MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Calculus			Module Delivery	
Module Type	Support or related learning activity			☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	ENV111				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level	1		Semester of Delivery	1	
Administering Department	ENV8		College	ENG4	
Module Leader	Mayada Hazim		e-mail	mayada.hmah@uomosul.edu.iq	
Module Leader's Acad. Title	Lecturer		Module Leader's Qualification	M.Sc.	
Module Tutor	Abeer Khalil Ibrahim		e-mail	abeer.alsaraf@uomosul.edu.iq	
Peer Reviewer Name	------		e-mail	E-mail	
Scientific Committee Approval Date	12/06/2023		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 Objectives أهداف المادة الدراسية	The aim of this course is to introduce the students to main topics of calculus. The course will cover Prerequisites for calculus, Limits, Continuity, and Differentiation (methods and applications), Integration, Applications of Definite Integrals, The Calculus of Transcendental Function, Techniques of Integration. At the end of the course, students will have a broad knowledge of the basic concepts, techniques and applications of differential and integral calculus. This will be achieved through theoretical lectures, tutorials and homework
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. **CLO-1:** Recognize fundamentals of math and the emphasis on functions and graphs(i). **CLO-2:** understanding various limit problems both algebraically and graphically and using it by checking the continuity of various types of functions(i). **CLO-3:** Finding the derivative of various types of functions using the differentiation rules and Appling differentiation to find linear approximation and optimization problems(ii) **CLO-4:** Recognize indefinite integrals and definite integral and know the basic properties(i). **CLO-5:** Use applications of definite integral to find areas between curves, volumes, lengths of plane curves and areas of surfaces of revolution(ii). **CLO-6:** Identified and understand of transcendental functions and know the basic properties(i) .
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A – Prerequisites for calculus Coordinates and Graphs in the Plane, Slope, and Equations for Lines, Functions and Their Graphs, conic section (circles, parabolas, ellipses and hyperbolas geometrically) and derive their standard Cartesian equations. Shifting Conic Sections, a review of trigonometric functions (14 hrs). Part B – Limits and Continuity Limits, The Sandwich Theorem and $(\sin\theta)/\theta$, Limits Involving Infinity, Continuous Functions. (7 hrs). Part C – Derivatives Slope, Tangent Lines, and Derivatives, Differentiation Rules, Velocity, Speed and Other Rate of Change, Derivatives of Trigonometric Functions, The Chain Rule, Implicit Differentiation and Fractional Powers, Linear Approximations and Differentials (7 hrs). Part D - Applications of Derivatives Related Rates of Change, Maximal, Minima and the Mean Value Theorem, Curve Sketching with y', y'' , Graphing Rational Functions-Asymptotes and Dominant Terms, Optimization (14 hrs).

	Part E -Integration Calculus and Area, Formulas for Finite sums, Definite Integrals, The Fundamental Theorems of Integral Calculus, Indefinite Integrals, Integration by Substitution –Running the Chain Rule Backward(7 hrs). Part F- Applications of Definite Integrals Areas between Curves, Calculus and Area, Volumes of Solids of Revolution-Disks and Washers, Cylindrical Shells-An Alternative to Washers, Lengths of Curves in the Plane, Areas of Surfaces of Revolution(14 hrs). Part G- The Calculus of Transcendental Function Inverse Function and Their Derivatives, Ln x ,e^x , and Logarithmic Differentiation,Indeterminate Forms and Hospital's Rule, Other Exponential and Logarithmic Function, The Inverse Trigonometric Function, Derivatives of Inverse Trigonometric Functions(21 hrs).
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	Expanding students' perceptions of calculus, familiarity with basic mathematical concepts and principles, and the ability to distinguish between different mathematical concepts. This course has several components that include studying lectures, tutorial, discussion, homework, and e-learning platforms. The course will be taught in English, and all compulsory assignments have to be submitted within the deadlines to be admitted to the exam.

Student Workload (SWL) **الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا**			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	108	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	7.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	92	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	6	25 % (25)	3, 4, ,8,10,12 and 14	CLO-1, CLO-2, CLO-3, CLO-4, CLO-5, CLO-6
	Assignments	6	15 % (15)	3, 4, 8, 10, 12and 15	CLO-1, CLO-2, CLO-3, CLO-4 CLO-5and CLO-6
	Projects / Lab.	0	0	0	
	Report	0	0		All
Summative assessment	Midterm Exam	2hr	10% (10)	8	CLO-1, CLO -2 , CLO -3,
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Coordinates and graphs in the plane, slope, and equations for lines, functions and their graphs, define and review circles and parabolas, geometrically and derive their standard Cartesian equations.
Week 2	define and review ellipses, and hyperbolas geometrically and derive their standard Cartesian equations.
Week 3	A review of trigonometric functions.
Week 4	Limits, The sandwich theorem and $(\sin\theta)/\theta$, limits involving infinity, continuous functions.
Week 5	Slope, tangent lines, and derivatives, differentiation rules, velocity, speed and other rate of change, derivatives of trigonometric functions.
Week 6	The chain rule, implicit differentiation and fractional powers, linear approximations and differentials.
Week 7	Related rates of change, maximal, minima and the mean value theorem, curve sketching with y', y''.
Week 8	Graphing rational functions-Asymptotes and dominant terms, optimization.
Week 9	Calculus and area, formulas for finite sums, definite integrals, the fundamental theorems of integral calculus,

Week 10	Indefinite integrals, integration by substitution –running the chain rule backward.
Week 11	Areas between curves, calculus and area, volumes of solids of revolution-disks and washers,
Week 12	Volumes of solids of revolution -cylindrical shells-An alternative to washers, lengths of curves in the plane, areas of surfaces of revolution.
Week 13	Inverse function and their derivatives, Ln x ,e^x .
Week 14	Logarithmic differentiation, indeterminate forms and Hospital's rule, other exponential and logarithmic function,
Week 15	The Inverse trigonometric function, derivatives of inverse trigonometric functions.
Week 16	Preparatory week before the final Exam

