	khalid.alnuaemie75@uomosul.edu.iq
Peer Reviewer Name	Dr. Ali Natheer Abdul Baki		e-mail	aliabdulbaki@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

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

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

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

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

Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150
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Module Evaluation تقييم المادة الدراسية					
		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	7	20% (20)	3,6,8,10,12,13,15	LO #1, 2, 3, 4, 5, 6 and 7
	Assignments	7	15% (15)	2,5,7,9,11,12,14	LO #1, 2, 3, 4, 5, 6 and 7
	Report	1	5% (5)	8	LO # 1, 2, 3, 4 and 5
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

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

Learning and Teaching Resources

مصادر التعلم والتدريس

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

Grading Scheme

مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Building construction and damages assessment		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE208			
ECTS Credits	3			
SWL (hr/sem)	75			
Module Level	UGII	Semester of Delivery		4
Administering Department	CE	College	ENG	
Module Leader	Zeena Adel Mohammed Atheer Khudhur Jumaah		e-mail	Zena.adal@uomosul.edu.iq atheer.khudhur@uomosul.edu.iq
Module Leader's Acad. Title	lecture	Module Leader's Qualification	M.sc.	
Module Tutor	Name (if available)		e-mail	
Peer Reviewer Name	Asaad Al-Omari	e-mail	asaad.alomari@uomosul.edu.iq	
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

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

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

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

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

Module Evaluation
تقييم المادة الدراسية

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

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	انشاء المباني تاليف ارثين ليفون وزهير ساكو	Yes

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Concrete Technology II		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE209			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGII	Semester of Delivery		4
Administering Department	CE	College	ENG	
Module Leader	Dr. Sufyan Younis Ahmad		e-mail	sofyan1975@uomosul.edu.iq
Module Leader's Acad. Title	Assistance Professor		Module Leader's Qualification	Ph.D.
Module Tutors	Zeena Adel Mohammed Roua Suhail Zidan Riffa dalli hamad		e-mail	zena.adal@uomosul.edu.iq rouasuhail@uomosul.edu.iq Reffashlla@uomosul.edu.iq
Peer Reviewer Name	Dr. Sufyan Younis Ahmad		e-mail	sofyan1975@uomosul.edu.iq
Scientific Committee Approval Date	01/09/2025	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Finding bleeding and plastic shrinkage in fresh concrete. 2. Identifying the properties of hardened concrete. 3. Identifying Factors affecting the properties of hardened concrete 4. Study the effect of w/c ratio on concrete strength and durability. 5. Study the effect of test conditions on concrete strength. 6. Study the effect of cement type and aggregate nature on concrete strength. 7. Methods to measure tensile strength of hardened concrete and its relation with compressive strength. 8. Calculating the modulus of elasticity of concrete according to different international codes. 9. Calculating the drying shrinkage in concrete and its effect on durability. 10. Design of concrete mix based on ACI Method. 11. Acceptance of compressive strength results respect to Iraqi Code.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Identify the unhealthy effects of bleeding and plastic shrinkage on the properties of concrete. 2. Identifying the effect of (high and low) water content on the concrete strength and durability. 3. Identifying the effect of cement type and aggregate nature on the concrete strength and durability. 4. Calculating the modulus of elasticity and tensile strength of concrete using (ACI and BS) equations and ASTM specification. 5. Determining the drying shrinkage strain of concrete. 6. Learn how to design concrete mixture based on ACI Method. 7. Learn how to evaluate concrete strength results according to the IQS Code.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – Concrete Technology II / Theory</u> • Bleeding and plastic shrinkage in fresh concrete. [7 hrs] • Properties of hardened concrete and Factors affecting on the concrete properties. [7 hrs] • Effect of w/c ratio, and the conditions at test on concrete strength and durability. [7 hrs] • Effect of cement type and aggregate nature on concrete strength. [7 hrs] • Methods to measure tensile strength of hardened concrete and its relation with compressive strength. [7 hrs] • Calculating the modulus of elasticity of concrete according to different international codes. [4 hrs] • Design of concrete mix based on ACI code Method. [7 hrs] • Acceptance of compressive strength results respect to IQS Code. [4 hrs]

	Part B – Concrete Technology II / Lab • Writing a good technical report [5 hrs] • Testing the fresh concrete for Temperature, unit weight, slump, and bleeding of concrete specimens. [4 hrs] • Testing the strength of cured concrete samples at a standard age of 28 day, effect of capping of concrete cylinder on the compressive strength, and Effect of shape (standard cylinder and cube) of the concrete specimens on the compressive strength. [8 hrs] • Test of flexural tensile strength (one and two points loads). [3hrs] • Non-destructive testing of concrete (Hammer, ultrasonic test) and destructive testing of concrete (Core and loading test). [8 hrs] • ACI design method and making trial mix. [2hrs]
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

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

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	14% (10)	3, 8	LO #1, 3, and 4
	Assignments	2	6% (10)	5, 8	All
	Projects / Lab.	1	10% (10)	weekly	All
	Report	1	10% (10)	13	LO # 3, and 4
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

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

Week 4	Lab 4: Bleeding measurement of freshly mixed concrete.
Week 5	Lab 5: Testing the compressive strength of hardened concrete samples and finding the effect of shape (standard cylinder and cube) of the concrete specimens on the strength.
Week 6	Lab 6: Effect of capping of cylinder on the compressive strength.
Week 7	Lab 7: Testing the flexural tensile strength (one and two points load).
Week 8	Lab 8: Midterm Exam.
Week 9	Lab 9: Non-destructive testing of concrete (Hammer test).
Week 10	Lab 10: Non-destructive testing of concrete (ultrasonic test).
Week 11	Lab 11: Destructive testing of concrete (Core test and loading test).
Week 12	Lab 12: Retarders and Accelerators additives.
Week 13	Lab 13: Fiber reinforced concrete
Week 14	Lab 14: Effect of recycled coarse aggregate in concrete.
Week 15	Lab 15: making trial mix according to ACI design method.

Learning and Teaching Resources

مصادر التعلم والتدريس

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

Grading Scheme

مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Engineering Surveying II		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE210			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGII	Semester of Delivery		4
Administering Department	CE	College	ENG	
Module Leader	Yezin A. Alnajjar		e-mail	yazinalnajjar@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.	
Module Tutor	Zeena A. Al-Kazzaz		e-mail	Zeena.kazzaz@uomosul.edu.iq
Peer Reviewer Name	Yezin A. Alnajjar		e-mail	yazinalnajjar@uomosul.edu.iq
Scientific Committee Approval Date	01/09/2025	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. To develop problem solving skills and understanding of surveying theory through the application of techniques. 2. To understand measurements. 3. This course deals with the basic concept of surveying. 4. This is the basic subject for surveying. 5. To understand angles and bear problems. 6. To perform surveying.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize how to do angle measurements. 2. List the various terms associated with surveying. 3. Summarize what is meant by surveying. 4. Discuss the bearings. 5. Explain the coordinates. 6. Define Total station. 7. Identify the basic total station applications. 8. Define GPS basics. 9. Identify basic GPS applications. 10. Explain Area surveying. 11. Explain Volume surveying.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A- Course Theory</u> Theodolite definition- types, history. Angle types- horizontal and vertical, face right and face left, positive and negative vertical angles, drawing the right shapes, clockwise and counterclockwise angles. [10 hrs] Naming convention of horizontal angles, one letter, three letter, closed and open traverse, Sum of internal angles. Bearings of lines. North determination. Departure and latitude. Coordinates (XYZ, ENH). Traverse errors and correction. Theodolite for coordinates. [12 hrs] Total station, components, typed, Prism and Non-Prism. Robotic and smart stations, TLS, point clouds, [6 hrs] GPS, types and segments. Sources of errors. Sky Plot. [4 hrs] Area measurements, from longitudinal and cross sections, from contours and spot heights, using trapezoidal and simpson methods. Volume calculations. [8 hrs] Revision problem classes [5 hrs] <u>Part B. Lab</u> Introduction to theodolites, setting, leveling, centering, orientation. measuring horizontal and vertical angles. Traversing. [14 hrs] Total station surveying. Survey of new coordinates, setting out, intersection. [5 hrs] GPS surveying, Sky plot, waypoints. Route. [5 hrs] Area calculations. Volume calculations. [6 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

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

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

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

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Theodolites
Week 2	Angle types
Week 3	Theodolite setup
Week 4	Bearing types and conversions
Week 5	Coordinates
Week 6	Open and closed traverse
Week 7	Trigonometric leveling

Week 8	Midterm Examination
Week 9	Total Station and laser scanning
Week 10	GPS Surveying
Week 11	Areas
Week 12	Areas using coordinates
Week 13	Volumes
Week 14	Volumes, from contours and spot heights
Week 15	Horizontal and vertical curves
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المناهج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to theodolites, setting
Week 2	Lab 2: measuring horizontal and vertical angles.
Week 3	Lab 3: traversing
Week 4	Lab 4: total station surveying
Week 5	Lab 5: gps surveying
Week 6	Lab 6: Area calculations
Week 7	Lab 7: Volume calculations

