



Al Muthanna University

جامعة المثنى

Modules Description for Civil Engineering

دليل وصف المواد الدراسية

| 2023-2024 |

First Cycle – Bachelor's Degree (B.Sc.) – Civil Engineering

بكالوريوس - هندسة مدنية

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SEMESTER 1:

Module Information

معلومات المادة الدراسية

Module Title	Engineering Mechanics: Statics			Module Delivery	
Module Type	Basic			☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☒ Seminar	
Module Code	CVE111				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGI	Semester of Delivery		1
Administering Department		CVE	College	ENG	
Module Leader	Motaz Alhassan		e-mail	Motaz.Alhassan@mu.edu.iq	
Module Leader's Acad. Title		Teacher	Module Leader's Qualification		Ph.D.
Module Tutor	Ameer Jabbar Abdul kareem		e-mail	Ameer.jabbar@mu.edu.iq	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		15/06/2023	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 explore and comprehend the concept of statics in engineering systems, particularly within the field of civil engineering. 2. Gain a comprehensive understanding of how forces operate within various structural systems. 3. Acquire knowledge about moments and their effects on structural systems. 4. Develop an understanding of equilibrium theory and the capacity to design structures that maintain equilibrium. 5. Explore the functions and significance of supports in structural systems. 6. Enhance comprehension of beams, their different types, and the principles of beam equilibrium. 7. Gain an understanding of frames, their various types, and the equilibrium principles of frame equilibrium. 8. Acquire knowledge about trusses, their different types, and the principles of truss equilibrium.
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	9. To comprehend loads and their various types in engineering systems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Gain an understanding of how forces act upon structural systems. 2. Identify and familiarize the different terms of force systems. 3. Understand how moments influence structural systems. 4. Recognize and comprehend the concept of equilibrium in various structural systems. 5. Identify and understand the behavior of loads, including different types of loads, on diverse structural systems. 6. Recognize beams, frames, and trusses, and develop an understanding of the equilibrium principles that apply to each.

Indicative Contents المحتويات الإرشادية	Indicative content includes the following: ▪ Introduction [5 hrs] ▪ Basic Concepts [15 hrs] ▪ Composition and Resolution of Forces [15 hrs] ▪ Principle of Moments and Couples [15 hrs] ▪ Resultants of Force Systems [10 hrs] ▪ Equilibrium and Free-Body Diagram [15] ▪ Beams in plane [10] ▪ Frames in the Plane [10 hrs] ▪ Trusses in the Plane [15 hrs] ▪ Frames and Trusses in the Space [15 hrs]
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	This course aims to provide students with a fundamental understanding of statics in structural systems. It will cover the analysis of forces in one-, two-, and three-dimensional systems. Emphasis will be placed on how these forces mainly fit within different structural systems, including beams, frames, and trusses, in real-world scenarios. Additionally, the course will explore how forces generate moments and examine the effects of these moments on the static equilibrium of structures. Equilibrium, a fundamental concept in civil engineering will also be taught. Through quizzes and assignments, students will have opportunity to demonstrate their comprehension and mastery of the aforementioned topics. Their scores, active participation, and understanding will collectively determine their level of knowledge in the subject matter.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	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% (20)	6, 11	LO #1, 2,3,4,5 and 6
	Online Assignments	2	5% (10)	3, 8	LO # 1, 2,3,4,5 and 6
	Seminars	1	5% (5)	13	LO # 1, 2,3,4,5 and 6
	Onsite assignments	1	5% (5)	10	LO # 1, 2,3,4,5 and 6
Summative assessment	Midterm Exam	2 hr	10% (10)	6	LO # 1, 2,3,4,5 and 6
	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
Week 2	Basic Concepts
Week 3	Composition and Resolution of Forces
Week 4	
Week 5	Principle of Moments and Couples
Week 6	Resultants of Force Systems
Week 7	Equilibrium and Free-Body Diagram
Week 8	
Week 9	Beams in the plane
Week 10	Frames in the Plane
Week 11	
Week 12	Trusses in the Plane
Week 13	
Week 14	Frames and Trusses in the Space
Week 15	Review

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Statics, R.C. Hibbeler, Published by Pearson Prentice Hall Pearson Education, Inc. Upper Saddle River, New Jersey 07458	Yes
Recommended Texts	Statics, J. L. Meriam and L. G. Kraige, Published by John Wiley & Sons, Inc. Seventh edition	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 Information

معلومات المادة الدراسية

Module Title	Engineering physics	Module Delivery
Module Type	Basic	☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	CVE112	
ECTS Credits	5	
SWL (hr/sem)	125	

Module Level	UGI	Semester of Delivery	1
Administering Department	CVE	College	ENG.
Module Leader	Zahraa Abbas Khudhair	e-mail	zahraa.abbas@mu.edu.iq
Module Leader's Acad. Title	Assist.Lect	Module Leader's Qualification	MS.C.
Module Tutor	-	e-mail	-
Peer Reviewer Name	-	e-mail	-
Scientific Committee Approval Date	15/06/2023	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	After successful completion of the module, students should be able to: 1. Describe the SI unit system and convert units 2. Describe the translational motion of a single particle in terms of position and inertial frames, velocity, acceleration, linear momentum and force. 3. To understand Newton's Laws of Motion, first law, second law-acceleration, force, and mass. 4. To understand Fluid Mechanics Temperature and Thermodynamics 5. Represent graphically the problem of motion of a physical system using the free-body diagram technique. 6. Identify the forces acting on ordinary mechanical systems to be gravity and Electromagnetism (Drag force, frictional force, normal force, etc.).
Module Learning Outcomes	By the end of this course student should demonstrate the following outcome relevant to Engineering physics: 1. Demonstrate conceptual understanding of fundamental physics principles. 2. provide and logical presentation of the basic concepts and principles of physics.

مخرجات التعلم للمادة الدراسية	3. Determine free-body diagrams and apply Newton's laws of motion and vector operations to evaluate the balance of bodies. 4. To understand Fluid Mechanics Temperature and Thermodynamics of fundamental physics principles. 5. An ability to identify, formulate and solve physics equations.
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Indicative Contents المحتويات الإرشادية	Indicative content includes the following: - Introduction to concept of engineering physics and its relevance to civil engineering, Physics and measurement and Conversion of units. [10 hrs] - Dynamics of motion of a single particle and multiple objects in one and two dimensions and Newton's Laws; Free body diagrams; various types of mechanical forces; Application on the use of Newton's Laws. [15 hrs]. - Circular Motion and Other Applications of Newton's Law, Newton's Second Law Applied to Uniform Circular Motion, Non-uniform Circular Motion. Motion in Accelerated Frames, Motion in the Presence of Resistive Forces, Numerical Modeling in Particle Dynamics. [15 hrs] - Vectors, Coordinate systems, vector and scalar quantities, some properties of vectors, adding vector, subtracting vectors, Multiplying a vector by a scalar, Components of a vector, Unit vectors. [15 hrs] - Work and energy; Conservative systems and the concept of potential energy; Conservation of mechanical energy. [15 hrs] - Moving fluids and continuity principle; Static fluids and Pascal's law; Buoyancy and Archimedes' Principle; Viscous flow and Poiseuille's equation. [20hrs] - First and second law of thermodynamics; Principles of electric and magnetic fields; [20 hrs]. - Basics of elasticity theory; Brittle fracture and microcracks; Plastic deformation; [15 hrs].
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Different forms of teaching will be used to come up with objectives of the course: - Lecture method and use of the interactive whiteboard - Explanation and clarification - Providing students with the basics and additional topics related to Engineering physics. - Forming discussion groups during lectures to discuss. - Asking students, a set of thinking questions during lectures, such as what, how, when and why. - Giving students homework that requires self-explanation in causal ways.
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Student Workload (SWL)

الحمل الدراسي للطالب

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	77	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.1
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	20% (20)	5, 11	All
	Assignments	2	10% (10)	2, 6	All
	Projects / Lab.				
	Report	1	10% (10)	6	All
Summative assessment	Midterm Exam	2 hr	10% (10)	7	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 Engineering physics
Week 2,3	Motion in one dimension, two dimension
Week 4,5	Movement Physics and Measurement Vectors
Week 6	The Force and Newton's Laws of Motion
Week 7,8	Circular Motion and Other Applications of Newton's Laws
Week 9,10	Fluid Mechanics Temperature and Thermodynamics
Week 11	Work and energy, Conservative systems and the concept of potential energy
Week 12	Equilibrium under the action of concurrent force
Week 13	Basics of elasticity theory; Brittle fracture and microcracks; Plastic deformation
Week 14,15	Moving fluids and continuity principle; Static fluids and Pascal's law; Buoyancy and Archimedes' Principle; Viscous flow and Poiseuille's equation.

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 physics, Dr. Hasan Maridi, British university in Yemen	No (only electronic version)
Recommended Texts	Physics for Scientists and Engineers (with Physics NOW and info Trac), Raymond A.Seway –Emeritus ,James	No (only electronic version)

	Madison university, Tomson Brooks /Cole @2004, 6 th Edition , 1296 pages	
Websites	https://classroom.google.com/c/NjI5NTA2ODc0MTk4?cjc=fbcltbv	

Grading Scheme

مخطط الدرجات

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

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Module Information

معلومات المادة الدراسية

Module Title	Mathematics-I			Module Delivery	
Module Type	Basic			☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	ENG001				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level		UG1	Semester of Delivery		1
Administering Department		CVE	College	Eng.	
Module Leader	Atheer Muhammed Ali Jasim		e-mail	atheer.muhammed@mu.edu.iq	
Module Leader’s Acad. Title		Lecturer	Module Leader’s Qualification		MS.c
Module Tutor	Atheer Muhammed Ali Jasim		e-mail	atheer.muhammed@mu.edu.iq	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		15/06/2023	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. Good understanding of General Mathematics. 2. To give information about Integrations and derivations and how they are used in the physics field. 3. Helping students to connect mathematics with physics. 4. solving mathematical examples in their physics modules. 5. better understanding of integration and derivations and their importance of them in physics.
	After successful completion of the module, students should be able to: 1. Work with functions represented in various ways: graphical, numerical, analytical, or verbal. They should understand the connections among these representations. The functions include linear, polynomial, absolute value, rational, exponential, logarithmic, trigonometric, inverse trigonometric, hyperbolic, inverse hyperbolic, and piecewise defined functions. 2. Define and apply the concepts of limits and continuity to the mentioned functions and study them graphically and analytically.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	3. Understand the meaning of the derivative in terms of a rate of change and local linear approximation and should be able to use derivatives to solve a variety of problems. 4. Understand the meaning of the definite integral both as a limit of Riemann sums as the net accumulation of change and should be able to use integrals to solve a variety of problems. 5. Understand the relationship between the derivative and the definite integral as expressed in both parts of the Fundamental Theorem of Calculus.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: 1-Algebraic Preliminaries (10hrs) 2- Functions (10hrs) 3- Derivatives (10hrs) 4- Applications of Derivative (10hrs) - Definite Integration (10hrs) - Transcendental Functions (10hrs) - Complex Number (10hrs) - Hyperbolic Functions (10hrs) - Plane Analytic Geometry (10hrs) - Methods of Integrations (10hrs) - Matrices and Determinates (10hrs) - Volume of Revolution (15hrs)

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	- Different forms of teaching will be used to come across with objectives of the course. PowerPoint presentations for the head titles, definitions, graphs, and many useful illustrations with a summary at the end of each chapter will be presented and discussed. - The PowerPoint contains information about new topics and unsolved examples, and then the whiteboard will be used to solve them and to let students to see the solutions.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.8
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	16% (16)	4, 10, 12	LO #1-5
	Online assignments	2	8% (8)	8, 14	LO # 1-5
	Onsite assignments	2	6% (6)	5, 10	LO # 1-5

	Report	2	10% (10)	7, 13	LO # 1-5
Summative assessment	Midterm Exam	-	-		-
	Final Exam	3hr	60% (60)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المناهج الاسبوعي النظري

	Material Covered
Week 1	Algebraic Preliminaries: Numbers, Sets, Inequalities & Absolute value.
Week 2	Functions: Domain, Range, graphs, Symmetry, Asymptotes.
Week 3	Limits: Definition of Limit, Theorems, Continuity, One-Sided Limits, Limits at Infinity, L Hopital's rule.
Week 4	Derivatives: Definition, Power and Sum Rules, Product and Quotient Rules, Chain rule, High-Order derivatives, Implicit differentiation.
Week 5	Applications of Derivative: Maximum and minimum, mean value theorem, Increasing and Decreasing Functions, Concavity and Points of inflection, Second Derivative Test.
Week 6	Definite Integration: Definition, Integral Theorems, Length of a Curve, Areas, Volume of Solids, Surface Area, Indefinite Integrals.
Week 7	Transcendental Functions: Trigonometric Functions, Graphs, Derivatives of trigonometric functions, Inverse trigonometric functions, Graphs, Derivatives of Inverse trigonometric functions, Natural Logarithm Functions, Exponential Functions, Functions a^u and $\log_a u$.
Week 8	Complex Number: Invented number systems, The Argand diagram. Addition, Subtraction, product, Quotient, Power and Roots. Demoivers theorem.
Week 9	Hyperbolic Functions: Definition, Derivatives, Integrals, Inverse Hyperbolic Functions.
Week 10	Plane Analytic Geometry: Circle, Parabola, Ellipse, Hyperbola
Week 11	Volume of Revolution: Disk Method & Washer Method
Week 12	Volume of Revolution: Volumes by Cylindrical Shells & solid with known cross sections
Week 13	Methods of Integrations: Integration by substitution, Trigonometric Integrals & Quadratic Functions
Week 14	Methods of Integrations: Integration by Parts, Integration by partial fractions, Integration of Rational Functions, improper integrals.
Week 15	Matrices and Determinates: Definition, Properties of Matrices, Operations on Matrices, Determinants, Matrix Inverse, Solution of Linear Simultaneous Equations (Gramer's Rule).

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. Calculus with Analytical Geometry, Fourth Edition, By Robert Ellis and Denny Gulick, 1990. 2. Calculus, Fifth Edition, By Stanley I. Cross may1992. 3. Calculus, International Edition, By Thomas, 2005.	Yes
Recommended Texts	1. Calculus, 11th Edition, By Thomas, 2013. 2. Understanding Basic Calculus, by S.K. Chung, 2007	Yes
Websites	https://engineering.mu.edu.iq/ , https://classroom.google.com/c/NjQwMTU2NjM1Mzcx?cjc=b5b7xx5 ,	

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 required but credit awarded
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Module Information

معلومات المادة الدراسية

Module Title	Engineering Workshops			Module Delivery	
Module Type	Basic			☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	ENG002				
ECTS Credits	4.00				
SWL (hr/sem)	100				
Module Level		UGI	Semester of Delivery		
Administering Department		CVE	College	ENG.	
Module Leader	firas fouad abdullah		e-mail	Firas.fuad@mu.edu.iq	
Module Leader’s Acad. Title			Module Leader’s Qualification		Ph.D.
Module Tutor	Dhurgham Shamil Rashid		e-mail	E-mail :durgam_rashid@mu.edu.iq	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date			Version Number		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	- Workshop practice is the backbone of the real industrial environment which helps to develop and enhance relevant technical hand skills required by the technician working in the various engineering industries and workshops. - A workshop can introduce a new concept, spurring participants to investigate it further on their own, or can demonstrate and encourage the practice of actual methods. It's a great way to teach hands-on skills because it offers participants a chance to try out new methods and fail in a safe situation
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	- ورشة النجارة يتعلم فيها الطالب على اهمية الخشب في واقع الحياة اليومية –انواع الخشب ميزاته وعيوبه وتطبيقاته بالإضافة الى تطبيق عملي حول النجارة. - ورشة البرادة يتعرف فيها الطالب على اهمية البرادة وانواع البرادة وادواتها بالإضافة الى طريقة البرادة مع اخذ تطبيق عملي عليها. - ورشة الخراطة واحدة من الورش التي يكتسب فيها الطالب معلومات جديدة حول عمليات القطع والتشغيل باستخدام ماكنات الخراطة. التعرف على الاجزاء الاساسية في ماكنات الخراطة مع عمليات الخراطة الاساسية.

	- ورشة الصحية من مخرجات التعلم لورشة الصحية هي التعرف على انواع الانابيب البلاستيكية المستخدمة في التأسيسات الصحية مع ميزاتها و عيوبها و طرق ربطها وتصنيفها سواء كانت للصرف الصحي او انابيب الغاز و المزاريب. - ورشة اللحام من مخرجاتها تعريف الطالب بأهمية تقنية اللحام التي هي عبارة عن وصل قطعتين غير قابلة للفك و اكتساب معلومات اضافية حول تصنيف انواع اللحام –الغازات المستخدمة للحام-ماكينات اللحام مع تطبيق دروس عملية عليه.
Indicative Contents المحتويات الإرشادية	- نجارة ٢٠ ساعة تشمل دروس نظرية وعملية - برادة ٢٠ ساعة تشمل دروس نظرية وعملية - سمكرة ١٥ ساعة تشمل دروس نظرية وعملية - خراطة ١٥ ساعة تشمل دروس نظرية وعملية - صحية ١٥ ساعة تشمل دروس نظرية وعملية - لحام ١٥ ساعة تشمل دروس نظرية وعملية

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	- اكتساب الطالب معلومات حول كل من النجارة والخراطة والسياسة واللحام والبرادة والتأسيسات الصحية كمعلومات عامة مفيدة في واقع الحياة اليومية بالإضافة الى تطبيق جزء منها في الهندسة المدنية. - تشجيع الطالب على العمل اليدوي واكتساب المهارة مع اهمية تطبيق قوانين السلامة المهنية والتي تعتبر مهمه جدا في أي مجال للعمل بعد التخرج.
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Student Workload (SWL)

الحمل الدراسي للطالب

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	52	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.5
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	4	40% (10)	5, 10	All
	Reports	5	25% (5)	2, 12	All
	Onsite assignments	5	25% (5)		
	Seminars	1	10% (10)	6, 12	All
Summative assessment	Midterm Exam	2 hr	10% (10)	7	All
	Final Exam	3hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري والعملي

	Material Covered
Week 1	شرح نظري حول وحدة البرادة ادوات البرادة انواع المبرد + درس عملي عن البرادة
Week 2	شرح نظري حول انواع المناشير ماكنات الثقب انواع اقلام القطع + درس عملي عن البرادة

Week 3	شرح مقدمة حول ورشة اللحام + تطبيق عملي عن ورشة اللحام
Week 4	اللحام انواع اللحام مآكنات اللحام + تطبيق عملي عن ورشة اللحام
Week 5	شرح حول ورشة الصحية-انواع انابيب البلاستيك مميزات و عيوب انابيب البلاستيك تطبيق عملي عن ورشة الصحية -
Week 6	لحام انابيب البلاستيك تصنيف الانابيب تطبيق عملي عن ورشة الصحية
Week 7	مواسير الحديد المجلفن ومحتوياتها خطوط انابيب الغاز تطبيق عملي عن ورشة الصحية
Week 8	شرح حول ورشة الخراطة الاجزاء الرئيسية لماكنات الخراطة درس عملي عن الخراطة
Week 9	انواع ادوات القطع المعادن التي تصنع منها ادوات القطع درس عملي عن الخراطة
Week 10	شرح حول ورشة النجارة الادوات المستخدمة في ورشة النجارة -عيوب الاخشاب تطبيق عملي عن النجارة
Week 11	انواع الاخشاب تجفيف الاخشاب عيوب الاخشاب تطبيق عملي عن النجارة
Week 12	شرح حول ورشة السمكرة تطبيق عملي عن ورشة الصحية
Week 13	ادوات السمكرة + تطبيق عملي عن ورشة الصحية
Week 14	مراجعة شاملة للمنهاج النظري
Week 15	مراجعة شاملة للمنهاج العملي

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	اساسيات تكنولوجيا الورش – المؤلف احمد زكي حلمي- اللغة العربية اصدار ٢٠٠٧	yes
Recommended Texts		
Websites	https://www.researchgate.net/publication/340439030_ass_alwrsh_alhndsynt_Engineering_Workshop_Basics الدار الجامعية للطباعة والنشر ISBN: 9789922907390	

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 Information

معلومات المادة الدراسية

Module Title	Engineering Drawing			Module Delivery	
Module Type	Basic			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	ENG003				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level			UGI		
Administering Department		CVE	College	ENG.	
Module Leader	Riyadh Dhahir		e-mail	eng.riyadh1963@mu.edu.iq	
Module Leader’s Acad. Title		Ass. Lecturer	Module Leader’s Qualification		M. Sc.
Module Tutor	Sattar Farhan Ali		e-mail	msattar7641988@mu.edu.iq	
Peer Reviewer Name		Scientific committee	e-mail		
Scientific Committee Approval Date		15/06/2023	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. Introduce the basic and principles of engineering drawings. 2. Familiarizes students with the fundamentals of drawing. 3. Learn the students to create and interpret engineering drawing 4. Develop students' inspiration skills of the geometric objects.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. At the end of this module, the students should be able to. 2. Understand and read the engineering drawing clearly. 3. Prepare and present the Engineering drawings effectively. 4. Enhances Imagination to the geometric shapes.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ▪ Drawing Instruments [7hrs] ▪ Lines and Lettering [7hrs] ▪ Applied Geometry [30hrs]

- Projection [22hrs]
- Dimensions [15hrs]
- Isometric [22hrs]
- Sections [22hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies

The Engineering Drawing course is a five-hours lab course that meets twice per week for two and three hours. This is a required class for all first year Civil Engineering. The student work will be assessed according to the module tasks. The excises in the drawing hall will be marked weekly. And the homework will be assessed next lecture. During both assessments the student will give the oral and written feedback in order to improve their skills. The final exam will be done at the end of the semester.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	3.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.1
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	All
	Assignments	2	30% (30)	Continuous	All
	Projects / Lab.				
	Report				
Summative assessment	Midterm Exam	2 hr	10% (10)	7	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 and Instruments
Week 2	Lines and lettering
Week 3	Lines and lettering
Week 4	Applies Geometry
Week 5	Applies Geometry
Week 6	Applies Geometry
Week 7	Applies Geometry
Week 8	Applies Geometry

Week 9	Dimensions
Week 10	Dimensions
Week 11	Projections
Week 12	Projections
Week 13	Projections
Week 14	Projections
Week 15	Projections

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الأسبوعي للمختبر

	Material Covered
Week 1	Introduction and Instruments
Week 2	Lines and lettering
Week 3	Lines and lettering
Week 4	Applies Geometry
Week 5	Applies Geometry
Week 6	Applies Geometry
Week 7	Applies Geometry
Week 8	Applies Geometry
Week 9	Dimensions
Week 10	Dimensions
Week 11	Projections
Week 12	Projections
Week 13	Projections
Week 14	Projections
Week 15	Projections

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	الرسم الهندسي، عبد الرسول الخفاف، ١٩٩٠	Yes
Recommended Texts	(١) أصول الرسم الهندسي باستخدام الأدوات والحاسوب، رزان إبراهيم أبو صالح	Yes
	(٢) الرسم الهندسي للمهندسين والفنيين، الجزء الأول، أسامة محمد المرضي سليمان، ٢٠١٦	No.
	(٣) Engineering Drawing (Plane and Solid Geometry), N.D. BHATT, 2010	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 Information

معلومات المادة الدراسية

Module Title	Computer I			Module Delivery	
Module Type	basic			☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UNI004				
ECTS Credits	3				
SWL (hr/sem)	75				
Module Level		UGI	Semester of Delivery		1
Administering Department		CVE	College	ENG.	
Module Leader	Sarah Saffaaldeen Musa		e-mail	almusawysarah@mu.edu.iq	
Module Leader’s Acad. Title		Lecturer	Module Leader’s Qualification		M.Sc.
Module Tutor	---		e-mail	---	
Peer Reviewer Name		-----	e-mail		
Scientific Committee Approval Date		15/06/2023	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	Develop an understanding of how computing technology presents new ways to address problems; and to use computational thinking to analyses problems and to design, develop and evaluate solutions. read, write, test, and modify computer programs.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Apply algorithmic, mathematical, and scientific reasoning to a variety of computational problems. 2. Design, correctly implement and document solutions to significant computational problems. 3. Analyze and compare alternative solutions to computing problems. 4. Implement software systems that meet specified design and performance requirements. 5. Work effectively in teams to design and implement solutions to computational problems. 6. Communicate effectively, both orally and in writing

	7. Recognize the social and ethical responsibilities of a professional working in the discipline		
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Introduction to the computer (4hrs) 2. DOS (4hrs) 3. Windows operating system (4hrs) 4. Start menu (2hrs) 5. Taskbar (2hrs) 6. control Board (4hrs) 7. File handling (6hrs) 8. WordPress interface (4hrs) 9. Create indexes and margins (4hrs) 10. Data export (4hrs) 11. Excel program interface (4hrs) 12. Cell handling (2hrs) 13. Dealing with prepared equations (4hrs) 14. Write equations manually (4hrs) 15. Create and control charts (4hrs) 16. PowerPoint interface (4hrs) 17. Dealing with tools (4hrs) 18. Animations and effects additions (6hrs) 19. Preparing final offers (5hrs)		
	Learning and Teaching Strategies استراتيجيات التعلم والتعليم		
Strategies	The strategy used in this course is a result of the development of information and communications technology, the spread of the computer and its multiple uses in various fields, especially in the field of education; The teaching strategies that can be used in educational software have varied, according to the desired learning objectives achieved, as follows: Tutorials private education strategy. The computer teaches without anyone participating. It provides information and introduces the required skills, then guides the learner, records his response, diagnoses his mistakes and corrects them. Interaction between the learner and the computer takes place through questions that appear on the device’s screen. The computer also tests the learner and monitors his grade, and thus it serves as a private tutor for the learner. This type of educational program can be used in many subjects, including programs for learning reading, writing, mathematics, physics, etc. Drill and Practice training strategy. This type of program is based on the assumption that the learner has learned certain facts and concepts before using the computer program, and therefore the program does not present new scientific material, but rather a sequential set of questions to raise the level of the learner’s performance to a specific level previously determined, taking into account that the exercises are of gradual difficulty. The goal of this program is to provide the learner with the opportunity to practice, review, and rehearse what he has previously learned. It is always preferable to combine private teaching, training, and practice programs. So that they consist of one program.		
	Student Workload (SWL) الحمل الدراسي للطالب		
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	12	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
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)	5, 10	All
	Assignments	4	20% (20)	2, 6 ,9 and 11	All
	Projects / Lab.				
	Report				
Summative assessment	Midterm Exam	2 hr	10% (10)	7	All
	Final Exam	5hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Windows 10
Week 2	Work with icons
Week 3	use windows
Week 4	files and folders
Week 5	Accessories
Week 6	The main interface of Microsoft Word 2010 / general settings
Week 7	Texts/graphics/tables
Week 8	Dealing with slides and creating presentations (power point 2010)
Week 9	Backgrounds and Themes / Transition Effects / Animations tab
Week 10	Slide Show/Print and Presentation Tab
Week 11	Dealing with Microsoft Office Excel
Week 12	Mathematical and arithmetic functions
Week 13	Statistical functions
Week 14	Boolean/conditional function (IF)
Week 15	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction to Windows 10
Week 2	Work with icons
Week 3	use windows
Week 4	files and folders

Week 5	Accessories
Week 6	The main interface of Microsoft Word 2010 / general settings
Week 7	Texts/graphics/tables
Week 8	Dealing with slides and creating presentations (power point 2010)
Week 9	Backgrounds and Themes / Transition Effects / Animations tab
Week 10	Slide Show/Print and Presentation Tab
Week 11	Dealing with Microsoft Office Excel
Week 12	Mathematical and arithmetic functions
Week 13	Statistical functions
Week 14	Boolean/conditional function (IF)
Week 15	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Computer Basic EXCEL Formulas –Almunther Saffan	Yes
Recommended Texts	Computer literacy BASICS 2012, LeBlanc, Brandon."A closer look at the windows 7. 2009 Computing Fundamentals, Innovative training works USA, Inc, 2006	yes
Websites	Word 2010 Digital Classroom Book https://www.agitraining.com/books/microsoft-office-books/word-2010-digital-classroom-book https://dnt.utq.edu.iq/wp-content/uploads/sites/11/2022/04/unnamed-file.pdf	

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 Information

معلومات المادة الدراسية

Module Title	Democracy and Human Rights			Module Delivery	
Module Type	Support			☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UNI006				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level		UGI	Semester of Delivery		1
Administering Department		CVE	College	ENG.	
Module Leader	يونس شعيل عجيل		e-mail		
Module Leader's Acad. Title		مدرس	Module Leader's Qualification		Ph. D.
Module Tutor			e-mail		
Peer Reviewer Name		Scientific Committee	e-mail	E-mail	
Scientific Committee Approval Date		15/06/2023	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
١- تعريف شامل ومركز بحقوق الإنسان ابتداء من جذور نشأتها والتطورات التي شهدتها هذه الحقوق الإنسانية عبر العصور والمجتمعات البشرية وإسهام الشرائع السماوية والأديان والحضارات في رفعها بالقيم والمثل مروراً بمختلف العصور.	
٢- بيان الاعتراف الدولي بهذه الحق وق من قبل المنظمات الدولية، وفي مقدمتها الأمم المتحدة، ثم الاعتراف الإقليمي في مختلف بقاع العالم.	
٣- دور المنظمات غير الحكومية المعنية بحقوق الإنسان وقانون الدولة الإنساني وأهداف تلك المنظمات ووسائل عملها ودورها في تطور احترام وحماية حقوق الإنسان.	