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	• Finney, R.L, & Thomas, G.B, "Calculus" Addison. Wesley publishing company, USA,11th,2011.	Yes
Recommended Texts	• Anton, H., Bivens, I.C., Davis, S., Calculus: Early Transcendentals, Wiley, 10th edition, 2011.	Yes
Websites	https://uomosul.edu.iq/en/engineering/environmental-engineering-dept/	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Engineering Drawing			**Module Delivery**	
Module Type	Core			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ENV112				
ECTS Credits	8.0				
SWL (hr/sem)	200				
Module Level		1	**Semester of Delivery**		1
Administering Department		ENV8	**College**	ENG4	
Module Leader	Dr. Ayman Waleed		**e-mail**	aymanwaleed1975@uomosul.edu.iq	
Module Leader's Acad. Title		Lectures	Module Leader's **Qualification**		Ph.D.
Module Tutor	Mohammed Hisham		**e-mail**	E-mail	
Peer Reviewer Name		Aya thamer	**e-mail**	E-mail	
Scientific Committee Approval Date		12/06/2023	**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 Objectives أهداف المادة الدراسية	The aim of this course is to help the students to use the technical drawing and performs drawing exercises with ruler, compass, T-square. make the student able to draw circles with straight lines, arcs and polygon. learns and applies dimensioning rules. knows the properties of cross section view and carry out the perspective drawings due to views.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**CLO-1:** use the technical drawing tools properly and to plot pictures according to the dimensions and properties of technical drawing. (i) **CLO-2:**Using scale, types of scales and measurement techniques to drawings.(i) **CLO-3:**Applying several geometric shapes by using a compass. (iii) **CLO-4:**Learning and applies dimensioning rules.(iii) **CLO-5:**Implementing the properties of cross section view. (iii) **CLO-6:**Carrying out the perspective drawings due to views. (iii) **CLO-7:**Increasing the students ability to imagine. (iii)
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A – Graphic instruments and their use This lectures will describe the most common drafting instruments in use and discuss how they are use. (5 hrs) Part B – Graphic geometry and engineering applications In order to create the drafter or designer needs to know how to construct various common geometric patterns, for example parallel line, circle, arc, polygon and ellipse. (20 hrs) Part C – Theory of projection. Orthographic projection Explain the theory of projection.Consisting of a set of two or more separate views of an object taken from different direction. (15 hrs) Part D - Isometric drawing A three dimension drawing or sketch shows the entire object in one view from the two or three plains(front, top, side view) (15 hrs) Part E - Missing view Find the missing view from the other views. (10 hrs) Part F - Sections (10 hrs)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	This course has several components that include lectures, classwork, homework and quiz. The course will be taught in English, and all mandatory assignments have to be submitted within the deadlines to be admitted to the exams.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	207	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**200**		

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

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	**Introduction . Graphic instruments and their use. Types of lines**
Week 2 - 5	**Graphic geometry and engineering applications**
Week 6-8	**Theory of projection. Orthographic projection**
Week 9-11	**Isometric drawing**
Week 12-13	**Missing view**
Week 14-15	**Section**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	○ T.E.French ,engineering drawing and graphic technology (1986)	Yes
Recommended Texts	○ ثامر محمد نوري (كتاب الرسم الهندسي المساعد) 2021	Yes
	○ د.احمد العبيدي (الرسم الهندسي والهندسة الوصفية) 2021	Yes
Websites	https://uomosul.edu.iq/en/engineering/environmental-engineering-dept/	

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

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

THERMODYNAMICS AND HEAT TRANSFER.docx

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Environmental Thermodynamics**			**Module Delivery**	
Module Type	**Base**			• ☒**Theory** • ☒**Lecture** • ☐**Lab** • ☒**Tutorial** • ☐**Practical** • ☒**Seminar**	
Module Code	**ENV113**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Maan S. Mohammed Al Dabbagh		**e-mail**	maandabbagh@uomosul.edu.iq	
Module Leader's Acad. Title	Ass. Professor		**Module Leader's Qualification**	M.Sc	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	11/06/2023		**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**	Students will be able to: 1. Write clear the objectives of this integrated subject 2. Enable the student to know theoretical and practical concepts of the thermodynamic processes. 3. Enable the student to know theoretical and practical concepts of the physics materials properties and heat effect on it. 4. Enable the student to measure the temperature and pressure with conventional and modern measuring devices. 5. Enable the student to know the types of energy and practice applications 6. Develop the fundamental principles and laws of thermodin and to explore the implications of these principles for system behavior including: 7. formulate the models necessary to study . 8. Enable the student to know the types of system and there applications and how to deal with its 9. an ability to work with the concepts mathematically, and a functional understanding

	of how these ideas play out in the real world. 10. analyze and design heat transfer systems through the application of these principles 11. Use graphs and diagrams to convey results. 12. develop the problem-solving skills essential to good engineering practice of heat transfer in real-world applications 13. Decide on strategies to be used and assumptions that need to be made.
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	1. Study of some concepts and definitions and types of the systems 2. Measurement of pressure and temperature 3. Know the devices of temperature and pressure. 4. Study the basic concepts of thermodynamics 5. Develop a flexible and creative problem-solving ability. 6. Translate physical descriptions into mathematical equations. 7. Examine intermediate results or other quantities that could be used to ensure a solution . 8. Develop their ability to communicate ideas of science. 9. Identify what they don't understand, and ask specific questions in order to gain understanding. 10. Enable the student to use the programs of internet search to benefit sources. 11. Enable the student to prepared the daily of special thermodynamics reports and preparing brochures which dealing with the thermal effects on the environment. 12. Enable the student to work in research centers and industrial institutions 13. Understand and apply the basic idea of heat transfer theorem to physical systems. 14. Study of types of energy and there application. 15. Study the different between the closed and opened systems. 16. The mathematical models of the physical systems are explained 17. Define and describe the steady state principle.
Indicative Contents **المحتويات الإرشادية**	Indicative content includes the following. **Basic Quantities, including:** [10 hrs] • State SI units, and write the units and their abbreviations correctly. • The advantage of developing the students ability to understand thermodynamics object. • Know the types of energy and practice applications. • Know the different between the heat transfer and work. • How can be calculate the heat lost and gain from or by the system. • How can be calculate the energy from or by the system • Distinguish heat transfer in the closed system. • Distinguish work in the closed system **Types of energy and it is applications:** [10 hrs] • State, explain, and apply different between the gage pressure . • Differentiate between the pressure for the solid, liquid and gases • How can calculate and transfer the units. • Solve problems using the **The perfect gas law** [10hrs] • What is the perfect gas (ideal gas) • Study the general gas law • the behavior of many Gas constant · · Boyle's law · Charles's law . Gay-Lussac's law **First law of thermodynamics and there application:** [15 hrs] • In order to deal with subject of applied of thermodynamics rigorously it is

	necessary to know the different between applications. • The state of working fluid. • Study the non-flow equation • Study the steady flow equation • The different between the closed system and open system and there application

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The primary strategy for delivering this module will be to encourage students to participate in the exercises while refining and expanding their critical thinking skills. This will be accomplished through classes, interactive tutorials, and the consideration of simple experiments involving sampling activities that students find interesting.