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

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Computer 2		Module Delivery
Module Type	B		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	UOM2032		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	UGII	Semester of Delivery	
Administering Department	Civil Engineering	College	College of Engineering
Module Leader	Dr. Nadiya sadeek Al Saffar	e-mail	Nadiya.alsaffar@uomosul.edu.iq
Module Leader's Acad. Title	Assist. Prophetier	Module Leader's Qualification	Doctor
Module Tutor	Dr. Nadiya sadeek Al Saffar	e-mail	Nadiya.alsaffar@uomosul.edu.iq
Peer Reviewer Name	Dr. Sufyan Younis Ahmad	e-mail	sofyan1975@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	Students successfully completing this course will be able to: 1. Utilize the computer for fundamental tasks. 2. Identify and discuss the hardware components of the computer system. 3. Creating documents using a word processor and creating presentations. 4. Conducting research on the Internet. 5. An introduction to Artificial Intelligence
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Students successfully completing this course will be able to: 1. Utilize the computer for fundamental tasks. 2. Identify and discuss the hardware components of the computer system. 3. Creating documents using a word processor and creating presentations. 4. Conducting research on the Internet. 5. An introduction to Artificial Intelligence
Indicative Contents المحتويات الإرشادية	security and Networking: What is a network? Types of networks. Basic network components. Network Security Basics. Understanding network threats. Network Troubleshooting E-Commerce: Concepts of Electronic banking services this include online banking: ATM and debit card services, Phone banking, SMS banking, electronic alert, Mobile banking Computer Troubleshooting: Identifying and solving common hardware and software problems that computer users encounter. Basic troubleshooting techniques and tools for diagnosing and resolving issues. Introduction to AI: Definition of AI, History of AI, AI Techniques and Approaches, Challenges and Ethical Considerations. AI in Our Daily Lives: AI in smartphones and virtual assistants like Siri or Google Assistant.) Ethical Challenges in AI :(AI ethics, privacy and surveillance, the impact of AI on the job market.) The Future of AI (Future trends in AI, recent research and emerging technologies.)

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The main strategy for delivering this module is to encourage students' participation in Lab activities while refining and expanding their critical thinking skills. This will be achieved through classes and laboratory work, and by considering the type of external search involving computer technologies that interest the students.
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Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعاً			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	27	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

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

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

Week 8	Ethical Challenges in AI :(AI ethics, privacy and surveillance, the impact of AI on the job market.)
Week 9	The Future of AI (Future trends in AI, recent research and emerging technologies.)
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	
Week 16	

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1, 2	security and Networking: What is a network? Types of networks. Basic network components. Network Security Basics. Understanding network threats. Network Troubleshooting
Week 3, 4	E-Commerce: Concepts of Electronic banking services this include online banking: ATM and debit card services, Phone banking, SMS banking, electronic alert, Mobile banking
Week 5	Computer Troubleshooting: Identifying and solving common hardware and software problems that computer users encounter. Basic troubleshooting techniques and tools for diagnosing and resolving issues.
Week 6	Introduction to AI: Definition of AI, History of AI, AI Techniques and Approaches, Challenges and Ethical Considerations.
Week 7, 8	AI in Our Daily Lives: AI in smartphones and virtual assistants like Siri or Google Assistant.)
Week 9	Applications of AI: Education, Healthcare, Finance, Transportation, Marketing and Advertising.
Week 10	AI and Society: (How AI affects social, AI and international relations, AI and the future of humanity.)
Week 11	Ethical Challenges in AI :(AI ethics, privacy and surveillance, the impact of AI on the job market.)
Week 12	The Future of AI (Future trends in AI, recent research and emerging technologies.)
Week 13	
Week 14	
Week 15	
Week 16	Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

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

Grading Scheme

مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	English Language-2		Module Delivery	
Module Type	S		Theory ☒ Lecture Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOM2022			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	UGII	Semester of Delivery		4
Administering Department	CE	College	ENG	
Module Leader	Rahma Ethar Abdulkareem		e-mail	Rahma.aihar@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Lecturer		Module Leader's Qualification	M.Sc.
Module Tutor	Rahma Ethar Abdulkareem		e-mail	
Peer Reviewer Name	Amina Ahmed		e-mail	Amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date	2025-9-1		Version Number	1.0

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

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

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy for delivering this module is to encourage students' participation in exercises while refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials, and simple experiments involving sampling activities that interest students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

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

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Grammar / Verb tenses and examples (present, past, future) / Vocabulary / Reading, listening, speaking
Week 2	Grammar/ Verb tenses and examples (present) / Vocabulary / Reading, listening, speaking
Week 3	Grammar/ Verb tenses and examples (past) / Vocabulary / Reading, listening, speaking
Week 4	Grammar/ Quantity/ Vocabulary / Reading, listening, speaking
Week 5	Grammar/ Verb tenses and examples (future) / Vocabulary / Reading, listening, speaking
Week 6	Grammar/ Comparative & Superlatives / Vocabulary / Reading, listening, speaking
Week 7	Grammar/ Verb tenses and examples (present perfect) / Vocabulary / Reading, listening, speaking
Week 8	Grammar/ have to, should / Vocabulary / Reading, listening, speaking
Week 9	Midterm Exam
Week 10	Grammar/ Verb tenses and examples (past perfect) / Vocabulary / Reading, listening, speaking
Week 11	Grammar/ Verb tenses and examples (passive) / Vocabulary / Reading, listening, speaking
Week 12	Grammar/ Verb tenses and examples (present perfect continuous) / Vocabulary / Reading, listening, speaking
Week 13	Writing an academic paragraph / Reading, listening, speaking
Week 14	Grammar/ if condition / Vocabulary / Reading, listening, speaking
Week 15	Writing / Paraphrasing / Reading, listening, speaking
Week 16	Final Exam

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

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Differential Equations		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE301			
ECTS Credits	4.00			
SWL (hr/sem)	100			
Module Level	UGIII	Semester of Delivery		5
Administering Department	Civil Dep.	College	College of Engineering	
Module Leader	Dr. Salwa Mubarak Abdullah		e-mail	Salwa_hano@uomosul.edu.iq
Module Leader's Acad. Title	Professor	Module Leader's Qualification	Ph.D.	
Module Tutor	Dr. Nadiya Sadeek Alsaffar		e-mail	Nadiya.alsaffar@uomosul.edu.iq
Peer Reviewer Name	Amina A Khaleel	e-mail	amina.alshumam@uomosul.edu.iq	
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Developing problem-solving skills and understanding differential equations through the application of techniques. 2. To make students familiar with second-order differential equations, higher-order linear differential equations, differential equation systems, characteristic values, and characteristic vectors 3. This course deals with Fourier series, half-range expansions of odd and even functions 4. This is the basic subject for simultaneous solving of differential equations using the D operator to enable the student to understand and start using mathematical equations. 5. To make the students familiar with the use of numerical methods to solve equations, including iterative methods, and how to find the completion in different ways. 6. To perform numerical integration and numerical derivative. 7. The use of matrices to solve the system of equations in different ways, as well as using the numerical solution to solve first and second-degree differential equations in numerical ways.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Apply basic mathematics, science, and engineering principles to solve engineering problems. 2. To introduce different techniques for solving some differential equations 3. To enable students to use and apply these techniques in civil engineering applications 4. To enable students to use some well-known programs as a tool to help solve differential equations. 5. Discuss the use of the Fourier series in engineering applications. 6. Discuss the second-order differential equation, higher-order linear differential equation, differential equation system, characteristic values, and characteristic vector 7. List the various methods for solving equations by iteration. 8. Summarize what is meant by numerical integration and differentiation. 9. The student is able to understand and start using mathematical equations to solve simultaneous differential equations. 10. To understand the methods of interpolation and be able to apply them, when necessary, in practical work. 11. Identify the methods of solving systems of equations. 12. Discuss the methods of obtaining curve fitting.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Differential Equations</u> Second order Linear Differential Equation. Solve Problems and applications Higher Order Linear Differential Equation. Solve Problems and applications. Eigen value and Eigen vectors, Solution of simultaneous DES using the operator D. Fourier Series and solve problems. Even and odd function half range expansions. Fourier series

	Applications [25 hrs] Partial Differential Equation, Wave Equation, Solve Problems and applications, Partial Differential Equation, Heat Equation, Solve Problems and applications. Free Longitudinal Vibration on Beams, Solve Problems and applications. Free Transverse Vibration on Beams, Solve Problems and applications. Partial Differential Equation, Laplace Equation, Solve Problems and applications. [20 hrs]
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy for delivering this module is to encourage students' participation in exercises while refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials, and simple experiments involving sampling activities that interest the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	75	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	25	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	32% (32)	3, 10	LO # 1, 2
	Assignments	2	5% (5)	2, 12	LO # 1, 2
	Projects / Lab.	1	0% (0)	Continuous	All
	Report	1	3% (3)	13	LO # 1,2
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-2
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Second-order Linear Differential Equation.
Week 2	Solving Problems and applications of Higher Order Linear Differential Equations.
Week 3	Applications.
Week 4	Solved problems.
Week 5	Matrices and determinants
Week 6	Eigenvalue and Eigen vectors.
Week 7	Solution of simultaneous DES using the operator D
Week 8	Fourier series, even and odd function half-range expansions
Week 9	Fourier Series Applications
Week 10	Fourier Series Applications
Week 11	Partial Differential Equation, Wave Equation, Solve Problems, and Applications
Week 12	Partial Differential Equation, Heat Equation, Solve Problems, and Applications
Week 13	Free Longitudinal Vibration on Beams, Solve Problems, and Applications
Week 14	Free Transverse Vibration on Beams: Solve Problems and Applications
Week 15	Partial Differential Equation, Laplace Equation, Solve Problems, and Applications
Week 16	Final Exam