	٤- الضمانات العملية لحقوق الإنسان على الصعيد الوطني في الدساتير والتشريعات الوطنية متمثلة بالضمانات الدستورية والقضائية، ثم الضمانات السياسية إلى جانب الدور الذي تقوم به المنظمات الوطنية المعنية بحقوق الإنسان في الدفاع عن هذه الحقوق وحمايتها. ٥- دور الأمم المتحد وأجهزتها ووكالاتها المختصة في احترام وحماية حقوق الإنسان وكذلك دور المنظمات الإقليمية في ها الميدان. ٦- دور المنظمات الحكومية سواء على المستوى العالمي أو على المستوى الإقليمي في حماية واحترام حقوق الإنسان ٧- تفعيل العقل والتفكير والإبداع والحرص على المشاركة الديمقراطية بكل تفاصيلها ومبادئ العدالة الاجتماعية.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	١- إمداد الطلاب بأكثر قدر ممكن من المعلومات والمعارف التي تمكنهم من الوقوف على حقوق الإنسان من حيث مفهومها وأهدافها ومبادئها وأهمية تطبيقها في حياتهم، ليعرفوا ما لهم من حقوق وما عليهم من واجبات تجاه دينهم وبلادهم وأمتهم والناس أجمعين. ٢- إكساب الطلاب القدرة على التعلم الذاتي والتعليم المستمر باعتبارهما من أهم أساليب النمو المعرفي والتكيف مع المستجدات العلمية والعملية في مجال حقوق الإنسان. ٣- القيم والممارسات الأخلاقية المهنية التي ترتبط بقوانين وتشريعات حقوق الإنسان. ٤- إيقاف الطلاب على طرق الاستفادة من التقنيات المعاصرة التي جاءت بها العولمة، والمتمثلة في الفضائيات والحاسب الآلي والأنترنت، وأنها تتيح لهم فرص الاطلاع على المعلومات والمعارف المختلفة المتعلقة بحقوق الإنسان، سواء ذات العلاقة بالمجال المحلي أو الإقليمي أو العالمي، بما في ذلك ما يصدر من قوانين دولية عن منظمات حقوق الإنسان. ٥- إمكانية جعل الطالب واعياً لحقوق الإنسان ليساعد الناس على فهم حقوقهم وواجباتهم. ٦- تدريب الطلبة على تطبيق حقوق الإنسان والحرية والديمقراطية في الحياة اليومية. ٧- تمكين الطالب من دراسة أهم الحقوق التي تضمنتها له الشريعة الإسلامية والدساتير العراقية لا سيما الدستور النافذ لسنة ٢٠٠٥ فضلا عن معرفة الطالب للمواثيق الدولية التي صدرت بخصوص حقوق الإنسان.		
Indicative Contents المحتويات الإرشادية	- تعميم ثقافة حقوق الإنسان لمعوم المجتمع وبالأخص العملية التعليمية . ٢٥ ساعة - ضمان تنشئة أجيال متعاقبة تقوم على معرفة القوانين والتشريعات الخاصة بحقوق الإنسان. ٢٥ ساعه - تفعيل العقل والتفكير والإبداع والحرص على المشاركة الديمقراطية بكل تفاصيلها ومبادئ العدالة الاجتماعية. ٢٥ ساعة		
Learning and Teaching Strategies استراتيجيات التعلم والتعليم			
Strategies	- أسلوب المحاضرة إذا يتخلل المحاضرات الحوار الهادف والمناقشة البناءة بين الطلاب والأستاذ. - التعلم التعاوني ..ذلك تقسيم الطلاب إلى مجموعات صغيرة وتمكينهم من مناقشة أفكار الدرس المختلفة بعد تضمينها المعلومات التي تتعلق بقضية أو مشكلة تتعلق بحقوق الإنسان ويطلب من الطلاب تحليلها وإبداء الرأي حولها ومناقشتها أمام كافة زملاء الصف - دراسة الحالة: وذلك من خلال عرض الحالة موضوع الدراسة إي المشكلة المتعلقة بحقوق الإنسان في صورة قصة غير منتهية ويطلب من الطلاب من خلال أسئلة تُعيرها مسبقاً أن يحلوا القصة، ويناقشوها، ويبدوا آراءهم حول مضامينها، ومن ثم يصنعون النهاية المناسبة.		
Student Workload (SWL) الحمل الدراسي للطلاب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	30	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	20	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1.3
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	10% (10)	5, 10	All
	Assignments	2	10% (10)	2, 12	All
	Projects / Lab.				
	Report	2	20% (20)	6, 12	All
Summative assessment	Midterm Exam	2 hr	10% (10)	7	All
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المناهج الاسبوعي النظري

	Material Covered
Week 1	مقدمة في تعريف حقوق الإنسان، ماهية حقوق الإنسان.
Week 2	حقوق الإنسان في المواثيق الدولية، حقوق الإنسان في المواثيق الإقليمية، حقوق الإنسان في التشريعات الوطنية
Week 3	حقوق الإنسان في الحضارات القديمة، حقوق الإنسان في الأديان السماوية، حقوق الإنسان في العصور الوسطى والحديثة
Week 4	الاعتراف المعاصر بحقوق الإنسان،
Week 5	تصنيفات حقوق الإنسان
Week 6	وسائل حماية حقوق الإنسان، ضمانات حقوق الإنسان
Week 7	الفساد الإداري وتأثيره على حقوق الإنسان
Week 8	القانون الدولي الإنساني وقانون حقوق الإنسان، تطبيق الأمم المتحدة للقانون الدولي الإنساني وقانون حقوق الإنسان.
Week 9	الحرية (مفهومها، أهميتها، تعريفها)،
Week 10	نشأة وتطور الحريات العامة، أنواع الحريات العامة، معوقات الحرية
Week 11	دور القانون في مجال الحريات العامة، الحريات العامة وحقوق الإنسان من الترادف إلى التمايز.
Week 12	مقدمة في تعريف الديمقراطية، التطور التاريخي لمفهوم الديمقراطية (الحضارات القديمة)، التطور التاريخي لمفهوم الديمقراطية (الأديان السماوية)
Week 13	الديمقراطية في العصور الوسطى والحديثة والمعاصرة
Week 14	أشكال الديمقراطية، الشروط العامة لنجاح النظام الديمقراطي،
Week 15	مفهوم الانتخابات وتكيفها القانوني البرلمان، تطبيق النظام الديمقراطي في العراق

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	حقوق الإنسان.. الدكتور حميد حنون خالد	No.
Recommended Texts	(١) النظرية العامة لحقوق الإنسان، محمد سعيد مجذوب	No.
	(٢) مبادئ حقوق الإنسان، محمد خليل محسن	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.

SEMESTER 2:

Module Information			
معلومات المادة الدراسية			
Module Title	Engineering Mechanics: Dynamics		Module Delivery
Module Type	Basic	☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CVE121		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGI		Semester of Delivery
Administering Department	CVE	College	ENG.
Module Leader	Motaz Alhassan	e-mail	Motaz.Alhassan@mu.edu.iq
Module Leader's Acad. Title	Teacher	Module Leader's Qualification	Ph.D.
Module Tutor	Ameer Jabbar Abdul kareem	e-mail	Ameer.jabbar@mu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	15/06/2023	Version Number	1.0
Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	CVE111	Semester	1
Co-requisites module	No	Semester	
Module Aims, Learning Outcomes and Indicative Contents			
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	- To explore and comprehend the concept of Friction in engineering systems, particularly within the field of civil engineering. - Gain a comprehensive understanding of how static and kinetic friction is created. - Acquire knowledge about centroid and the center of gravity of geometric shapes. - Explore the measures of shapes resistance to the angular deflection, bending stresses and shear stresses represented by different types of moment of inertias including: - First moment of inertia - Second moment of inertia		

	• Polar moment of inertia 5. Develop an understanding of the basic concept of dynamic represented by the equation of motion.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Gain an understanding of how friction is created between the moved contacted surfaces. 2. Identify and familiarize the different terms of friction associated with various structure's surfaces contact. 3. Understand the centroid and center of gravity. 4. Understand the calculation of first, second and polar moment of inertias of structural sections. 5. Understand how the first moment of inertia influences the performance of structural member. 6. Understand how the second moment of inertia influences the performance of structural member. 7. Understand how the polar moment of inertia influences the performance of structural member. 8. Recognize and comprehend the concept of dynamic.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: ▪ Friction [15 hrs] ▪ Centroid and center of gravity [15 hrs] ▪ First moment of inertia [15 hrs] ▪ Second moment of inertia [15 hrs] ▪ Polar moment of inertia [15 hrs] ▪ Basic concept for dynamic [10] ▪ Equation of motion [15]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	This course aims to provide students with a fundamental understanding of dynamic in structural systems. Friction is the first topic that covers the mechanism of the movement of the contacted surfaces. Subsequently, the course will cover the centroid of geometric shapes in two- and three-dimensional systems. furthermore, the course emphasis the area moments of inertias within different geometric shapes, including regular and irregular shapes. This will make students able to choose the right sections of structural members in real-world scenarios. Moreover, the course will explore the basic concept of dynamic and how the equation of motion will be generated and examine the effects of different parameters on the function. Quizzes and assignments are the main measures in the class. By these measures, students will have opportunity to demonstrate their comprehension and mastery of the aforementioned topics. Their scores, active participation, and understanding will collectively determine their level of knowledge in the subject matter.
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Grading Scheme

مخطط الدرجات

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

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	65	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.3
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	30% (30)	6, 11	LO #1, 2,3,4,5,6,7 and 8
	Assignments	2	10% (10)	3, 8	LO # 1, 2,3,4,5,6,7 and 8
	Projects / Lab.	0	0% (0)	Continuous	
Summative assessment	Midterm Exam	2 hr	10% (10)	6	LO # 1-4
	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	Friction
Week 3	Centroid and center of gravity
Week 4	
Week 5	First moment of inertia
Week 6	Second moment of inertia
Week 7	
Week 8	Polar moment of inertia
Week 9	
Week 10	Basic concept of dynamic
Week 11	
Week 12	Equation of motion
Week 13	
Week 14	
Week 15	Review

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Statics, R.C. Hibbeler, Published by Pearson Prentice Hall Pearson Education, Inc. Upper Saddle River, New Jersey 07458	Yes
Recommended Texts	Statics, J. L. Meriam and L. G. Kraige, Published by John Wiley & Sons, Inc. Seventh edition	Yes

Module Information

معلومات المادة الدراسية

Module Title	Building Materials		Module Delivery		
Module Type	Core		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar		
Module Code	CVE 122				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGI			Semester of Delivery
Administering Department		CVE	College	ENG.	
Module Leader	Ali F. Al-Tubaili		e-mail	ali.faleh@mu.edu.iq	
Module Leader’s Acad. Title		Asst. Lecturer	Module Leader’s Qualification		M.Eng
Module Tutor	Abbas Abd-Alhussain Abd-Noor and Durgham Shamil Rashid		e-mail	abbas652002@mu.edu.iq, durgham_rashid@mu.edu.iq	
Peer Reviewer Name		Scientific Committee	e-mail		
Scientific Committee Approval Date		01/06/2023	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	Introducing the student to the properties of construction materials and methods of their production. Introducing the student to the existing modern alternatives and modern methods of production. Rehabilitation of the student to carry out standard checks to see the conformity of the structural materials to the specifications. How to deal with building materials and choose the most suitable according to work requirements. 5. Determine the possibility of using building materials in construction, which guarantee strength, safety, and economy.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Know and understand the properties of engineering materials in general. 2. Knowledge of old and new building materials, their types, and methods of manufacturing and installation. 3. Gaining experience in dealing with building materials and choosing the most appropriate and the possibility of changing the properties of building materials. 4. Analyzing and solving mathematical issues related to construction materials.

	5. Developing the ability to acquire information from various sources (electronic and printed) and developing the ability of scientific research. 6. Developing the spirit of teamwork and dealing with the team. 7. Strengthening the motivation to learn and constantly developing his knowledge and adapting to all developments in the field of building materials and the change taking place in this field.
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Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - Properties and building Materials and Measurement Devices of Stress/Strain. [12 hrs.] - Clay Bricks, Properties of Clay Bricks, Manufacture of Clay Bricks. [31 hrs.] - Other Types of Bricks (Refractory Bricks, Sand-Lime Bricks, Glass Bricks, Glazed Bricks and Concrete Bricks). [12 hrs.] - Tiles (Properties and Types). [24 hrs.] - Masonry Stone (Types and Properties). [24 hrs.] - Mortar and Binders. [12 hrs.] - Gypsum Mortar (Properties and Types). [24 hrs.] - Lime Mortar. [12 hrs.] - Wood (Types, Properties). [12 hrs.] - Reinforcement steel. [12 hrs.]
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	- Managing the lecture using electronic display devices in a theoretical way related to the reality of daily life to attract the student to the topic of the lesson so that the material is flexible and subject to understanding and analysis. - Managing applied lectures in laboratories to develop the practical aspect. - The students make some field visits to the projects under construction and write descriptive reports about them in relation to the topic of the lesson. - Developing the student's ability to perform individual and group assignments and submit them on time. - Assigning the student some extra-curricular activities to develop his research skills. - Developing the student's ability to analyze the problem in a statistical and mathematical manner and find solutions to it on the basis of expected results. - Developing the student's ability to dialogue and discussion. - Developing the student's ability to use and read the resources.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	75	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	50	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	3.4
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
Quizzes	2	20% (20)	7, 14	LO # 1-7

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Properties and building Materials and Measurement Devices of Stress/Strain
Week 2	Clay Bricks
Week 3	Properties of Clay Bricks
Week 4	Manufacture of Clay Bricks
Week 5	Other Types of Bricks (Refractory Bricks, Sand-Lime Bricks, Glass Bricks, Glazed Bricks and Concrete Bricks)
Week 6	Tiles (Properties)
Week 7	Tiles (Types)
Week 8	Masonry Stone (Properties)
Week 9	Masonry Stone (Types)
Week 10	Mortar and Binders
Week 11	Gypsum Mortar (Properties)
Week 12	Gypsum Mortar (Types)
Week 13	Lime Mortar
Week 14	Wood (Types, Properties)
Week 15	Reinforcement steel
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	مقدمة عن التجارب العملية وكيفية عمل التقارير
Week 2	تجربة فحص الابعاد و الشكل العام للطابوق
Week 3	تجربة فحص الامتصاص للطابوق
Week 4	تجربة فحص التزهر للطابوق
Week 5	تجربة فحص مقاومة الانضغاط للطابوق
Week 6	تجربة فحص الابعاد و الشكل العام للكاشي
Week 7	تجربة فحص الامتصاص للكاشي
Week 8	تجربة فحص معايير الكسر للكاشي
Week 9	تجربة فحص القوام للجص
Week 10	تجربة فحص درجة النعومة للجص
Week 11	تجربة فحص التحمل لعجينة الجص

Week 12	تجربة فحص وقت التماسك لعجينة الجص
Week 13	تجربة فحص الضغط بموازاة والعمودي على الالياف للخشب
Week 14	تجربة فحص الشد للحديد
Week 15	مراجعة
Week 16	التهيئة لامتحان

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Materials for Civil and Construction Engineers, Fourth Edition in SI Units, Michael S. Mamlouk • John P. Zaniwski ISBN 10: 1-292-15440-3 ISBN 13: 978-1-292-15440-4	No (Electronic copy only)
Recommended Texts	١. الدليل العراقي لمواد البناء / د.ب.ع. ٣١١ / وزارة الاعمار والاسكان ٢. مواصفات المواد والاعمال الانشائية / وزارة الاعمار والاسكان	yes
Websites	https://www.moch.gov.iq/footerothers/%20%D9%85%D8%AF%D9%88%D9%86%D8%A7%D8%AA%20%D9%88%D9%85%D9%88%D8%A7%D8%B5%D9%81%D8%A7%D8%AA%20%D8%A7%D9%84%D8%A8%D9%86%D8%A7%D8%A1%20%D8%A7%D9%84%D8%B9%D8%B1%D8%A7%D9%82%D9%8A%D8%A9	

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 Information

معلومات المادة الدراسية

Module Title	Chemistry			Module Delivery	
Module Type	Basic			☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CVE123				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGI	Semester of Delivery		2
Administering Department		CVE	College	ENG.	
Module Leader	Ali Salih Jafer		e-mail	Ali.salih@mu.edu.iq	
Module Leader’s Acad. Title		lecturer	Module Leader’s Qualification		Master
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		20/06/2023	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 to provide the students with an understanding of the fundamental principles of Chemistry which will also act as a foundation for the remainder of the course. It also aims to give students the basic tools for report writing in chemistry.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	- Students will score competitively on standardized national exams. - Students will be able to use mathematical equations to solve chemistry problems. - Students will be able to accurately record data and procedures in a laboratory. - Students will be able to apply knowledge learned in other courses to explain a chemical concept.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. First part (Analytical Chemistry): - Basic definitions of Analytical Chemistry, including (moles, molarity, normality, stoichiometric calculations) [12 hrs] - pH calculations [8 hrs] - equilibrium of acids and bases. [12 hrs] - volumetric analysis (titration and titration curve), [12 hrs] - gravimetric analysis and solubility calculations, [12 hrs] - oxidation and reduction. [10 hrs]

Second part (Organic chemistry):

- Introduction of organic chemistry [11 hrs]
- classification of organic compounds [10 hrs]
- and reactions and preparation methods [10 hrs]

Learning and Teaching Strategies

Strategies

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

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem)

الحمل الدراسي المنتظم للطالب خلال الفصل

60

Structured SWL (h/w)

الحمل الدراسي المنتظم للطالب أسبوعيا

4

Unstructured SWL (h/sem)

الحمل الدراسي غير المنتظم للطالب خلال الفصل

65

Unstructured SWL (h/w)

الحمل الدراسي غير المنتظم للطالب أسبوعيا

4.3

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	All
	Assignments	2	10% (10)	2, 12	All
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	All
Summative assessment	Midterm Exam	2 hr	10% (10)	7	All
	Final Exam	5hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Chemistry.
Week 2	Molarity
Week 3	Chemical Stoichiometry
Week 4	Density and specific gravity of solution
Week 5	Acid – base equilibria and PH of solutions
Week 6	Expression of equilibrium constant in basic medium
Week 7	First monthly exam
Week 8	Dilution of solutions
Week 9	Introduction of organic chemistry
Week 10	Classification of organic chemistry compounds

Week 11	Alkanes
Week 12	Cyclic compounds
Week 13	Aromatic compounds
Week 14	Aromatic compounds
Week 15	Second monthly exam
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1 and 2	Preparation of standard solution
Week 3 and 4	Standardization of Hcl and determination of NaOH normality
Week 5 and 6	Determination of the concentration of the base sodium hydroxide solution (NaOH) titrated with a standard solution of hydrochloric acid
Week 7	Mid-term exam
Week 8 and 9	Quantitative determination of a mixture of sodium carbonate and sodium hydroxide
Week 10 and 11	Acidity of vinegar
Week 12 and 13	Melting point
Week 14 and 15	Boiling point

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Skoog A. Douglas, "Fundamental of Analytical Chemistry ", 8 th edition, Canada (2004)	Yes
Recommended Texts	Daniel C. Harris, "Quantitative chemical Analysis", 6 th edition, U.S. (2003).	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 Information

معلومات المادة الدراسية

Module Title	Engineering Geology			Module Delivery	
Module Type	Basic			☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	ENG124				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level		UGI	Semester of Delivery		2
Administering Department		CVE	College	Eng.	
Module Leader	Atheer Muhammed Ali Jasim		e-mail	atheer.muhammed@mu.edu.iq	
Module Leader’s Acad. Title		Lecturer	Module Leader’s Qualification		MSc.
Module Tutor	--		e-mail	E-mail	
Peer Reviewer Name			e-mail	E-mail	
Scientific Committee Approval Date		15/06/2023	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	To equip students with an understanding of geological principles and processes and their implications for civil and environmental engineering projects. The module aims to provide the skills necessary to analyze and interpret geological data for informed decision-making in engineering design and construction.
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Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. By the end of this module, students should be able to: 2. 1. Explain the fundamental concepts of geology and their relevance to engineering. 3. 2. Identify and classify various rock types, minerals, and soil properties and understand their impact on engineering structures. 4. 3. Assess and interpret geological and geotechnical data for site investigation, including the use of geological maps and field surveys. 5. 4. Analyze geological hazards and risks (e.g., landslides, earthquakes, subsidence) and their implications for engineering projects. 6. 5. Apply knowledge of engineering geology in the planning, design, and construction of infrastructure projects, with an emphasis on sustainable and safe engineering practices.
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	▪ Lectures and Seminars: Provide foundational knowledge through lectures, supplemented by seminars that encourage discussion and deeper exploration of topics such as rock mechanics, soil behavior, and geological mapping. ▪ Field Trips: Conduct field trips to various geological sites and ongoing engineering projects to observe and analyze geological formations, structures, and processes in real-world settings. These trips are invaluable for appreciating the complexity and variability of geological conditions. ▪ Case Studies and Project Work: Utilize case studies of past engineering projects influenced by geological conditions to illustrate challenges and solutions. Assign project work that simulates real-life engineering geology problems, requiring students to conduct site investigations, data analysis, and risk assessments. ▪ Guest Lectures and Industry Collaboration: Invite industry professionals and researchers to share their experiences, challenges, and best practices in engineering geology. Collaboration with local engineering firms for internships or project work can also provide practical insights and professional exposure.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	30	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	70	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.6
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	10% (30)	5, 11	LO #1, 2, 4
	Assignments	2	10% (10)	3,10	LO # 2,3, 4, 5
	Projects / Lab.	-	-	-	

	Report	-	-	-	
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-5
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المناهج الاسبوعي النظري

	Material Covered
Week 1	نشأة الأرض. عمر الأرض. مفهوم علم الجيولوجيا علاقة الجيولوجيا بالعلوم الأخرى مثل علم الجيولوجيا الهندسية. الأزمنة الجيولوجية.
Week 2	نشأة القارات والمحيطات. النظريات القديمة. نظرية زحزحة القارات. نظرية انتشار قاع البحر. نظرية تكتونية الألواح وانتشار القارات. تركيب الأرض
Week 3	الخواص الطبيعية والفيزيائية للمعادن – الخواص الكيميائية والتصنيف العام للمعادن
Week 4	أنواع الصخور ودورة الصخور في الطبيعة
Week 5	لصخور النارية (الصخور الجوفية والصخور البركانية
Week 6	الصخور الرسوبية
Week 7	الصخور المتحولة
Week 8	التجوية والتعرية:
Week 9	تصنيف التربة ومكوناتها
Week 10	لجيولوجيا التركيبية.
Week 11	الطيات والصدوع والفواصل أنواعها ومكوناتها–
Week 12	لمياه في الطبيعة
Week 13	المياه الجوفية أو الأرضية
Week 14	الزلازل والبراكين
Week 15	لخرائط التضاريسي
Week 16	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		
Recommended Texts		
Websites		

Grading Scheme

مخطط الدرجات

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

Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work 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 Information

معلومات المادة الدراسية

Module Title	Engineering Drawing II			Module Delivery	
Module Type	Basic			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CVE125				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level			UGI		
Administering Department		CVE	College	ENG.	
Module Leader	Riyadh Dhahir		e-mail	eng.riyadh1963@mu.edu.iq	
Module Leader's Acad. Title		Ass. Lecturer	Module Leader's Qualification		M. Sc.
Module Tutor	Methaq Saeed		e-mail	methaq.saeedm@mu.edu.iq	
Peer Reviewer Name		Scientific committee	e-mail		
Scientific Committee Approval Date		15/06/2023	Version Number		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	ENG003: Engineering Drawing-I	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 basic and principles of engineering drawings. 2. Familiarizes students with the fundamentals of drawing. 3. Learn the students to create and interpret engineering drawing 4. Develop students' inspiration skills of the geometric objects. 5. Understand fundamental of the AutoCAD drawings 6. Learn how to use the AutoCAD program. 7. Learn to draw 2D drawings using basic elements (line, circle, rectangular...etc.).
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	8. Learn to modify, edit the 2D drawing (move, copy, mirror...etc.). 9. Learn to add dimensions to the 2D drawings. 10. analyze and draw any engineering drawing using the facilities the AutoCAD program
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. At the end of this module, the students should be able to. 2. Understand and read the engineering drawing clearly. 3. Prepare and present the Engineering drawings effectively. 4. Enhances Imagination to the geometric shapes. 5. Understand fundamental of the AutoCAD engineering drawings. 6. analyze and draw any engineering drawing using the AutoCAD program 7. Modify any drawing using the tools (move, copy, mirror, offset, array,...etc.) 8. after complete the 2D drawing the student could add the dimensions to the drawing.

Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ▪ Drawing Instruments [7hrs] ▪ Lines and Lettering [7hrs] ▪ Applied Geometry [25hrs] ▪ Projection [22hrs] ▪ Dimensions [7hrs] ▪ Isometric [22hrs] ▪ Sections [22hrs] ▪ Engineering Drawing by AutoCAD [38hrs]
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The Engineering Drawing course is a five-hours lab course that meets twice per week for two and three hours. This is a required class for all first year Civil Engineering. The class time is divided between manual and CAD instruction. The sketching is employed to teach concepts and a limited number of tools are used when constructing manual drawings (e.g., triangles, scales, compasses, dividers, and mechanical pencils). Autodesk AutoCAD 2016 was used as the CAD software package. Topics covered in the course include lettering, sketching, orthographic drawings, isometric, dimensioning, and section views.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	90	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	60	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	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	2	10% (10)	5, 10	All
	Assignments	2	30% (30)	Continuous	All

	Projects / Lab.				
	Report				
Summative assessment	Midterm Exam	2 hr	10% (10)	7	All
	Final Exam	5hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction and Instruments, Opening and Creating Drawings, Exploring the AutoCAD interface, Zooming and Panning,
Week 2	Lines and lettering, Using the Mouse, Keyboard, and Enter Key to work quickly and efficiently in AutoCAD.
Week 3	Applies Geometry, Lines, Circles Rectangles, Creating Simple Drawings, Using Object Snap tracking.
Week 4	Applies Geometry, Polar and Ortho Tracking Entering Coordinates and Angles Object Snaps and Tracking
Week 5	Applies Geometry, Move, Copy, Rotate, Mirror
Week 6	Dimensions, Scale, Using the reference option with the Scale Tool
Week 7	Projections, Layers , Layer Tools
Week 8	Projections, Polylines Arcs Polygons Ellipses
Week 9	Projections, Trim and Extend Fillet and Chamfer
Week 10	Isometric, Polyline Edit and Spline Offset and Explode Join
Week 11	Isometric, Printing from Layout Tabs Printing from the Model Tab
Week 12	Isometric, Using Dimensioning Tools,
Week 13	Sections, Using Dimension Styles, Editing Dimensions
Week 14	Sections, The Multiline Text Tool the Single Line Text Tool Editing Text
Week 15	Sections, The Hatch Command, The Hatch Editor Ribbon Tab

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction and Instruments, Opening and Creating Drawings, Exploring the AutoCAD interface, Zooming and Panning,
Week 2	Lines and lettering, Using the Mouse, Keyboard, and Enter Key to work quickly and efficiently in AutoCAD.
Week 3	Applies Geometry, Lines, Circles Rectangles, Creating Simple Drawings, Using Object Snap tracking.
Week 4	Applies Geometry, Polar and Ortho Tracking Entering Coordinates and Angles Object Snaps and Tracking
Week 5	Applies Geometry, Move, Copy, Rotate, Mirror
Week 6	Dimensions, Scale, Using the reference option with the Scale Tool
Week 7	Projections, Layers , Layer Tools

Week 8	Projections, Polylines Arcs Polygons Ellipses
Week 9	Projections, Trim and Extend Fillet and Chamfer
Week 10	Isometric, Polyline Edit and Spline Offset and Explode Join
Week 11	Isometric, Printing from Layout Tabs Printing from the Model Tab
Week 12	Isometric, Using Dimensioning Tools,
Week 13	Sections, Using Dimension Styles, Editing Dimensions
Week 14	Sections, The Multiline Text Tool the Single Line Text Tool Editing Text
Week 15	Sections, The Hatch Command, The Hatch Editor Ribbon Tab

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	الرسم الهندسي، عبد الرسول الخفاف، ١٩٩٠	Yes
Recommended Texts	٤) أصول الرسم الهندسي باستخدام الأدوات والحاسوب، رزان إبراهيم أبو صالح	Yes
	٥) الرسم الهندسي للمهندسين والفنيين، الجزء الأول، أسامة محمد المرضي سليمان، ٢٠١٦	No.
	٦) Engineering Drawing (Plane and Solid Geometry), N.D. BHATT, 2010	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 Information