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**	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**	3	10% (10)	4, 9, 12	LO #1, 2, 10 and 11
	Assignments	4	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.		0% (0)		
	Report	1	5% (5)	9	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	1hr	15% (15)	8	LO # 1-4
	Final Exam	3hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction , dimensions and unit,
Week 2	Some concepts and definitions and types of the systems
Week 3	Measurement of pressure and temperature
Week 4	Perfect gas laws
Week 5	Solved problems sheet No.1 Homework 1 Quiz
Week 6	Forms of Energy
Week 7	Solved problems sheet No.2 Homework 2 Quiz
Week 8	Thermodynamics laws / First law of thermodynamics

Week 9	Thermodynamic processes - Applied to the closed system process
Week 10	Thermodynamic processes - Applied to the closed system process
Week 11	Solved problems sheet No.3 Homework 3 Quiz
Week 12	1st term Examination
Week 13	Thermodynamic processes - Applied to the open system process
Week 14	Solved problems sheet No.4 Homework 4 Quiz
Week 15	The modes of heat transfer
Week 16	Environmental application of Heat transfer
Week 17	Isothermal and non-isothermal operations
Week 18	Solved problems sheet No.5 Homework 5 Quiz
	2nd term Examination

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Applied thermodynamics fifth edition by t.d eastop and a. mcconkey	Yes
Recommended Texts	Y. A. Çengel and M. A. Boles, Thermodynamics: An Engineering Approach, 5th ed, McGraw-Hill, 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 is required, but credit is given.
	F – Fail	**راسب**	(0-44)	A significant amount of work is required.

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	برمجة الحاسوب			**Module Delivery**	
Module Type	Basic			☐**Theory** ☒**Lecture** ☒**Lab** **Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	ENV114				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	1		**Semester of Delivery**	1	
Administering Department	ENV8		**College**	ENG4	
Module Leader	احمد ياسين شهاب		**e-mail**	ahmed910777@uomosul.edu.iq	
Module Leader's Acad. Title	مدرس		Module Leader's **Qualification**	Msc	
Module Tutor	عبير خليل		**e-mail**	E-mail	
Peer Reviewer Name	------		**e-mail**	E-mail	
Scientific Committee Approval Date	12/06/2023		**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 Objectives أهداف المادة الدراسية	تهدف هذا المادة الدراسية إلى تعليم الطلاب البرمجة بلغة فيجوال بيسك Visual Basic 6 (VB6) حيث تساعد هذه اللغة الطلاب على فهم وكتابة بعض الشفرات والبرامج المحددة، كذلك تهدف هذه المادة الى توسيع مدارك الطلاب في فهم طبيعة عمل البرامج. يتضمن المنهاج الدراسي فهم بيئة التطوير المتكاملة لهذه اللغة البرمجية ونوافذها وهي النموذج و صندوق الأدوات ونافذة الخصائص ومستكشف المشروع ونافذة تخطيط النموذج وشريط القوائم وشريط الأدوات، بالإضافة الى أحداث الفارة (الماوس) ، ومربعات الحوار ، وأساسيات VB6 (مثل البيانات ، والثوابت) ، وعبارات التحكم والجمل الشرطية بالإضافة الى جمل الدوران
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**CLO-1:** فهم بيئة التطوير المتكاملة للغة فيجوال بيسك 6 **CLO-2:** تذكر عمل النوافذ والأدوات وخصائص هذه البيئة لغرض كتابة الشفرات البرمجية **CLO-3:** تطبيق ما تم تعلمه في كتابة عبارات برمجية بشكل منفردة **CLO-4:** تحليل الخوارزميات التي توضع قبل كتابة أي برنامج **CLO-5:** تصميم برامج رياضية محدودة بالاستعانة بالمعلومات السابقة **CLO-6:** كتابة وتنفيذ برامج رياضية وهندسية محدودة باستعمال هذه اللغة البرمجية
Indicative Contents المحتويات الإرشادية	Part A – Integrated Development Environment (IDE) بيئة البرنامج التي تتضمن التعرف على استخدام نوافذ بيئة التطوير المتكاملة والتي تعد أساس لكتابة أي شفرة برمجية بلغة فيجوال بيسك Part B – Dialogue boxes صناديق الحوار الجاهزة والتي تتضمن صناديق الادخال وصناديق الرسائل Part C – Control Statements جمل التحكم الجمل الشرطية وجمل الدوران والتكرار

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	تتالف هذه المادة من جزئين أساسيين أولهما الدروس النظرية التي تساعد الطلبة على فهم المادة الدراسة وثنيهما مختبر الحاسوب والذي يمكن الطلبة من تنفيذ ما تعلمه نظريا وتطبيقه بالاستعانة بحواسيب المختبر. تُدرس المادة بالغة العربية وتشمل جميع مفردات المنهاج وبحسب التوقيتات المذكورة

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	59	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3.9
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	66	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.4

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**	4	25 % (25)	3, 4, 8,10	CLO-1, CLO-1, CLO-2, CLO-2
	Assignments	4	15 % (15)	2, 3, 7, 9	CLO-2, CLO-2, CLO-3, CLO-3
Summative assessment	**Midterm Exam**	2hr	10% (10)	12	CLO-1, CLO-2, CLO-3, CLO-4
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	المقدمة
Week 2	Integrated Development Environment (IDE) بيئة التطوير المتكاملة
Week 3	Form نافذة النموذج
Week 4	نافذة مستكشف المشروع و شريط القوائم وشريط الأدوات ونافذة شكل النموذج Project explorer, menu bar, toolbar, form layout window
Week 5	أدوات التحكم
Week 6	نافذة الخصائص
Week 7	Events الاحداث
Week 8	Dialogue Boxes صناديق الحوار
Week 9	Input boxes صناديق الادخال
Week 10	Message boxes صناديق الرسائل
Week 11	Variables المتغيرات
Week 12	Control statements جمل التحكم

Week 13	If… Then الجمل الشرطية نوع
Week 14	الجمل الشرطية نوعIIF
Week 15	For… Next statement جمل الدوران
Week 16	الاستعداد للاختبار النهائي

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	تشطيب البرنامج
Week 2	التعرف على بيئة البرنامج
Week 3	أدوات التحكم
Week 4	امثلة
Week 5	نافذة الخصائص
Week 6	الاحداث
Week 7	امثلة
Week 8	صناديق الحوار
Week 9	امثلة
Week 10	المتغيرات والاعلان عنها
Week 11	الجمل الشرطية
Week 12	امثلة
Week 13	امثلة
Week 14	جمل الدوران
Week 15	امثلة
Week 16	الاستعداد للاختبار النهائي