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1. Erwin Kreyszig, "Advanced engineering mathematics" John Wiley & Sons, sixth edition, 1988 2. C. Ray Wylie, "Advanced engineering mathematics" McGRAW-Hill, INC, Ltd., fourth edition, 1975. 3. Kiusalaas, "Numerical Methods in Engineering with MATLAB", Cambridge University Press, 2005.	Yes
Recommended Texts	1. Erwin Kreyszig, "Advanced engineering mathematics" John Wiley & Sons, sixth edition, 1988	No
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F - Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Theory of Structures I		Module Delivery
Module Type	C	☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE302		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGIII		
Administering Department	Civil engineering	College	College of engineering
Module Leader	Dr. Oday Asal Salih	e-mail	odaycivileng@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Dr. Jasim Ali Abdullah	e-mail	jassim24676@uomosul.edu.iq
Peer Reviewer Name	Dr. Suhaib Y Al-darzi	e-mail	suhaib.qasim@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Mechanics of Materials II	Semester	4
Co-requisites module	Theory of Structures II	Semester	6

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Students are introduced to the engineering elements of structures through the study of the creation and types of structures. Following this, students' knowledge as potential civil engineers is gradually expanded so that they are able to assess determinate structures and determine whether or not these structures are stable. Calculations of the deformations of determinate structures will be covered in this course using the virtual work approach, Casigliano's first theorem, and the conjugate beam method. Finally, drawing the influence lines of determinate structures (beams, trusses, and girders) will be covered in this course.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Be able to classify the structures. 2- Gain the ability to analyze the determinate structures (Beams, Frames, and Trusses). 3- Draw the shear force and moment diagrams (Beams, Frames). 4- Determine the deformations of determinate structures (Beams, Frames, and Trusses) by different methods. 5- Make the student draw the influence lines of determinate structures (Beams, Trusses, and Girders).
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Introduction of the theory of structures and general discussion of the stability of structures. Discuss the stability and determinacy of Beams, Frames and Trusses [10 hrs]. Analysis of statically determinate Beams and draw the shear forces and moments diagrams. Analysis of statically determinate Frames and draw the normal force, shear forces and moments diagrams [10 hrs]. Analysis the determinate Trusses by Joint Method. Analysis the determinate Trusses by Section Method [10 hrs]. Deformations of Beams By Virtual Work Method. Deformations of Frames By Virtual Work Method. Deformations of Trusses By Virtual Work Method [10 hrs]. Deformations of Beams & Frames By Castigliano's First Theorem Method. Deformations of Trusses By Castigliano's First Theorem Method [10 hrs]. Deformations of Beams By Conjugate Beam Method [10 hrs]. Influence Lines of Beams. Influence Lines of Trusses. Influence Lines of Girders [15 hrs].
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The primary approach that will be used to present this module is to promote student engagement in the activities while also enhancing and broadening their critical thinking abilities. Classes, interactive tutorials, and straightforward experiments with a few fun sampling exercises will be used to do this.

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

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

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction of the theory of structures and general discussion of the stability of structures.
Week 2	Discuss the stability and determinacy of Beams, Frames and Trusses.
Week 3	Analysis of statically determinate Beams and draw the shear forces and moments diagrams.
Week 4	Analysis of statically determinate Frames and draw the normal force, shear forces and moments diagrams.
Week 5	Analysis the determinate Trusses by Joint Method.
Week 6	Analysis the determinate Trusses by Section Method.

Week 7	Design of tension members. Selection of sections
Week 8	Deformations of Beams By Virtual Work Method. Deformations of Frames By Virtual Work Method.
Week 9	Deformations of Trusses By Virtual Work Method
Week 10	Deformations of Beams & Frames By Castigliano's First Theorem Method.
Week 11	Deformations of Trusses By Castigliano's First Theorem Method
Week 12	Deformations of Beams By Conjugate Beam Method
Week 14	Influence Lines of Trusses.
Week 15	Influence Lines of Girders.
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

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

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Structural Analysis, Russell C. Hibbeler, Pearson Education Limited, 10 th edition, 2020.	No
Recommended Texts	Structural Analysis, Aslam Kassimali Cengage Learning, 6 th edition, 2019.	No
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Soil mechanics I		Module Delivery
Module Type	Core		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☒ Practical ☐ Seminar
Module Code	CE303		
ECTS Credits	6.00		
SWL (hr/sem)	150		
Module Level	UGIII	Semester of Delivery	
Administering Department	Civil Eng. Dep.	College	College of Engineering
Module Leader	Dr. Moataz A. Al-Obyadi Amina A Khaleel		e-mail
		E-mail: dralobaydi@uomosul.edu.iq amina.alshumam@uomosul.edu.iq	
Module Leader's Acad. Title	Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Amina A Khaleel Professor		e-mail
		E-mail: amina.alshumam@uomosul.edu.iq	
Peer Reviewer Name	امينة احمد خليل	e-mail	amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Course aims are to provide students with the necessary background information for soils. By the end of this module, students will be able to: 1. Knowledge & Understanding - Define fundamental concepts of soil mechanics, including soil composition, states, and basic properties. - Explain the flow through the soil and its effect on stability of hydraulic stretcher hydraulic characteristics of soils. - Understanding compaction proses in laboratory and fielded cases 2. Application - Apply soil mechanics principles to solve problems related to phase relationships and soil classification. - Use standard classification systems to categorize different soil types and assess their suitability for civil engineering applications. 3. Analysis - Analyze flow phenomena in soils, including permeability and seepage, using theoretical and empirical methods. - Evaluate stress distribution within soil masses and interpret the principle of effective stress. 4. Problem-Solving - Integrate theoretical knowledge with practical case studies to propose solutions for geotechnical engineering problems. - Calculate the stress distributions in soil media. 5. Evaluation - Assess soil behavior under various engineering conditions and recommend appropriate design considerations. - Critically evaluate soil data and select suitable parameters for geotechnical analysis.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	On successful completion of this course, students will be able to: - Explain the fundamental principles of soil behavior, including physical, mechanical, and hydraulic properties. - Apply soil mechanics theories and methods to solve engineering problems related to water flow, effective stress. - Conduct laboratory tests using modern soil mechanics equipment and apply standard soil investigation procedures. - Prepare professional, clear, and concise technical reports in the field of soil mechanics and geotechnical engineering. - Identify, analyze, and propose solutions for geotechnical problems encountered in the field.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Physical Properties of Soils: This part introduces the fundamental physical properties of soils, including moisture content, density, void ratio, porosity, degree of saturation, and Atterberg limits. [17 hrs] Seepage and Flow in Soils: Topics include flow net construction, seepage into excavations, seepage forces, and piping phenomena. [22 hrs] Stress in Soil Masses: Focus on the concept of total stress, effective stress, and pore water pressure, and their implications in soil mechanics. [16 hrs] Compaction: Basic principles, compaction mechanics and the role of water, basic variables affecting the compaction process, Laboratory compaction, effect of compaction on soil properties. In situ compaction, control of in situ compaction processes. [10 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The course is delivered through a combination of theoretical lectures and laboratory practical sessions. On successful completion, students will be able to: 1. Explain the multiphase nature of soils and derive quantities related to the volumes and masses of the different phases. 2. Apply the effective stress principle to solve basic geotechnical engineering problems. 3. Determine and classify soils using standard procedures and classification systems. 4. Demonstrate skills in measuring soil permeability and compaction, and in solving seepage-related problems. 5. Develop decision-making abilities for addressing practical geotechnical problems in the field.
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

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

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	8% (16)	3, 9	LO # 1 and 2
	Assignments (H.W)	1	9% (9)	8	LO # 2 and 5
	Lab (+ امتحان) (تقرير)	1	10% (10)	Continuous	LO # 3 and 4
	Classwork (عملي في المختبر (5))	1	5% (5)	Every week	LO # 3 and 4
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO # 1, 2 and 3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to soil engineering
Week 2	Physico-mechanical properties of soil
Week 3	Soil classification
Week 4	Soil classification
Week 5	Hydraulic properties of soil
Week 6	Flow of water in soils (Permeability & seepage flow)
Week 7	Flow of water in soils (Permeability & seepage flow)
Week 8	Flow of water in soils (Permeability & seepage flow)
Week 9	Flow of water in soils (Permeability & seepage flow)
Week 10	Stresses within soil mass (Internals Stresses)
Week 11	Stresses within soil mass (Internals Stresses & External Stresses)
Week 12	Stresses within soil mass (External Stresses)
Week 13	Stresses within soil mass (External Stresses)
Week 14	Soil compaction
Week 15	Soil compaction
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1,2	Lab 1: water content - unit weight test- explain Lab 2: water content - unit weight test - training
Week 3,4	Lab 3: specific gravity test- explain Lab 4: specific gravity test - training
Week 5,6	Lab 5: Atterberg limits test- explain Lab 6: Atterberg limits test - training
Week 7,8	Lab 7: Sieve analysis test- explain Lab 8: Sieve analysis test - training
Week 9,10	Lab 9: Hydrometer analysis test- explain Lab 10: Hydrometer analysis test - training
Week 11,12	Lab 11: Permeability test- explain Lab 12: Permeability test- explain test - training
Week 13,14,15	Lab 13: Compaction test. Lab 14: Compaction test.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1. "Principles of Geotechnical Engineering", (2004), Braja M. Das, 5th edition 2002, copyright by Wadsworth Group/United Stated. 2. "Principal of Soil Mechanic", (1991), Mohammed O. AL-Asho, (Book language in Arabic).	Yes
Recommended Texts	1. "Elements of Soil Mechanics", (1988), G. N. Smith and Ion G. N. Smith, USA. 2. "Problem Solving in Soil Mechanics", (2003), A. Aysen, Swets & Zeitlinger B.V	No
Websites	No	