معلومات المادة الدراسية

Module Title	Engineering Statistics			Module Delivery	
Module Type	Basic			☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	ENG004				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level	UGI	Semester of Delivery			
Administering Department		CVE	College	Eng.	
Module Leader	Zahraa Abbas Khudhair		e-mail	Zahraa.abbas@mu.edu.iq	
Module Leader’s Acad. Title		Teacher Assistant	Module Leader’s Qualification		MSc.
Module Tutor	--		e-mail	E-mail	
Peer Reviewer Name			e-mail	E-mail	
Scientific Committee Approval Date		15/06/2023	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	- Definition of the basic concepts in statistics. - Knowledge of the tools and methods used in the descriptive statistics represented in the collecting data methods, the questionnaire, tabular and graphical presentation of data. - The ability to make the necessary calculations to arrive at the various metrics that highlight the basic characteristics of the phenomenon, such as measures of central tendency, as well as measures of dispersion. - Understand the ideas of probability and the basic probability distributions including discrete and continuous, simple regression and coloration – time series (general trend equation) – index number. - Using appropriate statistical package (such as SPSS, Excel) to fit mathematical models
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Module Learning Outcomes مخرجات التعلم للمادة الدراسية	7. Identify and understand the fundamental concepts in statistics. 8. Familiarity with data scheduling and central trend calculators. 9. Gain an understanding of how to calculate the mean, median, and mode. 10. identify and understand the significance of probability and comprehend the different ways of calculations. 11. Increase the student's ability to derive probabilities from normal distribution tables. 12. recognize how to manipulate variables and find linear regressions or correlation's equations.
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Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ▪ Description and Classification of Data[15hr] ▪ Frequency Distribution (Cumulative Frequency Distribution, Frequency Histogram, Frequency Polygon, Frequency Curve and Relative Frequency) [15 hr] ▪ Measurements of Central Tendency (Mathematical Mean, Mode, Geometric Mean and Harmonic Mean) [20 hr]. ▪ Measures of Dispersion (Standard Deviation, Variance, Coefficient of Variance, Range and Mean Absolute Deviation) [20 hr] ▪ Theory of Probability, [15 hr] ▪ Permutation and Combination, [15hr] ▪ Statistical Probability Distributions (Poisson, Binomial and Normal) [15 hr] ▪ Sampling and Testing of Significant Chi-Square Distribution and Linear Correlation and regression. [10 hr]
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	▪ Teaching through the pattern, whether it is the visual (verbal) pattern or the sensory (kinetic) pattern. ▪ Education using mini-lessons, where the scientific curriculum is divided into main ideas and then taught to the student in the form of successive lectures, and each lecture deals with only one idea. ▪ Cooperative learning where the students are divided into small groups and a specific issue is presented to them and students are given the opportunity to solve this issue in cooperation with each other. ▪ Adopting the method of delivering lectures and linking each topic with examples from the reality of the statistician's work ▪ practical exercises that are discussed by the students and solved during the lecture and with the participation of all students in the division with the professor to give the subject a kind of interaction.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	45	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	55	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	3.6
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	10% (30)	5, 11	LO #1, 2, 4
	Assignments	2	10% (10)	3,10	LO # 2,3, 4, 5
	Projects / Lab.	-	-	-	
	Report	-	-	-	
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-5
	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 - Description and Classification of Data
Week 2	Frequency Distribution & Cumulative Frequency Distribution
Week 3	Frequency Histogram, Frequency Polygon & Frequency Curve and Relative Frequency,
Week 4	
Week 5	Measurements of Central Tendency (Mathematical Mean, Mode, Geometric Mean and Harmonic Mean)
Week 6	
Week 7	Measures of Dispersion (Standard Deviation, Variance, Coefficient of Variance, Range and Mean Absolute Deviation)
Week 8	
Week 9	Theory of Probability
Week 10	
Week 11	Permutation and Combination
Week 12	Statistical Probability Distributions
Week 13	(Poisson Distribution, Binomial and Normal Distribution)
Week 14	Sampling and Testing of Significant
Week 15	Chi-Square Distribution and Linear Correlation and regression.
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	الاحتماليات والاحصاء . مترجم . د. موري شبيجل . د. جون شيلر . ٢٠٠٣	Yes
Recommended Texts	Probability , Statistics And Decision For Civil Engineers Statistics for Engineers, An introduction by S.J.Morrison	No
Websites	https://engineering.mu.edu.iq Class Room / https://classroom.google.com/c/NjAzMjExMzk0MzM4?cjc=ucqzwmw2	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group	A - Excellent	امتياز	90 - 100	Outstanding Performance

(50 - 100)	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 Information

معلومات المادة الدراسية

Module Title	English Language-I			Module Delivery		
Module Type	Support			☐ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar		
Module Code	UNI001					
ECTS Credits	2					
SWL (hr/sem)	50					
Module Level			UG1			Semester of Delivery
Administering Department			CVE	College	ENG.	
Module Leader	Salwan Fadhil Abas			e-mail	Salwan.fadil@mu.edu.iq	
Module Leader’s Acad. Title			Assistant Lecturer	Module Leader’s Qualification		MSc
Module Tutor	-			e-mail	-	
Peer Reviewer Name			Scientific Committee	e-mail	-	
Scientific Committee Approval Date			15/06/2023	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 basic language skills: The aim is to help students acquire and improve their skills at a beginner level. This includes building vocabulary, improving pronunciation, and developing grammatical understanding. 2. Building communicative competence: The aim is to enable students to use English effectively in various everyday situations. This involves developing fluency, accuracy, and confidence in expressing themselves, understanding others, and engaging in basic conversations. 3. Cultivating language awareness: The aim is to help students develop an awareness of the English language system, including grammar, vocabulary, and sentence structures. This involves providing explanations, examples, and practice activities to enhance their understanding of how English works. 4. Enhancing reading and listening skills: The aim is to improve students' ability to comprehend and interpret written and spoken English texts at a beginner level. This includes practicing reading comprehension, listening comprehension, and developing strategies for understanding different types of texts.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Students will be able to understand and comprehend simple spoken English in familiar contexts, such as everyday conversations, basic instructions, and short audio recordings. 2. Students will be able to read and understand simple texts, such as short articles, dialogues, and narratives. They will be able to identify main ideas, extract specific information, and comprehend basic vocabulary and sentence structures. 3. Students will expand their vocabulary by learning and using new words and phrases related to everyday life, common topics, and specific themes covered in the course. 4. Students will acquire a basic understanding of English grammar, including verb tenses, sentence structures, word order, and basic grammatical rules. They will be able to apply this knowledge in their spoken and written communication.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: ▪ Introduction to English: [20] - Greetings and introductions - Basic vocabulary and expressions for everyday situations - Alphabet and pronunciation practice - Numbers, dates, and time ▪ Grammar: [30] - Present simple and present continuous tenses - Basic verb forms and structures - Simple past tense - Questions and negatives - Basic prepositions and common adjectives ▪ Reading Skills: [25] - Reading simple texts, such as short stories, dialogues, and announcements - Understanding basic vocabulary and sentence structures - Identifying main ideas and specific information - Making inferences and predictions ▪ Vocabulary Development: [25] - Building vocabulary related to common topics, such as family, hobbies, food, and daily routines - Learning and using new words and phrases through context and exercises - Expanding vocabulary through reading, listening, and speaking activities.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies

- **Communicative Approach:** Emphasize interactive and meaningful communication in English. Encourage students to engage in pair work, group discussions, and role-plays to practice their speaking and listening skills.
- **Scaffolded Instruction:** Provide structured support and gradually increase the level of difficulty as students progress. Start with simple vocabulary and sentence structures, and gradually introduce more complex language forms.
- **Contextual Learning:** Present language in meaningful contexts to enhance understanding and retention. Use real-life situations, visual aids, authentic materials, and multimedia resources to make the learning experience more relevant and engaging.
- **Active Learning:** Encourage students to actively participate in the learning process. Incorporate hands-on activities, games, and interactive exercises to promote engagement and retention of language skills.
- **Multi-Sensory Approach:** Utilize various senses to enhance learning. Incorporate visual aids, audio recordings, gestures, and kinesthetic activities to cater to different learning styles and reinforce language learning.
- **Formative Assessment:** Regularly assess students' progress and provide constructive feedback. Use a variety of assessment methods, such as quizzes, speaking tasks, listening exercises, and short written assignments, to gauge their understanding and identify areas for improvement.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	30	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	20	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	1.3
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	30% (30)	5, 10	All
	Assignments	2	10% (10)	2, 12	All
Summative assessment	Midterm Exam	2 hr	10% (10)	7	All
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

	Material Covered
Week 1	- Introduction to the course and syllabus overview - Greetings and introductions - Numbers, plurals, and basic vocabulary

Week 2	- Presenting and practicing vocabulary related to countries. - Describing people and their nationalities. - Questions and Answers in Simple present tense (forms and structures).
Week 3	- Vocabulary of jobs - Negatives and Questions - Personal information - Social Expressions (I)
Week 4	- Presenting and practicing vocabulary related to family and friends - Possessive 's - Possessive pronouns (our, their) - The alphabet
Week 5	Sports/Food/Drinks • PresentSimple-1/you/we/they • a/an Languages and nationalities • Numbers and prices
Week 6	The time • Present Simple -- he/she • always/sometimes/never Words that go together • Days of the week
Week 7	Mid-term Exam
Week 8	Question words • me/him/us/them • this/that • Adjectives • Can I ... '
Week 9	Rooms and furniture • There is/are • Prepositions • Directions
Week 10	Saying years • was/were born • Past Simple - irregular verbs • have/do/go " When's your birthday?
Week 11	Past Simple - regular and irregular • Questions and negatives • Sport and leisure • Going sightseeing
Week 12	can/can't Adverbs • Adjective+ noun • Everyday problems
Week 13	I'd like- some/any • In a restaurant • Signs all around
Week 14	Colours and clothes • Present Continuous • Opposite verbs • What's the matter?
Week 15	Future plans • Grammar revision Vocabulary revision • Social expressions (2)
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	New Headway Beginner Student's Book, John and Liz Soars, Fourth edition	Yes
Recommended Texts	A Self-study Grammar Book for Engineers, Sonia Oliver and Monica Soler	No
Websites	https://elt.oup.com/student/headway/beg/?cc=us&selLanguage=en	

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.

Semester 3

Module Information

معلومات المادة الدراسية

Module Title	Strength of Materials I			Module Delivery		
Module Type	Core			☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar		
Module Code	CVE211					
ECTS Credits	5					
SWL (hr/sem)	125					
Module Level			UGII			Semester of Delivery
Administering Department			CVE	College	Eng.	
Module Leader	Hussein Kareem Sultan			e-mail	Hussein.ksz@mu.edu.iq	
Module Leader’s Acad. Title			Assistant Professor	Module Leader’s Qualification		Ph.D.
Module Tutor	-			e-mail	-	
Peer Reviewer Name			Scientific Committee	e-mail	-	
Scientific Committee Approval Date			15/06/2023	Version Number		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	CVE121 Engineering Mechanics: Dynamics	Semester	2
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	- Students will understand some mechanical properties of the main two elements composing reinforced concrete (steel and concrete). - Students will understand the stress and types of stresses, strain and types of strain, and solve the stress strain problems. - Students will be able to identify the behavior of material under tension loads. - Students will be able to identify the bearing stress in connections, stresses in thin-walled cylinders, and analysis of bars of composite sections.
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	5. Students will be able to identify the thermal stresses, Torsion, Mohr's cycle, failure of a long column. 6. Students will be able to identify the Torsion in beam. 7. Students will be able to identify the Mohr's cycle. 8. Students will be able to identify the failure of a long column.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Identify the various mechanical tests for concrete and steel. 2. Identify the stress in concrete and its types, strain and its types, and solve various problems in this regard. 3. Identify the behavior of materials under tensile loads. 4. Gaining the ability and skill in calculating thermal stresses and threshold stresses. 5. Define the ability and skill to calculate and determine failures in long columns, especially buckling failures.

Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - Introduction to concept of strength of materials and its relevance to civil engineering, Definitions of Strain - Stress – Elongation [4 hrs.]. - Basics of Hook's Law, Riveted Connections, Thin-Walled Pressure Vessels, Axially Loaded Members, Equations of Equilibrium and Compatibility [16 hrs]. - Analysis of Bars of Composite Sections, Thermal Deformation, Thermal Stresses in Composite Bars [12 hrs]. - Analysis of Torsion in beam, Transformation of Stresses and Strains, Principal Stresses & Maximum in Plane shear Stress, Mohr's Circle - Plane Stress [16 hrs]. Buckling of Columns, Failure of a Long Column [8 hrs]. - Revision problem classes [8 hrs]
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	65	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	6
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	All
	Assignments	2	10% (10)	2, 12	All
	Projects	1	10% (10)	Continuous	
	Report	1	10% (10)	13	All
Summative assessment	Midterm Exam	2 hrs.	10% (10)	7	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 - Definitions of Strain - Stress – Elongation
Week 2	Basics of Hook's Law,
Week 3	Riveted Connections,
Week 4	Thin Walled Pressure Vessels,
Week 5	Axially Loaded Members, Equations of Equilibrium and Compatibility
Week 6	Analysis of Bars of Composite Sections
Week 7	Mid-term Exam
Week 8	Thermal Deformation
Week 9	Thermal Stresses in Composite Bars
Week 10	Analysis of Torsion in beam
Week 11	Transformation of Stresses and Strains,
Week 12	Principal Stresses & Maximum in Plane shear Stress
Week 13	Mohr's Circle - Plane Stress
Week 14	Buckling of Columns
Week 15	Failure of a Long Column
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Tutorial Syllabus)

المنهاج الاسبوعي لحل التمارين

	Material Covered
Week 1	Riveted Connections,
Week 2	Thin Walled Pressure Vessels,
Week 3	Axially Loaded Members, Equations of Equilibrium and Compatibility
Week 4	Analysis of Bars of Composite Sections
Week 5	Thermal Stresses in Composite Bars
Week 6	Analysis of Torsion in beam
Week 7	Transformation of Stresses and Strains,
Week 8	Principal Stresses & Maximum in Plane shear Stress,
Week 9	Mohr's Circle - Plane Stress
Week 10	Buckling of Columns
Week 11	Failure of a Long Column

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	R. C. Hibbeler, (2014), Mechanics of Materials, Ninth Edition.	Yes
Recommended Texts	Dr. R.K. Bansal, (2015), A Textbook of Strength of Materials [Mechanics of Solids], Sixth Edition. R.S. Khurmi, (2008), Strength of Materials [Mechanics of Solids], Multicolour Edition.	No
Websites	https://classroom.google.com/c/NTY4MjcxcODc1Mjc2	

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 Information

معلومات المادة الدراسية

Module Title	Engineering Surveying I		Module Delivery		
Module Type	Core		☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☒ Practical ☐ Seminar		
Module Code	CVE212				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGII			Semester of Delivery
Administering Department		CVE	College	ENG.	
Module Leader	Dr. Yousif Mousa		e-mail	yousif.mousa@mu.edu.iq	
Module Leader’s Acad. Title		Lecturer	Module Leader’s Qualification		Ph.D.
Module Tutor	Lecturer Hadi Mohammed		e-mail	hadi.mohammed@mu.edu.iq	
Peer Reviewer Name		Scientific Committee	e-mail	-	
Scientific Committee Approval Date		15/06/2023	Version Number		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module		Semester	
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Co-requisites module	Engineering Surveying II	Semester	4
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Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. Define surveying and know various types of surveying. Additionally, classifying errors in surveying and how to manage them. 2. Understanding linear measurements e.g., measuring distances, setting-out right angles, and overcoming obstacles. 3. differentiate between heights, datum and benchmarks (BM). 4. know and understand the use of the levelling equipment and understanding the field procedures for levelling. 5. calculate reduced levels (RL) as well as understand the sources of errors in levelling and how to manage them. 6. Understanding profile leveling procedure 7. Estimating areas of different types of cross sections, irregular shapes, and polygons. 8. Estimating volume of earthwork and reservoir capacity.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. an ability to apply knowledge of mathematics, science, and engineering. 2. an ability to design a system, component, or process to meet desired needs within realistic constraints, 3. the ability to function on teams, 4. an ability to identify, formulate, and solve engineering problems, 5. an understanding of professional and ethical responsibility, 6. an ability to communicate effectively, 7. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ▪ An introduction to Engineering Surveying and surveying equipment [20 hrs]. ▪ Theory of errors, linear measurements and overcoming obstacles [20 hrs]. ▪ Leveling, closed leveling, and profile leveling [30 hrs]. ▪ Estimating areas of different types of cross sections, irregular shapes, and polygons [30 hrs]. ▪ Topographic maps and Estimating volume of earthwork [25 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 theoretically and practically, while at the same time refining and expanding their critical thinking skills. This will be achieved through lectures, interactive tutorials, and by considering fieldwork. Lectures are provided first as a pdf (e.g., in Google class), before being explained in the class. Then, students are given some examples to work on with some help. Additionally, practicals are explained in tutorials class before applying all the provided information practically in the field. In the field, students work in a group as a team, and they should write a report for their practical work weekly or fortnightly.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	75	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	5
Unstructured SWL (h/sem)	50	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	3.3

الحمل الدراسي غير المنتظم للطلاب خلال الفصل		
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	125	

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	15% (15)	7, 12	All
	Assignments	1	10% (10)	14	All
	Projects / Lab.	1	5% (5)	Continuous	
	Report	10	10% (10)	weekly	Almost weekly
Summative assessment	Midterm Exam	2 hr	10% (10)	7	All
	Final Exam	5hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	General Introduction and Definition of Engineering Surveying
Week 2	Fundamentals of Surveying
Week 3	Linear Measurements and Theory of Errors
Week 4	Overcoming obstacles in linear measurements
Week 5	Leveling
Week 6	Errors of leveling
Week 7	Mid-term Exam
Week 8	Closed leveling and adjustment
Week 9	Profile leveling
Week 10	Area and Cross-section I
Week 11	Area and Cross-section II
Week 12	Volume calculation
Week 13	Topographic maps, DSM, and DEM
Week 14	Applications on Topographic maps
Week 15	Preparatory week before the final Exam
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Practical 1: Introduction to fieldwork and surveying equipment
Week 2	Practical 2: Using direct linear Measurements tools
Week 3	Practical 3: Linear measurements using different types of tapes
Week 4	Practical 4: Setting out right angles
Week 5	Practical 5: Mapping using linear measurements
Week 6	Practical 6: Leveling, Set-up and reading staff
Week 7	Practical 7: Calculating of elevation and height difference between points starting from Benchmark

Week 8	Practical 8: Differential leveling
Week 9	Practical 9: adjustment of misclosure error in leveling
Week 10	Practical 10: Profile leveling
Week 11	Practical 11: Profile leveling and cross-sections
Week 12	Practical 12: Area calculation
Week 13	Practical 13: volume calculation
Week 14	Practical 14: Mapping of contour lines
Week 15	Practical 15: estimating area from contours using a planimeter

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Walker, J., & Awange, J. L. (2017). Surveying for Civil and Mine Engineers: Theory, Workshops, and Practicals. Springer.	No, soft copy only
Recommended Texts	Uren and Price (2010), Surveying for Engineers, Fourth edition, Palgrave Macmillan.	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 Information					
معلومات المادة الدراسية					
Module Title	Concrete Technology I			Module Delivery	
Module Type	Core			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CVE213				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGII	Semester of Delivery		3
Administering Department		CVE	College	Eng.	
Module Leader	Haider Araby Ibrahim		e-mail	arabyhaider@mu.edu.iq	
Module Leader's Acad. Title		Asst. Professor	Module Leader's Qualification		M.Sc.
Module Tutor	Ameer Jabbar Abdul Kareem		e-mail	Ameer.jabbar@mu.edu.iq	
Peer Reviewer Name		Scientific Committee	e-mail	-	
Scientific Committee Approval Date		15/06/2023	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. Graduates of the Department of Engineering should have a comprehensive knowledge of the basics of concrete technology. 2. Providing the labor market with engineers who have the ability to apply design, management and construction methods in engineering projects. 3. Graduates should have the ability to acquire communication skills and teamwork in multidisciplinary projects. 4. Provide engineers with the ability to continue learning and acquire skills to develop creative professional performance and plan work based on community values and professional ethics. 5. Maintaining abreast of the latest developments in the field of civil engineering, by periodically re-evaluating study plans and curricula 6. Conducting scientific research and studies to increase knowledge and its applications and provide innovative solutions to local and regional problems in particular. 7. Establishing strong relationships with local, regional and international companies and institutions to enhance support for the scientific research process			

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Cognitive objectives: The student should be aware that: 1. The student will be familiar with the most important methods used in the cement industry. 2. The student will be familiar with the factors that affect the different properties of cement. 3. The student will be familiar with the raw materials for the production of concrete mixtures. 4. The student will be familiar with the methods of designing concrete mixtures. 5. The student will be familiar with the methods of measuring the different properties of concrete. 6. The student will be familiar with the most important laboratory tests for cement paste and concrete mix. Skills objectives of the course: The student should be aware that: 1. The student will acquire the skill of differentiating between different types of cement. 2. The student acquires the skill of identifying the problems that the concrete mixture is exposed to during mixing, after pouring, and during hot and cold weather. 3. The student acquires the skill of applying practical methods in the design and maintenance of concrete mixtures. 4. The student acquires a skill in conducting all laboratory tests for concrete
Indicative Contents المحتويات الإرشادية	

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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	65	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.3
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
	Assignments	2	10% (10)	2, 12
	Projects / Lab.	1	10% (10)	Continuous

	Report	1	10% (10)	13	All
Summative assessment	Midterm Exam	2 hr	10% (10)	7	All
	Final Exam	5hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction, manufacturing of cement
Week 2	Chemical composition of Portland cement
Week 3	Hydration of cement (1)
Week 4	Hydration of cement (2)
Week 5	Properties of cement, effect of cement compounds on its properties
Week 6	Effect of cement compounds on its properties
Week 7	Types of cement 1
Week 8	Types of cement 2
Week 9	Classification of aggregate, sampling, properties of aggregate
Week 10	Bulking of sand, deleterious substance in aggregate, soundness
Week 11	Sieve analysis maximum aggregate size grading curves & its requirements
Week 12	Classification of aggregate, sampling, properties of aggregate
Week 13	Concrete mix design part 1
Week 14	Concrete mix design part 2
Week 15	Concrete mix design part 3
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Standard consistency
Week 2	Initial and final time set
Week 3	Compressive strength
Week 4	Smoothness
Week 5	Soundness
Week 6	Specific gravity
Week 7	Sieve analysis for fine aggregate
Week 8	Sieve analysis for coarse aggregate
Week 9	Los angles
Week 10	Crush test
Week 11	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Concrete Technology (Adam M. Neville, J.J. Brooks)	no
Recommended Texts	Concrete-Microstructure-Properties-and-Materials	no
Websites	https://www.academia.edu/15409768/ Adam M Neville J J Brooks Concrete Technology. https://worksaccounts.com/wp-content/uploads/2020/08/Concrete-Microstructure-Properties-and-Materials .	

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 Information

معلومات المادة الدراسية

Module Title	Fluid Mechanics			Module Delivery		
Module Type	Core			☒ Theory ☐ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar		
Module Code	CVE224					
ECTS Credits	5					
SWL (hr/sem)	125					
Module Level			UGII			Semester of Delivery
Administering Department			CVE	College	Eng.	
Module Leader	Huda Mohammed Selman			e-mail	Hudamohammad@mu.edu.iq	
Module Leader's Acad. Title			Lecturer	Module Leader's Qualification		Ph.D.
Module Tutor	.			e-mail	.	
Peer Reviewer Name			Scientific committee	e-mail	.	
Scientific Committee Approval Date			15/06/2023	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 understand the various properties of fluids and their influence on fluid motion. 2. To understand the behavior of fluid under various forces and at different atmospheric conditions, and to select the proper fluid for various applications. 3. To analyze a variety of problems in fluid statics and dynamics. Calculate the forces that act on submerged planes and curves. 4. To identify and analyze various types of fluid flows. 5. To understand the nature of fluid statics, in particular dealing with problems related to hydrostatic forces. To be able to analyze the problems related to elementary fluid dynamics especially for incompressible flows using Bernoulli equation in particular. 6. This course deals with the basic concept of fluid mechanics that are: the continuity equation (i.e. conservation of mass), the momentum principle (or conservation of momentum) and the energy equation. A related principle is the Bernoulli equation which derives from the motion equation
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course student should demonstrate the following outcomes relevant to environmental engineering: 1. an ability to apply knowledge of mathematics, science, and engineering related to environmental and civil engineering. 2. an ability to design an environmental system, component, or process to meet desired needs within realistic constraints, 3. an ability to identify, formulate, and solve environmental and civil engineering problems, 4. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ▪ Fluid definition- Units & dimensions, Fluid properties density, specific weight, specific volume, specific gravity, viscosity, Capillarity [25 hrs] ▪ Pressure: on a point, variation of pressure with depth, pressure measurement [25 hrs] ▪ Pressure, hydrostatic force on plane and curved surface, Manometers, Plane and inclined manometers, Buoyancy and Archimedes Principle, Floating bodies [25 hrs] ▪ Dynamics of flow, flow types. [25 hrs] ▪ Bernoulli's equation, Energy equation and corrections, [30 hrs] ▪ Application on energy equation. [20 hrs] ▪ Pitot tube, siphons, flow measurement, venturi meter, linear momentum equation, Dimensional analysis Buckingham Pi Theorem. [50 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The strategy used in this course is outcome base learning. It is to test achievement of learning outcomes and changing upon. 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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	75	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	50	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.3
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	20% (10)	6, 11	LO #1-3
	Assignments	4	10% (10)	2,4,6 and 11	LO # 1-3
	Projects / Lab.				
	Report	6	10% (10)	4,6,8 and 11	LO # 1-4
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-4
	Final Exam	5 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المناهج الأسبوعي النظري

	Material Covered
Week 1	Fluid definition- Units & dimensions, Fluid properties density, specific weight, specific volume,
Week 2	Pressure: on a point, variation of pressure with depth, pressure measurement
Week 3	pressure force on plane surfaces
Week 4	Pressure force on curved surfaces
Week 5	Floating bodies, Dynamics of flow, flow types
Week 6	Bernoulli's equation
Week 7	Energy equation and corrections
Week 8	application on energy equation
Week 9	Pitot tube, siphons
Week 10	flow measurement , venturi meter
Week 11	Orifice meter
Week 12	Dimensional analysis

Week 13	Continuity equation
Week 14	Momentum equation
Week 15	Losses in pipes
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Specific gravity
Week 2	Lab 2: Measurement of viscosity
Week 3	Lab 3: Hydrostatic pressure
Week 4	Lab 4: Determination of metacentric height of a floating body
Week 5	Lab 5: Bernoulli's Theorem Demonstration
Week 6	Lab 5: Bernoulli's Theorem Demonstration
Week 7	Lab 6 :Venture meter
Week 8	Lab 6:Venture meter
Week 9	Lab 7: Orifice meter
Week 10	Lab 7: Orifice meter
Week 11	Lab 8: Flow over weir
Week 12	Lab 8: Flow over weir
Week 13	Lab 9:Friction factor in pipes
Week 14-15	Lab 9: Friction factor in pipes

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	A Textbook of Fluid Mechanics and Hydraulic Machines ; Author, RK Rajput ; Publisher, S. Chand Publishing ; ISBN, 9385401378, 9789385401374.	No (only electronic version)
Recommended Texts	1. Title, A Textbook of Fluid Mechanics ; Author, R. K. Bansal ; Publisher, Firewall Media, 2005 ; ISBN, 8131802949, 9788131802946 ; Length, 501 pages. 2. 2500 solved problems in fluid mechanics and hydraulics / by Jack B. Evett, Cheng Liu. 3. Douglas JF, Gasiorek JM, Swaffield JA, and Jack LB, "Fluid Mechanics", Pearson, 5thEdition, 2005.	No (only electronic version)
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 Information					
معلومات المادة الدراسية					
Module Title	Mathematics II		Module Delivery		
Module Type	Basic		☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar		
Module Code	ENG005				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGII			Semester of Delivery
Administering Department		CVE	College	ENG.	
Module Leader	firas fouad abdullah		e-mail	Firas.fuad@mu.edu.iq	
Module Leader's Acad. Title			Module Leader's Qualification		Ph.D.
Module Tutor	-		e-mail	-	
Peer Reviewer Name		Scientific Committee	e-mail	-	
Scientific Committee Approval Date		15/06/2023	Version Number	1.0	
Relation with other Modules					
العلاقة مع المواد الدراسية الأخرى					
Prerequisite module		ENG001: Mathematics-I		Semester	1
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. This module develops your knowledge and understanding of the mathematics underpinning engineering. It develops your ability to apply these techniques within an engineering context. 2. Recognize that mathematics permeates the world around us. 3. appreciate the usefulness, power and beauty of mathematics. 4. enjoy mathematics and develop patience and persistence when solving problems. 5. understand and be able to use the language, symbols and notation of mathematics. 6. use inductive and deductive reasoning when solving problems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Define of conic sections 2. Identify the basic and types of conic sections. 3. Solve the problems related to parabola-hyperbola ellipse and -circles and explain its applications in real life. 4. Explain the applications of conic sections in buildings like bridges and tunnels etc. 5. Identify the polar coordinates. 6. Explain the difference between polar coordinates and Cartesian coordinates. 7. Explain how the student can Change equations from polar to Cartesian and vice versa. 8. Explain the applications of polar coordinates in real life. 9. Identify polar graphing and polar equations. 10. Explain the Intersection of two polar curves. 11. Describe of polar plane areas 12. Explain the Polar Arc length.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – Conic sections</u> Solving problems about conic sections like parabola-hyperbola ellipses and circles and its applications especially in bridges <u>Part B – polar coordinates</u> Fundamentals of polar coordinates and the difference between Cartesian and polar coordinates, sketch the polar curves and finding the area between two polar curves and find polar arc length.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Type something like: The main strategy that will be adopted in delivering this module is to Use basic algebraic manipulations, matrices and mathematical functions proficiently in the analysis and solution of engineering problems and apply mathematical equations in solution of engineering problems and Apply differential and integral calculus proficiently in the analysis and solution of engineering problems
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	90	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	35	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.3
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	20% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.				
	Report	2	10% (10)	6 , 12	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction about conic sections
Week 2	Examples about (Parabola) and (Hyperbola)
Week 3	Examples and Applications of parabola in real life
Week 4	examples about (Ellipse)
Week 5	examples about (Circle)
Week 6	Introduction about polar coordinates
Week 7	The difference between polar and Cartesian coordinates
Week 8	Examples about changing of polar to Cartesian and vice versa
Week 9	Examples about polar equations
Week 10	Sketch the polar curves
Week 11	Symmetry in polar curves
Week 12	Finding of point of intersection in two polar curves
Week 13	Finding the area inside one polar curve
Week 14	Finding the area between two polar curves
Week 15	Vectors and scalars
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	J. Bird "Basic Eng. Mathematics"5 th Ed., 2010	Yes

Recommended Texts	Calculus with analytic geometry: by Howard Anton	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 Information

معلومات المادة الدراسية

Module Title	Computer II			Module Delivery		
Module Type	Basic			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar		
Module Code	UNI005					
ECTS Credits	3					
SWL (hr/sem)	75					
Module Level			UGII			Semester of Delivery
Administering Department			CVE	College	ENG.	
Module Leader	Hayder tareq rajab altaie			e-mail	hayderaltaie@mu.edu.iq	
Module Leader’s Acad. Title			Ass. lecturer	Module Leader’s Qualification		M.Sc
Module Tutor	-			e-mail	-	
Peer Reviewer Name			Scientific Committee	e-mail	-	
Scientific Committee Approval Date			15/06/2023	Version Number	1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Computer science and Information Technology	Semester	1
Co-requisites module	-	Semester	-

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. Understand the concept of computer programming and its relevance to civil engineering. 2. To develop skills and understanding Design a program in Visual Basic language and MATLAB. 3. Describe the main options used in Visual Basic and MATLAB and manage it. 4. Understand typical process flow diagrams to implement programs and describe the processes used and their purposes. 5. Perform some relevant laboratory tests. 6. This course deals with the basic concept of Visual Basic language and MATLAB. 7. Understand and describe program language systems and General factors involved in choosing the type of design.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course student should demonstrate the following outcomes relevant to computer programming: 1. an ability to apply knowledge of mathematics, science, and engineering, related to computer programming. 2. An ability to design and write program using Visual Basic and MATLAB and recognize how it works. 3. an ability to identify, formulate, and solve civil engineering problems using Visual Basic and MATLAB 4. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice. 5. Recognize how coding works in different program. 6. Identify the basic elements of Visual Basic and MATLAB and their applications. 7. Identify the computer program (Visual Basic and MATLAB) relationship with civil engineering.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ▪ Introduction to concept of computer programming and its relevance to civil engineering, [10 hrs]. ▪ Design and writing code in visual basic [30 hrs]. ▪ Design and writing code in MatLab [30 hrs]. ▪ Application of various programs in the visual basic program [40 hrs]. ▪ Application of various mathematical operations in the MATLAB program [40 hrs].