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	فيجوال بيسك 6 مهارات الحاسوب 2 ، كلية الملك عبد الله الثاني لتكنولوجيا المعلومات، الحلبي يحيى صبري واخرون ، الأردنية الجامعة	نعم
Recommended Texts	Gary Haggard, Wade Hutchison & Christy Shibata," Introduction: Visual BASIC 6.0", 1st edition, 2013, bookboon.com, ISBN 978-87-403-0341-4	
Websites	https://uomosul.edu.iq/en/engineering/environmental-engineering-dept/	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks %**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	أداء مذهل
	B - Very Good	جيد جدا	80 - 89	فوق المتوسط مع بعض الاخطاء
	C - Good	جيد	70 - 79	الأداء سليم مع أخطاء ملحوظة
	D - Satisfactory	متوسط	60 - 69	معتدل ولكن مع نواقص كبيرة
	E - Sufficient	مقبول	50 - 59	العمل يلبي الحد الأدنى من المعايير
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	مطلوب المزيد من العمل للنجاح
	F – Fail	راسب	(0-44)	مطلوب قدر كبير من العمل

ملاحظة: سيتم تقريب العلامات العشرية أعلى أو أقل من 0.5 إلى العلامة الكاملة الأعلى أو الأدنى (على سبيل المثال ، سيتم تقريب علامة 54.5 إلى 55 ، في حين سيتم تقريب علامة 54.4 إلى 54. لدى الجامعة سياسة عدم القيام بذلك التغاضي عن "فشل التمرير القريب" لذا فإن التعديل الوحيد للعلامات الممنوحة بواسطة العلامة (العلامات) الأصلية سيكون التقريب التلقائي الموضح أعلاه.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Democracy and Human Rights			**Module Delivery**	
Module Type	Support			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ENV115				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level		1	**Semester of Delivery**		1
Administering Department		ENV8	**College**	ENG4	
Module Leader	Rashad Adhed Alsaigh		**e-mail**	rashad.alsaigh@uomosul.edu.iq	
Module Leader's Acad. Title		Assistant lecturer	Module Leader's Qualification		MSc
Module Tutor			**e-mail**		
Peer Reviewer Name		Zainab abd alellah abd alkareem	**e-mail**	lawyerzainabaa@uomosul.edu.iq	
Scientific Committee Approval Date		15/06/2023	**Version Number**		1.0

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

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

	9. Demonstrate critical thinking skills by analyzing and evaluating different perspectives on human rights, democracy, and corruption. 10. Apply acquired knowledge and skills to promote and protect human rights, democracy, and good governance in personal, professional, and civic contexts. Overall, students should have a solid understanding of democracy and human rights, democracy, and corruption issues, and be able to apply this knowledge to contribute to the advancement of human rights and democratic values in society.
Indicative Contents المحتويات الإرشادية	The indicative content includes: 1. Definition and sources of democracy and human rights (international, regional, national, religious). [3h] 2. Characteristics of democracy and human rights: universality, indivisibility, interdependence, inalienability. [3h] 3. Emergence and evolution of human rights: historical development, key milestones, influential movements. [3h] 4. Types of human rights: civil and political, economic and social, environmental, cultural, and developmental. [3h] 5. Guarantees to prevent human rights violations: legal, institutional, societal safeguards, Islamic guarantees, national and international levels. [3h] 6. Concept of democracy: principles, values, forms of governance (direct, semi-direct, indirect). [3h] 7. Islamic stance on democracy: compatibility, strengths, weaknesses. [3h] 8. Critique of the democratic system: analysis of strengths and weaknesses. [3h] 9. Administrative corruption: definition, types, societal impact. [3h] 10. Methods to combat administrative corruption. [3h]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	When it comes to learning and teaching strategies for a human rights module, there are several approaches can be taken to enhance understanding and engagement. Here are some effective strategies: 1. Interactive Discussions: Encourage students to actively participate in discussions, debates, and group activities. This promotes critical thinking, allows for different perspectives to be shared, and fosters a deeper understanding of human rights issues. 2. Case Studies: Present real-life case studies that highlight human rights violations or achievements. Analyzing these cases helps students apply theoretical concepts to practical situations and develops their problem-solving skills.

	3. Research Projects: Assign research projects on specific human rights topics or issues. This encourages independent learning, critical analysis, and the development of research skills. 4. Collaborative Learning: Foster collaboration among students through group projects or assignments. This encourages teamwork, peer learning, and the exchange of diverse perspectives. 5. Assessment Variety: Use a variety of assessment methods, including essays, presentations, debates, and quizzes, to assess students' understanding of human rights concepts and their ability to apply them to real-world situations.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.13
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation
تقييم المادة الدراسية

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

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

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	ضمانات حقوق الانسان وحمايتها وفقا للقانون الدولي والتشريع الوطني / نبيل عبد الرحمن ناصر الدين	No
Recommended Texts	الديمقراطية وحقوق الانسان / د. امير عبد العزيز	No
Websites		

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	English Language I			Module Delivery	
Module Type	Support			☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☒ Seminar	
Module Code	MTE 101				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level		UGI	Semester of Delivery		One
Administering Department		MTE	College	COE	
Module Leader	Raghad Raied Mahmood		e-mail	raghad.mahmood@uomosul.edu.iq	
Module Leader's Acad. Title		Assistant lecturer	Module Leader's Qualification		MSc
Module Tutor			e-mail		
Peer Reviewer Name			e-mail		
Scientific Committee Approval Date		01/07/2023	Version Number		1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The aims of the module are to 1. Foster the development of problem-solving skills, with a particular emphasis on speaking, reading, writing, and listening, while also gaining a comprehensive understanding of the English language as a foreign language through the utilization of various techniques. 2. Comprehend the fundamental principles of the English language. 3. Explore the foundational concepts essential for learning the key principles of English grammar and expanding English vocabulary. 4. Establish a solid foundation for proficient English writing and speaking. 5. Gain a comprehensive understanding of constructing grammatically accurate English sentences.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completing the course, students will be able to: 1. Demonstrate proficiency in utilizing main and auxiliary verbs, as well as possessive pronouns. 2. Compile a comprehensive list of words associated with questions and various subject pronouns. 3. Engage in conversations concerning social expressions and personal information, particularly regarding jobs, using affirmative, negative, and interrogative sentences. 4. Discuss the usage of adjectives and their placement within sentences. 5. Construct simple present sentences using "I," "we," "you," and "they," and accurately define the usage of articles. 6. Describe the present simple tense utilizing "he" and "she," and explore adverbs of frequency. 7. Identify basic question words and demonstrative pronouns, and effectively apply them in different contexts. 8. Examine the usage of "there is/are" and various prepositions. 9. Analyze the structure of simple past sentences and irregular verbs. 10. Explain the negative and interrogative structures of simple past tense sentences, along with adverbs associated with the past tense. 11. Recognize the usage of multiple adverbs and the use of "can/can't" in sentences, while explaining requests and offers. 12. Elaborate on the usage of "like" and "would you like," as well as the application of "some" and "any" in various expressions. 13. Discuss the application of the present continuous tense and distinguish it from the present simple tense. 14. Explain the structures employed to refer to future plans.
Indicative Contents المحتويات الإرشادية	The indicative content of the course comprises the following: 1. Introduction to the significance of English language acquisition and its role in social communication.