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Reinforced Concrete I		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE304			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGIII	Semester of Delivery		5
Administering Department	Civil Eng. Dep.	College	College of Engineering	
Module Leader	Dr. Rabi. M. Najem		e-mail	dr.rabi.najem@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Prof.		Module Leader's Qualification	Ph.D.
Module Tutor	Dr. Halla Jasem Mohamed		e-mail	engrehal.1984@uomosul.edu.iq
Peer Reviewer Name	Dr. Suhaib Y Al-darzi		e-mail	suhaib.gasim@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

Relation with other Modules				
العلاقة مع المواد الدراسية الأخرى				
Prerequisite module	Mechanics of Materials II		Semester	4
Co-requisites module	None		Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Provide students with the fundamental knowledge and skills required for the safe and economical design of reinforced concrete structural members, with particular emphasis on beams. 2. Introduce students to the principles and requirements of reinforced concrete design in accordance with the provisions of ACI 318-19. 3. Enable students to apply the Allowable Stress Method (ASM) and the Ultimate Strength Method (USM) in the analysis and design of reinforced concrete beams. 4. Develop students' ability to evaluate the structural safety of beams and select appropriate reinforcement according to design requirements. 5. Enhance students' skills in addressing design and construction problems that may arise in engineering practice and construction sites. 6. Prepare students to design reinforced concrete beams that are structurally efficient, economical, and compliant with the safety and stability requirements of recognized engineering codes and standards.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Students who successfully complete this course will be able to: 1. Identify and describe the characteristics and properties of materials used in construction, such as concrete and steel. 2. Identify the design methods and their requirements as outlined in the ACI 318-19 (American Concrete Institute) standard. 3. The students will learn about designing and analyzing reinforced concrete beams using the Allowable Stress Method (ASM). This method helps determine the required reinforcement, assess bending moments, and ensure the beams meet acceptable stress and deflection limits. 4. The students will learn the design and analysis of reinforced concrete beams using the Ultimate Stress Method (USM). This method involves assessing the ultimate strength capacity of the beams and determining the required reinforcement to ensure structural integrity and safety. Also, the students will explore the principles, procedures, and considerations involved in applying the (USM) to analyze and design reinforced concrete beams. 5. Students will delve into the topic of shear strength in beams. Shear strength is a crucial aspect of beam design, as it determines the beam's ability to resist shear forces. 6. Students will acquire the skills to design for torsion in beams. Torsion is a significant factor in the structural behaviour of beams subjected to twisting forces.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part I - Introduction to reinforced concrete mechanical properties, ACI Code Limitations for beams. - Understanding the behaviour of concrete materials. - Explain reinforced concrete design methods and the behaviour of reinforced concrete sections under different types of failure. - methods of analysis and design, analysis and design of different structural members - Explaining the design and analysis of different shapes of reinforced concrete beams

	under a variety of loading conditions. - The reinforcement arrangements in the reinforced sections. - Solved engineering problems by applying principles of engineering science and mathematics. (30hr) Part II - Introduction to beams - Failure types of beams. - ACI Code limitation for analysis and design of rectangle beams (single and double reinforcement). - ACI Code limitation for analysis and design of T-Shaped section beams (single and double reinforcement). - ACI Code limitation for analysis and design of special section beams. - Solved examples of rectangle beams (single and double reinforcement). - Solved examples of T-shaped section beams (single and double reinforcement). - Solved examples of special section beams (single and double reinforcement). (30hr) Part III - Defining the shear strength and torsion of reinforced concrete beams. - Design for shear reinforcing in reinforced concrete beams. - Design for torsion in reinforced concrete beams. - Solved examples. (15hr)
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials, and by considering the types of simple experiments involving some sampling activities that are interesting to the students.

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

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

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction: Properties of concrete, reinforcing steel, and loads
Week 2	Concrete and Reinforcing Steel
Week 3	Concrete and Reinforcing Steel
Week 4	Design Methods and Requirements
Week 5	Design Methods and Requirements
Week 6	Flexural behavior of beams by working stresses method
Week 7	Allowable Stress Method (A.S.M) analysis of singly and double, tee, and irregularly reinforced sections
Week 8	Allowable Stress Method (A.S.M) design of single and double reinforced sections
Week 9	Allowable Stress Method (A.S.M) design of tee and irregularly reinforced sections
Week 10	Ultimate Stress Method (U.S.M) analysis of singly and double, tee, and irregularly reinforced sections
Week 11	Ultimate Stress Method (U.S.M) design of single and double reinforced sections
Week 12	Ultimate Stress Method (U.S.M) design of tee and irregularly reinforced sections
Week 13	Beam design for shear (Introduction to torsion with code design limitations, Design of beams under shear)
Week 14	Beam design for torsion (Introduction to torsion with code design limitations)
Week 15	Beam design for shear and torsion (Design of beams under shear and torsion with flexural moment)
Week 16	A preparatory week before the Final Exam

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Basics of Reinforced concrete. Saad Al Taan, 1991	Yes
Recommended Texts	Building Code Requirements for Structural Concrete (ACI 318M-19) and Commentary.	Yes
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work is required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Highway Engineering I		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE305			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGIII	Semester of Delivery		Five
Administering Department	Civil Eng. Dep.	College	College of Engineering	
Module Leader	Dr.Mohammed Ahmed		e-mail	mohammad66ah@uomosul.edu.iq
Module Leader's Acad. Title	Ass. Professor		Module Leader's Qualification	Ph.D.
Module Tutor	Dr.Yazin AbdulIllah Alnagar		e-mail	
Peer Reviewer Name	ا.د. عبد الرحيم ابراهيم جاسم		e-mail	alhadidy@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Provide students with fundamental knowledge of highway geometric design and its engineering components. 2. Introduce students to the engineering principles and standards used in highway design and the analysis of their operational characteristics. 3. Develop students' understanding of road user behavior, including drivers and pedestrians, and its impact on highway design and safety. 4. Introduce students to vehicle characteristics and their relationship to highway geometric design requirements. 5. Enable students to understand the interaction between the driver, vehicle, and roadway and apply this knowledge to improve transportation efficiency and safety. 6. Prepare students to apply highway engineering design principles in addressing traffic problems and achieving safety, comfort, and operational efficiency requirements.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understanding of the properties of the driver, pedestrian, vehicles, and roads relating to the geometric design of highways. 2. Designing the horizontal and vertical curves of the highways. 3. Designing the cross-section elements of the highways.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: <u>Part A - Introduction and Highway route location</u> Importance of Highways. Transportation and Highway History. Transportation Employment. Principles of Highway Location. Highway Survey Methods [2 hrs] <u>Part B - Highway Operation</u> Characteristics of the driver. Characteristics of the pedestrian. Vehicle Characteristics [2 hrs] <u>Part C – Highway Cross-Section Elements</u> Highway Lanes. Shoulders. Medians. Roadside and Median Barriers. Curbs and Gutters. Guardrails. Cross Slopes. Side Slopes. Right-of-Way. [2 hrs] <u>Part D – Sight Distance</u> Stopping Sight Distance. Passing Sight Distance [4 hrs] <u>Part E – Horizontal Curves</u> Circular Curves. Compound Curves. Reverse curves. Transition Curves. Pavement widening [12 hrs] <u>Part F – Superelevation.</u> [2 hrs] <u>Part G – Vertical Curves</u> Crest Curves. Sag Curves. Sight Distance on Vertical Curves. Unsymmetrical vertical curves. [6 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The main strategy for delivering this module is to encourage students' participation in exercises while refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials, and by considering simple experiments involving some sampling activities that are interesting to the students.
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 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 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction and Highway route location
Week 2	Highway operation (characteristics of the driver, pedestrian and vehicle)
Week 3	Highway cross section design elements
Week 4	Stopping sight distance
Week 5	Passing sight distance
Week 6	Turning radius
Week 7	Horizontal circular curves
Week 8	Compound and reverse horizontal curves
Week 9	Transition curves
Week 10	Sight distance on circular curves
Week 11	Pavement widening
Week 12	Superelevation
Week 13	Vertical curves
Week 14	Sight distance on vertical curves
Week 15	Unsymmetrical vertical curves
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Penetration Test
Week 2	Lab 2: Softening point
Week 3	Lab 3: Ductility test
Week 4	Lab 4: Saybolt viscosity test
Week 5	Lab 5: Specific gravity test
Week 6	Lab 6: Thin film oven test
Week 7	Lab 7: Flash point

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Traffic and Highway Engineering, Enhanced Fifth Edition, SI Edition, Nicholas J. Garber, Lester A. Hoel, Cengage Learning, Inc., 2020.	Yes
Recommended Texts	A Policy on Geometric Design of Highways and Streets, 7th Edition, American Association of State Highway and Transportation Officials, 2018.	No
Websites	https://www.highway engineering	