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The strategy used in this course is outcome base learning. It is to test achievement of learning outcomes and changing upon. The instructor will focus on materials those expanding students' critical thinking skills. The course was designed in a way such that students are to Employment of computer programming in civil engineering service applications professional work and personal life even when they are not willing to become programming engineer. The course will give the basics of the field and how to obtain additional information as engineers require it in their careers and will give them good opportunity to understand the methods of solving civil engineer problems by using computer programming and consider that in their work. Quizzes will be based on the material covered in class. This material comes from a variety of sources and may go beyond the information covered in the text. Quizzes and final exam will typically consist of both quantitative and qualitative questions. In all quizzes or final exam a student will need to show all work on quantitative problems. Group assignments and reports will be open book, note and neighbor. The quizzes will be closed book, notes and neighbor.
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Assignments that cannot be read or are not presented in a professional engineering style will not receive credit. Final exam will be comprehensive. Plagiarism is a serious offense and will not be tolerated. Plagiarism will result in a zero for the assignment. Due dates will be given in class. Late papers may be accepted but will be docked 10% per day, including weekends and starting immediately following class. Students with excused absences will be given a reasonable amount of time to catch up on their work with no penalty. No assignments will be accepted after the solution been returned or posted, whichever occurs first.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
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	10% (10)	6, 11	LO # 1- 7
	Assignments	4	10% (10)	2, 4,6 and 10	LO # 1 -7
	Projects / Lab.	2	10% (10)	Continuous	LO # 1- 7
	Report	4	10% (10)	4,6,8 and 11	LO # 1- 7
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO # 1- 7
	Final Exam	5hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المناهج الأسبوعي النظري

	Material Covered
Week 1	Visual basic (IDE) (INTEGRATED DEVELOPMENT ENVIRONMENT)
Week 2	Variables in Visual Basic Programming Language
Week 3	Visual basic Conditional sentences and logical tools
Week 4	repetitive sentences (loops)
Week 5	Visual basic arrays (one-dimensional, multi – dimensional)
Week 6	Exceptions handling
Week 7	modules
Week 8	Introduction to MATLAB
Week 9	Array Operators and Comparison
Week 10	Basic Matrix Functions
Week 11	Basic Plotting Function
Week 12	MATLAB Conditional Statements
Week 13	MATLAB FOR AND WHILE LOOPS
Week 14	Nested loops
Week 15	Differentiation and Integration in MATLAB
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Visual basic (IDE) (INTEGRATED DEVELOPMENT ENVIRONMENT)
Week 2	Variables in Visual Basic Programming Language
Week 3	Visual basic Conditional sentences and logical tools
Week 4	repetitive sentences (loops)
Week 5	Visual basic arrays (one-dimensional, multi – dimensional)
Week 6	Exceptions handling
Week 7	modules
Week 8	Introduction to MATLAB
Week 9	Array Operators and Comparison
Week 10	Basic Matrix Functions
Week 11	Basic Plotting Function
Week 12	MATLAB Conditional Statements
Week 13	MATLAB FOR AND WHILE LOOPS
Week 14	Nested loops
Week 15	Differentiation and Integration in MATLAB
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Visual Basic 2017 Made Easy By Dr.Liew Voon Kiong INTRODUCTION TO MATLAB FOR ENGINEERING STUDENTS David Houcque, Northwestern University (version 1.2, August 2005)	No (only electronic version)
Recommended Texts	A Guide to MATLAB for Beginners and Experienced Users Brian R. Hunt Ronald L. Lipsman Jonathan M. Rosenberg with Kevin R. Coombes, John E. Osborn, and Garrett Stuck Cambridge University Press	No (only electronic version)
Websites	https://visualstudio.microsoft.com https://www.mathworks.com/products/matlab/student.html	

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 Information					
معلومات المادة الدراسية					
Module Title	Arabic Language		Module Delivery		
Module Type	Support		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar		
Module Code	UNI003				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level	UGII	Semester of Delivery			3
Administering Department	CVE	College	Eng.		
Module Leader	Isam Alyaseri		e-mail	ialyase@mu.edu.iq	
Module Leader’s Acad. Title	Professor		Module Leader’s Qualification	Ph.D.	
Module Tutor	-		e-mail	-	
Peer Reviewer Name	-		e-mail	-	
Scientific Committee Approval Date	15/06/2023		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	١. تمكين الطالب من كتابة التقارير باللغة العربية بشكل صحيح وتجنب الأخطاء اللغوية والاملائية والاسلوبية. ٢. تطوير قدرة النطق الفصيح لدى الطالب للتمكن من التواصل بحرفية خلال العمل. ٣. توسعة فهم الأدب العربي لانماء اساليب الكتابة في العربية. ٤. توسعة القدرة على التعبير وطرح الافكار بلغة عربية رصينة.
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Module Learning Outcomes مخرجات التعلم للمادة الدراسية	يفترض بالانتهاء من تدريس هذه المادة أن يكون الطالب قد تحصل على القدرات التالية: ١. القدرة على التواصل بمهارة شفهيًا مع فرد أو مجموعة من الأشخاص بوسائل البيان اللغوية وفي الكتابة بالعربية على مستويات إدارية مختلفة. ٢. القدرة على إدراك الضرورة المستمرة لنمو المعرفة باللغة العربية والكتابة المهنية وكيفية العثور على المعلومات حولها وتطبيقها بشكل صحيح. ٣. القدرة على التحدث والكتابة بشكل مناسب دون أخطاء في القواعد العربية الاساسية. ٤. القدرة على الكتابة بشكل مناسب دون أخطاء في الاملاء.
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Indicative Contents المحتويات الإرشادية	يتضمن هذا الدرس مراجعة الكلمة واقسامها، والمعرب والمبني، وأفعال الماضي والمضارع والامر واحوالها (٥ ساعات)، مراجعة العلامات الفرعية التي تلحق بالافعال والاسماء (٥ ساعات)، همزات القطع والوصل، الهمزة المتوسطة، وعلامات الترفيم (٥ ساعات)،الجمل الاسمية والفعلية، التاء المربوطة والتاء المفتوحة (٥ ساعات)، الحروف الناسخة والافعال اللازمة والمتعدية (٥ ساعات)،أدوات الجر (٥ ساعات)، نماذج من النصوص العربية (١٠ ساعات)، أخطاء شائعة في الكتابة بالعربية (١٥ ساعة)،أمثلة تطبيقية لكتابة التقارير بالعربية (٢٥ ساعة).
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Learning and Teaching Strategies
 استراتيجيات التعلم والتعليم

Strategies	تقوم استراتيجيية التعلم في هذا الدرس على التغيير المستمر بحسب مخرجات التعلم ومدى تحققها. سيركز استاذ المادة على الأخطاء اللغوية الشائعة ومحاولة تفاديها بالنسبة للطلبة عند استعمالهم اللغة في مجالات العمل. سيركز أيضا خلال الدرس على ثلاثة عناصر رئيسية وهي القواعد، والاملاء والأدب لتحسين قدرة الطالب للتواصل شفهيًا وكتابيا باللغة العربية.
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Student Workload (SWL)
 الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	30	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	20	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.3
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	30% (30)	6, 11	LO # 1-4
	Assignments	2	10% (10)	4, ١٠	LO # 1-4
	Projects / Lab.	-	-	-	-
	Report/lab.	-	-	-	-
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-4
	Final Exam	3 hr	50% (50)	16	LO # 1-4
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
 المنهاج الاسبوعي النظري

	Material Covered
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Week 1	مراجعة الكلمة واقسامها، المعرب والمبني، وأفعال الماضي والمضارع والامر واحوالها
Week 2	مراجعة العلامات الفرعية التي تلحق بالافعال والاسماء
Week 3	همزات القطع والوصل، الهمزة المتوسطة، وعلامات الترقيم
Week 4	الجميل الاسمية والفعلية
Week 5	التاء المربوطة والتاء المفتوحة
Week 6	الحروف الناسخة والافعال اللازمة والمتعدية
Week 7	أدوات الجر، والمجرور بحرف الجر والمجرور بالاضافة
Week 8	نماذج من النصوص العربية
Week 9	نماذج من النصوص العربية (تواصل للدرس السابق)
Week 10	أخطاء شائعة في الكتابة
Week 11	أخطاء شائعة في الكتابة (تواصل للدرس السابق)
Week 12	أخطاء شائعة في الكتابة (تواصل للدرس السابق)
Week 13	أمثلة تطبيقية لكتابة التقارير بالعربية
Week 14	أمثلة تطبيقية لكتابة التقارير بالعربية (تواصل للدرس السابق)
Week 15	أمثلة تطبيقية لكتابة التقارير بالعربية (تواصل للدرس السابق)
Week 16	مراجعة

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	<u>الميسر في اللغة العربية: المستوى الاول: النحو والصرف والاملاء، سمير بن يحيى المعبر، دار حافظ، المملكة العربية السعودية، جدة، ١٤٢٣ هـ، ٢٠٠٣ م</u>	كلا (النسخة الالكترونية فقط)
Recommended Texts	-	-
Websites	-	-

Grading Scheme

مخطط الدرجات

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

Semester 4

Module Information

معلومات المادة الدراسية

Module Title	Strength of Materials II			Module Delivery		
Module Type	Core			☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar		
Module Code	CVE221					
ECTS Credits	5					
SWL (hr/sem)	125					
Module Level			UGII			Semester of Delivery
Administering Department			CVE	College	ENG.	
Module Leader	Hussein Kareem Sultan			e-mail	Hussein.ksz@mu.edu.iq	
Module Leader's Acad. Title			Assistant Professor	Module Leader's Qualification		Ph.D.
Module Tutor	-			e-mail	-	
Peer Reviewer Name			Scientific Committee	e-mail	-	
Scientific Committee Approval Date			15/06/2023	Version Number		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	CVE211 Strength of Materials I	Semester	3
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	- Students will be able to analyze and draw shear and bending moment Diagrams. - Students will understand the bending stresses in beams. - Students will be able to identify the bending stresses in composite beams. - Students will understand the shear stresses in beams. - Students will be able to identify the shear center in beams. - Students will be able to identify the shear flow in beams. - Students will be able to identify the deflection of beams. - Students will be able to identify the compound stresses in beam.
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Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Gaining the ability and skill to analyze and draw shear force and bending moment diagrams for different thresholds. 2. Define the ability and skill in calculating bending stresses in thresholds. 3. Define the ability and skill in calculating shear stresses in thresholds. 4. Define the ability and skill in determining and calculating precipitation and its types at thresholds. 5. Define the ability and skill in calculating the stresses of compound sections.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ▪ Introduction to concept of analyzing and drawing shear and bending moment Diagrams and its relevance to civil engineering [12 hrs]. ▪ Bending stresses in beams, bending stresses in composite beams [8 hrs]. ▪ Shear stresses in beams, shear flow in beams [8 hrs]. ▪ Compound stresses in beam [8 hrs]. ▪ Deflection of beams [8 hrs]. ▪ Revision problem classes [8 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

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

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	65	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.3
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	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
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	Introduction - analyze and draw shear and bending moment Diagrams
Week 2	analyze and draw shear and bending moment Diagrams
Week 3	analyze and draw shear and bending moment Diagrams
Week 4	bending stresses in beams
Week 5	bending stresses in composite beams
Week 6	Mid-term Exam
Week 7	shear stresses in beams
Week 8	shear flow in beams
Week 9	shear center in beams
Week 10	compound stresses in beam
Week 11	deflection of beams
Week 12	deflection of beams
Week 13	Preparatory week before the final Exam

Delivery Plan (Weekly Tutorial Syllabus)

المنهاج الاسبوعي لحل التمارين

	Material Covered
Week 1	analyze and draw shear and bending moment Diagrams
Week 2	analyze and draw shear and bending moment Diagrams
Week 3	analyze and draw shear and bending moment Diagrams
Week 4	bending stresses in beams
Week 5	bending stresses in composite beams
Week 6	shear stresses in beams
Week 7	shear flow in beams
Week 8	shear center in beams
Week 9	compound stresses in beam
Week 10	deflection of beams
Week 11	deflection of beams

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	R. C. Hibbeler, (2014), Mechanics of Materials, Ninth Edition.	Yes
Recommended Texts	Dr. R.K. Bansal, (2015), A Textbook of Strength of Materials [Mechanics of Solids], Sixth Edition. R.S. Khurmi, (2008), Strength of Materials [Mechanics of Solids], Multicolour Edition.	No
Websites	https://classroom.google.com/c/NTY4MjcxODc1Mjc2	

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 Information

معلومات المادة الدراسية

Module Title	Engineering Surveying II			Module Delivery		
Module Type	Core			☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☒ Practical ☐ Seminar		
Module Code	CVE222					
ECTS Credits	5					
SWL (hr/sem)	125					
Module Level			UGII			Semester of Delivery
Administering Department			CVE	College	Eng.	
Module Leader	Dr. Yousif Mousa			e-mail	yousif.mousa@mu.edu.iq	
Module Leader’s Acad. Title			Lecturer	Module Leader’s Qualification		Ph.D.
Module Tutor	Lecturer Hadi Mohammed			e-mail	hadi.mohammed@mu.edu.iq	
Peer Reviewer Name			Scientific Committee	e-mail	-	
Scientific Committee Approval Date			15/06/2023	Version Number		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Engineering Surveying-I	Semester	3
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. Be familiar with and operate surveying instruments e.g., GPS, Total Station, and theodolite. 2. Be able to record (book) angular and distance measurements in a manner that can be understood by other professionals. 3. Know how to Establish horizontal controls i.e., known positions (Eastings and Northings). 4. Know the types of traverses and perform all the calculations that are required to obtain traverse coordinates from measured angles and distances. 5. Appreciate the geometric properties of a circular curve and differentiate between different types of horizontal curves. 6. Design curves of constant radii to join straight sections of roads and railways. 7. Setting out circular curves using either chord length and deflection angle; offset from the long chord; or coordinate methods. 8. Understand and appreciate the geometric properties of a vertical curve and understand what gradients are and the limitations that are imposed on their values. 9. Apply the theory and practice of surveying instruments in construction project.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. an ability to apply knowledge of mathematics, science, and engineering. 2. an ability to design a system, component, or process to meet desired needs within realistic constraints, 3. the ability to function on teams, 4. an ability to identify, formulate, and solve engineering problems, 5. an understanding of professional and ethical responsibility, 6. an ability to communicate effectively, 7. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ▪ An introduction to coordinates systems, directions, and angular measurements [30 hrs]. ▪ understanding control points, traversing and conducting adjustments [25 hrs]. ▪ Geometric properties of a circular curve [20 hrs]. ▪ Geometric properties of vertical curves, design and setting out [30 hrs]. ▪ Introduction to the Global Positioning Systems (GPS) [10 hrs]. ▪ Modern surveying techniques and software [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 theoretically and practically, while at the same time refining and expanding their critical thinking skills. This will be achieved through lectures, interactive tutorials, and by considering fieldwork. Lectures are provided first as a pdf (e.g., in Google class), before being explained in the class. Then, students are given some examples to work on with some help. Additionally, practicals are explained in tutorials class before applying all the provided information practically in the field. In the field, students work in a group as a team, and they should write a report for their practical work weekly or fortnightly.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	75	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	50	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	3.3
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	15% (15)	7, 12	LO #1-6, LO# 8-12
	Assignments	1	10% (10)	14	LO # 2-13
	Projects / Lab.	1	5% (5)	Continuous	
	Report	10	10% (10)	weekly	Almost weekly
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	5hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

	Material Covered
Week 1	Introduction to Directions and angles systems
Week 2	Angular measurements
Week 3	Basics of Coordinates systems
Week 4	Calculating coordinates
Week 5	Traversing
Week 6	Traverse adjustment
Week 7	Mid-term Exam
Week 8	Horizontal curves
Week 9	Setting out horizontal curves
Week 10	Vertical curves
Week 11	Setting out Vertical curves
Week 12	Introduction to Global Position System (GPS)
Week 13	Modern surveying software (e.g., GIS and/or Google earth)
Week 14	Modern surveying techniques
Week 15	Preparatory week before the final Exam
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الأسبوعي للمختبر

	Material Covered
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Week 1	Practical 1: compass and Embedded Plane
Week 2	Practical 2: Mapping using Embedded Plane
Week 3	Practical 3: Practicing on coordinates calculation
Week 4	Practical 4: Theodolite and/or Total station, set up and operate
Week 5	Practical 5: measuring angles (horizontal and vertical)
Week 6	Practical 6: Traversing
Week 7	Practical 7: Traverse and adjustment
Week 8	Practical 8: Mapping using theodolite and tape
Week 9	Practical 9: setting out simple drawing (e.g., home plan)
Week 10	Practical 10: setting out horizontal curves
Week 11	Practical 11: vertical curves
Week 12	Practical 12: measuring using Global Position System (GPS)
Week 13	Practical 13: modern surveying software e.g., GIS and/or google earth
Week 14	Practical 14: Modern surveying instruments
Week 15	Practical 15: Modern surveying instruments

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Walker, J., & Awange, J. L. (2017). Surveying for Civil and Mine Engineers: Theory, Workshops, and Practicals. Springer.	No, soft copy only
Recommended Texts	Uren and Price (2010), Surveying for Engineers, Fourth edition, Palgrave Macmillan.	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 Information

معلومات المادة الدراسية

Module Title	Concrete Technology II			Module Delivery	
Module Type	Core			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CVE223				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGII	Semester of Delivery		
Administering Department		CVE	College	Eng.	
Module Leader	Haider Araby Ibrahim		e-mail	arabyhaider@mu.edu.iq	
Module Leader’s Acad. Title		Asst. Professor	Module Leader’s Qualification		M.Sc.
Module Tutor	Ameer Jabbar abdul kareem		e-mail	Ameer.jabbar@mu.edu.iq	
Peer Reviewer Name		Scientific Committee	e-mail	-	
Scientific Committee Approval Date		15/06/2023	Version Number		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	CVE213: Concrete Technology I	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. Graduates of the Department of Engineering should have a comprehensive knowledge of the basics of concrete technology. 2. Providing the labor market with engineers who have the ability to apply design, management and construction methods in engineering projects. 3. Graduates should have the ability to acquire communication skills and teamwork in multidisciplinary projects. 4. Provide engineers with the ability to continue learning and acquire skills to develop creative professional performance and plan work based on community values and professional ethics. 5. Maintaining abreast of the latest developments in the field of civil engineering, by periodically re-evaluating study plans and curricula. 6. Conducting scientific research and studies to increase knowledge and its applications and provide innovative solutions to local and regional problems in particular. 7. Establishing strong relationships with local, regional and international companies and institutions to enhance support for the scientific research process
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Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Cognitive objectives: The student should be aware that: - The student will be familiar with the most important methods used in the cement industry. - The student will be familiar with the factors that affect the different properties of cement. - The student will be familiar with the raw materials for the production of concrete mixtures. - The student will be familiar with the methods of designing concrete mixtures. - The student will be familiar with the methods of measuring the different properties of concrete. - The student will be familiar with the most important laboratory tests for cement paste and concrete mix. Skills objectives of the course: The student should be aware that: - The student will acquire the skill of differentiating between different types of cement. - The student acquires the skill of identifying the problems that the concrete mixture is exposed to during mixing, after pouring, and during hot and cold weather. - The student acquires the skill of applying practical methods in the design and maintenance of concrete mixtures. - The student acquires a skill in conducting all laboratory tests for concrete
Indicative Contents المحتويات الإرشادية	

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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	65	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.3
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	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	5hr	50% (50)	16	All

Total assessment	100% (100 Marks)		
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Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Consistency of concrete workability, factors affecting methods tests
Week 2	workability, factors affecting methods tests
Week 3	Segregation, bleeding and mixing of concrete
Week 4	Compacting of concrete, concrete in hot weather , ready mixed concrete pumped concrete
Week 5	Types of strength
Week 6	Factors affecting strength of concrete
Week 7	Curing of concrete, bond strength between concrete and steel
Week 8	Modulus of elasticity and factors affecting it
Week 9	Shrinkage of concrete
Week 10	Shrinkage of concrete and factors affecting it
Week 11	Creep of concrete and factors affecting it
Week 12	Durability of concrete ,
Week 13	Permeability of concrete, resistance of concrete to sulphate salts and acid attacks
Week 14	physical deterioration, chemical deterioration,silica-aggregates reaction
Week 15	Effect of frost on fresh and hardness, corrosion of reinforcement
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Slump
Week 2	Compacting
Week 3	Concrete mix
Week 4	Flexural
Week 5	Compressive strength
Week 6	Splitting
Week 7	Ultra-sonic

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Concrete Technology (Adam M. Neville, J.J. Brooks)	no
Recommended Texts	Concrete-Microstructure-Properties-and-Materials	no
Websites	https://www.academia.edu/15409768/ Adam M Neville J J Brooks Concrete Techno https://worksaccounts.com/wp-content/uploads/2020/08/Concrete-Microstructure-Properties-and-Materials .	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
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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 Information

معلومات المادة الدراسية

Module Title	Irrigation and Drainage Engineering			Module Delivery		
Module Type	Core			☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar		
Module Code	CVE224					
ECTS Credits	5					
SWL (hr/sem)	125					
Module Level		2	Semester of Delivery			4
Administering Department		CE	College	Eng		
Module Leader	Tariq H. Abees			e-mail	tariq.almansoori@mu.edu.iq	
Module Leader’s Acad. Title		Assistant Professor		Module Leader’s Qualification		Ph.D.
Module Tutor				e-mail		
Peer Reviewer Name		Scientific committee		e-mail		
Scientific Committee Approval Date		/06/2023		Version Number	1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module		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. Understand the concept of soil-water relations and its relevance to civil engineering. 2. Understand soil physical and chemical classification and how they affect the water content. 3. Understand the various certain important relationships (e.g. volume and unit weight relations). 4. Understand water movement in soil and how irrigation affects the subsoil water. 5. Understand infiltration, seepage and deep percolation of water in soil. 6. Explain irrigation engineering and its importance to plants. 7. Understand the different types of irrigation. 8. Understand the design of irrigation channels. 9. Understand types of irrigation channels. 10. Understand drainage engineering 11. Understand drains distribution and the design of open drains
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. An ability to apply knowledge of mathematics, science, and engineering 2. An ability to design a system, component, or process to meet desired needs within realistic constraints. 3. The ability to function on teams. 4. An ability to identify, formulates, and solving engineering problems. 5. An understanding of professional and ethical responsibility. 6. An ability to communicate effectively, an education necessary to understand the impact of engineering solution in a global, economic, environmental, and societal context. 7. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Introduction and Description of soil-water relationship [15 hrs]. Volumetric properties of soil-water, water infiltration into the soil, efficiency and water irrigation [35 hrs]. Duty, Delta, Base Period, Irrigation Requirements and Scheduling [25 hrs]. Types of irrigation and Design of Sprinklers [15 hrs]. Open channel flow, typical cross-section of irrigation channels, design of irrigation channels, methods of design, losses of irrigation channels and canal outlets [25 hrs]. Introduction to drainage engineering, types of drains, spacing of drains, drainage coefficient, design of open drains [35 hrs].
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The strategy of this course was designed in a way such that you learn to take irrigation and drainage engineering into account in your professional work and personal life even when you are not willing to work in the field of irrigation channels and water drains. This course will give the basics of the field and how to obtain additional

information as you require it in your careers and will give you good opportunity to understand the methods of solving problems related to water and soil-water interface, and consider that in your design and analysis of relevant work.

Quizzes will be based on the material covered in class. This material comes from a variety of sources and may go beyond the information covered in the text. Quizzes and final exam will typically consist of both quantitative and qualitative questions. In all quizzes or final exam, students will need to show all work on quantitative problems. Group assignments and reports will be open book and shared between groups. The quizzes will be closed book, notes. Assignments that cannot be read or are not presented in a professional engineering style will not receive credit. Final exam will be comprehensive. Plagiarism is a serious offense and will not be tolerated. Plagiarism will result in a zero for the assignment. Due dates will be given in class. Late papers may be accepted but will be docked 10% per day, including weekends and starting immediately following class. Students with excused absences will be given a reasonable amount of time to catch up on their work with no penalty. No assignments will be accepted after the solution been returned or posted, whichever occurs first.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	65	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.3
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	20% (10)	5, 10	LO #1-7
	Assignments	2	10% (10)	3, 13	LO #1-7
	Projects / Lab.				
	Report				
Summative assessment	Midterm Exam	2 hr	20% (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 – Irrigation engineering
Week 2	Certain soil-water relationships

Week 3	Soil-water volumetric properties
Week 4	Irrigation Efficiencies
Week 5	Requirements of irrigation water
Week 6	Water Duty, Delta, and Base Period
Week 7	Irrigation Scheduling
Week 8	Different methods of irrigation scheduling
Week 9	Types of irrigation
Week 10	Sprinkler Irrigation
Week 11	Open Channel Flow.
Week 12	Design of Open Channels.
Week 13	Canal Lining
Week 14	Introduction to Drainage Engineering.
Week 15	Design of Open Drains.
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	
Week 8	
Week 9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Irrigation and Water Resources Engineering, by G.L. Asawa, 2008.	Yes
Recommended Texts	Irrigation and Drainage Engineering, by P. Waller, M. Yitayew, 2016.	No (Can be found online)
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 Information

معلومات المادة الدراسية

Module Title	Building Constructions			Module Delivery	
Module Type	Core			☒ Theory ☐ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CVE225				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level		UGII	Semester of Delivery		
Administering Department		CVE	College	Eng.	
Module Leader	Talib Kamil Qasim		e-mail	talib.alsheakayree@mu.edu.iq	

Module Leader's Acad. Title	Lecture	Module Leader's Qualification	Ph.D.
Module Tutor	Dhurgham Shamil Rashid	e-mail	durgam_rashid@mu.edu.iq
Peer Reviewer Name	Scientific Committee	e-mail	-
Scientific Committee Approval Date	15/06/2023	Version Number	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	CVE122 : Building Materials	Semester	2
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. This course aims to identify the different types of buildings and construction systems such as the load-bearing walls system, the structural system, frames, trusses, shells, the precast building system, and the sequence of stages and methods of construction in buildings. 2. The student follows the construction process from the moment of construction to its completion. 3. The construction of buildings is followed up from the stage of bases and foundations, then brickwork, stone construction, walls and openings, types of roofs, beams and columns, then designing stairs. 4. The course also deals with various finishing works such as plastering works, tile and marble works, painting works and insulation layers, aluminum and wood works and sanitary works. 5. The practical part includes structural drawing by Auto CAD.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the end of this course the student will be able to: 1. Know the different construction systems in buildings and their components. 2. Build with bricks and stone and determine the types of fastenings 3. Know the sequence and methods of construction in buildings. 4. Know the different types of structural elements such as beams, roofs and columns. 5. Recognize the various finishing works of buildings. 6. Analyze and understand engineering drawings by knowing how to implement them. 7. Understand how to know how to carry out the construction work of the building. 8. Get to know the documents required for the project to control the construction process of the building. 9. Understand and explains the difference between construction methods. 10. Distinguish between the installation of different construction elements by identifying their parts. 11. Distinguish the severity of errors during the construction process. 12. The project is completed within an integrated team. 13. That the student masters the skills of supervision and professional follow-up of work on the site. 14. That the student masters the skills of structural drawing by Auto CAD.

Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - Types of Buildings, earthwork [8 hrs]. - Footing and Foundations [10 hrs]. Piles and Piling [8 hrs]. - Concrete Works [14 hrs]. - Bricks and Blocks work [16 hrs]. - Masonry Works [8 hrs]. - Forms and Scaffoldings [8 hrs]. - Floors and Roofs, Arches [18 hrs]. - Lintels and Sills [10 hrs]. - Damp Proofing [10 hrs]. - Finishing of Walls and Ceilings [10 hrs]. - Doors and Windows [10 hrs]. - Means of Moving Between Levels [10 hrs]. - Fireplaces and Chimneys and Joints in Buildings[10 hrs].
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Written and oral quizzes will depend on the material covered in class. This material comes from a variety of sources and may go beyond the information provided in the text. The quizzes and the final exam usually consist of both quantitative and qualitative questions. In all quizzes or final exam you will need to show all work on quantitative problems. Pay attention to significant figures. Group assignments will be open book, note and neighbor. The quizzes will be closed book, notes and neighbor. Assignments that cannot be read or are not presented in a professional engineering style will not receive credit. Final exam will be comprehensive. Extra work will be given to individual students to improve grades when possible. I will provide you with your overall grade after each exam. All graded work will be used as a baseline for assigning grades. The following rating will be used for grading.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	90	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	60	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	2	20% (10)	5, 10	LO #1-19
	Assignments	4	10% (10)	2, 4, 6, and 10	LO # 1-19
	Projects / Lab.	-	-	-	-
	Report	4	10% (10)	4, 6, 8, and 11	LO # 1-19
	Midterm Exam	2 hr	10% (10)	7	LO # 1-19

Summative assessment	Final Exam	5hr	50% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Types of Buildings
Week 2	earthwork
Week 3	Footing and Foundations
Week 4	Piles and Piling
Week 5	Concrete Works
Week 6	Concrete Works
Week 7	Bricks and Blocks work
Week 8	Masonry Works
Week 9	Forms and Scaffoldings
Week 10	Floors and Roofs, Arches
Week 11	Lintels and Sills
Week 12	Damp Proofing
Week 13	Finishing of Walls and Ceilings
Week 14	Doors and Windows, Means of Moving Between Levels
Week 15	Fire Places and Chimneys and Joints in Buildings
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1,2	Footing and Foundations
Week 3,4	Piles and piling
Week 5,6	Bricks and Blocks work
Week 7,8	Floors and Roofs, Arches
Week 9,10	Lintels and Sills
Week	Damp Proofing
Week	Doors and Windows, Means of Moving Between Levels
Week 15	Fireplaces and Chimneys and Joints in Buildings

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	<u>إنشاء المباني – زهير ساكو وأرتين ليفون</u> <u>تركيب مباني ومواد بناء-يوسف الدواف</u>	Yes

Recommended Texts	Building Construction hand book, Roy Chudley and Roger Greeno, 2004, Fundamentals of building construction: materials and methods, Edward Allen, J. Wiley & Sons, 2004,	No
Websites	https://www.youtube.com/watch?v=t-knL5IBYPo&list=PLaqxcFExrUh0MKTZOCCj6HvRXj79_d3OQ&index=1	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
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	F – Fail	راسب	(0-44)	Considerable amount of work required

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Module Information

معلومات المادة الدراسية

Module Title	English Language II			Module Delivery		
Module Type	Support			☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar		
Module Code	UNI002					
ECTS Credits	2					
SWL (hr/sem)	50					
Module Level			UGII			Semester of Delivery
Administering Department			CVE	College	Eng.	
Module Leader	Salwan Fadhil Abas			e-mail	Salwan.fadil@mu.edu.iq	
Module Leader’s Acad. Title			Assistant Lecturer	Module Leader’s Qualification		M.Sc.
Module Tutor	-			e-mail	-	
Peer Reviewer Name			Scientific Committee	e-mail	-	
Scientific Committee Approval Date			15/06/2023	Version Number		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	English Language-I	Semester	2
Co-requisites module	-	Semester	-

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	Here are some common module aims that should be considered: 1. Language Proficiency Development: The aim is to enhance students' overall language proficiency in English. The module aims to help students build a solid foundation in grammar, vocabulary, and pronunciation. 2. Communication Skills: The aim is to develop students' ability to communicate effectively in various everyday situations and academic contexts. 3. Vocabulary Expansion: The aim is to expand students' vocabulary range. The module focuses on introducing and reinforcing new words, idioms, and expressions commonly used in spoken and written English. 4. Grammar Mastery: The aim is to reinforce and expand students' understanding of English grammar structures. The module aims to provide systematic grammar instruction, practice, and application in authentic contexts. 5. Independent Learning Skills: The aim is to develop students' ability to take responsibility for their own learning and become independent language learners. The module may include strategies and activities to foster self-directed learning, such as setting learning goals, self-assessment, and using online resources.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Demonstrate improved listening skills by understanding main ideas, specific details, and implicit information. 2. Display enhanced reading skills by comprehending and analyzing a range of texts, such as articles, reports, short stories, and excerpts from academic texts. Identify main ideas, supporting details, and implied meanings while building vocabulary and reading fluency. 3. Expand vocabulary knowledge by acquiring new words, expressions, and idiomatic phrases related to various topics. Apply vocabulary in context and demonstrate an understanding of word meanings, synonyms, antonyms, and collocations. 4. Grammar Competence: Develop grammatical accuracy and fluency by understanding and using a range of grammatical structures and tenses appropriately. Apply grammar rules in speaking and writing to convey meaning accurately. 5. Take responsibility for self-directed learning, utilizing various resources, such as dictionaries, online tools, and language-learning platforms. Reflect on learning progress, set goals, and employ effective study strategies to continue language development beyond the classroom. 6. Develop language skills required for academic and professional contexts.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Vocabulary Building: - Everyday vocabulary and expressions - Vocabulary related to various topics such as family, hobbies, work, travel, etc. - Vocabulary expansion through word families, synonyms, antonyms, and collocations 2. Grammar:

	- Review and reinforcement of basic grammar structures (present tenses, past tenses, future tenses, etc.) - Grammar practice through contextualized examples and exercises 3. Reading Skills: - Reading and understanding short texts, articles, and stories - Developing reading comprehension skills through exercises and questions - Building reading speed and comprehension through practice 4. Writing Skills: - Developing writing skills through guided writing activities - Writing short paragraphs and essays on various topics - Practicing sentence structure, paragraph organization, and coherence 5. Listening and Speaking Integration: - Engaging in listening activities followed by discussion and oral responses - Participating in group discussions and presentations - Practicing listening and speaking skills in real-life situations
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	1. Communicative Approach: Emphasize active communication in the target language by encouraging students to use English in real-life situations and provide ample opportunities for them to practice speaking and listening skills. 2. Task-Based Learning: Design tasks and activities that require students to use English to complete meaningful and purposeful tasks. 3. Differentiated Instruction: Cater to the diverse learning needs and preferences of students by employing varied instructional strategies. Provide a range of activities, materials, and assessments to accommodate different learning styles, abilities, and interests. 4. Use of Technology: Integrate technology tools and resources to enhance language learning. 5. Formative Assessment: Implement regular formative assessments such as quizzes, presentations, group projects, and class discussions to monitor student progress and provide timely feedback. Encourage self-assessment and reflection to promote learner autonomy.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	30	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	20	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.3
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
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Formative assessment	Quizzes	2	30% (20)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Tenses • Questions • Using a bilingual dictionary • Social expressions 1
Week 2	Present tenses • have/have got • Collocation - daily life • Making conversation
Week 3	Past tenses • Word formation • Time expressions
Week 4	much/many • some/any • a few, a little, a lot of • Articles • Shopping • Prices
Week 5	Verb patterns 1 , Future forms , Hot verbs , How do you feel?
Week 6	What ... like? • Comparatives and superlatives • Synonyms and antonyms • Directions
Week 7	Mid-term Exam
Week 8	Present Perfect • for, since • Adverbs, word pairs • Short answers
Week 9	have (got) to • should/must. Words that go together • At the doctor's
Week 10	Time clauses • if • Hot verbs • In a hotel
Week 11	Verb patterns 2 , manage to, used to -ed/-ing adjectives • Exclamations
Week 12	Passives , Verbs and nouns that go together , Notices
Week 13	Second conditional • might • Phrasal verbs • Social expressions 2
Week 14	Present Perfect Continuous • Word formation • Adverbs • Telephoning
Week 15	Past Perfect • Reported statements • Saying goodbye
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	New Headway Pre-Intermediate Student's Book, John and Liz Soars, Plus edition	Yes
Recommended Texts	A Self-study Grammar Book for Engineers, Sonia Oliver and Monica Soler	No
Websites	https://elt.oup.com/student/headway/preint4/?cc=us&selLanguage=en	

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 Information

معلومات المادة الدراسية

Module Title	Baath Crimes			Module Delivery		
Module Type	Support			☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar		
Module Code	UNI0010					
ECTS Credits	2					
SWL (hr/sem)	50					
Module Level			UGII			Semester of Delivery
Administering Department			CVE	College	Eng.	
Module Leader	Muhannad Naeem			e-mail		
Module Leader’s Acad. Title			Assistant Lecturer	Module Leader’s Qualification		M.Sc.
Module Tutor	-			e-mail	-	
Peer Reviewer Name			Scientific Committee	e-mail	-	
Scientific Committee Approval Date				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	تعريف طلبة المرحلة الثانية بالجرائم الشنيعة التي اقترفها نظام البعث في العراق التي لا تكاد تُحصى وذلك بالتوثيق والتحليل والدراسة لما أتت على حقيقة ما جرى في بلدنا الجريح من مأس وويلات ونكبات قام بها نظام البعث الجائر؛ لأنها اتسعت لتشمل كل مفاصل الحياة.
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Module Learning Outcomes	- التعرف على مفهوم الجرائم وأقسامها, تعريف الجريمة لغة واصطلاحاً, أقسام الجرائم - التعرف على جرائم نظام البعث وفق قانون المحكمة الجنائية العراقية العليا عام ٢٠٠٥م - التعرف على جرائم نظام البعث وفق توثيق قانون المحكمة الجنائية العراقية العليا عام ٢٠٠٥م, أنواع الجرائم الدولية, القرارات الصادرة من المحكمة الجنائية العليا - الجرائم النفسية, آليات الجرائم النفسية, آثار الجرائم النفسية - الجرائم الاجتماعية, عسكرة المجتمع,
مخرجات التعلم للمادة الدراسية	
Indicative Contents	
المحتويات الإرشادية	

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	
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Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	30	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	20	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	1.3
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	30% (20)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	جرائم نظام البعث وفق قانون المحكمة الجنائية العراقية العليا عام ٢٠٠٥م
Week 2	مفهوم الجرائم وأقسامها, تعريف الجريمة لغة واصطلاحاً, أقسام الجرائم
Week 3	جرائم نظام البعث وفق توثيق قانون المحكمة الجنائية العراقية العليا عام ٢٠٠٥م, أنواع الجرائم الدولية, القرارات الصادرة من المحكمة الجنائية العليا
Week 4	الجرائم النفسية, آليات الجرائم النفسية, آثار الجرائم النفسية
Week 5	,الجرائم الاجتماعية, عسكرة المجتمع
Week 6	موقف النظام البعثي من الدين
Week 7	انتهاكات القوانين العراقية, صور انتهاكات حقوق الإنسان وجرائم السلطة
Week 8	بعض قرارات الانتهاكات السياسية والعسكرية لنظام البعث, أماكن السجون والاحتجاز لنظام البعث
Week 9	الجرائم البيئية لنظام البعث في العراق: التلوث الحربي والإشعاعي وانفجار الألغام
Week 10	تدمير المدن والقرى (سياسة الأرض المحروقة)

Week 11	تجفيف الأهوار, تجريف بساتين النخيل والأشجار والمزروعات
Week 12	جرائم المقابر الجماعية
Week 13	أحداث مقابر الإبادة الجماعية المرتكبة من النظام البعثي في العراق
Week 14	التصنيف الزمني لمقابر الإبادة الجماعية في العراق للمدة ١٩٦٣م – ٢٠٠٣م
Week 15	جرائم نظام البعث وفق قانون المحكمة الجنائية العراقية العليا عام ٢٠٠٥م
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	المقرر الدراسي : جرائم نظام البعث في العراق	Yes
Recommended Texts		
Websites		

Grading Scheme

مخطط الدرجات

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

Semester 5

Module Information

معلومات المادة الدراسية

Module Title	Traffic Engineering I			Module Delivery		
Module Type	Core			☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar		
Module Code	CVE311					
ECTS Credits	4					
SWL (hr/sem)	100					
Module Level			UGIII			Semester of Delivery
Administering Department			CVE	College	Eng.	
Module Leader	Noorance Al-Mukaram			e-mail	noorance@mu.edu.iq	
Module Leader's Acad. Title			Professor	Module Leader's Qualification		Ph.D.
Module Tutor	-			e-mail	-	
Peer Reviewer Name			-	e-mail	-	
Scientific Committee Approval Date			26/06/2023	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	This module has to be delivered to undergraduate students in the fifth semester. The theoretical and experimental materials are focus and comprehensive in the field of traffic engineering I. The aims of this module are as listed below: 12.Explain the concept of urban planning and its relevance to civil engineering. 13.Understand the various equivalents units used in traffic engineering (e.g. pcu, vph, mph, kph ...etc). 14.Explain road characteristics and discuss regulations. 15.Understand the rules of road markings. 16.Explain road users' characteristics and discuss regulations of pedestrian safety. 17.Explain the principles of vehicle motion including the effect of forces and collision.
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	18. Understand the typical traffic flow components on roads and calculation of the terms of ADT, AADT, VMT, DDHV, DDF. 19. Explain speed studies and methods of data collection and analysis. 20. Understand traffic calming measures and describe considered strategies. 21. Understand the types of sight distance and design requirements. 22. Explain the principles of road geometry including horizontal and vertical alignments design requirements. 23. Solve problems involving traffic flow measures, speed studies, road geometry, and conducting lab experiments related (e.g. vehicle classification, speed measure, flow measure, ... etc).
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Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Engage engineering professionals and applying their technical experiences in the planning, analysis, collection of traffic engineering components. 2. Using their skills to analyze traffic systems, identify project's execution, road survey, speed studies and traffic analyses. 3. Develop their oral, written, visual and graphic modes, communication, abilities when working as team members or leaders. 4. Initiate a program of continuous learning which may include studies leading to a proficient licensure in civil engineering that provides continued development of their technical abilities. 5. Improve their understanding of road geometry, traffic rules and ethics that allow students to be professional influential to society when solving engineering problems and creating solutions in the field of civil engineering particularly in traffic engineering and planning.
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Indicative Contents المحتويات الإرشادية	Indicative content includes the following: ▪ Introduction to Traffic Engineering, Define the various units used, Description of road characteristics, Road markings rules [20 hrs]. ▪ Drivers and Pedestrians' characteristics including pedestrian facilities, Vehicle characteristics, Types of forces affecting vehicle motion, Braking and collision forces, Stability, Sliding and Turning movements [20 hrs]. ▪ Traffic flow characteristics, Speed studies, Analysis of speeds, Traffic calming [30 hrs]. ▪ Road geometry: Sight distances, Horizontal alignments [15 hrs]. ▪ Road geometry: Crest and Sag Vertical alignments [15 hrs].
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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 in the field of traffic engineering, 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

Structured SWL (h/sem)	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.0
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الحمل الدراسي المنتظم للطلاب خلال الفصل			
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	40	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	2.67
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	6, 12	LO #1-10
	Assignments	2	10% (10)	5, 10	LO # 1-10
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	11	LO #1-10
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, Define the various units used, Description of road classification
Week 2	Road characteristics including shoulders, lane width, medians,... etc.
Week 3	Road markings: rules and regulations
Week 4	Driver and pedestrian characteristics, pedestrian safety and facilities
Week 5	Vehicle classification, vehicle static, kinematic and dynamic characteristics, solved examples
Week 6	Forces affecting vehicle motion, turning, sliding, braking and collision, solved examples
Week 7	Traffic flow characteristics, traffic components, traffic fluctuation, determination of hourly volume and peak hour factor PHF, solved examples
Week 8	Traffic flow characteristics: determination of TPF, ADT, AADT, DDHV, DDF, solved examples
Week 9	Speed types, Methods of speed collection, solved examples
Week 10	Spot speed studies and analysis, solved examples
Week 11	Density and space on roads, traffic calming strategies, solved examples
Week 12	Road geometry : Stopping sight distance, Passing sight distance, Intersection sight distance, solved examples
Week 13	Road geometry : Horizontal alignments, Length of circular roads, solved examples
Week 14	Road geometry : Vertical alignments, Crest vertical curves, solved examples
Week 15	Road geometry : Vertical alignments, Sag vertical curves, solved examples
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction into Traffic Lab, safety rules and regulations
Week 2	Exp.1: Pedestrian requirements: Data collection method, calculation and analysis
Week 3	Exp.1: Pedestrian requirements: Report discussion and submission
Week 4	Exp.2: Vehicle counting and classification: Data collection method, calculation and analysis
Week 5	Exp.2: Vehicle counting and classification: Report discussion and submission
Week 6	Exp.3: Determination of hourly flow and PHF: Data collection method, calculation and analysis
Week 7	Exp.3: Determination of hourly flow and PHF: Report discussion and submission
Week 8	Exp.4: Spot speed measurement: Data collection method, calculation and analysis
Week 9	Exp.4: Spot speed measurement: Report discussion and submission
Week 10	Exp.5: Determination of design speed and speed limit: Data collection method, calculation and analysis
Week 11	Exp.5: Determination of design speed and speed limit: Report discussion and submission
Week 12	Exp.6: Determination of SMS and TMS: Data collection method, calculation and analysis
Week 13	Exp.6: Determination of SMS and TMS: Report discussion and submission
Week 14	Exp.7: Determination of density and space on roads: Data collection method, calculation and analysis
Week 15	Exp.7: Determination of density and space on roads: Report discussion and submission

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Traffic and Highway Engineering Nicholas J. Garber and Lester A. Hoel Edition: 5 , Year: 2014	Yes
Recommended Texts	Highway Capacity Manual by: Transportation Research Board, 2010.	No
Websites	https://pdfkeys.com/download/3486798-Traffic_Highway_Engineering_Garber_4th_Si_Edition.pdf	

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	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 – 49)	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 Information					
معلومات المادة الدراسية					
Module Title	Theory of structures I		Module Delivery		
Module Type	Core		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar		
Module Code	CE312				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level	UGIII	Semester of Delivery			3
Administering Department		CVE	College	Eng.	
Module Leader	Ali Al-Rifaie		e-mail	Ali.alrifaie@mu.edu.iq	
Module Leader’s Acad. Title		Asst. Professor	Module Leader’s Qualification		Ph.D.
Module Tutor	-----		e-mail	----	
Peer Reviewer Name		Scientific Committee	e-mail	----	
Scientific Committee Approval Date		15/06/2023	Version Number		1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	CE221	Strength 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. Understand basic structural engineering concepts. 2. Understand the stability of structures and the concept of determinacy and degree of freedom. 3. Understanding loading transfer to different structures using exact and approximate solutions. 4. Idealization of structures and loads in relation with real structures. 5. Determine the internal forces for different structures such as beams, frames and trusses.

	- Formulate the related equations and draw the shear force and bending moment diagrams for frames and arches. - Use Virtual work method to determine the deflections of beams, frames and trusses resulted from loads. - Understand and apply influence lines for solving civil engineering problems. - Improve the communication skills, including reading, writing, oral presentation.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course student should demonstrate the following outcomes relevant to reinforced concrete I: - Students apply algebra, elementary calculus, and principles of mechanics. - Students are able to identify and formulate an engineering problem and to develop a solution. - Students recognize the importance of analysis in designing structural components. - Students are encouraged to submit accurate analysis in an efficient and professional way. - Students recognize their role with an engineering team carrying other aspects for analyzing structures, in terms of choosing the structural systems and the interaction of decisions made by various architectural and engineering teams. - Students are encouraged to recognize the different structural systems and their range of applications. - Students recognize the ethical and professional responsibility in achieving accurate structural analysis for safe and economical design, and its impact on the well-being of the society. - Students recognize the need for technical updating on a continuing basis, since the course emphasizes on the changing nature of software, codes and specifications. - Students recognize the importance of reading and understanding technical contents in English in order to achieve life-long learning and be able to carry out their responsibilities. - Students recognize the important role of computers in facilitating analysis and design of structural members and systems. - Students are encouraged to improve their writing, communication and presentation skills.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - Loads on structures - Stability and determinacy of structures - Analysis of statically determinate trusses - Complex truss analysis - Shear force and bending moment diagrams of frames - Analysis of arches - Deflection of structures - Influence lines
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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	40	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

As		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	
	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 الأسبوعي النظري

Week	Material Covered
Week 1	Loads on structures
Week 2	Stability and determinacy of beams
Week 3	Stability and determinacy of frames
Week 4	Stability and determinacy of trusses
Week 5	Analysis of statically determinate trusses- joint method
Week 6	Analysis of statically determinate trusses- section method
Week 7	Analysis of complex trusses
Week 8	Shear force and bending moment diagrams of frames
Week 9	Analysis of arches
Week 10	Deflection of beams
Week 11	Deflection of frames
Week 12	Deflection of trusses
Week 13	Influence lines of beams
Week 14	Influence lines of frames
Week 15	Influence lines of trusses

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Structural Analysis by R C by Hibbeler 8th edition	Yes
Recommended Texts	Structural Analysis 5th Edition by <u>Aslam Kassimali</u>	Yes
Websites	https://www.youtube.com/@alial-rifaie9219	

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 Information

معلومات المادة الدراسية

Module Title	Soil Mechanic I			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☒ Practical ☐ Seminar	
Module Code	CVE313				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGIII	Semester of Delivery		
Administering Department		CVE	College	Eng.	
Module Leader	Basim .J. Abbas		e-mail	Basim.jabar@mu.edu.iq	
Module Leader’s Acad. Title		Professor	Module Leader’s Qualification		Ph.D.
Module Tutor	Mohammed .F. Abbas		e-mail	Basim.jabar@mu.edu.iq	
Peer Reviewer Name		Scientific committee	e-mail	E-mail	
Scientific Committee Approval Date		/06/2023	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	24. Understand the concept of Soil mechanic and its relevance to civil engineering. 25. Explain Soil and Soil Description for all type of soil. 26. Understand the various certain important relationships (e.g. volume and unite weight relations). 27. Understand soil-particle size and plasticity and structure of Soil and all related tests in laboratory which have to be considered to determine the values and limits. 28. Understand different type of classification systems of soil and describe the general factors involved in choosing the type of classification. 29. Explain soil compaction, field compaction and most used equipment in compacting the soil in the field. 30. Understand the theory of stress distribution and type of stress affected on soils as point load or area load. 31. Understand principal stresses and effective stresses into the soil profile and the effect of water table on the values of the effective stress. 32. Understand Permeability of soil and the type of permeability and the depended laboratory test.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	8. An ability to apply knowledge of mathematics, science, and engineering 9. An ability to design a system, component, or process to meet desired needs within realistic constraints. 10. The ability to function on teams. 11. An ability to identify, formulates, and solving engineering problems. 12. An understanding of professional and ethical responsibility. 13. an ability to communicate effectively, an education necessary to understand the impact of engineering solution in a global, economic, environmental, and societal context. 14. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - Introduction, Composition of Soil and Description of soil [15 hrs]. - Particle size distribution, Plasticity and Structure of Soil, Classification of soil according to different system as unified, AASHTTO, Textural Classification [35 hrs]. - Compaction of soil including type of compaction, field compaction and labrotary compaction [25 hrs]. - Stress Distribution and in situ stress [10 hrs]. - Stresses in a Soil Mass including Point load, Line load, Uniformly distributed vertical strip load, Linearly increasing vertical loading on a strip, embankment type of loading, Uniformly loaded circular area and Uniformly loaded rectangular area [25 hrs]. - Permeability and type of hydraulic conductivity test [15 hrs].

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The strategy of this course was designed in a way such that you learn to take soil mechanic problems into account in your professional work and personal life even when
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you are not willing to become geotechnical engineer. This course will give the basics of the field and how to obtain additional information as you require it in your careers and will give you good opportunity to understand the methods of solving geotechnical problems and consider that in your structural work. Quizzes will be based on the material covered in class. This material comes from a variety of sources and may go beyond the information covered in the text. Quizzes and final exam will typically consist of both quantitative and qualitative questions. In all quizzes or final exam a student will need to show all work on quantitative problems. Group assignments and reports will be open book, note and neighbor. The quizzes will be closed book, notes and neighbor. Assignments that cannot be read or are not presented in a professional engineering style will not receive credit. Final exam will be comprehensive. Plagiarism is a serious offense and will not be tolerated. Plagiarism will result in a zero for the assignment. Due dates will be given in class. Late papers may be accepted but will be docked 10% per day, including weekends and starting immediately following class. Students with excused absences will be given a reasonable amount of time to catch up on their work with no penalty. No assignments will be accepted after the solution been returned or posted, whichever occurs first.

Student Workload (SWL)

الحمل الدراسي للطالب

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	50	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (10)	5, 10	LO #1-7
	Assignments	2	10% (10)	3, 13	LO #1-7
	Projects / Lab.				
	Report	1	10% (10)	11	LO #1-7
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

Week	Material Covered
Week 1	Introduction - Soil and Soil Description.
Week 2	Certain important relationships.
Week 3	Soil-Particle Size.

Week 4	Plasticity and Structure of Soil
Week 5	Classification of Soil.
Week 6	Classification system of Soil.
Week 7	Soil Compaction.
Week 8	Field Compaction and relative density.
Week 9	Stress Distribution
Week 10	Total stresses, pore pressure and effective Stresses
Week 11	Soil mass stress, Point load, Line load, Uniformly distributed vertical strip load.
Week 12	Linearly increasing vertical loading on a strip, embankment type of loading, Uniformly loaded circular area and Uniformly loaded rectangular area.
Week 13	Permeability
Week 14	Test of permeability, Constant head permeability.
Week 15	Falling head permeability and theoretical form to calculate permeability.
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	Atterberg limits.
Week 2	Atterberg limits and casagrandee.
Week 3	Atterberg limits and plastic limit.
Week 4	Sieve analysis
Week 5	Sieve analysis calculation
Week 6	Sieve analysis reports.
Week 7	Compaction of soil.
Week 8	Modified compaction of soil.
Week 9	Field compaction of soil.
Week 10	Field compaction of soil report.
Week 11	Relative density.
Week 12	Relative density calculation.
Week 13	Permeability.
Week 14	Permeability calculation.
Week 15	Review

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Principles of Geotechnical Engineering by Das, B.M. and Sobhan K., 2014	Yes
Recommended Texts	Fundamentals of Geotechnical Engineering by C.venkaramaih, 2006.	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 Information				
معلومات المادة الدراسية				
Module Title	Reinforced Concrete I		Module Delivery	
Module Type	Core		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CVE314			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGIII	Semester of Delivery		
Administering Department	CVE	College	Eng.	
Module Leader	Othman Hameed		e-mail	Othman.h.zinkaah@mu.edu.iq
Module Leader’s Acad. Title	Asst. Professor		Module Leader’s Qualification	Ph.D.
Module Tutor	-----		e-mail	----
Peer Reviewer Name	Scientific Committee		e-mail	----
Scientific Committee Approval Date	15/06/2023		Version Number	1.0
Relation with other Modules				
العلاقة مع المواد الدراسية الأخرى				
Prerequisite module	CVE221	Strength 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. An ability to identify, formulate and solve complex engineering problems by applying principles of Engineering. 2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of safety and welfare, as well as environmental and economic factors. 3. An ability to develop and conduct appropriate experimentation, analyze and interpret data and use engineering judgment to draw conclusions. 4. Explain concrete and steel characteristics and discuss how they work together. 5. Understand different methods in design/analysis concrete structures and discuss their characteristics. 6. Understand the concept of sustainability and its relevance to civil engineering. 7. Generalise the guiding principles of the serviceability limit state and the ultimate limit state concepts and how they relate to the design of structures. 8. Summarise the fundamental mechanics of reinforced concrete and the empirical assumptions made for analysis. 9. Identify reinforced concrete failure modes from crack patterns.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course student should demonstrate the following outcomes relevant to reinforced concrete I: 1. An ability to apply knowledge of mathematics, science, and engineering, related to reinforced concrete, using their skills to analyze and design systems, identify project's execution means and materials, and participate in directing technical activities for civil engineering projects or projects related to other fields of engineering. 2. An ability to function on teams, 3. An ability to identify, formulate, and solve structural engineering problems, 4. An understanding of professional and ethical responsibility in this field, 5. An ability to communicate effectively, and an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ▪ Properties of Concrete and Reinforcing Steel [8 hrs] ▪ Behavior of Reinforced Concrete Beams Under Loading [8 hrs] ▪ Working Stress Design Method [8 hrs] ▪ Working Stress Design Method [8 hrs] ▪ Flexural Analysis of singly Reinforced concrete Beams [8 hrs] ▪ Flexural Design of singly Reinforced concrete Beams [8 hrs] ▪ Flexural Analysis of Doubly Reinforced concrete Beams [8 hrs] ▪ Flexural Analysis of Doubly Reinforced concrete Beams [8 hrs] ▪ Flexural Design of Doubly Reinforced concrete Beams [8 hrs] ▪ Approximate Analysis of Continuous Beams [8 hrs] ▪ Flexural Analysis of T and L sections [8 hrs] ▪ Flexural Analysis of T and L sections [8 hrs] ▪ Flexural Design of T and L sections [8 hrs] ▪ Serviceability (Crack-Width) [9 hrs] ▪ Serviceability (Deflection) [9 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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	65	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

As		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	
	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

Week	Material Covered
Week 1	Properties of Concrete and Reinforcing Steel
Week 2	Behavior of Reinforced Concrete Beams Under Loading
Week 3	Working Stress Design Method
Week 4	Working Stress Design Method
Week 5	Flexural Analysis of singly Reinforced concrete Beams
Week 6	Flexural Design of singly Reinforced concrete Beams
Week 7	Flexural Analysis of Doubly Reinforced concrete Beams
Week 8	Flexural Analysis of Doubly Reinforced concrete Beams
Week 9	Flexural Design of Doubly Reinforced concrete Beams
Week 10	Approximate Analysis of Continuous Beams

Week 11	Flexural Analysis of T and L sections
Week 12	Flexural Analysis of T and L sections
Week 13	Flexural Design of T and L sections
Week 14	Serviceability (Crack-Width)
Week 15	Serviceability (Deflection)

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1- Design of Reinforced Concrete 10th Edition, By: Jack C. McCormac and Russell H. Brown, ISBN: 1118879108. 2- Building code requirement for structural concrete (ACI-318M-2014) and commentary.	Yes
Recommended Texts	1- Design of reinforced concrete: Jack C. McCormac, James K. Nelson. (2006) 2- Building code requirement for structural concrete (ACI-318M-2019) and commentary. 3- Design of Concrete Structures 14th Edition by Arthur Nilson, David Darwin, Charles Dolan (2014). 4- Design of concrete; a fundamental approach, 5 th edition, E.G. Nawy, 2005 5- Design of reinforced concrete, 9 th edition, Jack C. McCormac and Russell H. Brown, 2014. 6- Reinforced concrete, Mechanics and design; 7 th edition, James K. wight, 2016.	Yes
Websites	https://www.youtube.com/watch?v=s41KdWuISkE	

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 Information					
معلومات المادة الدراسية					
Module Title	Engineering economy and Management			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CVE315				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level	UGIII	Semester of Delivery			
Administering Department	CVE	College	Eng.		
Module Leader	Dr. Yousif Mousa		e-mail	yousif.mousa@mu.edu.iq	
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification		Ph.D.	
Module Tutor			e-mail		
Peer Reviewer Name	Scientific Committee	e-mail			
Scientific Committee Approval Date	15/06/2023	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	- Understand the definition of engineering economic and how it affects the construction projects. - Understand that money is a value changeable goods with time. - Understand the simple and compound interest - Discuss the theory of economic such as supply and demand and earning power of money - Understand the financial operations such as equal series and future accounts. - Define the depreciation and types of depreciation and how the depreciation affects the project cost. - Define of engineering management and the difference between project management and construction management - Understand the project stages and the area knowledge of project management. - Understand the types of contracts and features of each type of contract. - Understand the different types of cost and time estimation of projects. - Understand what the scheduling is and how to prepare the bar chart of the project.				