	2. Application and practice of various tenses, such as present and past tenses. 3. Comprehensive exploration of key concepts, including offers, requests, future, personal expressions, and different tenses. 4. Utilization of a range of skills to facilitate English language learning, including listening, reading, writing, and speaking. Additionally, providing diverse examples to enhance understanding of concepts and structures.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategies adopted in delivering this module include: • Encouraging active participation and fostering critical thinking skills through engaging students in discussions. • Applying the communicative approach to enhance students' English language learning skills and enable effective communication. • Incorporating authentic materials in the classroom to create a realistic and immersive learning experience. • Emphasizing student motivation and promoting their engagement in the learning process. • Enhancing interaction and communication skills to achieve greater success in English language proficiency.

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

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Unit one: Hello Am/are/is. My/your This is with practice in work
Week 2	Unit two: Your world He/she/they, his/her Questions
Week 3	Unit three: All about you Personal information/ social expressions
Week 4	Unit four: Family and friends Possessive adjectives/ possessive 's Have/has, adjective + noun
Week 5	Unit five: The way I live Present simple I/we/you/they An/a , adjective + noun
Week 6	Unit six: Every day

	Present simple he/she Negatives and questions, adverbs of frequency
Week 7	Midterm Exam
Week 8	Unit seven: My favorites Question words, pronouns, this/that Unit eight: Where I live There is/ are, prepositions
Week 9	Unit nine: Times past Was/ were born, past simple and irregular verbs
Week 10	Unit ten: We had a great time. Past simple, regular, and irregular Questions, negatives, ago
Week 11	Unit eleven: I can do that! Can/can't, adverbs, requests
Week 12	Unit twelve: Please and thank you. I'd like, some and any. Like and would like
Week 13	Unit thirteen: Here and now Present continuous Present simple and present continuous
Week 14	Unit fourteen: It's time to go! Future, writing email and information letter
Week 15	Revision
Week 16	Preparatory week before the final Exam

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

Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	John and liz Soar. (New Headway Beginner) 4th edition. Oxford: Oxford University Press.	Yes
Recommended Texts		No
Websites		

Grading Scheme
مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Engineering mathematics			Module Delivery	
Module Type	Support or related learning activity			☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐Practical ☐ Seminar	
Module Code	ENV240				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level		1	Semester of Delivery		2
Administering Department		ENV8	College	ENG4	
Module Leader	Nadia Afram Yaqoob		e-mail	n.alrhmany@uomosul.edu.iq	
Module Leader's Acad. Title		Lecturer	Module Leader's Qualification		M.Sc.
Module Tutor	Abeer Khalil Ibrahim		e-mail	abeer.alsaraf@uomosul.edu.iq	
Peer Reviewer Name		Nada Abdulrazak Mohammed	e-mail	nada.abd@uomosul.edu.iq	
Scientific Committee Approval Date		12/06/2023	Version Number		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Calculus	Semester	1
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	This course provides students with the fundamentals for Hyperbolic function, Catenary of cables, Polar coordinates, partial derivatives for Functions of two or more variables, Techniques of Integration and Multiple Integration.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. **CLO-1:** Identify the hyperbolic function, their graphs, their derivatives, their integrals, and their inverse functions. (i) **CLO-2:** Applied the hyperbolic function in catenary of cable. (ii) **CLO-3:** understand the polar coordinates and how we can graph in polar coordinates. (i) **CLO-4:** Identify and understand the partial derivatives for function of two or more variable. (i) **CLO-5:** Find the error in the dimension, area and volume and estimate the least amount of material for constructions tanks by using total differentiation for functions of two or more variable. (ii) **CLO-6:** Use the partial derivatives to find the maximum and minimum of functions of several independent variables (Lagrange multipliers method). **(ii)** **CLO-7:** Applied techniques of integration to change unfamiliar integrals into integrals we can recognize and solve. (i) **CLO-8:** Find the area, volume, mass, center of gravity, moment and moment of inertia of the functions by using multiple integration (ii)
Indicative Contents المحتويات الإرشادية	Indicative content includes the following Part A – Hyperbolic function Hyperbolic function identities, Derivatives and Integration of hyperbolic function, Graphs of hyperbolic functions, Invers of hyperbolic function, Graphs of hyperbolic functions in invers, Differentials and integrations of hyperbolic functions in invers, catenary of cable (21 hrs) Part B – Polar coordinates Cartesian coordinate, polar coordinate, Relation between Polar and Cartesian Coordinates, Cartesian Equation and Polar Equation, Graphing in Polar Coordinates. (7 hrs) Part C - partial derivative Functions of two or more variables, Domain and range for functions of two or more variables, Limits and Continuity for functions of two or more variables, Partial derivatives for functions of two or more variables, Chain rule, Total differentiation for Functions of two or more variables, Max. and min. of function of several independent variables, Max. and min. of function of several independent variables (method of Lagrange multipliers). (28 hrs) Part D – Techniques of Integration Basic Integration Formulas, Integration by Parts, Trigonometric Integrals, Trigonometric Substitutions, Rational Functions and Partial Fractions, Using Integral Tables. Improper Integrals, weierstrass Substitutions ($z = tan\frac{x}{2}$)(21 hrs). Part E - Multiple Integration Double Integration, Revised Integration, Physical Applications of the Double Integration, Double Integration in Polar Form, Triple Integration. (28 hrs)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	This course has several components that include studying lectures, tutorial, discussion, homework, and e-learning platforms. The course will be taught in English, and all compulsory assignments have to be submitted within the deadlines to be admitted to the exam.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	108	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	7.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	67	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	7	25 % (25)	2, 3, 6, 8, 10, 13 and 15	CLO-1, CLO-2, CLO-4, CLO-6, CLO-7, CLO-8, CLO-8
	Assignments	6	15 % (15)	3, 5, 7, 8, 11and 15	CLO-2, CLO-4, CLO-5, CLO-6, CLO-7, CLO-8
	Projects / Lab.	0	0 % (0)		
	Report	0	0 % (0)		
Summative assessment	Midterm Exam	2hr	10% (10)	9	CLO-1 to CLO-6
	Final Exam	3hr	50% (50)	17	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Hyperbolic function identities, Derivatives and Integration of hyperbolic function, Graphs of hyperbolic functions,
Week 2	Invers of hyperbolic function, Graphs of hyperbolic functions in invers, Differentials and integrations of hyperbolic functions in invers,
Week 3	Catenary of cable
Week 4	Cartesian coordinate, polar coordinate, Relation between Polar and Cartesian Coordinates, Cartesian Equation and Polar Equation, Graphing in Polar Coordinates
Week 5	Functions of two or more variables, Domain and range for functions of two or more variables, Limits and Continuity for functions of two or more variables,
Week 6	Partial derivatives for functions of two or more variables, Chain rule
Week 7	Total differentiation for Functions of two or more variables,
Week 8	Max. and min. of function of several independent variables, Max. and min. of function of several independent variables (method of Lagrange multipliers).
Week 9	Basic Integration Formulas (Completing the square, eliminating a square root, Reducing an Improper fraction, Separating a fraction), Integration by Parts.
Week 10	Tabular Integration, Trigonometric Integrals. Trigonometric Substitutions.
Week 11	Rational Functions and Partial Fractions, Improper Integrals, weierstrass Substitutions $(z = tan\frac{x}{2})$
Week 12	Double Integration, Revised Integration
Week 13	Physical Applications of the Double Integration
Week 14	Double Integration in Polar Form
Week 15	Triple Integration
Week 16	Preparatory week before the final Exam