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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	F – Fail	راسب	(0-44)	Considerable amount of work required
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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Engineering Project Management		Module Delivery	
Module Type	B		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE306			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	UGIII	Semester of Delivery		5
Administering Department	Civil engineering Dep.	College	College of Engineering	
Module Leader	Dr. Rakan Faruk		e-mail	Rakanalmola75@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Lecturer		Module Leader's Qualification	Ph.D.
Module Tutor	-----		e-mail	E-mail
Peer Reviewer Name	Amina A Khaleel		e-mail	amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025		Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	This course covers the fundamental concepts and applied techniques for managing project resources effectively and delivering on schedule. Course content addresses fundamental methods for planning, scheduling, organizing, and controlling projects. Though project management is universally applicable. Students will learn project management principles and methods with special focus on planning, controlling, and managing projects. Course topics will primarily be the technical aspects of project management. Examples include developing the project plan, schedules, and the critical path, resources and resource levelling, MS Project software, S-Curve, and cash flow, & Evaluating Project cost and schedule performance (Earned Value).
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	CLO-1: Listing and recognizing project activities and critical paths, bidding document, and contract agreement (i) CLO-2: Understanding the principles of project management and the construction works stages, types of construction contract, management level, and project control (i) CLO-3: Using Microsoft Project software to schedule the project activities, updating projects, levelling the resources, getting reports, & Printing. (ii) CLO-4: Integrating the time and cost of the project. (ii). CLO-5: Organizing project work progress. (ii) CLO-6: Judging the project efficiency depending on time and budget. (ii) CLO-7: Planning and tracking the project. (ii) CLO-8: Formulating cash flow of projects (ii)
Indicative Contents المحتويات الإرشادية	<u>Part A – Introduction to project management.</u> Definition of the project, Stages of construction project, bidding documents, contract agreement, construction project team, Types of construction contract, management level, project control (9 hrs.) <u>Part B – Project Scheduling.</u> Construction project planning technique, work breakdown structure, task relationship, Determination of project tasks & breaking down the project into tasks. Ghant chart, Scheduling projects using the Critical Path Method, Project time control (Project Updating), Time-cost trade-off. (15 hrs.) <u>Part C MS Project Software</u> Scheduling the project and assigning resources using MS Project software, project updating, and Tracking (12 hrs.) Part D – Formulating S-curve & Project cash flow. Calculate work progress: Evaluating Project cost and schedule performance (Earned Value). (9 hrs.)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	This course has several components, including lectures, assignments, and exams. Exercises involving the use of MS Project software. The course will be taught in Arabic.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem)	17	Unstructured SWL (h/w)	1

الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعياً	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	40 % (40)	4 and 12	1 (CLO-1, CLO -2), 2 (ALL)
	Assignments	0	0		
	Projects / Lab.	0	0		
	Report	0	0		
Summative assessment	Midterm Exam	2hr	10% (10)	8	All
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction, Definition of the project, Aim of project management, and Stages of construction project.
Week 2	Bidding documents, Contract agreement, and Construction project team.
Week 3	Quiz 1, Types of construction contract, Management level, and Project control.
Week 4	Construction project planning technique, Work breakdown structure, Breaking down the project into tasks & Determination of task duration.
Week 5	Task relationship, Ghant chart, Critical path method, and Precedence method.
Week 6	Scheduling by the Critical Path Method.
Week 7	Project time control (Project Updating).
Week 8	Mid-Term Exam, Time-cost trade-off.
Week 9	MS Project software: Introduction, Scheduling projects.
Week 10	MS Project software: Resources allocation and assignment, Schedule updating & Tracking
Week 11	MS Project Software: Reports and Printing
Week 12	MS Project Software: Quiz 2.
Week 13	S-curve & Project cash flow. Work progress calculation
Week 14	Project cost and schedule performance (Earned Value).

Week 15	Project cost and schedule performance (Earned Value).
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)		
المنهاج الاسبوعي للمختبر		
	Material Covered	
Week 1		
Week 2		
Week 3		
Week 4		
Week 5		
Week 6		
Week 7		
Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	K. K. Chitkara “Construction Project Management 3rd Edition, Kindle Edition” Mc Graw Hill education, INDIA, 2014.	
Recommended Texts	S. Seetharaman" Construction Engineering and Management fifth edition", UMESH publications, 2015.	
Websites	https://uomosul.edu.iq/en/engineering/environmental-engineering-dept/	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Hydrology		Module Delivery	
Module Type	B		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE307			
ECTS Credits	3			
SWL (hr/sem)	75			
Module Level	UGIII	Semester of Delivery		5
Administering Department	Civil. Dep.	College	College of Engineering	
Module Leader	Dr. Ayman Talib Hameed		e-mail	ayman.th@uomosul.edu.iq
Module Leader's Acad. Title	Assistant professor		Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)		e-mail	E-mail
Peer Reviewer Name	امينة احمد خليل		e-mail	amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025		Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To form engineering thinking for students, the capabilities to use innovative technical and technological solutions in engineering hydrology applications are needed. 2. To increase the ability of students to identify, formulate, and solve problems in a systematic way. 3. This addresses issues related to water balance and developing hydrological calculation methods and accuracy. 4. To explain the various instruments and methods used to calculate water quantities in surface and subsurface flow. 5. Students will understand the interaction between hydrologic engineering and surrounding conditions.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Students will learn the fundamentals of hydrology and their applications, as well as water resources management. 2. The students will learn the hydrologic cycle, precipitation and streamflow measurements, aquifers and groundwater, and their relationships to engineering designs. 3. The students will learn about the surface and subsurface water resources. 4. The students will learn theories of unit hydrograph and applications on flood forecasting, including peak discharge and time of peak occurrence. 5. The students will learn theories of flood routing, including reservoir and channel routing in flood forecasting. 6. Design a system or structure to meet the specific needs resulting from the analyses and interpretation of data. 7. Students learn the analysis process to be involved in designing various structural components used in professional structural engineering.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Introduction, Hydrological cycle, Practical application of Hydrology in engineering. Precipitation, type of precipitation, Measurement of precipitation, Type of gauges. [6 hrs] Preparation of data, double mass curve method, Presentation of rainfall data, Estimating missing precipitation data, Determination of average precipitation over area. Stream flow, Water stage measurement in river, Discharge measurement, Stage-Discharge relationship, Extension of rating curve. [8 hrs] Run Off. Hydrograph, Components of Hydrograph, Factors affecting on hydrograph, Base flow separation, Analysis of complex hydrograph, Unit hydrograph, Derivation of unit hydrograph, Conversion of unit hydrograph, Synthetic unit hydrograph. [8 hrs] Flood routing, Reservoir routing, Channel routing. [4 hrs] Ground water, Wells. [4 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The learning and teaching strategy is designed to provide students with a basic theoretical and practical understanding of hydrological engineering within the surface, subsurface, and ground flows. The learning and teaching methods include questions and answers in class, allowing students time to reflect on and apply the lecture material, and develop problem-solving skill.
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

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

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction, Hydrological cycle, Practical application of Hydrology in engineering
Week 2	Precipitation, type of precipitation, Measurement of precipitation, Type of gauges.
Week 3	
Week 4	Preparation of data, double mass curve method, Presentation of rainfall data, Estimating missing precipitation data, Determination of average precipitation over an area
Week 5	Stream flow, Water stage measurement in river, Discharge measurement, Stage-Discharge relationship
Week 6	
Week 7	Extension of the rating curve
Week 8	Run Off
Week 9	Hydrograph, Components of Hydrograph, Factors affecting the hydrograph, Base flow separation, Analysis of complex hydrograph
Week 10	Unit hydrograph, Derivation of unit hydrograph, Conversion of unit hydrograph
Week 11	Synthetic unit hydrograph
Week 12	Flood routing, Reservoir routing
Week 13	Channel routing
Week 14	Ground water
Week 15	Wells
Week 16	Final Exam