	12. Understand, learn, and analyze the technique of the network diagram of time schedules. 13. Understand the cash flow analysis and how to calculate the overdraft of the project.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. an ability to apply knowledge of mathematics, science, and engineering. 2. an ability to design a system, component, or process to meet desired needs within realistic constraints, 3. the ability to function on teams, 4. an ability to identify, formulate, and solve engineering problems, 5. an understanding of professional and ethical responsibility, 6. an ability to communicate effectively, 7. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - introducing the principles of fundamental information of engineering economy including the financial operation and the relationship between time and money [40 hrs]. It also covered the depreciation theory and the alternatives [35 hrs]. - The fundamental information of engineering management and construction management including the different types of contracts and the time-cost-quality relationship [20 hrs]. - different methods of time estimation and cost estimation [20 hrs]. - Preparing students to deal with financial issues during the construction stages and providing them with knowledge about construction management [15 hrs]. - Bar chart, Activity on Arrow (AOA), Activity on Node (AON), and PERT [20 hrs]
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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 lectures and by considering a series of different exercises that are interesting to the students.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	90	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	15% (15)	6, 12	LO #1-5, LO# 5-12
	Assignments	2	10% (10)	7, 13	LO # 1-6, LO # 7-13
	Projects / Lab.	1	10% (10)	Continuous	

	Report	1	5% (5)	Continuous	
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

Week	Material Covered
Week 1	Introduction and Definition of the engineering economic
Week 2	Elements of Costs
Week 3	Law of Supply and Demand
Week 4	Interest formulas
Week 5	Break-even analysis
Week 6	Methods of Depreciation
Week 7	Evaluation of public alternatives
Week 8	Bases for comparison of alternatives
Week 9	Introduction to project management
Week 10	Types of contracts
Week 11	Stages of construction management
Week 12	Planning and scheduling (Bar chart)
Week 13	Network Analysis Method (Activity On Arrow (AOA))
Week 14	Activity On Node (AON)
Week 15	PERT (Project Evaluation and Review Technique)
Week 16	Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	<u>Construction Planning, Equipment, and Methods (Arabic Version) by R. L. Peurifoy and Translated by Dr. Mohammed S. S. Elizzi, ISBN 1406 Year 1985</u>	soft copy
Recommended Texts	Contemporary Engineering Economics by Chan S. Park, 2-Fundamental Engineering Economics by Pravin Kumar	soft copy
Websites	---	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
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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 Information

معلومات المادة الدراسية

Module Title	Engineering Analysis and Numerical Methods			Module Delivery		
Module Type	Basic learning activities			☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar		
Module Code	CEV316					
ECTS Credits	6					
SWL (hr/sem)	150					
Module Level			UGIII			Semester of Delivery
Administering Department			CVE	College	Eng.	
Module Leader	Ali Majd Lafta			e-mail	ali.majd@mu.edu.iq	
Module Leader’s Acad. Title			Lecture	Module Leader’s Qualification		MSC
Module Tutor	-			e-mail	-	
Peer Reviewer Name			-	e-mail	-	
Scientific Committee Approval Date			01/06/2023	Version Number		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	E214 (Mathematics II)	Semester	3
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. Find the solutions of first order differential equations with different ways. 2. Solve the system of linear equation with different ways. 3. Analyze the results using curve fitting 4. Finding error percentages and rounding of the results experimental 5. Finding the roots of differential equations		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course student should demonstrate the following outcomes relevant to environmental engineering: 1. an ability to apply knowledge of mathematics, science, and engineering, related to civil engineering, 2. an ability to design engineering system, component, or process to meet desired needs within realistic constraints, 3. an ability to function on teams, 4. an ability to identify, formulate, and solve civil engineering problems, 5. an understanding of professional and ethical responsibility in this field, 6. an ability to communicate effectively, and 7. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.		
Indicative Contents المحتويات الإرشادية	indicative content includes the following. ▪ Introduction to concept of deferential equations and its relevance to civil engineering, [8 hrs.]. ▪ solve the first order deferential equation with different methods, and their application [42 hrs.]. ▪ introduction to matrices and using to solve systems of linear equations [25 hrs.]. ▪ using the iterative methods to solve systems of linear equations [17 hrs.]. ▪ To make the student understand how to calculate the error percentage of the obtained results [8 hrs.]. ▪ using Fitted curves to be as an aid for data visualization, to infer values of a function where no data are available, and to summarize the relationships among two or more variables.[9 hrs.] ▪ Find solutions to the equation by knowing its roots [16 hrs.]		
Learning and Teaching Strategies استراتيجيات التعلم والتعليم			
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students’ participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.		
Student Workload (SWL) الحمل الدراسي للطالب			
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	75	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction
Week 2	Ordinary Differential Equations of the First Order
Week 3	Ordinary Differential Equations of the First Order
Week 4	Ordinary Differential Equations of the First Order
Week 5	Ordinary Linear Differential Equations
Week 6	Application of first order Ordinary Differential Equations
Week 7	Mid-term Exam
Week 8	Introduction to matrices
Week 9	Solve the System of Linear equations
Week 10	Solve the System of Linear equations
Week 11	Solve the System of Linear equations
Week 12	Approximations and Errors
Week 13	Curve Fitting
Week 14	Solution of Nonlinear Equations (Roots of Equations
Week 15	Solution of Nonlinear Equations (Roots of Equations
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	Lab 1: Introduction to MATLAB program
Week 2,3,4	Scalar, vector and matrices
Week 5,6,7,8,9,10	Solving systems of linear equations

Week 11,12,13,14,15	Curve fitting
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Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Kreyszig, E., “ Advanced Engineering Mathematics” , 8 th Ed. , John Wiley and Sons, (1999)	no
Recommended Texts	Chapra, S. C. and Canale, R. P. “ Numerical methods for Engineers”, 6th Ed., McGraw Hill, (2010	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.

Semester 6

Module Information

معلومات المادة الدراسية

Module Title	Traffic Engineering II			Module Delivery		
Module Type	Core			☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar		
Module Code	CVE321					
ECTS Credits	4					
SWL (hr/sem)	100					
Module Level			UGIII			Semester of Delivery
Administering Department			CVE	College	Eng.	
Module Leader	Noorance Al-Mukaram			e-mail	noorance@mu.edu.iq	
Module Leader’s Acad. Title			Professor	Module Leader’s Qualification		Ph.D.
Module Tutor	-			e-mail	-	
Peer Reviewer Name			-	e-mail	-	
Scientific Committee Approval Date			26/06/2023	Version Number		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	CVE311 Traffic Engineering 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	This module has to be delivered to undergraduate students in the sixth semester. The theoretical and experimental materials are focus and comprehensive in the field of traffic engineering II. The aims of this module are as listed below: 1. Understand typical concept flow diagrams for free flow – speed – density relationships to assign the level of service LOS on roads. 2. Understand different methods of calculating traffic measures and describe the general factors involved in choosing the level of service LOS. 3. Explain vehicle arrival patterns and headway distributions. 4. Understand typical types of intersections, priority and safety rules at unsignalized intersections. 5. Understand analysis and design requirements of signalized intersections.
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	- Determine the total cycle length at signalized intersections. - Understand analysis and design requirements of roundabouts. - Understand different methods in design of parking systems (on-street & off-street) and describe the general factors involved in choosing the type of parking. - Understand the major causes of traffic accidents, and determination of accident rates such as death rate, accident rate...etc. - Describe the major options used in accident prevention and road systems management. - Introduce and understand public transport involving bus transit, trams, metro...etc. - Describe the major components of airports and railway engineering.
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Module Learning Outcomes مخرجات التعلم للمادة الدراسية	- Develop into competent, involve engineering professionals and apply their managerial qualifications in the designing, constructing, operating and/or maintaining of traffic engineering components. - Develop their skills to analyze and design road networks, and participate in directing technical activities for projects related to other fields of traffic engineering and planning. - Be able to actively participate in their communities and their profession by developing their critical thinking and skills. - Initiate a program of continuous learning which may include studies leading to a higher degree in engineering that provides continued progress of their technical abilities and management skills, and attainment of professional expertise. - Improve their understanding of traffic planning, design requirements, junction performance and road safety that allows students to be professional traffic engineers and make decisions in the field of transport engineering.
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Indicative Contents المحتويات الإرشادية	Indicative content includes the following: - Introduction, Definition of flow – speed – density relationships, Determination of level of service of freeways and multilane highways [15 hrs]. - Understanding vehicle arrival patterns and headway distributions [15 hrs]. - Types of intersections, Unsignalized intersections, Signalized intersections, Roundabouts [30 hrs]. - Accident data analysis and Road safety techniques, introduction into parking studies and conducting parking survey [20 hrs]. - Introduction into public transport, airport engineering and railway engineering [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.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.0
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	40	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.6
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	10% (10)	6, 12	LO #1-10
	Assignments	2	10% (10)	5, 10	LO # 1-10
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	11	LO #1-10
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, Definition of flow – speed – density relationships, solved examples
Week 2	Understanding vehicle arrival patterns, and Determination of highway capacity, solved examples
Week 3	Determination of level of service of freeways and multilane highways, solved examples
Week 4	Definition of vehicle headway, introduction into headway distributions
Week 5	Solved examples of headway Binomial and NE distributions
Week 6	Introduction into Intersection types, controls and priority rules at unsignalized intersections
Week 7	Signalized intersections, design requirements and control, determination of traffic signal timings, solved problems
Week 8	Roundabouts design requirements and control, solved examples
Week 9	Solved examples of Signalized intersections and roundabouts
Week 10	Parking areas, types, marking, design, conduction a parking survey, solved problems
Week 11	Traffic accidents rates, Road safety measures, solved problems
Week 12	Introduction into traffic managements, Intelligent transport systems
Week 13	Introduction into Public transport (e.g. Transit bus, trams, trains, ferry,...etc.)
Week 14	Introduction into Railway engineering and components
Week 15	Introduction into Airport engineering and components
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction into traffic safety rules and regulations.
Week 2	Exp.1: Speed – flow – density relationships: Data collection method, calculations and analysis
Week 3	Exp.1: Speed – flow – density relationships: Report discussion and submission
Week 4	Exp.2: Determination of road capacity & LOS: Data collection method, calculations and analysis
Week 5	Exp.2: Determination of road capacity & LOS: Report discussion and submission
Week 6	Exp.3: Determination of vehicle headway: Data collection method, calculations and analysis
Week 7	Exp.3: Determination of vehicle headway: Report discussion and submission
Week 8	Exp.4: Traffic movement at intersections: Data collection method, calculations and analysis
Week 9	Exp.4: Traffic movement at intersections: Report discussion and submission
Week 10	Exp.5: Determination of traffic signal timings at a junction: Data collection method, calculations and analysis
Week 11	Exp.5: Determination of traffic signal timings at a junction: Report discussion and submission
Week 12	Exp.6: Parking survey: Data collection method, calculations and analysis
Week 13	Exp.6: Parking survey: Report discussion and submission
Week 14	Exp.7: Accident report: Data collection method, calculations and analysis
Week 15	Exp.7: Accident report: Report discussion and submission

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Fundamentals of Electric Circuits, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education	Yes
Recommended Texts	DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents.	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

Grading Scheme

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 Information

معلومات المادة الدراسية

Module Title	Theory of structures II			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE322				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGIII	Semester of Delivery		4
Administering Department		CE	College	Eng.	
Module Leader	Ali Al-Rifaie		e-mail	Ali.alrifaie@mu.edu.iq	
Module Leader’s Acad. Title		Asst. Professor	Module Leader’s Qualification		Ph.D.
Module Tutor	----		e-mail	----	
Peer Reviewer Name		Scientific Committee	e-mail	----	
Scientific Committee Approval Date		15/06/2023	Version Number	1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	CVE312 Theory of structures I, CVE314 Concrete design I	Semester	3
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims	1. Understand basic structural engineering concepts.
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أهداف المادة الدراسية	- Understand the difference between statically determinate and indeterminate structures - Understanding the analysis of indeterminate structures using consistent deformation method. - Understanding the analysis of analysis of indeterminate structures using slope deflection method. - Understanding the analysis of analysis of indeterminate structures using moment distribution method. - Understanding how to analyse structures using computer softwares (SAP2000) - Understanding the difference between results obtained from exact solution and numerical solution. - Understanding how to analyse and design concrete structures such as beams, slabs and columns using SAP2000. - Improve the communication skills, including reading, writing, oral presentations
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course student should demonstrate the following outcomes relevant to reinforced concrete I: - Students apply algebra, elementary calculus, and principles of mechanics. - Students are able to identify and formulate an engineering problem and to develop a solution. - Students recognize the importance of analysis in designing structural components. - Students are encouraged to submit accurate analysis in an efficient and professional way. - Students recognize their role with an engineering team carrying other aspects for analyzing structures, in terms of choosing the structural systems and the interaction of decisions made by various architectural and engineering teams. - Students are encouraged to recognize the indeterminate structures analysis and their range of applications. - Students recognize the ethical and professional responsibility in achieving accurate structural analysis for safe and economical design, and its impact on the well-being of the society. - Students recognize the need for technical updating on a continuing basis, since the course emphasizes on the changing nature of software, codes and specifications. - Students recognize the importance of reading and understanding technical contents in English in order to achieve life-long learning and be able to carry out their responsibilities. - Students recognize the important role of computers in facilitating analysis and design of structural members and systems. - Students are encouraged to improve their writing, communication and presentation skills.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Introduction to statically indeterminate structures</u> <u>Consistent deformation method</u> <u>Slope deflection method</u> <u>Moment distribution method</u> <u>Analysis of beams using SAP2000</u>

- Analysis of frames using SAP2000
- Analysis of truss using SAP2000
- Design of concrete structures using SAP2000

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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	65	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

As		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	
	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 الأسبوعي النظري

Week	Material Covered
Week 1	<u>Introduction to statically indeterminate structures</u>
Week 2	Consistent deformation method of beams
Week 3	Consistent deformation method of frames
Week 4	Consistent deformation method of trusses

Week 5	Slope deflection method of beams
Week 6	Slope deflection method of frames
Week 7	Moment distribution method of beams
Week 8	Moment distribution method of frames
Week 9	Modified moment distribution method
Week 10	Stiffness matrix method of beams
Week 11	Stiffness matrix method of frames
Week 12	Stiffness matrix method of trusses
Week 13	Stiffness matrix method of composite structures
Week 14	Approximate methods of beams
Week 15	Approximate methods of trusses

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Training on using of SAP 2000.
Week 2	analysis of 2D beams, Advanced analysis of 2D beams
Week 3	analysis of 2D frames
Week 4	Advanced analysis of 2D frames
Week 5	Advanced analysis of 2D slabs
Week 6	Advanced analysis of 2D slab
Week 7	Analysis of one story reinforced concrete buildings
Week 8	Analysis and design of multistory reinforced concrete buildings
Week 9	Analysis and design of multistory reinforced concrete buildings
Week 10	Analysis and design of multistory reinforced concrete buildings with walls
Week 11	Analysis and design of multistory reinforced concrete buildings with walls
Week 12	Analysis of steel buildings.
Week 13	Analysis of steel buildings
Week 14	Review

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Structural Analysis by R C by Hibbeler 8th edition	Yes

Recommended Texts	Structural Analysis 5th Edition by <u>Aslam Kassimali</u>	Yes
Websites	https://www.youtube.com/@alial-rifaie9219	

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 Information

معلومات المادة الدراسية

Module Title	Soil Mechanic II			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☒ Practical ☐ Seminar	
Module Code	CVE323				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGIII	Semester of Delivery		6
Administering Department		CVE	College	Eng.	
Module Leader	Basim .J. Abbas		e-mail	basim.jabar@mu.edu.iq	
Module Leader’s Acad. Title		Professor	Module Leader’s Qualification		Ph.D.
Module Tutor	Mohammed .F. Abbas		e-mail		
Peer Reviewer Name		Scientific committee	e-mail	E-mail	
Scientific Committee Approval Date		/06/2023	Version Number	1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Soil Mechanic I (CVE13)	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	1. Understand seepage problems of soil under dams and hydraulic structures and seepage stress-strain relationship and solving all problems in in this scope. 2. Describe the un-drained Pore water Pressure due to the loads from structures and foundation on the soil. 3. Describe the settlement of sand under the foundations and the consolidation of clay due to the escaping the underground water and effect of time on the consolidations in addition to. 4. Explain the Shear Strength, test types of shear strength parameters, stress-Strain Relationship and Shear Strength for Drained and un-drained Conditions. 5. Conduct some lab tests related (e.g. permeability, consolidation, direct shear and triaxial shear strength).
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. An ability to apply knowledge of mathematics, science, and engineering. 2. An ability to design a system, component, or process to meet desired needs within realistic constraints. 3. The ability to function on teams. 4. An ability to identify, formulates, and solving engineering problems. 5. An understanding of professional and ethical responsibility. 6. an ability to communicate effectively, an education necessary to understand the impact of engineering solution in a global, economic, environmental, and societal context. 7. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ▪ Seepage of soil, Laplace's Equation of Continuity, Continuity Equation for Solution of Simple Flow Problems, Flow Nets, Mathematical Solution for Seepage [35 hrs]. ▪ Compressibility of Soil, elastic settlement, consolidation settlement, Calculation of Settlement from One-Dimensional Primary Consolidation, Secondary Consolidation Settlement, Time Rate of Consolidation and Pre-compression [65 hrs]. ▪ Shear Strength of Soil, Normal and Shear Stresses on a Plane, Mohr-Coulomb Failure Criterion, Inclination of the Plane of Failure Caused by Shear and Laboratory Test for Determination of Shear Strength Parameters [25 hrs].

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The strategy of this course was designed in a way such that you learn to take soil mechanic problems into account in your professional work and personal life even when you are not willing to become geotechnical engineer. This course will give the basics of the field and how to obtain additional information as you require it in your careers and will give you good opportunity to understand the methods of solving geotechnical problems and consider that in your structural work. Quizzes will be based on the material covered in class. This material comes from a variety of sources and may go beyond the information covered in the text. Quizzes and final exam will typically consist of both quantitative and qualitative questions. In all quizzes or final exam a student will
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need to show all work on quantitative problems. Group assignments and reports will be open book, note and neighbor. The quizzes will be closed book, notes and neighbor. Assignments that cannot be read or are not presented in a professional engineering style will not receive credit. Final exam will be comprehensive. Plagiarism is a serious offense and will not be tolerated. Plagiarism will result in a zero for the assignment. Due dates will be given in class. Late papers may be accepted but will be docked 10% per day, including weekends and starting immediately following class. Students with excused absences will be given a reasonable amount of time to catch up on their work with no penalty. No assignments will be accepted after the solution been returned or posted, whichever occurs first.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	70	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	50	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (10)	5, 10	LO #1-7
	Assignments	2	10% (10)	3, 13	LO #1-7
	Projects / Lab.				
	Report	1	10% (10)	11	LO #1-7
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

Week	Material Covered
Week 1	Seepage of soil.
Week 2	Laplace's Equation of Continuity, Continuity Equation for Solution of Simple Flow Problems.
Week 3	Flow Nets for isotropic and un isotropic soil.
Week 4	Mathematical Solution for Seepage and filter design.
Week 5	Compressibility of Soil and theory of compressibility.
Week 6	Elastic settlement for sand soil.
Week 7	Consolidation settlement for cohesive soil.
Week 8	Calculation of Settlement from One-Dimensional Primary Consolidation.

Week 9	Time Rate of Consolidation.
Week 10	Secondary Consolidation Settlement.
Week 11	Pre-compression of soil.
Week 12	Shear Strength of Soil.
Week 13	Normal and Shear Stresses on a Plane, Mohr–Coulomb Failure Criterion and drawing Mohr circle..
Week 14	Inclination of the Plane of Failure Caused by Shear
Week 15	Laboratory Test for Determination of Shear Strength Parameters.
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	Constant permeability test
Week 2	Falling permeability test.
Week 3	Consolidation settlement.
Week 4	Consolidation settlement.
Week 5	Consolidation settlement calculation.
Week 6	Consolidation settlement parameters (Cc).
Week 7	Direct Shear test.
Week 8	Direct Shear test calculation.
Week 9	Unconfined compressive test.
Week 10	Unconfined compressive test calculation.
Week 11	Tri-axial shear test (UU).
Week 12	Tri-axial shear test (CU).
Week 13	Tri-axial shear test (CD).
Week 13	Review

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Principles of Geotechnical Engineering by Das, B.M. and Sobhan K., 2014	Yes
Recommended Texts	Fundamentals of Geotechnical Engineering by C.venkaramaih, 2006.	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 Information

معلومات المادة الدراسية

Module Title	Reinforced Concrete II			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CVE324				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	UGIII		Semester of Delivery		
Administering Department		CVE	College	Eng.	
Module Leader	Othman Hameed		e-mail	Othman.h.zinkaah@mu.edu.iq	
Module Leader's Acad. Title		Asst. Professor	Module Leader's Qualification		Ph.D.
Module Tutor	-----		e-mail	----	
Peer Reviewer Name		Scientific Committee	e-mail	----	
Scientific Committee Approval Date		15/06/2023	Version Number	1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	CVE314 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	1. An ability to identify, formulate and solve complex engineering problems by applying principles of Engineering. 2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of safety and welfare, as well as environmental and economic factors. 3. An ability to develop and conduct appropriate experimentation, analyze and interpret data and use engineering judgment to draw conclusions. 4. Explain concrete and steel characteristics and discuss how they work together. 5. Understand different methods in design/analysis concrete structures and discuss their characteristics. 6. Understand the concept of sustainability and its relevance to civil engineering. 7. Generalise the guiding principles of the serviceability limit state and the ultimate limit state concepts and how they relate to the design of structures. 8. Summarise the fundamental mechanics of reinforced concrete and the empirical assumptions made for analysis. 9. Identify reinforced concrete failure modes from crack patterns.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course student should demonstrate the following outcomes relevant to reinforced concrete II: 1. Apply fundamental mechanics to the design of reinforced concrete beams and slabs at the serviceability limit state including determination of short- and long-term deflection and crack widths. 2. Apply fundamental mechanics to the design of reinforced concrete beams and slabs at the ultimate limit state including determination of member strength (flexural and shear) and ductility. 3. Apply fundamental mechanics to the design of reinforced concrete columns at the ultimate limit state including determination strength under uniaxial and biaxial bending. 4. Design basic structural elements (beams, columns and slabs) according to the design approach of ACI code.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ▪ Shear of Beams [8 hrs] ▪ Torsional Design of Beams [8 hrs] ▪ Bond and Anchorage [8 hrs] ▪ Development Length and Splices [8 hrs] ▪ Analysis and design of One-Way Slabs [8 hrs] ▪ Analysis and design of One-Way Slabs [8 hrs] ▪ Analysis and design of One-Way Slabs [8 hrs] ▪ Analysis and design of Two-Way Slabs [8 hrs] ▪ Analysis and design of Two-Way Slabs [8 hrs] ▪ Analysis and design of Two-Way Slabs [8 hrs] ▪ Loads transferred to beams [8 hrs] ▪ Design of Short Columns [8 hrs] ▪ Design of Short Columns [8 hrs] ▪ Design of Long Columns [9 hrs] ▪ Design of Long Columns [9 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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	65	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

As		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	
	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 الأسبوعي النظري

Week	Material Covered
Week 1	Shear of Beams
Week 2	Torsional Design of Beams
Week 3	Bond and Anchorage
Week 4	Development Length and Splices
Week 5	Analysis and design of One-Way Slabs
Week 6	Analysis and design of One-Way Slabs
Week 7	Analysis and design of One-Way Slabs
Week 8	Analysis and design of Two-Way Slabs
Week 9	Analysis and design of Two-Way Slabs
Week 10	Analysis and design of Two-Way Slabs
Week 11	Loads transferred to beams
Week 12	Design of Short Columns
Week 13	Design of Short Columns
Week 14	Design of Long Columns
Week 15	Design of Long Columns

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1- Design of Reinforced Concrete 10th Edition, By: Jack C. McCormac and Russell H. Brown, ISBN: 1118879108. 2- Building code requirement for structural concrete (ACI-318M-2014) and commentary.	Yes
Recommended Texts	1- Design of reinforced concrete: Jack C. McCormac, James K. Nelson. (2006) 2- Building code requirement for structural concrete (ACI-318M-2019) and commentary. 3- Design of Concrete Structures 14th Edition by Arthur Nilson, David Darwin, Charles Dolan (2014). 4- Design of concrete; a fundamental approach, 5 th edition, E.G. Nawy, 2005 5- Design of reinforced concrete, 9 th edition, Jack C. McCormac and Russell H. Brown, 2014. 6- Reinforced concrete, Mechanics and design; 7 th edition, James K. wight, 2016.	Yes
Websites	https://www.youtube.com/watch?v=s41KdWuISkE	

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 Information

معلومات المادة الدراسية

Module Title	Hydrology and Water Resources Engineering			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CVE325				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level		UGIII	Semester of Delivery		6
Administering Department		CVE	College	ENG	
Module Leader	Tariq H. Abees		e-mail	tariq.almansoori@mu.edu.iq	
Module Leader's Acad. Title		Assistant Professor	Module Leader's Qualification		Ph.D.
Module Tutor			e-mail		
Peer Reviewer Name		Scientific committee	e-mail		
Scientific Committee Approval Date		19/06/2023	Version Number	1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	CVE224	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. Understand the concept of soil-water relations and its relevance to civil engineering. 2. Understand soil physical and chemical classification and how they affect the water content. 3. Understand the various certain important relationships (e.g. volume and unit weight relations). 4. Understand water movement in soil and how irrigation affects the subsoil water. 5. Understand infiltration, seepage and deep percolation of water in soil. 6. Explain irrigation engineering and its importance to plants. 7. Understand the different types of irrigation. 8. Understand the design of irrigation channels. 9. Understand types of irrigation channels.
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	10. Understand drainage engineering 11. Understand drains distribution and the design of open drains
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. An ability to apply knowledge of mathematics, science, and engineering 2. An ability to design a system, component, or process to meet desired needs within realistic constraints. 3. The ability to function on teams. 4. An ability to identify, formulate, and solving engineering problems. 5. An understanding of professional and ethical responsibility. 6. An ability to communicate effectively, an education necessary to understand the impact of engineering solution in a global, economic, environmental, and societal context. 7. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Introduction and Description of soil-water relationship [15 hrs]. Volumetric properties of soil-water, water infiltration into the soil, efficiency and water irrigation [35 hrs]. Duty, Delta, Base Period, Irrigation Requirements and Scheduling [25 hrs]. Types of irrigation and Design of Sprinklers [15 hrs]. Open channel flow, typical cross-section of irrigation channels, design of irrigation channels, methods of design, losses of irrigation channels and canal outlets [25 hrs]. Introduction to drainage engineering, types of drains, spacing of drains, drainage coefficient, design of open drains [35 hrs].
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The strategy of this course was designed in a way such that you learn to take irrigation and drainage engineering into account in your professional work and personal life even when you are not willing to work in the field of irrigation channels and water drains. This course will give the basics of the field and how to obtain additional information as you require it in your careers and will give you good opportunity to understand the methods of solving problems related to water and soil-water interface, and consider that in your design and analysis of relevant work. Quizzes will be based on the material covered in class. This material comes from a variety of sources and may go beyond the information covered in the text. Quizzes and final exam will typically consist of both quantitative and qualitative questions. In all quizzes or final exam, students will need to show all work on quantitative problems. Group assignments and reports will be open book and shared between groups. The quizzes will be closed book, notes. Assignments that cannot be read or are not presented in a professional engineering style will not receive credit. Final exam will be comprehensive. Plagiarism is a serious offense and will not be tolerated. Plagiarism will result in a zero for the assignment. Due dates will be given in class. Late papers may be accepted but will be docked 10% per day, including weekends and starting immediately following class. Students with excused absences will be given a reasonable amount of time to catch up on their work with no penalty. No assignments will be accepted after the solution been returned or posted, whichever occurs first.
Student Workload (SWL)	

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	90	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (10)	5, 10	All
	Assignments	2	10% (10)	3, 13	All
	Projects / Lab.				
	Report				
Summative assessment	Midterm Exam	2 hr	20% (10)	7	All
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

Week	Material Covered
Week 1	Introduction – Irrigation engineering
Week 2	Certain soil-water relationships
Week 3	Soil-water volumetric properties
Week 4	Irrigation Efficiencies
Week 5	Requirements of irrigation water
Week 6	Water Duty, Delta, and Base Period
Week 7	Irrigation Scheduling
Week 8	Different methods of irrigation scheduling
Week 9	Types of irrigation
Week 10	Sprinkler Irrigation
Week 11	Open Channel Flow.
Week 12	Design of Open Channels.
Week 13	Canal Lining
Week 14	Introduction to Drainage Engineering.