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	• Finney, R.L,& Thomas ,G.B, "Calculus" Addison. Wesley publishing company, USA,11th,2011.	Yes
Recommended Texts	• Anton, H., Bivens, I.C., Davis, S., Calculus: Early Transcendentals, Wiley, 10th edition, 2011.	Yes
Websites	https://uomosul.edu.iq/en/engineering/environmental-engineering-dept/	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Engineering Mechanics			**Module Delivery**	
Module Type	Support			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐**Practical** ☐ **Seminar**	
Module Code	ENV122				
ECTS Credits	7				
SWL (hr/sem)	108				
Module Level		2	**Semester of Delivery**		8
Administering Department		ENV8	**College**	ENG4	
Module Leader	Dr.salim yousif		**e-mail**	sua@uomosul.edu.iq	
Module Leader's Acad. Title		lucturer	Module Leader's **Qualification**		Ph.D.
Module Tutor	Yousif hassan		**e-mail**	Engyousif123@uomosul.edu.iq	
Peer Reviewer Name		------	**e-mail**	E-mail	
Scientific Committee Approval Date		12/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	0
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	The primary purpose of the study of engineering mechanics is to develop the capacity to predict the effects of force and motion while carrying out the creative design functions of engineering. This capacity requires more than a mere knowledge of the physical and mathematical principles of mechanics; also required is the ability to visualize physical configurations in terms of real materials, actual constraints, and the practical limitations which govern the behavior of machines and structures. One of the primary objectives in a mechanics course is to help the student develop this ability to visualize, which is so vital to problem formulation. Indeed, the construction of a meaningful mathematical model is often a more important experience than its solution. Maximum progress is mad e when the principles and their limitations are learned together within the context of engineering application.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. **CLO-1:** Makes the students able to recognize different force systems, moments and couple (i) **CLO-2**: The ability to draw Free Body Diagram and label the reactions on it. (i) **CLO-3:** Makes the students able to apply equilibrium equations in statics. (i) **CLO-4:** The ability to understand Newton's law in motion, and recognize different kinds of particle motions. (i). **CLO-5** Determine the equilibrium of a particle in plane using principle of laws of mechanics. (i) **CLO-6:** Calculate the principal moment of inertia of plane areas. (ii)
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. **Part A – Force systems and resultants** •To discuss the concept of the moment of a force and show how to calculate it in two and three dimensions. • To provide a method for finding the moment of a force about a specified axis. • To define the moment of a couple. • To present methods for determining the resultants of nonconcurrent force systems. • To indicate how to reduce a simple distributed loading to a resultant force having a specified location. (18 hrs). **Part B – Equilibrium** • To develop the equations of equilibrium for a rigid body. • To introduce the concept of the free-body diagram for a rigid body. • To show how to solve rigid-body equilibrium problems using the equations of equilibrium. (15hrs). Part C – **Structural Analysis (Trusses)** To show how to determine the forces in the members of a truss using the method of joints and the method of sections. • To analyze the forces acting on the members of frames and machines composed of pin-connected members. (10 hrs).

	Part D - **Friction** To introduce the concept of dry friction and show how to analyze the equilibrium of rigid bodies subjected to this force. (10 hrs) Part E - **Center of gravity and Centroid** • To discuss the concept of the center of gravity, center of mass, and the centroid. • To show how to determine the location of the center of gravity and centroid for a system of discrete particles and a body of arbitrary Shape. (10 hrs) Part F - **Moment of inertia** To develop a method for determining the moment of inertia for an area. • To introduce the product of inertia and show how to determine the maximum and minimum moments of inertia for an area. • To discuss the mass moment of inertia. (10 hrs) Part H – **Kinematics of a Particle** To introduce the concepts of position, displacement, velocity, and acceleration. • To study particle motion along a straight line and represent this motion graphically. • To investigate particle motion along a curved path using different coordinate systems. • To present an analysis of dependent motion of two particles. • To examine the principles of relative motion of two particles using translating axes. (20 hrs) Part I – **Kinetics of a Particle** o state Newton's Second Law of Motion and to define mass and weight. • To analyze the accelerated motion of a particle using the equation of motion with different coordinate systems. • To investigate central-force motion and apply it to problems in space mechanics. • To develop the principle of work and energy and apply it to solve problems that involve force, velocity, and displacement. • To study problems that involve power and efficiency. • To introduce the concept of a conservative force and apply the theorem of conservation of energy to solve kinetic problems. (15 hrs)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	This course has several components that include lectures, individual & group assignments, Exercises. The course will be taught in English, and all mandatory assignments have to be submitted within the deadlines to be admitted to the exams.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	108	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	67	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**175**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	6	30 % (30)	1, 5, ,12 and 14	CLO-1, CLO-1, CLO-2, CLO-2
	Assignments	5	10 % (10)	2, 3, 4, 6, and 10	CLO-2, CLO-2, CLO-3, CLO-2, CLO-3
	Projects / Lab.	0	0)	0	0
	Report	0	0		0
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	CLO-1, CLO -2 and CLO-3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction, Fundamental concepts, Units of measurements, The international system of units, Numerical calculations, General procedure for analysis.
Week 2	Scalars and Vectors, Vector Operations. The Free-Body Diagram
Week 3	Coplanar Force Systems. Force System Resultants
Week 4	Principle of Moments. Moment of a Couple
Week 5	Reduction of a Simple Distributed Loading. Conditions for Rigid-Body Equilibrium, Free-Body Diagrams.
Week 6	Two- and Three-Force Members.
Week 7	Simple Trusses, The Method of Joints, Zero-Force Members, friction.
Week 8	Characteristics of Dry Friction, Problems Involving Dry Friction
Week 9	the Centroid of a Body, Composite Bodies.
Week 10	Definition of Moments of Inertia for Areas, Moments of Inertia for Composite Areas.
Week 11	Rectilinear Kinematics: Continuous Motion.
Week 12	Curvilinear Motion: Rectangular Component, Curvilinear Motion: Normal and Tangential Components.
Week 13	Newton's Second Law of Motion, Equations of Motion: Rectangular Coordinates, Equations of Motion: Normal and Tangential Coordinates.
Week 14	The Work of a Force, Principle of Work and Energy, Power and Efficiency.
Week 15	Principle of Linear Impulse and Momentum.
Week 16	**Preparatory week before the final Exam**
Delivery Plan (Weekly Lab. Syllabus)	
	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	• Hibbeler, R.C. " ENGINEERNING MECHANICS – DYNAMIC 14TH EDITION 2016" Pearson Prentice Hall	Yes
Required Texts	• MERIAM J.L., KRAIGE L.G., BOLTON J.N. "Engineering Mechanics Volume 2 Dynamics " Ninth Edition 2018 John Wiley & Sons, Inc.	Yes
Recommended Texts	**د.نزار جبرائيل - فخري ياسين – د.هشام العناز "الميكانيك الهندسي"**	Yes
Recommended Texts	MERIAM J.L., KRAIGE L.G. , BOLTON J.N. " Engineering Mechanics Volume 2 Dynamics " Ninth Edition 2018 John Wiley & Sons, Inc.	
Websites	https://uomosul.edu.iq/en/engineering/environmental-engineering-dept/	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
عنوان المادة الدراسية	مبادى هندسة البيئة		**Module Delivery** ☐نظري ✓ ☐الكتروني ✓ ☐مختبر ☐حل مسائل ☐عملي ☐مناقشة ✓
نوع المادة	Core		
كود المادة	ENV123		
عدد الوحدات	4		
عدد الساعات الدراسية/الفصل**SWL (hr/sem)**	100		
مستوى المادة	1	الفصل الدراسي	2
تسلسل الكلية	**ENG4**	كود القسم	**ENV8**
مدرس المادة	حنان حقي اسماعيل	البريد الالكتروني	**hanan.eng2014@uomosul.edu.iq**
اللقب العلمي	مدرس	الشهادة	ماجستير
المدرس المساعد	ذرى عزام	البريد الالكتروني	**thura.azzam@uomosul.edu.iq**
اسم المرجع	د. عمار ثامر	البريد الالكتروني	**Dr.ammarthamir@uomosul.edu.iq**
رقم الاصدار	1	تاريخ المصادقة	15/6/2023