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Mohammead soliman et. al., (1992), "Engineering Hydrology" Arabic version, 1st edition, Home books for printer and Publisher –Mosul.	Yes
Recommended Texts	• Arora K. R. (2006), "Irrigation, Water Power and Water Recourses Engineering ", 4th Reprint Edition, A. K. Jain, For standard Publishers distributors, 1705-B. Nai Sarak. Delhi-110006. • Santosh Kumeear (1999), "Irrigation Engineering and Hydraulic Structures", 14th Reviere edition in S.I. Units, Hanna Publishers,2-B. Nathmarket. Naisarak, Delhi-110006. • Irrigation, Water Power and Water Recourses Engineering, Dr. K. R. Arora, 4th Reprint Edition 2006. • Madan Mohan Das and Mimi Das Saikia "Hydrology", 2023, by PHI Learning private limited, Delhi.	No
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Numerical Analysis		Module Delivery
Module Type	C		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	CE308		
ECTS Credits	4.00		
SWL (hr/sem)	100		
Module Level	UGIII	Semester of Delivery	
Administering Department	Civil Eng. Dep.	College	College of Engineering
Module Leader	Dr. Salwa Mubarak Abdullah	e-mail	Salwa_hano@uomosul.edu.iq
Module Leader's Acad. Title	Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Dr. Nadiya Sadeek Alsaffar	e-mail	Nadiya.alsaffar@uomosul.edu.iq
Peer Reviewer Name	Amina A Khaleel	e-mail	amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To develop problem solving skills and understanding of numerical analysis through the application of techniques. 2. To make students familiar with the use of numerical methods to solve equations, including iterative methods, how to find the completion in different ways. 3. This course deals with numerical integration and numerical differentiation, and the use of matrices to solve systems of equations in different ways. 4. This is the basic subject for the numerical solution of first and second-degree differential equations in numerical ways 5. To make the students familiar with the MATLAB Program to solve problems and find solutions in different ways.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Apply basic mathematics, science, and engineering principles to solve engineering problems. 2. To introduce different techniques for solving some differential equations 3. To enable students to use and apply these techniques in civil engineering applications 4. To enable students to use some well-known programs like MATLAB as a tool to help solve differential equations. 5. Discuss the use of interpolation methods in engineering applications. 6. Discuss the numerical solution to solve first and second-degree differential equations in numerical ways
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Numerical Analysis</u> Numerical Methods in General, Introduction, Solution of Equations by Iteration, fixed point iteration method, Newton-Raphson method, and Secant method, Linear Interpolation, Quadratic Interpolation, Newton's Divided Difference Interpolation. [15 hrs] Equal spacing: Newton's Forward Difference Formula, Equal spacing: Newton's Backward Difference Interpolation, Lagrangian Interpolation, Numerical Integration and Differentiation, System of Linear Equations, Gauss Elimination, System of Linear Equations, LU Factorization, System of Linear Equations, Gauss Seidel Iteration Method, System of Linear Equation, Inverse matrix, Method of Least Squares. [15 hrs] <u>Part C- MATLAB</u> Introduction to MATLAB and what is the environment of it, Generating matrices and the arithmetic operation on it, MATLAB Basics, MATLAB basic functions and recognizing the editor –M files, 2-D and 3-D drawing in MATLAB, Numerical interpolation in MATLAB, Numerical integration, finding the roots of equations of any order, and curve fitting in MATLAB. [15 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The main strategy for delivering this module is to encourage students' participation in exercises while refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials, and simple experiments involving sampling activities that are interesting to students. As well as using programs like MATLAB to experimentally apply the theoretical concepts that the student studies throughout the course.
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	75	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	25	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus) المناهج الاسبوعي النظري	
	Material Covered
Week 1	Numerical Methods in General, Introduction.
Week 2	Solution of Equations by Iteration, fixed-point iteration method, Newton-Raphson method, and Secant method.
Week 3	Interpolation, Linear Interpolation, Quadratic Interpolation, Newton's Divided Difference Interpolation.
Week 4	Equal spacing: Newton's Forward Difference Formula, Equal spacing: Newton's Backward Difference Interpolation, Lagrangian Interpolation.
Week 5	Numerical Integration and Differentiation.
Week 6	System of Linear Equations, Gauss Elimination.
Week 7	System of Linear Equations, LU Factorization
Week 8	System of Linear Equations, Gauss-Seidel Iteration Method
Week 9	System of Linear Equations, Inverse Matrix
Week 10	Method of Least Squares
Week 11	Introduction to MATLAB
Week 12	Application on MATLAB
Week 13	Application on MATLAB
Week 14	Application on MATLAB
Week 15	Application on MATLAB
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المناهج الاسبوعي للمختبر	
	Material Covered
Week 1	General introduction about MATLAB
Week 2	Introduction to Computing in Engineering and Science
Week 3	How to use MATLAB (using M- files)
Week 4	Anatomy of a Graph
Week 5	More details about Graph
Week 6	Writing equations in MATLAB
Week 7	Practical applications of MATLAB

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1. Erwin Kreyszig, "Advanced engineering mathematics" John Wiley & sons, sixth edition, 1988 2. C. Ray Wylie, "Advanced engineering mathematics" McGRAW-Hill, INC, Ltd, fourth edition, 1975. 3. Kiusalaas, "Numerical Methods in Engineering with MATLAB", Cambridge University press, 2005.	Yes
Recommended Texts	1. Kiusalaas, "Numerical Methods in Engineering with MATLAB", Cambridge University press, 2005.	no
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F - Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Theory of Structures II		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE309			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGIII	Semester of Delivery		6
Administering Department	Civil Eng. Dep.	College	College of Engineering	
Module Leader	Dr. Oday Asal Salih		e-mail	odaycivileng@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Professor		Module Leader's Qualification	Ph.D.
Module Tutor	Dr. Jasim Ali Abdullah		e-mail	jassim24676@uomosul.edu.iq
Peer Reviewer Name	Dr. Suhaib Y Al-darzi		e-mail	suhaib.qasim@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Using the method of consistent deformations, the method of least work, the slope-deflection method, and the moment distribution method, students will learn how to do an analysis of statically indeterminate beams, trusses, rigid frames, and composite structures. Line of influence for structures whose properties are statically uncertain.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Apply basic mathematics, science and engineering principles to solve engineering problems. 2- Defining the methods used to find stresses in Indeterminate Structures. 3- Defining the methods to find stresses in Structures that are subjected to moving loads. 4- Analyze the indeterminate structures (Beams, Frames, and Trusses). 5- Draw the shear force and moment diagrams (Beams, Frames). 6- Draw the influence lines of indeterminate structures (Beams).
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Approximate analysis for statically indeterminate structures [10hrs]. Analysis of statically indeterminate beam, trusses, rigid frames, and composite structures by the method of consistent deformations [10 hrs]. Analysis of statically indeterminate beam, trusses, rigid frames, and composite structures by the method of least work [10 hrs]. Analysis of statically indeterminate beams and rigid frames without joint translation by the slope-deflection method [10 hrs]. Analysis of statically indeterminate rigid frames with one, two and several degree of freedom of joint translation by the slope-deflection method [10 hrs]. Analysis of statically indeterminate rigid frames without joint translation by moment distribution. Modified Stiffness factors [10 hrs]. Analysis of statically indeterminate rigid frames with one degree of freedom of joint translation by moment distribution. Influence line for statically indeterminate structure, Maxwell's law, Betti's law [15 hrs].
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The primary approach that will be used to present this module is to promote student engagement in the activities while also enhancing and broadening their critical thinking abilities. Classes, interactive tutorials, and straightforward experiments with a few fun sampling exercises will be used to do this.

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

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

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Approximate analysis for statically indeterminate structures
Week 2	Analysis of statically indeterminate beam, trusses , rigid frames , and composite structures by the method of consistent deformations
Week 3	Analysis of statically indeterminate beam, trusses , rigid frames , and composite structures by the method of consistent deformations
Week 4	Analysis of statically indeterminate beam, trusses , rigid frames , and composite structures by the method of least work
Week 5	Analysis of statically indeterminate beam, trusses , rigid frames , and composite structures by the method of least work
Week 6	Analysis of statically indeterminate beams and rigid frames without joint translation by the slope-deflection method
Week 7	Analysis of statically indeterminate beams and rigid frames without joint translation by the slope-deflection method
Week 8	Analysis of statically indeterminate rigid frames with one,two and several degree of freedom of joint translation by the slope-deflection method Analysis of statically indeterminate rigid frames with one,two and several degree of freedom of joint translation by the slope-deflection method

Week 9	Analysis of statically indeterminate rigid frames without joint translation by moment distribution
Week 10	Analysis of statically indeterminate rigid frames without joint translation by moment distribution
Week 11	Analysis of statically indeterminate rigid frames without joint translation by moment distribution (Modified Stiffness factors)
Week 12	Analysis of statically indeterminate rigid frames with one degree of freedom of joint translation by moment distribution
Week 14	Analysis of statically indeterminate rigid frames with one degree of freedom of joint translation by moment distribution
Week 15	Influence line for statically indeterminate structure, Maxwell's law, Betti's law
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)		
المنهاج الاسبوعي للمختبر		
	Material Covered	
Week 1		
Week 2		
Week 3		
Week 4		
Week 5		
Week 6		
Week 7		
Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Structural Analysis, Russell C. Hibbeler, Pearson Education Limited, 10 th edition, 2020.	No
Recommended Texts	Structural Analysis, Aslam Kassimali Cengage Learning, 6 th edition, 2019.	No
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Soil Mechanics II		Module Delivery
Module Type	C		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☒ Practical ☐ Seminar
Module Code	CE310		
ECTS Credits	6.00		
SWL (hr/sem)	150		
Module Level	UGIII	Semester of Delivery	Six
Administering Department	Civil Eng. Dep.	College	College of Engineering
Module Leader	Dr. Mohammed N. Jaro	e-mail	E-mail: m.jaro@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Dr. Mohammed N. Jaro Lecturer	e-mail	E-mail: m.jaro@uomosul.edu.iq
Peer Reviewer Name	امينة احمد خليل	e-mail	amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The course aims to give students the knowledge to understand the theory of shear strength of the soil and methods of measuring its coefficients, which are the angle of internal friction and the cohesion. It is an important introduction to the bearing capacity calculations for different soils, through which the ability of the soil to bear the structures built on it. The issue of engineering soil problems and how to improve the soil to raise its bearing capacity, reduce subsidence, and avoid the problems of swelling and fallout, and the effects of gypsum and saline soils will also be discussed. Finally, the issue of lateral pressures of the soil and its calculations is explained, which paves the way for the design of the supporting facilities. The improvement of soil through compaction process in field and laboratory..
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understand the shear strength behavior of the soil and find the shear parameters which are important in the calculation of the bearing capacity of the soil. 2. Classify the soil according to shear strength that cohesive and cohesionless soils and characteristics of each one. 3. Calculate the lateral earth pressure and the lateral force that applied on the retaining walls which is essential for design the retaining walls and for factor of safety against failure. 4. Learn how to control the compaction in the field as well as the methods of compaction in field and laboratory. 5. Distinguish the problematic soils which caused a severe problem to the structures. 6. Estimate the factor of safety against sliding or failure of slope of natural and artificial slopes.
Indicative Contents المحتويات الإرشادية	- Shear strength theory, parameters of the shear strength, failure mechanism, plane of failure, stresses on the planes in soil, Mohr's circle and Mohr's envelope of failure, laboratory and field shear strength tests.[17] - Lateral earth pressure; calculate the lateral earth pressure in active, at rest and passive cases. Rankin's and Coulomb's theories of lateral earth pressure. [15] - Problematic soils such as collapsible soil, swelling soil, gypseous soil, etc.[15] - Mechanical stabilized soil by compaction process. Factors affecting compaction characteristics, compaction curve, optimum moisture content and maximum dry density, and compaction test in field and laboratory. [15] - Slope stability, Factor of safety, finite and infinite slopes. [16]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	One of the most important strategies is to increase students' skills in applying theoretical materials in the field of civil engineering. As well as developing their capabilities in solving engineering problems that they may encounter in field work. This is done by training them to prepare reports and solve practical issues, in addition to acquiring knowledge about the types of soils through conducting laboratory and field experiments.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem)	78	Structured SWL (h/w)	5.5