Week 15	Design of Open Drains.
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Irrigation and Water Resources Engineering, by G.L. Asawa, 2008.	Yes
Recommended Texts	Irrigation and Drainage Engineering, by P. Waller, M. Yitayew, 2016.	No (Can be found online)
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 Information

معلومات المادة الدراسية

Module Title	Methods of Construction and Engineering Estimation			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CVE326				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGIV	Semester of Delivery		6
Administering Department		CVE	College	Eng.	

Module Leader	Tariq H. Abees	e-mail	tariq.almansoori@mu.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name	Scientific committee	e-mail	
Scientific Committee Approval Date	15/06/2023	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. Understand the construction equipment and factors that affect the choice of any of that equipment. 2. Understand the economic life of equipment and their classification. 3. Understand the meaning of standard equipment and special equipment. 4. Assessing the cost of owning an equipment and operating it. 5. Understand the time value of money and the study of feasibility. 6. Understand types and uses of several construction machines, such as Scrapers, Bulldozers, Hoes, Rooters, Trucks, mixers and so on. 7. Understand the Forms for concrete structures and their types. 8. Understand the design of irrigation channels. 9. Understand estimation of quantities and their types. 10. Understand Detailed estimation of quantities. 11. Estimation of steel bars and preparing the quantity bill.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. An ability to apply knowledge of mathematics, science, and engineering 2. An ability to design a system, component, or process to meet desired needs within realistic constraints. 3. The ability to function on teams. 4. An ability to identify, formulates, and solving engineering problems. 5. An understanding of professional and ethical responsibility. 6. An ability to communicate effectively, an education necessary to understand the impact of engineering solution in a global, economic, environmental, and societal context. 7. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ▪ Introduction and types of construction methods [10 hrs]. ▪ The use of machines and equipment in a project [35 hrs]. ▪ Choosing the suitable type of construction machine based on its job and the value of money with time and usage [25 hrs]. ▪ Uses of concrete mixers and asphalt rollers, feasibility study [20 hrs]. ▪ Introduction to Forms used in concrete structures, types and design, introduction to estimation [25 hrs].

- Detailed estimation of quantities, steel bars, preparing the quantity bills, and estimating the total cost of a project [35 hrs].

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies

The strategy of this course was designed in a way such that you learn to understand construction methods and be able to estimate quantities of civil engineering structures then use this knowledge in your professional work and personal life even when you are not willing to work in the field of estimation and preparing bill of quantities. This course will give the basics of the field and how to obtain additional information as you require it in your careers and will give you good opportunity to understand the methods of solving problems related to construction methods, and consider that in your design and analysis of relevant work.

Quizzes will be based on the material covered in class. This material comes from a variety of sources and may go beyond the information covered in the text. Quizzes and final exam will typically consist of both quantitative and qualitative questions. In all quizzes or final exam, students will need to show all work on quantitative problems. Group assignments and reports will be open book and shared between groups. The quizzes will be closed book, notes. Assignments that cannot be read or are not presented in a professional engineering style will not receive credit. Final exam will be comprehensive. Plagiarism is a serious offense and will not be tolerated.

Plagiarism will result in a zero for the assignment. Due dates will be given in class.

Late papers may be accepted but will be docked 10% per day, including weekends and starting immediately following class. Students with excused absences will be given a reasonable amount of time to catch up on their work with no penalty. No assignments will be accepted after the solution been returned or posted, whichever occurs first.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem)

الحمل الدراسي المنتظم للطالب خلال الفصل

60

Structured SWL (h/w)

الحمل الدراسي المنتظم للطالب أسبوعياً

4

Unstructured SWL (h/sem)

الحمل الدراسي غير المنتظم للطالب خلال الفصل

65

Unstructured SWL (h/w)

الحمل الدراسي غير المنتظم للطالب أسبوعياً

4.3

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	20% (10)	5, 10	LO #1-7
	Assignments	2	10% (10)	3, 13	LO #1-7
	Projects / Lab.				
	Report				
Summative assessment	Midterm Exam	2 hr	20% (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 – Construction methods
Week 2	Definitions related to time value of money and depreciation
Week 3	Types of equipment
Week 4	Cost of owning and operating a construction equipment
Week 5	Costs of repair, maintenance and investment
Week 6	Factors affecting the use of equipment
Week 7	Types and uses of tractors
Week 8	Scrapers and bulldozers
Week 9	Hoes and rooters
Week 10	Form for concrete construction
Week 11	Design of spacing for Forms
Week 12	Introduction to estimation
Week 13	Detailed estimation of quantities
Week 14	Estimating the amount of steel bars and preparing the quantity bills
Week 15	Estimation the total cost of a project and bidding
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Dutta, B.N., “Estimating and Costing in Civil Engineering”, UBS Publishers & Distributors Pvt. Ltd., 2003.	No
Recommended Texts	Kohli, D.D and Kohli, R.C., “A Text Book of Estimating and Costing (Civil)”, S.Chand & Company Ltd., 2004	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

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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.

Semester 7

Module Information

معلومات المادة الدراسية

Module Title	Design of Steel Structure I			Module Delivery		
Module Type	Core			☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar		
Module Code	CVE411					
ECTS Credits	5					
SWL (hr/sem)	125					
Module Level		UGIV	Semester of Delivery			8
Administering Department		CVE	College	Eng.		
Module Leader	Alaa Salam Shakir			e-mail	a.alhusainy@mu.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		Scientific committee		e-mail	E-mail	
Scientific Committee Approval Date		15/06/2023		Version Number	1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Engineering Mechanics: Statics, Strength of Materials I, Strength of Materials II, Theory of Structures-I, Theory of Structures II	Semester	1,3,4,5,6
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. Present the theoretical and practical fundamentals of steel constructions design. 2. Teach the students how to analysis and design of steel members such as the tension and compression members. 3. Teach the students how to analyze and design steel trusses 4. Introduce the different ways of analysis and design flexural members.
Module Learning Outcomes	By the end of this course student should demonstrate the following outcomes: 1. an ability to apply knowledge of mathematics, science, and engineering, related to steel constructions, 2. an ability to design different steel members 3. an ability to function on teams,

مخرجات التعلم للمادة الدراسية	4. an ability to identify, formulate, and solve structural engineering problems, 5. an understanding of professional and ethical responsibility in this field, 6. an ability to communicate effectively, and 7. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Indicative Contents المحتويات الإرشادية	▪ Introduction [4 hrs]. ▪ Tension Member [40 hrs] ▪ Compression Member [40 hrs] ▪ Design of Trusses [21 hrs] ▪ Flexural Members [20 hrs].

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The strategy used in this course is outcome base learning. It is to test achievement of learning outcomes and changing upon. The instructor will focus on materials those expanding students' critical thinking skills. The course was designed in a way such that students will be able to understand the desing of steel constructions. The course will give the basics of the field of steel design and how to obtain additional information as engineers require it in their careers and will give them good opportunity to understand the methods of solving problems and consider that in their civil engineering work. Quizzes will be based on the material covered in class. This material comes from a differnet sources and may go beyond the information covered in the text. Quizzes and final exam will typically consist of both quantitative and qualitative questions. In all quizzes or final exam a student will need to show all work on quantitative problems. Group assignments and reports will be open book, note and neighbor. The quizzes will be also open book, notes and neighbor. Assignments that cannot be read or are not presented in a professional engineering style will not receive credit. Final exam will be comprehensive. Plagiarism is a serious offense and will not be tolerated. Plagiarism will result in a zero for the assignment. Due dates will be given in class. Late papers may be accepted but will be docked 10% per day, including weekends and starting immediately following class. Students with excused absences will be given a reasonable amount of time to catch up on their work with no penalty. No assignments will be accepted after the solution been returned or posted, whichever occurs first.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	65	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.3
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
Quizzes	2	10% (10)	5, 10	All

Formative assessment	Assignments	3	10% (10)	3, 9, 12	All
	Projects / Lab.	N/A	N/A	N/A	N/A
	Report	1	20% (20)	13	All
Summative assessment	Midterm Exam	2 hr	10% (10)	7	All
	Final Exam	2 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction
Week 2	Advantages and disadvantages of Steel Structures
Week 3	Types of Steel Buildings
Week 4	Design Loads
Week 5	Analysis of Tension Members
Week 6	Net AreaEffective Net Area
Week 7	Design of Tension Members
Week 8	Analysis of Compression Members
Week 9	Column TheoryEuler Buckling
Week 10	AISC Requirements for Compression Members
Week 11	Compression Members without slender elements
Week 12	Compression Members with slender elements
Week 13	Compression Members with different slenderness ratio
Week 14	Design of Compression Members
Week 15	Sidesway and Bracing Systems and design of trusses
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	McCormac, Jack, C.& Csernak, Stephen, F.; Structural Steel Design; 5th Edition, 2013, Pearson Steel Construction Manual; AISC; American Institute of Steel Construction Incorporation; 13th Edition; ASD & LRFD	Yes
Recommended Texts	1. Segui, Wiliam, T.; Design of Steel Structures, 4th Edition; 2007, Thomson. 2. Salmon, Charles, G.; Johnson, John, E; Malhas, Faris, A.; Steel Structures Design and Behaviour; 5th Edition; 2009; Pearson. 3. Englekirk, Robert; Steel Structures Controlling Behavior through Design; 2003; John Wiley & Sons Incorporation.	No
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 Information

معلومات المادة الدراسية

Module Title	Foundation Engineering I			Module Delivery			
Module Type	Core			☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☒ Seminar			
Module Code	CVE412						
ECTS Credits	5						
SWL (hr/sem)	125						
Module Level			UGIV				Semester of Delivery
Administering Department			CVE	College	Eng.		
Module Leader	Hussein M. Ashour Al.Khuzai			e-mail	hma@mu.edu.iq		
Module Leader's Acad. Title			Professor	Module Leader's Qualification		Ph.D.	
Module Tutor	N/A			e-mail			
Peer Reviewer Name			Scientific committee	e-mail			
Scientific Committee Approval Date			15/06/2023	Version Number		1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Soil mechanics II	Semester	6
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	To reach the general course goals, specific objectives were developed for each section of material that describe the concepts that the instructor consider most critical for the students to take from this module: 1. Understand the concept of geotechnical engineering and its relevance to civil engineering. 2. Explain main concepts of soil mechanics and its relevance with geotechnical and foundation engineering. 3. Review the stresses and the loadings affecting in the soil mass and understand the difference between substructure and superstructures and their connections. 4. Understand the definition of soil investigation and its steps for executing. 5. Drilling machines: types and method of drilling and uses. 6. Samples: disturbed and undisturbed: how to take and for what are uses. They include Split barrel spoon and Shelby Tube. 7. How to conduct SPT and the corrections applied on N value to find the N₆₀, corrected. 8. Review of shear strength of soil and understand the safety in foundation engineering. 9. Bearing capacity of soil for shallow foundations: 1- by theoretical approach (Terzaghi, Meyerhof, and Skempton theories) for axial loading and for homogeneous soil. 10. Understand the effect of ground water on bearing capacity. 11. Understand the eccentric loading (one way and two way) 12. Understand the bearing capacity of different cases of nonhomogeneous soil on bearing capacity. 13. Understand the uplift loading types and how can be determined. 14. Understand the three types of settlement and how they can be calculated with comparison with the limited values.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this module, the student should demonstrate the following relevant to Foundation and Geotechnical structures: 1. an ability to apply knowledge of mathematics, science, and engineering, 2. an ability to design a system, component, or process to meet desired needs within realistic constraints, 3. the ability to function on teams, 4. an ability to identify, formulate, and solve engineering problems, 5. an understanding of professional and ethical responsibility, 6. an ability to communicate effectively, 7. an education necessary to understand the impact of engineering solution in a global, economic, environmental, and societal context, and 8. 8) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ▪ Introduction to the course, and, review of soil mechanics (5 hrs.) ▪ Soil investigation (30 hrs.) ▪ Soil bearing capacity for homogeneous soil and layered soil with concentric and eccentric loadings, theoretically and empirically, using both theories of bearing capacity and field test results (50 hrs.) ▪ Settlement of structures, (immediate, consolidation, and secondary settlement of shallow foundation (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. The course was designed in a way such that students are to the importance of executing the soil investigation for all engineering

project, which is in away furnishing both safe design of foundation and sub-structures and the cost based on economical design. In addition to that, the theme of soil investigation delivers the designer and the in-situ engineers with all data to determine the allowable design load and the factor of safety and the methodology for executing the underground structures considering the impact on the environment. In relation to safety of structures, it is necessary that the student be able to calculate the settlement of the structure to be within the permissible values. All the mentioned items could be achieved by different means, like, lectures, assignments and feedback by quizzes and exams, in addition to team's seminars for different subject relating to the modern methods of construction of foundation in both directions: design methods and methodology of construction along with selection the suitable and durable and sustainable materials.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	65	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.3
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	2x 5% (10)	5, 10	LO #1, 3, 8
	Assignments	2	2 x 10% (20)	2, 12	LO # 2, 6, 8
	Projects / Lab.				
	Report	1	10% (10)	13	LO # 3, 6, 7, 8
Summative assessment	Midterm Exam	2 hrs.	2x 10% (10)	7	LO # 1-8
	Final Exam	3 hrs.	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

	Material Covered
Week 1	Introduction to the course, and, review of soil mechanics
Week 2	Soil investigation

Wee k 3	Soil investigation cont'd
Wee k 4	Soil investigation cont'd
Wee k 5	Soil investigation cont'd
Wee k 6	Soil investigation cont'd
Wee k 7	Introduction to soil bearing capacity with review for soil strength parameters
Wee k 8	Terzaghi equation
Wee k 9	Meyerhof equation
Wee k 10	Eccentric loading and Skempton equation
Wee k 11	Layered soil capacity
Wee k 12	Uplift pressure
Wee k 13	Settlement of structures
Wee k 14	Settlement of structures, cont'd
Wee k 15	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Bowles J. E. "Foundation Analysis and Design", Fifth Edition, 2006	Yes
Recommended Texts	DAS B. M., "Principles of Foundation Engineering", 9th Edition, 2019.	Electronic copy
	Huang A. B. and Yu H. S., "Foundation Engineering Analysis and Design" First Edition, 2018	Electronic copy
Websites	My videos on YouTube: @Hussein M. Ashour Al.Khuziaie	

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 Information

معلومات المادة الدراسية

Module Title	Highways Engineering I			Module Delivery		
Module Type	Core			☐ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☒ Practical ☐ Seminar		
Module Code	CVE413					
ECTS Credits	6					
SWL (hr/sem)	150					
Module Level			UGIV			Semester of Delivery
Administering Department			CVE	College	Eng.	
Module Leader	Hayder Kamil Shanbara			e-mail	Hayder.shanbara@mu.edu.iq	
Module Leader’s Acad. Title			Asst. Professor	Module Leader’s Qualification		Ph.D.
Module Tutor	Sarah Safaaldeen Musa and Jaber Hussein			e-mail	----	
Peer Reviewer Name			Scientific Committee	e-mail	----	
Scientific Committee Approval Date			15/06/2023	Version Number		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Traffic Engineering II	Semester	6
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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 aims of the module are to cover the basic theory and practice in sufficient depth to promote basic understanding while also ensuring as wide a coverage as possible of all topics deemed essential to students. Students will gain an understanding of key issues and practices, including design case studies where they will put theory in to practice. There is also significant coverage of highway engineering an aspect of increasing importance in developed countries with ageing infrastructure.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Have knowledge about to road system and highway engineering. 2. Interpret geometric design fundamentals, in relation to safety and driver comfort, focusing on horizontal and vertical alignment. 3. To provide a coherent development to the students for the courses in sector of Engineering like Transportation & Highways Engineering etc. 4. To present the foundations of many basic Engineering tools and concepts related Highways Engineering. 5. To give an experience in the implementation of Engineering concepts which are applied in field of Highways Engineering. 6. To involve the application of scientific and technological principles of planning, analysis, design and management to Highway Engineering.		
Indicative Contents المحتويات الإرشادية	Week 1 • Introduction to module and course description. • Highways History; Highway Location and economic; Highway surveying. • Development of road network Week 2 • Pavement Structures • Functional Classification • System of Iraqi Highways Week 3 • Principles of Highway Route Location Process • Highway Survey Methods Week 4 • Highway Geometric Design • Elements of Geometric Design Week 5 • Superelevation • Superelevation rotation Week 6 • Alignment • Horizontal alignment • Circular Curves • Horizontal Sight Line Offset (HSO) Week 7 • Vertical alignment • Equation of an Equal Tangent Vertical Curve • Sight Distances Related to Crest Vertical Curve		

	Week 8
	- Highway Grades - Earth Works - Estimating Earthwork Quantities
	Week 9
	- Layers Function - Understand subgrade and subbase course properties - Properties of Highway Materials
	Weeks 10
	- Soil Characteristics - Classification of Soils for Highway Use
	Weeks 11
	- Pavement Types and Materials - The Materials used in the construction of the pavement
	Weeks 12
	- Soil stabilization - Subbase Course - Aggregates
	Weeks 13
	- Bituminous Material (Bitumen) - Petroleum Asphaltic Materials - Bitumen Emulsions
	Weeks 14
	Pavement Distresses
	Weeks 15
	Requirements for Paving Mixture

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Teaching Strategies include: Lectures, Seminars, simulation demonstrations, tutorials with worksheets and audio-visual presentations; Learning activities include: Individual design work, literature review/analysis, use of software and directed reading. The examination will assess your knowledge and understanding of highway and transportation engineering and your abilities of analysis and problem solving. The other learning outcomes should be achieved through the junction design exercise.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	75	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	75	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	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	4	10% (4)	3, 6, 9, 12	LO #1, 2, 4 and 6
	Monthly Exams	2	40% (16)	5, 10	LO # 3, 4, 5 and 6
	Lab	1	37.5% (15)	Continuous	
	Report	1	5% (2)	13	LO # 1, 4 and 5
	Homework	3	7.5% (3)	2, 7, 11	LO # 2, 3 and 6
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	Introduction to module and course description.
Week 2	Pavement Structures
Week 3	Principles of Highway Route Location Process
Week 4	Highway Geometric Design
Week 5	Superelevation
Week 6	Alignment
Week 7	Vertical alignment
Week 8	Highway Grades
Week 9	Layers Function
Week 10	Soil Characteristics
Week 11	Pavement Types and Materials
Week 12	Soil stabilization
Week 13	Bituminous Material (Bitumen)
Week 14	Pavement Distresses
Week 15	Requirements for Paving Mixture

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Sieve analysis test
Week 2	Sieve analysis test of subbase
Week 3	Density & moisture content relationship test of subbase

Week 4	CBR test of subbase (dry method)
Week 5	CBR test of subbase (wet method)
Week 6	Penetration test of asphalt
Week 7	Softening test of asphalt
Week 8, 9	Flash point test of asphalt
Week 10, 11	Ductility test of asphalt
Week 12, 13	Saybolt viscosity test of asphalt
Week 14, 15	Thin film oven test of asphalt

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	•Principles of pavement design, By Yoder, E. and Witczak. M., 1975, 2nd edition, New York: John Wiley and Sons, Inc. •Principles and Practices of Highway Engineering, By L. R. Kadiyali (4th Edition 2008). •Highways, The Location, Design, Construction and Maintenance of Road Pavements. By Coleman O'Flaherty (4th Edition 2009).	Yes
Recommended Texts	•Deterioration and Maintenance of Pavements, By Derek Pearson (1st Edition 2013). •American Association of State Highway and Transportation Officials (AASHTO), (2003). •Highway Engineering, By Rogers M., (2008), 2nd Edition, Blackwell Publishing Ltd. •Principles of Pavement Engineering, By Nicholas Thom (2nd Edition 2014).	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 Information

معلومات المادة الدراسية

Module Title	Sanitary and Environmental Engineering I			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☒ Practical ☐ Seminar	
Module Code	CVE414				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level	UGIV	Semester of Delivery			
Administering Department		CVE	College	Eng.	
Module Leader	Isam Alyaseri		e-mail	ialyase@mu.edu.iq	
Module Leader's Acad. Title		Professor	Module Leader's Qualification		Ph.D.
Module Tutor	-		e-mail	-	
Peer Reviewer Name		Scientific committee	e-mail	-	
Scientific Committee Approval Date		15/06/2023	Version Number		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Fluid mechanic CVE224	Semester	4
Co-requisites module	-	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. Understand the concept of sustainability and its relevance to civil engineering. 2. Explain drinking water characteristics and discuss regulations involved. 3. Understand the various units used in environmental engineering (e.g. equivalents and ppm). 4. Understand typical process flow diagrams for water treatment from intakes to distribution systems, and describe the unit processes and operations used and their purposes. 5. Understand different methods in water treatment systems and describe the general factors involved in choosing the type of treatment and design. 6. Conduct some lab tests related (e.g. turbidity, EC, pH, and solid test).
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	7. Describe the major options used in solid waste management and perform some calculations involving number of trucks or dumpsters required, number of residences served, etc.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course student should demonstrate the following outcomes relevant to environmental engineering: 1. an ability to apply knowledge of mathematics, science, and engineering, related to environmental engineering, 2. an ability to design an environmental system, component, or process to meet desired needs within realistic constraints, 3. an ability to function on teams, 4. an ability to identify, formulate, and solve environmental engineering problems, 5. an understanding of professional and ethical responsibility in this field, 6. an ability to communicate effectively, and 7. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: Introduction to concept of sustainability and its relevance to civil engineering, Life Cycle Assessment [5 hrs]. Drinking Water Treatment (Water Pollution, Water characteristics, Laws and Regulations, Source Selection) [10 hrs]. Conventional Drinking Water Treatment Processes, Hardness Softening Including Lime Soda Ash Softening and Ion Exchange Softening), Coagulation, Flocculation, Sedimentation, Filtration and Disinfection [40 hrs]. Special Treatment Processes, Membrane Technology, Ultra-filtration [10 hrs]. Pipes, Designing Distribution Systems, Contamination Prevention in Distribution Systems, Runoff Discharge [20 hrs]. Solid Waste Management, Characteristics, Collection Systems, Treatment Hierarchy, Reduce, Reuse, Recycle, Remanufacturing, Refuse [10 hrs]. Revision problem classes [5 hrs].
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The strategy used in this course is outcome base learning. It is to test achievement of learning outcomes and changing upon. The instructor will focus on materials those expanding students' critical thinking skills. The course was designed in a way such that students are to take environmental considerations into account in their professional work and personal life even when they are not willing to become environmental engineer. The course will give the basics of the field and how to obtain additional information as engineers require it in their careers and will give them good opportunity to understand the methods of solving environmental problems and consider that in their structural or transportation work. Quizzes will be based on the material covered in class. This material comes from a variety of sources and may go beyond the information covered in the text. Quizzes and final exam will typically consist of both quantitative and qualitative questions. In all quizzes or final exam a student will need to show all work on quantitative problems. Group assignments and reports will be open book, note and neighbor. The quizzes will be closed book, notes and neighbor. Assignments that cannot be read or are not presented in a professional engineering style will not receive credit. Final exam will be comprehensive. Plagiarism is a serious offense and will not be tolerated. Plagiarism will result in a zero for the assignment. Due dates will be given in class. Late papers may be accepted but will be docked 10% per day, including weekends and starting immediately following class. Students with excused absences will be given a reasonable amount of

time to catch up on their work with no penalty. No assignments will be accepted after the solution been returned or posted, whichever occurs first.

Student Workload (SWL)

الحمل الدراسي للطالب

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	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	20% (20)	6, 11	LO # 1-7
	Assignments	4	10% (10)	2, 4, 6, and 10	LO # 1-7
	Projects / Lab.	-	-	-	
	Report	4	10% (10)	4, 6, 8, and 11	LO # 1-7
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	5 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to environmental engineering.
Week 2	Sustainability applications in engineering.
Week 3	Drinking water treatment/water quality parameters, MCL, and hardness removal.
Week 4	Hardness removal, continue.
Week 5	Suspended solids removal/coagulation and flocculation tanks design.
Week 6	Suspended solids removal/sedimentation tank design.
Week 7	Drinking water treatment/filtration and chlorination disinfection.
Week 8	Disinfection/microbial indicators and residual chlorine in the distribution systems.
Week 9	Disinfection using UV light and ozonation.
Week 10	Sludge management and distribution systems.
Week 11	Distribution systems design/introduction to Water CAD.
Week 12	Distribution systems design, continue.