العلاقة مع المواد الدراسية الأخرى		
مواد دراسية ممهدة	لا يوجد	الفصل
مواد دراسية سابقة	لا يوجد	الفصل

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	الهدف من المقرر الدراسي هو تعريف الطالب بالمبادئ الرئيسية لهندسة البيئة وكل ما يخص التلوث البيئي : مقدمة عن البيئة و التلوث البيئي العوامل التي ادت الى تدهور البيئة أنواع التلوث (تلوث الماء .تلوث الهواء. التلوث الضوضائي .تلوث حراري .التلوث الحراري، تلوث المياه مصادر المياه وخصائصها ,الخواص الكيميائية والفيزيائية للماء نوعية المياه ,تلوث المياه السطحية ومصادرها ,تلوث المياه الجوفية ومصادره، معاملة المياه لأغراض الشرب مع جدول بالوحدات وشرح مختصر لكل وحدة، معالجة وطرح مياه الفضلات، خصائص مياه الفضلات, هدف المعالجة, مخطط وحدات معالجة مياه الفضلات معالجة وطرح مياه الفضلات خصائص مياه الفضلات, هدف المعالجة, مخطط لوحدات معالجة مياه الفضلات مع اجراء زيارات موقعيه للتعرف على وحدات المعالجة والمشاريع البيئة المقامة وقيد التنفيذ.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1-فهم البيئة والعوامل المحيطة بها وانواع التلوث وكيفية الحفاظ عليها هندسيا . 2-تلخيص انواع التلوث الشائعة (تلوث الماء. تلوث الهواء.....الخ) 3-شرح كل نوع من انواع التلوث البيئي مع طرق معالجته او التقليل من اثاره على البيئة . 4-تعريف الطالب بالعديد بالمصطلحات البيئة . 5-تحليل بعض المشاكل البيئة بطرق هندسية. 6-ايجاد الحلول الهندسية بما يتلاءم مع القدرات المتوفرة.
Indicative Contents المحتويات الإرشادية	أ. مقدمة عن البيئة و التلوث البيئي **CLO**1 2 ساعة ب. تلوث المياه السطحية والجوفية مع وحدات المعالجة .**CLO**2 مصادر المياه وخصائصها ,الخواص الكيميائية والفيزيائية للماء . تلوث المياه السطحية ومصادرها ,تلوث المياه الجوفية ومصادرها. معاملة المياه لأغراض الشرب مع جدول بالوحدات وشرح مختصر لكل وحدة.حل المسائل بطريقة التوازن الكتلي . 10 ساعة. ج. تلوث البيئة بالنفايات الصلبة .**CLO**3 مقدمة ,مصادر وخصائص النفايات الصلبة , النفايات الصلبة ,جمع النفايات الصلبة ,طرق طرح النفايات الصلبة.ايجاد مساحة موقع الطمر الصحي مع رسم مقاطع نموذجية. 10 ساعة د. تلوث الهواء.**CLO4** مقدمة عن تلوث الهواء, مصادره وتأثيراته ,خصائص الملوثات ,وحدات ازالة الملوثات الهوائية.5 ساعة ه. التلوث الضوضائي والحراري والاشعاعي .**CLO**5 10 ساعة مقدمة عن التلوث الضوضائي ,مصادره, كيفية حساب الضوضاء, مقدمة عن التلوث الحراري ,مصادر التلوث الحراري , تأثير المطروحات الحرارية على البيئة .التلوث الاشعاعي .مصادره انواعه .

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
استراتيجية التعلم	سيكون هذا المقرر شاملا للعديد من المحاضرات الحضورية والالكترونية .كذلك تكليف الطالب بالواجبات والتقارير .يتم اجراء زيارات ميدانية للطلاب لبعض المشاريع البيئة .لغة التدريس ستكون باللغة العربية واعتماد الكتب المنهجية العربية والانكليزية .