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

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

Delivery Plan (Weekly Syllabus) المنهاج الأسبوعي النظري	
	Material Covered
Week 1	Introduction and definition of shear strength in soil
Week 2	General and principle stresses in soil; Mohr-Coulomb theory of the shear strength;
Week 3	Shear strength of cohesive soil and cohesionless soils; Shear strength parameters;
Week 4	Application Examples
Week 5	Introduction to lateral earth pressure; Types of lateral earth pressure (At rest, active and passive); Coefficients of lateral earth pressure
Week 6	Rankin's theory of active and passive lateral earth pressure
Week 7	Coulomb theory of lateral earth pressure; Application examples;
Week 8	Problematic soils; Definition; Soil problem description;
Week 9	Soil types such as collapsible soil, swelling soil, gypseous soil, etc.
Week 10	Soil stabilization; Mechanical stabilization; Compaction process; Compaction theory
Week 11	Control of compaction in field; Field and laboratory compaction tests;
Week 12	Compaction curve characteristics; Application examples
Week 13	Introduction to slope stability; type of slope infinite and finite slopes
Week 14	Calculate the factor of safety; Slices method
Week 15	Calculate the factor of safety; Slices method
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الأسبوعي المختبر	
	Material Covered
Week 1	Lab 1: Introduction to laboratory
Week 2	Lab 2: Laboratory shear test equipment description test- explain
Week 3	Lab 3: Laboratory shear test - training

Week 4	Lab 4: Unconfined compression test- explain
Week 5	Lab 5: Unconfined compression test - training
Week 6	Lab 6: Direct shear test- explain
Week 7	Lab 7: Direct shear test- training
Week 8	Lab 8: Triaxial shear test- explain
Week 9	Lab 9: Compaction tests in laboratory-Standard
Week 10	Lab 10: Compaction tests in laboratory-Standard
Week 11	Lab 11: Compaction tests in laboratory-Modified
Week 12	Lab 12: Compaction tests in laboratory-Modified
Week 13	Lab 13: Comprehensive review

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1. "Principles of Geotechnical Engineering", (2004), Braja M. Das, 5th edition 2002, copyright by Wadsworth Group/United Stated. 2. "Principal of Soil Mechanic", (1991), Mohammed O. AL-Asho, (Book language in Arabic).	Yes
Recommended Texts	1. "Elements of Soil Mechanics", (1988), G. N. Smith and Ion G. N. Smith, USA. 2. "Problem Solving in Soil Mechanics", (2003), A. Aysen, Swets & Zeitlinger B.V	No
Websites	No	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Reinforced Concrete II		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE311			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGIII	Semester of Delivery		6
Administering Department	Civil Eng. Dep.	College	College of Engineering	
Module Leader	Dr. Rabi. M. Najem		e-mail	dr.rabi.najem@uomosul.edu.iq
Module Leader's Acad. Title	Assist. Professor		Module Leader's Qualification	Ph.D.
Module Tutor	Dr. Halla Jasem Mohamed		e-mail	engrehal.1984@uomosul.edu.iq
Peer Reviewer Name	Dr. Suhaib Y Al-darzi		e-mail	suhaib.qasim@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Reinforced Concrete I	Semester	5
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Teaching the students how to make a safe and economical design for different structural members (beams, short columns and slender columns, with calculating the development length and lap splice of steel bars under tension and compression), through the restriction of the used designed code (ACI code 2008), and providing them with experience to handle different designing and construction problems in site.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Students who successfully complete this course will be able to: 1. Analysis of short columns under compression. 2. Analysis of short columns under tension. 3. Design of Axially loaded Short columns. 4. Design of Uniaxially loaded. 5. Analysis and design of biaxially loaded columns 6. Designing of slender columns (sway and non sway). 7. Calculate the development length of steel bars in compression and tension. 8. Calculate the cutoff bar distance for reinforcing steel.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part I (35 hrs.)</u> - Introduction to short columns, Types of columns (Axially loaded, Uniaxially loaded, and Biaxially loaded), ACI Code Limitations for short columns. - The Interaction diagram for uniaxially loaded column. - Solved example of drawing the interaction diagram. - Solved example of axially loaded column. - Solved examples of uniaxially loaded columns under compression. - Solved examples of uniaxially loaded columns under tension. - Design theory of biaxially loaded columns. - Solved examples of biaxially loaded columns. <u>Part II (20 hrs.)</u> - Introduction to long columns. - Failure types of columns. - ACI Code limitation for designing long columns (Non sway). - ACI Code limitation for designing long columns (Sway). - Solved example of long columns design (Non sway). - Solved example of long columns design (Sway). <u>Part III (20 hrs.)</u> - Defining the development length of steel bars. - Lap splice of reinforcing steel in tension. - Lap splice of reinforcing steel in compression. - Cutoff steel bars.

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

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

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

Delivery Plan (Weekly Syllabus) المناهج الاسبوعي النظري	
	Material Covered
Week 1	Analysis and design of short columns (Introduction to short columns)
Week 2	Analysis and design of short columns (The interaction diagram of uniaxially loaded columns)
Week 3	Analysis of short columns (Analysis of columns–compression failure)
Week 4	Analysis of short columns (Analysis of columns–tension failure)
Week 5	Design of short columns (Design of columns–compression failure)
Week 6	Design of short columns (Design of columns–tension failure)
Week 7	Analysis and design of short columns (Design of biaxially loaded columns)
Week 8	Analysis and design of short columns (Design of biaxially loaded columns)
Week 9	Midterm Exam
Week 10	Analysis and design of long columns (Introduction to long columns with code limitations)
Week 11	Analysis and design of long columns (Design of long columns – non sway)
Week 12	Analysis and design of long columns (Design of long columns – sway)
Week 13	Development and lap splices. (ACI Code limitations for development length)
Week 14	Development and lap splices. (lap splice for tension members)
Week 15	Development and lap splices. (lap splice for compression members)
Week 16	Preparatory week before the final Exam

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Basics of Reinforced concrete. Saad Al Taan, 1991	Yes
Recommended Texts	Building Code Requirements for Structural Concrete (ACI 318M-19) and Commentary.	Yes
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Highway engineering II		Module Delivery
Module Type	C	☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE312		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGIII		Semester of Delivery
Administering Department	CE	College	COE
Module Leader	Dr. Mohamed Ahmed	e-mail	mohammad66ah@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Dr.Yazin Abdulilah Alnajjar	e-mail	yazinalnajjar@uomosul.edu.iq
Peer Reviewer Name	ا.د. عبد الرحيم ابراهيم جاسم	e-mail	alhadidy@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Module aims is to provide students the necessary background information for asphalt and aggregate used for the construction of the highways their engineering properties, as well as teaching them the engineering behavior of flexible and rigid pavements. Methods for determining the thickness for flexible and rigid pavements layers were also included.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understanding the properties of asphalt and aggregate used in highway construction, their tests and specifications. 2. Classifying the asphalt according to the uses. 3. Determining the thicknesses of highway layers for both flexible and rigid pavements.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A - Soil Engineering for Highway Design</u> Soil Characteristics. Basic Engineering Properties of Soils. Classification of Soils for Highway Use. Soil Surveys for Highway Construction. Soil Compaction. Special Soil Tests for Pavement Design [6 hrs] <u>Part B - Bituminous Materials</u> Sources of Asphalt. Description and Uses of Bituminous Binders. Properties of Asphalt Materials. Tests for Asphalt Materials. Asphalt Mixtures. Superpave Systems [10 hrs] <u>Part C – Design of Flexible Highway Pavements</u> Structural Components of a Flexible Pavement. Soil Stabilization. General Principles of Flexible Pavement Design. Asphalt Institute Flexible Pavement Design. AASHTO Flexible Pavement Design. [6 hrs] <u>Part D – Design of Rigid Pavements</u> Materials Used in Rigid Pavements. Joints in Concrete Pavements. Types of Rigid Highway Pavements. Pumping of Rigid Pavements. Stresses in Rigid Pavements Portland Cement Association Design Method. AASHTO Rigid Pavement Design Method. [8 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	