Week 13	Microbial degradation in distribution systems.
Week 14	Solid waste management/introduction, source, and characteristics.
Week 15	Integrated solid waste management/collection and treatment.
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction to lab work.
Week 2	Safety hints and instructions.
Week 3	Sampling methods and standards in lab works.
Week 4	Physical, chemical, and biological characteristics of water.
Week 5	PH test.
Week 6	Turbidity and other solids problem in drinking water: a preview.
Week 7	Turbidity test.
Week 8	Solids characteristics and classification in water.
Week 9	Solids test.
Week 10	EC test.
Week 11	Flocculation and sedimentation in water.
Week 12	Jar test.
Week 13	Hardness impacts on drinking water.
Week 14	Water softening.
Week 15	Review.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	<u>Introduction to Environmental Engineering</u> by Vesilind, P. Aarne; Susan M. Morgan and Lauren G. Heine, 2009, (3 rd Editions). ISBN-13: 978-0-495-29. ISBN-10: 0-495-29583-3.	No (only electronic version)
Recommended Texts	Great Lakes-Upper Mississippi River Board of State Sanitary Engineers: "Recommended Standards for Water Works" (Ten States Standards), 2012 Ed., Health Education Services, New York.	No(only electronic version)
Websites	https://www.youtube.com/@isamalyaseri9869	

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 Information					
معلومات المادة الدراسية					
Module Title	Design of Concrete Structures I			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE415				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGIV	Semester of Delivery		
Administering Department		CVE	College	Eng.	
Module Leader	Hussein Yousif Aziz		e-mail	husseinyousifaziz@mu.edu.iq	
Module Leader’s Acad. Title		Professor	Module Leader’s Qualification		Ph.D.
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Scientific committee	e-mail	E-mail	
Scientific Committee Approval Date		15/06/2023	Version Number	1.0	
Relation with other Modules					
العلاقة مع المواد الدراسية الأخرى					
Prerequisite module	Reinforced Concrete II			Semester	6
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. Understand the concept of sustainability and its relevance to civil engineering. 2. Explain reinforced concrete characteristics and discuss regulations involved. 3. Understand the various units used in reinforced concrete (e.g. moment and shear). 4. Understand the procedure of analysis and analysis of reinforced concrete. 5. Understand different methods in design slab, column and beam. 6. Conduct some lab tests related (e.g. concrete flexure, steel yield). 7. Describe the major options used in design of prestress concrete, etc.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course student should demonstrate the following outcomes relevant to environmental engineering: 1. an ability to apply knowledge of mathematics, science, and engineering, related to reinforced concrete, 2. an ability to design a slab, beam and column, 3. an ability to solve some problems in this topic, 4. an ability to identify, formulate, and solve reinforced concrete problems, 5. an understanding of professional and ethical responsibility in this field, 6. an ability to communicate effectively, and 7. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ▪ Introduction to concept of reinforced concrete and its relevance to civil engineering, solving problems [5 hrs]. ▪ design of slab using DDM [10 hrs]. ▪ design of prestress concrete [40 hrs]. ▪ design of reinforced concrete [10 hrs] ▪ yiled line theory [5 hrs] ▪ stair design [5 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. This course generally deals with the concept of structural engineering design and analysis depending on the previous courses which are studied in third class that study the beam in working and ultimate method, slab and short column. So this course will complete this study by the long column as analysis and design with a review for the short column and study the prestress concrete which is considered as new and very important subject for the civil engineers.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	65	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.3
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	All
	Assignments	4	10% (10)	3,6, 9,12	All
	Projects / Lab.				
	Report	1	20% (20)	13	All
Summative assessment	Midterm Exam	2 hr	10% (10)	7	All
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	column reinforced design
Week 2	column reinforced design
Week 3	column reinforced design
Week 4	column reinforced design
Week 5	column reinforced design
Week 6	column reinforced design
Week 7	stair design
Week 8	stair design
Week 9	stair design
Week 10	stair design
Week 11	prestress concrete design
Week 12	prestress concrete design
Week 13	prestress concrete design
Week 14	prestress concrete design
Week 15	prestress concrete design
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Reinforced Concrete Fundamentals, 5th Edition 5th Edition	Yes
Recommended Texts	ACI 318 19 Building Code Requirements	yes
Websites	https://www.youtube.com/channel/UClr-kX2kIZQia8Tg8uaxMWQ	

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 Information

معلومات المادة الدراسية

Module Title	Engineering Project			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☒ Seminar	
Module Code	ENG006				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level		UGIV	Semester of Delivery		
Administering Department		CVE	College	Eng.	
Module Leader			e-mail		
Module Leader’s Acad. Title			Module Leader’s Qualification		
Module Tutor	Name (if available)		e-mail	E-mail	

Peer Reviewer Name	Scientific committee	e-mail	E-mail
Scientific Committee Approval Date	15/06/2023	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 Learning Outcomes مخرجات التعلم للمادة الدراسية	
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	30	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	70	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.5
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				
	Assignments				
	Projects / Lab.				
	Report				

Summative assessment	Midterm Exam				
	Final Exam				
Total assessment					

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	
Week 2	
Week 3	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		
Recommended Texts		
Websites		

Grading Scheme

مخطط الدرجات

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

Semester 8

Module Information

معلومات المادة الدراسية

Module Title	Design of Steel Structure II			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CVE421				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGIV	Semester of Delivery		
Administering Department		CVE	College	Eng.	
Module Leader	Alaa Salam Shakir		e-mail	a.alhusainy@mu.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		Scientific committee	e-mail	E-mail	
Scientific Committee Approval Date		15/06/2023	Version Number		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Engineering Mechanics: Statics, Strength of Materials I, Strength of Materials II, Theory of Structures-I, Theory of Structures II, Design of steel structures I	Semester	1,3,4,5,6,7
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. Present the theoretical and practical fundamentals of steel constructions design. 2. Teach the students how to analysis and design of steel members the steel beams 3. Teach the students how to analyze and design base plate. 4. Introduce the defferent ways of analysis and design different types of connections.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course student should demonstrate the following outcomes relevant to environmental engineering: 1. an ability to apply knowledge of mathematics, science, and engineering, related to steel constructions, 2. an ability to design differnet steel members 3. an ability to function on teams,

	4. an ability to identify, formulate, and solve structural engineering problems, 5. an understanding of professional and ethical responsibility in this field, 6. an ability to communicate effectively, and 7. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Indicative Contents المحتويات الإرشادية	▪ Plate Girders and Box Girders [50 hrs] ▪ Members Under Biaxial Bending [50 hrs] ▪ Connections (Riveted, Bolted and welded) [25 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The strategy used in this course is outcome base learning. It is to test achievement of learning outcomes and changing upon. The instructor will focus on materials those expanding students' critical thinking skills. The course was designed in a way such that students will be able to understand the desing of steel constructions. The course will give the basics of the field of steel design and how to obtain additional information as engineers require it in their careers and will give them good opportunity to understand the methods of solving problems and consider that in their civil engineeering work. Quizzes will be based on the material covered in class. This material comes from a differnet sources and may go beyond the information covered in the text. Quizzes and final exam will typically consist of both quantitative and qualitative questions. In all quizzes or final exam a student will need to show all work on quantitative problems. Group assignments and reports will be open book, note and neighbor. The quizzes will be also open book, notes and neighbor. Assignments that cannot be read or are not presented in a professional engineering style will not receive credit. Final exam will be comprehensive. Plagiarism is a serious offense and will not be tolerated. Plagiarism will result in a zero for the assignment. Due dates will be given in class. Late papers may be accepted but will be docked 10% per day, including weekends and starting immediately following class. Students with excused absences will be given a reasonable amount of time to catch up on their work with no penalty. No assignments will be accepted after the solution been returned or posted, whichever occurs first.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	65	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.3
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	All
	Assignments	3	10% (10)	3, 9, 12	All

	Projects / Lab.	N/A	N/A	N/A	N/A
	Report	1	20% (20)	13	All
Summative assessment	Midterm Exam	2 hr	10% (10)	7	All
	Final Exam	2 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Flexural Members
Week 2	Beam Theory
Week 3	Local Stability of Beam
Week 4	Overall Stability of Beam
Week 5	AISC Requirements for Beam
Week 6	Flexural Strength of Beam
Week 7	Design of Beam
Week 8	Shear Strength of Beam
Week 9	Serviceability Requirements
Week 10	Control of Deflection
Week 11	Biaxial Loading in Beam
Week 12	Column Base Plate
Week 13	Beam Bearing Plate
Week 14	Introduction to Connections
Week 15	Types of Connections
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	McCormac, Jack, C.& Csernak, Stephen, F.; Structural Steel Design; 5th Edition, 2013, Pearson Steel Construction Manual; AISC; American Institute of Steel Construction Incorporation; 13th Edition; ASD & LRFD	Yes
Recommended Texts	1. Segui, Wiliam, T.; Design of Steel Structures, 4th Edition; 2007, Thomson. 2. Salmon, Charles, G.; Johnson, John, E; Malhas, Faris, A.; Steel Structures Design and Behaviour; 5th Edition; 2009; Pearson. 3. Englekirk, Robert; Steel Structures Controlling Behavior through Design; 2003; John Wiley & Sons Incorporation.	No
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 Information					
معلومات المادة الدراسية					
Module Title	Foundation Engineering II			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☒ Seminar	
Module Code	CVE422				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGIV	Semester of Delivery		
Administering Department		CVE	College	Eng.	
Module Leader	Hussein M. Ashour Al.Khuzai		e-mail	hma@mu.edu.iq	
Module Leader’s Acad. Title		Professor	Module Leader’s Qualification		Ph.D.
Module Tutor	N/A		e-mail		
Peer Reviewer Name		Scientific committee	e-mail		
Scientific Committee Approval Date		15/06/2023	Version Number	1.0	
Relation with other Modules					
العلاقة مع المواد الدراسية الأخرى					
Prerequisite module	Foundation Engineering I			Semester	7
Co-requisites module	None			Semester	
Module Aims, Learning Outcomes and Indicative Contents					
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية					

Module Aims أهداف المادة الدراسية	To reach the general module aims, specific objectives were developed for each section of material that describes the concepts that the instructor considers most critical for the students to take from this course: 1. geotechnical design of shallow foundations along with the structural design of them with considering the ACI-318-19 requirements for design. 2. understand the function of deep foundation and the difference between shallow and deep foundations. 3. analysis and design of deep foundation along with determine bearing capacity of piles foundation. 4. the students be able to know methods of construction of piles foundation. 5. calculate the settlement of piles foundation. 6. analyze and design of retaining walls 7. analyze the stability of slopes, natural and man-made slopes. 8. calculate the factor of safety by different methods, circular gravity method and simplified method (elements method).
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this module, the student should demonstrate the following relevant to Foundation and Geotechnical structures: 1. an ability to apply knowledge of mathematics, science, and engineering, 2. an ability to design a system, component, or process to meet desired needs within realistic constraints, 3. the ability to function on teams, 4. an ability to identify, formulate, and solve engineering problems, 5. an understanding of professional and ethical responsibility, 6. an ability to communicate effectively, 7. an education necessary to understand the impact of engineering solution in a global, economic, environmental, and societal context, and 8. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ▪ Introduction to the module and comparison be made between shallow and deep foundations. (12 hrs.) ▪ Deep foundations (types and design along with construction methods) (12 hrs.) ▪ Bearing capacity for piles of different type according to how the loads transfer by piles (20 hrs.) ▪ Bearing capacity of piles group and their design (16 hrs.). ▪ Settlement of piles foundation, (8 hrs.) ▪ Retaining wall, geotechnical design and check its stability (20 hrs.) ▪ Slope stability (12 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. The course was designed in a way such that students are to be able to design shallow foundation by geotechnical aspect and structural one. The module can furnish the student to analysis and design of piles foundation and group piles along with determination of settlement of deep foundation. The retaining earth structures can being analyzed and designed. The slope stability is one of important theme to be considered, i.e., to be analyzed and checked its stability. All the mentioned items could be achieved by different means, like, lectures, assignments and feedback by quizzes and exams, in addition to team's seminars for different subject relating to the modern methods of construction of foundation in both directions: design methods and methodology of construction along with selection the suitable and durable and sustainable materials for execution.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	65	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.3
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	2x 5% (10)	5, 10	LO #1, 3, 8
	Assignments	2	2 x 10% (20)	2, 12	LO # 2, 6, 8
	Projects / Lab.				
	Report	1	10% (10)	13	LO # 3, 6 ,7, 8
Summative assessment	Midterm Exam	2 hrs.	2x 10% (10)	7	LO # 1-8
	Final Exam	3 hrs.	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to the course
Week 2	Design of shallow foundation
Week 3	Design of shallow foundation, cont'd
Week 4	Deep foundation
Week 5	Deep foundation cont'd
Week 6	Deep foundation cont'd
Week 7	Deep foundation cont'd
Week 8	Deep foundation cont'd
Week 9	Deep foundation cont'd
Week 10	Retaining walls
Week 11	Retaining walls cont'd
Week 12	Retaining walls cont'd
Week 13	Slope stability
Week 14	Slope stability, cont'd
Week 15	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Bowles J. E. "Foundation Analysis and Design", Fifth Edition, 2006	Yes
Recommended Texts	DAS B. M., "Principles of Foundation Engineering", 9th Edition, 2019.	Electronic copy
	Huang A. B. and Yu H. S., "Foundation Engineering Analysis and Design" First Edition, 2018	Electronic copy
Websites	My videos on YouTube: @Hussein M. Ashour Al.Khuzai	

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 Information

معلومات المادة الدراسية

Module Title	Highways Engineering II			Module Delivery		
Module Type	Core			☐ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☒ Practical ☐ Seminar		
Module Code	CVE423					
ECTS Credits	5					
SWL (hr/sem)	125					
Module Level			UGIV			Semester of Delivery
Administering Department			CVE	College	Eng.	
Module Leader	Hayder Kamil Shanbara			e-mail	Hayder.shanbara@mu.edu.iq	
Module Leader's Acad. Title		Asst. Professor		Module Leader's Qualification		Ph.D.

Module Tutor	Sarah Safaaldeeen Musa and Jaber Hussein	e-mail	----
Peer Reviewer Name	Scientific Committee	e-mail	----
Scientific Committee Approval Date	15/06/2023	Version Number	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Highways Engineering I	Semester	7
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 aims of the module are to cover the basic theory and practice in sufficient depth to promote basic understanding while also ensuring as wide a coverage as possible of all topics deemed essential to students. Students will gain an understanding of key issues and practices, including design case studies where they will put theory in to practice. There is also significant coverage of highway engineering an aspect of increasing importance in developed countries with ageing infrastructure.
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Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Select the appropriate materials for use in different road layers. 2. Evaluate the quality and performance of unbound and bound road materials 3. Have sufficient knowledge and be able to perform road pavement design and analysis. 4. Develop an appropriate road monitoring and maintenance program. 5. Solve problems relating to pavement engineering and highway design.
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Indicative Contents المحتويات الإرشادية	Week 1 • Pavement Structural Design Week 2 • Special Tests for Pavement Design Week 3 • Specifications & Tests Week 4 • Serviceability Week 5 • Traffic Loads Week 6 • Equivalent single axle load Week 7 • Pavement Structural Design Week 8 • Flexible Pavement Design Week 9 • Flexible Pavement Design Week 10 • Rigid Pavement
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	Week 11 - Rigid Pavement types Week 12 - Joint types in Rigid Pavement Weeks 13 - Rigid Pavement Design Weeks 14 - Rigid Pavement Design Weeks 15 - Review
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Teaching Strategies include: Lectures, Seminars, simulation demonstrations, tutorials with worksheets and audio-visual presentations; Learning activities include: Individual design work, literature review/analysis, use of software and directed reading. The examination will assess your knowledge and understanding of highway and transportation engineering and your abilities of analysis and problem solving. The other learning outcomes should be achieved through the junction design exercise.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	75	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	50	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	3.3
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	4	10% (4)	3, 6, 9, 12	LO #1, 2, and 5
	Monthly Exams	2	40% (16)	5, 10	LO # 3, 4, and 5
	Lab	1	37.5% (15)	Continuous	
	Report	1	5% (2)	13	LO # 1, 3 and 4
	Homework	3	7.5% (3)	2, 7, 11	LO # 2, 3 and 5
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-4
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

	Material Covered
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Week 1	Pavement Structural Design
Week 2	Special Tests for Pavement Design
Week 3	Specifications & Tests
Week 4	Serviceability
Week 5	Traffic Loads
Week 6	Equivalent single axle load
Week 7	Pavement Structural Design
Week 8	Flexible Pavement Design
Week 9	Flexible Pavement Design
Week 10	Rigid Pavement
Week 11	Rigid Pavement types
Week 12	Joint types in Rigid Pavement
Week 13	Rigid Pavement Design
Week 14	Rigid Pavement Design
Week 15	Review

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction and testing of components
Week 2	Gradation of aggregates materials
Week 3	Preparing Marshall samples
Week 4	Preparing Marshall samples
Week 5	Testing Marshall samples
Week 6	Testing Marshall samples
Week 7	Density relationship calculations
Week 8	Determination of optimum asphalt content & new mix characteristics
Week 9	Determination of optimum asphalt content & new mix characteristics
Week 10	Final report of mix formula
Week 11	Final report of mix formula
Week 12	Centrifugal test for asphalt mix analysis
Week 13	Core test of pavement

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
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Required Texts	•Principles of pavement design, By Yoder, E. and Witczak. M., 1975, 2nd edition, New York: John Wiley and Sons, Inc. •Principles and Practices of Highway Engineering, By L. R. Kadiyali (4th Edition 2008). •Highways, The Location, Design, Construction and Maintenance of Road Pavements. By Coleman O’Flaherty (4th Edition 2009).	Yes
Recommended Texts	•Deterioration and Maintenance of Pavements, By Derek Pearson (1st Edition 2013). •American Association of State Highway and Transportation Officials (AASHTO), (2003). •Highway Engineering, By Rogers M., (2008), 2nd Edition, Blackwell Publishing Ltd. •Principles of Pavement Engineering, By Nicholas Thom (2nd Edition 2014).	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

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Module Information

معلومات المادة الدراسية

Module Title	Sanitary and Environmental Engineering-II			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CVE424				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGIV	Semester of Delivery		8
Administering Department		CVE	College	Eng.	
Module Leader	Isam Alyaseri		e-mail	ialyase@mu.edu.iq	
Module Leader’s Acad. Title		Professor	Module Leader’s Qualification		Ph.D.
Module Tutor	-		e-mail	-	
Peer Reviewer Name		Scientific committee	e-mail	-	
Scientific Committee Approval Date		15/06/2023	Version Number		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Sanitary and Environmental Engineering I	Semester	7
Co-requisites module	-	Semester	-

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. Explain wastewater characteristics and sewer system design. 2. Understand the regulations and permits involved in wastewater treatment. 3. Understand typical flow diagrams for wastewater treatment from collection tanks to discharge points, with unit processes and operations used and their purposes including sludge handling. 4. Understand different methods in design wastewater treatment systems (central and onsite) and describe the general factors involved in choosing the type of treatment. 5. Solve problems involving stormwater management, water quality, and oxygen demand in receiving waters, and conducting lab tests for solids content and dissolved oxygen. 6. Describe the components of the waste management hierarchy, and how to determine the data required evaluating waste management options. 7. Describe the major options used in air pollution prevention and management of industrial polluted air. 8. Conduct some lab tests related (e.g., alkalinity, chloride, and jar test).
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Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course student should demonstrate the following outcomes relevant to environmental engineering: 1. an ability to apply knowledge of mathematics, science, and engineering, related to environmental engineering, 2. an ability to design an environmental system, component, or process to meet desired needs within realistic constraints, 3. an ability to function on teams, 4. an ability to identify, formulate, and solve environmental engineering problems, 5. an understanding of professional and ethical responsibility in this field, 6. an ability to communicate effectively, and 7. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: Wastewater Treatment; River Pollution by Wastewater; Wastewater characteristics; Laws and Regulations, Centralized and In-situ Treatment [15hrs]. Contamination Prevention and Problem of Direct Discharge; Designing of Sewer Systems including Sanitary, Stormwater and Combined systems [10 hrs]. Conventional Wastewater Treatment Processes; Primary, Secondary, and Advanced Treatment; Clarifier Design Including: Flocculation and Sedimentation Processes; Filtration; Disinfection [30 hrs]. Secondary Treatments including: Activated Sludge, Trickling Filter, Sequencing Batch Reactor, Rotating biological Contactor, and Lagoons [15hrs]. Special Treatment Processes, Reuse and Discharge of Treated Wastewater, Streeter Philips Model [10 hrs]. Stormwater Management Options [5 hrs]. Air Pollution, Characteristics, Global Warming, Primary and Secondary Air Pollutants Devices for Air Pollution Control [10 hrs]. Revision problem classes [5hrs].
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The strategy used in this course is outcome-based learning. It is to test the achievement of learning outcomes and changing upon. The instructor will focus on materials that expand students' critical thinking skills. The course was designed in a way such that students are to take environmental considerations into account in their professional work and personal life even when they are not willing to become environmental engineers. The course will give the basics of the field and how to obtain additional information as engineers require it in their careers and will give them a reasonable opportunity to understand the methods of solving environmental problems and consider that in their structural or transportation work. Quizzes will be based on the material covered in class. This material comes from various sources and may go beyond the information covered in the text. Quizzes and final exams will typically consist of both quantitative and qualitative questions. In all quizzes or final exams, a student will need to show all work on quantitative problems. Group assignments and reports will be open book, note, and neighbor. The quizzes will be closed books, notes, and neighbors. Assignments that cannot be read or are not presented in a professional engineering style will not receive credit. The final exam will be comprehensive. Plagiarism is a serious offense and will not be tolerated. Plagiarism will result in a zero for the assignment. Due dates will be given in class. Late papers may be accepted but will be docked 10% per day, including weekends and starting immediately following class. Students with excused absences will be given a reasonable amount of

time to catch up on their work with no penalty. No assignments will be accepted after the solution has been returned or posted, whichever occurs first.

Student Workload (SWL)

الحمل الدراسي للطالب

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	50	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.3
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	20% (20)	6, 11	LO # 1-7
	Assignments	4	10% (10)	2, 4, 6, and 10	LO # 1-7
	Projects / Lab.	-	-	-	
	Report/lab.	4	10% (10)	4, 6, 8, and 11	LO # 1-7
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	5 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

	Material Covered
Week 1	Introduction to wastewater treatment
Week 2	Wastewater/assessment parameters and dissemination impacts
Week 3	Basic design concepts for sewer systems
Week 4	Sewer systems basic design, continue
Week 5	Wastewater treatment/preliminary and primary phases
Week 6	Oxygen demand calculations (ThoD, BOD, and COD)
Week 7	Secondary wastewater treatment/activated sludge
Week 8	Activated sludge treatment/ basic design
Week 9	Trickling filter, oxidation ditch, SBR, RBC, etc.
Week 10	Nutrients removal/wastewater sludge treatment and applications
Week 11	Treated wastewater reuse and recycle

Week 12	River pollution/Streeter-Phelps Model
Week 13	Stormwater management/green infrastructures
Week 14	Introduction to air pollution
Week 15	Industrial air pollution management
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction to hardness
Week 2	Water softening (continue).
Week 3	Hardness test.
Week 4	Introduction to chlorides in water
Week 5	Chloride test.
Week 6	Alkalinity in water and wastewater: a preview.
Week 7	Alkalinity test.
Week 8	Wastewater treatment characteristics.
Week 9	Wastewater treatment characteristics (continue).
Week 10	Demand for oxygen in water.
Week 11	Dissolved oxygen test.
Week 12	Introduction to dissolved oxygen tests.
Week 13	BOD test
Week 14	COD test
Week 15	Review

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	<u>Introduction to Environmental Engineering</u> by Vesilind, P. Aarne; Susan M. Morgan and Lauren G. Heine, 2009, (3 rd Editions). ISBN-13: 978-0-495-29. ISBN-10: 0-495-29583-3.	No (only electronic version)
Recommended Texts	“Recommended Standards for Wastewater Facilities” (Ten States Standards), 2014 Ed., Health Education Services, New York.	No(only electronic version)
Websites	https://www.youtube.com/@isamalyaseri9869	

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 Information					
معلومات المادة الدراسية					
Module Title	Engineering Computer Applications		Module Delivery		
Module Type	Core		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar		
Module Code	CVE425				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGIV	Semester of Delivery		8
Administering Department		CVE	College	Eng.	
Module Leader	Basim .J. Abbas		e-mail	basim.jabar@mu.edu.iq	
Module Leader’s Acad. Title		Professor	Module Leader’s Qualification		Ph.D.
Module Tutor	-		e-mail	-	
Peer Reviewer Name		Scientific committee	e-mail	-	
Scientific Committee Approval Date		15/06/2023	Version Number	1.0	
Relation with other Modules					
العلاقة مع المواد الدراسية الأخرى					
Prerequisite module		Design of concrete structures I		Semester	7
Co-requisites module		-		Semester	-
Module Aims, Learning Outcomes and Indicative Contents					

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. To provide students with a foundational understanding of computer applications that are relevant to engineering. 2. - To equip students with practical skills in using software tools for modeling, design, simulation, and analysis in various engineering disciplines. 3. - To introduce the principles of programming and algorithmic thinking in solving engineering problems. 4. - To foster an understanding of how computer applications can enhance efficiency, accuracy, and creativity in engineering tasks.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course student should demonstrate the following outcomes relevant to environmental engineering: 1. Identify and describe the role of computer applications in different areas of engineering. 2. Explain the core components and functionalities of SAP software relevant to engineering. 3. Analyze data within SAP systems to support engineering decisions. 4. Appreciate the role of SAP in digital transformation and how it can be leveraged for innovation in engineering. 5. Apply basic programming skills to solve engineering problems. 6. Analyze and interpret data from simulations and models to make informed engineering decisions. 7. Demonstrate the ability to learn and adapt to new software tools and technologies as they emerge in the engineering field.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: Wastewater Treatment; River Pollution by Wastewater; Wastewater characteristics; Laws and Regulations, Centralized and In-situ Treatment [15hrs]. Contamination Prevention and Problem of Direct Discharge; Designing of Sewer Systems including Sanitary, Stormwater and Combined systems [10 hrs]. Conventional Wastewater Treatment Processes; Primary, Secondary, and Advanced Treatment; Clarifier Design Including: Flocculation and Sedimentation Processes; Filtration; Disinfection [30 hrs]. Secondary Treatments including: Activated Sludge, Trickling Filter, Sequencing Batch Reactor, Rotating biological Contactor, and Lagoons [15hrs]. Special Treatment Processes, Reuse and Discharge of Treated Wastewater, Streeter Philips Model [10 hrs]. Stormwater Management Options [5 hrs]. Air Pollution, Characteristics, Global Warming, Primary and Secondary Air Pollutants Devices for Air Pollution Control [10 hrs]. Revision problem classes [5hrs].

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	To effectively deliver the Engineering Applications of SAP Software module, a blend of interactive lectures, hands-on SAP lab sessions, and real-world case studies are employed, aimed at both introducing key concepts and providing practical experience with SAP systems. This is complemented by group projects that simulate engineering challenges, requiring students to apply SAP solutions in a team setting. Further enrichment comes from guest lectures by industry professionals, offering insights into current trends and real-world SAP applications, alongside the use of simulation games to deepen understanding of SAP's integrative role in business processes.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	45	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	80	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.3
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	20% (20)	6, 11	LO # 1-7
	Assignments	4	10% (10)	2, 4, 6, and 10	LO # 1-7
	Projects / Lab.	-	-	-	
	Report/lab.	4	10% (10)	4, 6, 8, and 11	LO # 1-7
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	5 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Training on using of SAP 2000.
Week 2	analysis of 2D beams, Advanced analysis of 2D beams
Week 3	analysis of 2D frames
Week 4	Advanced analysis of 2D frames
Week 5	Advanced analysis of 2D slabs
Week 6	Advanced analysis of 2D slab
Week 7	Analysis of one story reinforced concrete buildings
Week 8	Analysis and design of multistory reinforced concrete buildings
Week 9	Analysis and design of multistory reinforced concrete buildings
Week 10	Analysis and design of multistory reinforced concrete buildings with walls
Week 11	Analysis and design of multistory reinforced concrete buildings with walls
Week 12	Analysis and design of steel buildings.
Week 13	Analysis and design of steel buildings
Week 14	Analysis and design of steel buildings

Week 15	Review
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Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Training on using of SAP 2000.
Week 2	analysis of 2D beams, Advanced analysis of 2D beams
Week 3	analysis of 2D frames
Week 4	Advanced analysis of 2D frames
Week 5	Advanced analysis of 2D slabs
Week 6	Advanced analysis of 2D slab
Week 7	Analysis of one story reinforced concrete buildings
Week 8	Analysis and design of multistory reinforced concrete buildings
Week 9	Analysis and design of multistory reinforced concrete buildings
Week 10	Analysis and design of multistory reinforced concrete buildings with walls
Week 11	Analysis and design of multistory reinforced concrete buildings with walls
Week 12	Analysis and design of steel buildings.
Week 13	Analysis and design of steel buildings
Week 14	Analysis and design of steel buildings
Week 15	Review

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		
Recommended Texts		
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
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Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
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Module Information

معلومات المادة الدراسية

Module Title	Engineering Project			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☒ Seminar	
Module Code	ENG006				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level		UGIV	Semester of Delivery		
Administering Department		CVE	College	Eng.	
Module Leader			e-mail		
Module Leader’s Acad. Title			Module Leader’s Qualification		
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Scientific committee	e-mail	E-mail	
Scientific Committee Approval Date		15/06/2023	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 Learning Outcomes مخرجات التعلم للمادة الدراسية	
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem)

الحمل الدراسي المنتظم للطالب خلال الفصل

30

Structured SWL (h/w)

الحمل الدراسي المنتظم للطالب أسبوعياً

2

Unstructured SWL (h/sem)

الحمل الدراسي غير المنتظم للطالب خلال الفصل

70

Unstructured SWL (h/w)

الحمل الدراسي غير المنتظم للطالب أسبوعياً

4

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				
	Assignments				
	Projects / Lab.				
	Report				
Summative assessment	Midterm Exam				
	Final Exam				
Total assessment					

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

	Material Covered
Week 1	
Week 2	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		
Recommended Texts		
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
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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 Information

معلومات المادة الدراسية

Module Title	Engineering Ethics			Module Delivery		
Module Type	Support			☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar		
Module Code	UNI007					
ECTS Credits	1					
SWL (hr/sem)	25					
Module Level			UGIV			Semester of Delivery
Administering Department			CVE	College	Eng.	
Module Leader	Isam Alyaseri			e-mail	ialyase@mu.edu.iq	
Module Leader’s Acad. Title			Professor	Module Leader’s Qualification		Ph.D.
Module Tutor	-			e-mail	-	
Peer Reviewer Name			Scientific Committee	e-mail	-	
Scientific Committee Approval Date			15/06/2023	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	1. Explain definition of ethical concepts. 2. Explain the sources behind ethics in engineering proficiency.
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أهداف المادة الدراسية	3. Relating engineering ethics to cultural heritages. 4. Explain obligations on engineers towards society under ethics code. 5. Explain obligations towards employers. 6. Explain obligations towards colleagues and work team. 7. Explain obligations towards environment. 8. Explain correction measures in case of fail to comply to ethics code.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course student should demonstrate the following outcomes relevant to environmental engineering: 1. an ability to function on teams, 2. an understanding of professional and ethical responsibility in the field of engineering works, 3. an ability to communicate effectively, and 4. an ability to understand laws and regulations in all phases of projects implementation.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: Definition and sources of ethics [10 hrs]; Obligations on engineers and engineering works [10 hrs]; Professionalism and ethics; obligation towards society, occupation, teams in work, and environment [20 hrs]; and engineering responsibilities [10 hrs].

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The course was designed in a way such that students are to take ethics considerations into account in their professional work and personal life even when they are not willing to become engineers. The course will give the basics of the field and how to obtain additional information in ethics philosophy. The course will give them a reasonable opportunity to understand the methods of solving ethical problems they may face during work. The strategy used in this course is outcome-based learning. It is to test the achievement of learning outcomes and changing upon. The instructor will focus on materials that expand students' feelings towards his/her responsibilities.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	15	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	10	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	0.6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	25		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	6, 11	LO # 1-4
	Assignments	2	10% (10)	2, 4, 6, and 10	LO # 1-4
	Projects / Lab.	-	-	-	-
	Report/lab.	-	-	-	-

Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-4
	Final Exam	3 hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to concepts of ethics.
Week 2	The concept of ethical behavior.
Week 3	Source and basics of Professional ethics.
Week 4	Cultural heritages and engineering ethics.
Week 5	Definition to the code of engineering ethics: rules and scope.
Week 6	Principles of engineering profession ethics
Week 7	Obligations on engineers: accepting responsibilities, conducting productivity, QA/QC
Week 8	Obligation to improve knowledge.
Week 9	Avoiding fraudulent behavior
Week 10	Obligation to the rights of others.
Week 11	Obligations towards employers
Week 12	Avoiding conflict of interests.
Week 13	Promote righteousness and integrity and reject fraudulent practices
Week 14	Examples from work.
Week 15	Examples from work (continue).
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	مدونة اخلاقيات المهنة/مدونات البناء العراقية م.ب.ع. ٢٠١٧ - ٢٠٢٠ م	yes
Recommended Texts	-	-
Websites	-	-

Grading Scheme

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