	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.
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Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 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 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Basic Engineering Properties of Soils for highway design

Week 2	Classification of soils for highway use
Week 3	Special Soil Tests for Pavement Design
Week 4	Description and uses of asphalt
Week 5	Properties of asphalt materials
Week 6	Tests for asphalt materials
Week 7	Superpave Systems
Week 8	Production, Laying and compaction of asphalt mixtures
Week 9	Structural components of flexible pavement
Week 10	Asphalt Institute design method
Week 11	AASHTO Flexible Pavement Design
Week 12	Materials Used and Stresses in Rigid Pavements
Week 13	Joints in Concrete Pavements, and types of Rigid Highway Pavements
Week 14	Portland Cement Association Design Method
Week 15	AASHTO Rigid Pavement Design Method
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Aggregate Gradation and percentage Determination
Week 2	Lab 2: Optimum Asphalt Content Determination
Week 3	Lab 3: Extraction test-1
Week 4	Lab 4: Extraction test-2
Week 5	Lab 5: CBR Test-1
Week 6	Lab 6: CBR Test-2
Week 7	Lab 7: Los Anglos test

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Traffic and Highway Engineering, Enhanced Fifth Edition, SI Edition, Nicholas J. Garber, Lester A. Hoel, Cengage Learning, Inc., 2020.	Yes

Recommended Texts	Pavement Analysis and Design, Second Edition, Yang H. Huang, Pearson Education, Inc., 2004.	No
Websites	https://www.pavement engineering	

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Hydraulic structures		Module Delivery
Module Type	C	☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE313		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	UGIII		Semester of Delivery
Administering Department	Civil Engineering Dep.	College	College of Engineering
Module Leader	Dr. Ayman Talib Hameed	e-mail	ayman.th@uomosul.edu.iq
Module Leader's Acad. Title	Assistant professor	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	امينة احمد خليل	e-mail	amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To form engineering thinking for students, capabilities to use innovative technical and technological solutions in hydraulic engineering. 2. To increase the ability of students to identify, formulate and solve problems in a systematic way. 3. To provide students the basic information about the types of hydraulic structures and the design considerations and procedures regarding the form and function of many types of hydraulic structure. 4. Introduce the students the basic design criteria applicable for hydraulic structures such as energy dissipators , cross drainage work, spillways, , and dams. 5. Students will understand interaction between hydraulic structures and surrounding conditions.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Students will learn the fundamental of hydraulic structures and their applications. 2. Students will demonstrate the ability to determine the classification of Hydraulic structures according to use, function and materials. 3. Be able to define hydraulic structures, their purpose, international and national problems in the field of hydraulic engineering. 4. Students learn the analysis process to be involved in designing various structural components used in professional structural engineering. 5. To know the elements of hydraulic structures, to be able properly select the parameters of their elements and to apply calculation methods. 6. Students will demonstrate the ability to check the safety of the hydraulic structures problems in surface and subsurface flow such as the safety against piping. 7. Design a system or structure to meet the specific needs resulting from the analyses and interpretation of data.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Introduction of hydraulic structures, Hydraulic jump and its applications. Draw the water surface profile of hydraulic jump, Types of energy dissipaters. Types and design of stilling basins. [9 hrs] Theories of concrete floor-design, Bligh theory and lanes theory, Design of concrete floor-using Bligh theory and lanes theory. Design of concrete floor-using Khoslas theory. Hydraulic analysis and design of culverts. [14 hrs] Spillways, Design of Ogee spillway, Types and design of cross drainage works, Design of syphon, Canal regulation works, Types of regulators, Design of regulators. [15 hrs] Protection works, Design of scour, Dams, Design of concrete gravity dam. [11 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The learning and teaching strategy is designed to provide students with a basic theoretical and practical understanding of the hydraulic structures within the open channel flows. The learning and teaching methods include question and answer in class allowing students time to reflect on and apply the lecture material and develop problem solving skills.
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

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

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction of hydraulic structures, Hydraulic jump and its advantages in the design of hydraulic structures.
Week 2	Draw the water surface profile of hydraulic jump, Types of energy dissipaters.
Week 3	Types and design of stilling basins.
Week 4	Theories of concrete floor-design, Bligh theory and lanes theory, Design of concrete floor-using Bligh theory and lanes theory.
Week 5	Design of concrete floor-using Khoslas theory.
Week 6	Hydraulic analysis and design of culverts.
Week 7	Spillways.
Week 8	Design of Ogee spillway.
Week 9	Types and design of cross drainage works.
Week 10	Design of syphon.
Week 11	Canal regulation works, Types of regulators.
Week 12	Design of regulators.
Week 13	Protection works, Design of scour.
Week 14	Dams
Week 15	Design of concrete gravity dam.
Week 16	Preparatory week before the final Exam

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the

		Library?
Required Texts	Theory and design of irrigation structures (volume 2), R.S.Varshneny, Fourth Edition, N.C.Jain, 1979.	Yes
Recommended Texts	- Irrigation, Water Power and Water Recourses Engineering, Dr. K. R. Arora, 4 th Reprint Edition 2006. - Irrigation, Water Power and Water Recourses Engineering, Dr. K. R. Arora ,4 th Reprint Edition 2006. - Engineering and Hydraulic Structures, Santosh Kumear Gary, 14th Revisers edition in S.I. Units.	No
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Engineering Project Design and Planning		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE314			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	UGIII	Semester of Delivery		6
Administering Department	Civil Eng. Dep.	College	College of Engineering	
Module Leader	Dr. Khawla Ahmed		e-mail	Khawlah.ahmad@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Prof.		Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)		e-mail	E-mail
Peer Reviewer Name	امينة احمد خليل		e-mail	amina.alshumam@uomosul.edu.iq
Scientific Committee Approval Date	1-9-2025	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Providing the technical possibility for students to use the various engineering programs. Helping students analyze and design multi-story buildings and footings as well as retaining structures. So, reducing the effort involved in analyzing and designing them manually by adopting all theoretical concepts that were taken in the previous stages and applied in this course.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. The student recognizes the advantages of the program and the importance of using it for the analysis and design of structures. 2. Comparison of program results with manual solutions and with specifications and accuracy of results. 3. Applying the instructions of the program in the analysis and design of multi-story buildings in the engineering project course. 4. Check analysis and design results and compare them with specifications and evaluate the economic aspect of the design. 5. Analyze various problems regarding to foundations, retaining structures, earth embankment etc 6. Analyze a number of dynamic problems such as structures subjected to earthquake, foundation machine, vibration creating during pile driving, etc 7. Verifying the results obtained from software programs by comparing with those obtained manually.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – STAAD Pro V8i.</u> An introduction to the STAAD Pro V8i software Explanation of playlists [3 hrs] Explain how to represent and analyze the beams in the program and read the results[3 hrs] Representation and analysis of planar (2D) structures and review of results [3 hrs] Representation and analysis of a multi-story structural building (3D) [2 hrs] Representation and analysis of a multi-story structural building (3D) with slabs and view results [3 hrs] Concrete design for reinforced concrete structural members (beams, columns and slabs) from the design list [3 hrs] Concrete design for reinforced concrete structural members (beams, columns and slabs) by using interactive method [3 hrs] Preparing a report with the results and exporting it to the word program [2 hrs] <u>Part B – PLAXIS V8.2</u> Introduction to Plaxis 2D software [3 hrs] Explain how to represent and analyze various geotechnical problems [3 hrs] Representation and analysis of Settlement of a circular flexible footing on sand[3 hrs] Representation and analysis of Settlement of a circular rigid footing on sand [3 hrs] Representation and analysis of Construction of road embankment [3 hrs] Representation and analysis of Building subjected to an earthquake [3 hrs]

	Representation and analysis of Pile driving [3 hrs] Preparing a report with the results and exporting it to the word program [2 hrs]
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

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

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to STAAD Pro V8i Explanation of playlists
Week 2	Explain how to represent and analyze the beams in the program and read the results
Week 3	Representation and analysis of planar (2D) structures and review of results
Week 4	Representation and analysis of a multi-story structural building (3D).
Week 5	Representation and analysis of a multi-story structural building (3D) with slabs and view results
Week 6	Concrete design for reinforced concrete structural members (beams, columns and slabs) from the design list
Week 7	Concrete design for reinforced concrete structural members (beams, columns and slabs) by using interactive method
Week 8	Preparing a report with the results and exporting it to the word program
Week 9	Introduction to Plaxis 2D software
Week 10	Explain how to represent and analyze various geotechnical problems
Week 11	Lesson 1: Settlement of a circular flexible footing on sand
Week 12	Lesson 2: Settlement of a circular rigid footing on sand
Week13	Lesson 3: Construction of road embankment
Week14	Lesson 4: Building subjected to an earthquake
Week15	Lesson 5: Pile driving & Preparing a report with the results and exporting it to the word program
Week16	Preparatory week before the final Exam

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	PLAXIS 2D Manual	
Recommended Texts	PLAXIS 3D Manual	
Websites		

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
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Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				