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation تقييم المادة الدراسية					
		عدد/وقت	الدرجة	الاسبوع	
Formative assessment	الامتحانات اليومية	4	%20	**4-8-10-12**	CLO-1, CLO-1, CLO-2, CLO-2
	الواجبات	4	%12	**5-7-9-11**	CLO-2, CLO-2, CLO-3, CLO-2, CLO-3
	تقرير	1	%8	13-1	CLO-2 to CLO-5
Summative assessment	امتحان الفصلي	1.5 ساعة	%10	6	All
	الامتحان النهائي	3 ساعة	%50	16	CLO-1, CLO -2 and CLO-3
Total assessment			100		All

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري والالكتروني	
Week Material Covered	
الاسبوع الاول	البيئة العوامل التي ادت الى تدهورها ,دور المهندس البيئي للتقليل من التلوث،انواع التلوث البيئي.
الاسبوع الثاني	تلوث المياه:مصادر المياه وخصائصها ,الخواص الكيميائية والفيزيائية للماءتلوث المياه السطحية ومصادرها ,تلوث المياه الجوفية ومصادره,
الاسبوع الثالث	التوازن الكتلي ،البحيرات, ظاهرة التطبق الحراري ،المغذيات ,الانقلابات الموسمية, حل مسائل رياضية لا يجاد تراكيز الملوثات بالبحيرات
الاسبوع الرابع	محطة معالجة مياه الشرب ,العوامل التي يجب دراستها لاختيار الوحدات
الاسبوع الخامس	رسم وحدة معالجة نموذجية لمعالجة مياه الشرب السطحية والجوفية مع شرح مبسط لكل وحدة
الاسبوع السادس	وحدات معالجة مياه الفضلات مصادرها خصائصها ,شرح مبسط لوحدة معالجة نموذجية.
الاسبوع السادس	امتحان 1
الاسبوع الثامن	تلوث البيئة بالنفايات الصلبة ,مقدمة ,مصادر وخصائص النفايات الصلبة , النفايات الصلبة ,جمع النفايات الصلبة
الاسبوع التاسع	.طرق طرح النفايات الصلبة. حساب مساحة موقع الطر الصحي مع رسم مقطع نموذجي
الاسبوع العاشر	تلوث الهواء, مقدمة عن تلوث الهواء, مصادره وتأثيراته ,خصائص الملوثات
الاسبوع الحادي عشر	.,وحدات ازالة الملوثات الهوائية والجزيئات ,حل مسائل رياضية
الاسبوع الثاني عشر	التلوث الضوضائي ,مقدمة عن التلوث الضوضائي ,مصادره, كيفية حساب الضوضاء
الاسبوع الثالث عشر	امتحان2
الاسبوع الرابع عشر	التلوث . مقدمة عن التلوث الحراري ,مصادر التلوث الحراري , تأثير المطروحات الحرارية على البيئة الحراري
الاسبوع الخامس عشر	التلوث الاشعاعي .مصادره انواع الاشعاع مضاره على البيئة طرق الوقاية
الاسبوع السادس عشر	التحضير للامتحان النهائي

Learning and Teaching Resources مصادر التعلم والتدريس		
ailable in the Library?		
نعم	تكنولوجيا البيئة د طارق محمد سعيد	الكتاب المنهجي
نعم	Metcalf and Eddy "Wastewater engineering, treatment and resource recovery", McGraw hill, New York, 2014	كتب مساعدة
https://uomosul.edu.iq/en/engineering/environmental-engineering-dept/		الموقع الالكتروني للقسم

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Environmental Geology			Module Delivery	
Module Type	Supported			☒Theory ☐Lecture ☐Lab ☐Tutorial ☒Practical ☐Seminar	
Module Code	ENV124				
ECTS Credits	3				
SWL (hr/sem)	75				
Module Level	1		Semester of Delivery	2	
Administering Department	ENV8		College	ENG4	
Module Leader	Dr. Mohammed		e-mail	mohammed1979eng@uomosul.edu.iq	
Module Leader's Acad. Title	Assist. Professor		Module Leader's Qualification	Ph.D.	
Module Tutor	-----		e-mail	E-mail	
Peer Reviewer Name	------		e-mail	E-mail	
Scientific Committee Approval Date	12/06/2023		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 Objectives أهداف المادة الدراسية	This course aims to introduce the students to the category of Environmental Geology. Geology –is the study of the earth, its materials and their properties, its internal and external physical, chemical, and biological properties, and its history. Environment – anything, living or nonliving that surrounds and influences living organisms. Environmental Geology – the application of geology to environmental concerns. This will be achieved through descriptive lectures.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. **CLO-1:** The students will learn and take some information on the principles of geology, especially the materials, and compounds of the earth. (i) **CLO-2:**The students will be able to distinguish the different types of rocks and soils(ii) **CLO-3:** apply the principles of the contour line to draw topographic maps (ii) **CLO-4:** The student who completes the course can communicate orally with others about some topics related to the relationship between environment and earth science and write some simple reports in this regard (v) **CLO-5:** Report the data obtained from the selective topics of environmental geology given and organized during the course (iv) **CLO-6:** Creating some opinions about the emerging environmental issues and trying to give some solutions compatible with the problems related to environmental geology (vii)
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A Introduction</u> Introduction, objectives, the general definition of environmental geology Historical geology (4 hrs) <u>Part B – Structural Geology</u> Composition, formation of the earth's crust, types of rocks (8 hrs) <u>Part C – Geology of water</u> Geology of water supply, (part1) Surface Water, (part2) Ground Water Geology of dams and reservoirs (8 hrs) <u>Part D – materials and maps geology</u> Geology of building materials Topographical and geological maps Environmental geology: special subjects (10 hrs)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	This course has several components that include lectures, individual or group assignments, rock lab visits, and e-learning platforms. The course will be taught in Arbic and English, and all mandatory reports have to be submitted within the deadlines.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	30 % (30)	3, 6, 9	CLO-1, CLO-1, CLO-2, CLO-4
	Assignments				
	Projects / Lab.				
	Report	1	10 % (10)		All
Summative assessment	Midterm Exam	2hr	10% (10)	7	CLO-1, CLO -2 and CLO-3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction, objectives, general definition of environmental geology
Week 2	Historical geology
Week 3	Composition, formation of the earth’s crust
Week 4	Composition, formation of the earth’s crust
Week 5	Structural geology, rocks
Week 6	Structural geology, rocks

Week 7	Geology of water supply, (part1) Surface Water
Week 8	Geology of water supply, , (part2) Ground Water
Week 9	Environmental geology: special subjects
Week 10	Geology of dams and reservoirs
Week 11	Geology of dams and reservoirs
Week 12	Geology of building materials
Week 13	Topographical and geological maps
Week 14	Topographical and geological maps
Week 15	Environmental geology: special subjects
Week 16	Preparatory week before the final Exam

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Ghazi Atia Zarraq, Dr.Lafta Salman Kadhim, Dr.Mahmood Fadhil Abid, " Environmental Geology ", Iraq, 2016	No.
Recommended Texts	• Courses from internet	Yes
Websites	https://uomosul.edu.iq/en/engineering/environmental-engineering-dept/	

Grading Scheme مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Statistics			Module Delivery	
Module Type	Core			☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☒ Seminar	
Module Code	ENV125				
ECTS Credits	3				
SWL (hr/sem)	48				
Module Level	3		Semester of Delivery	5	
Administering Department	ENV8		College	ENG4	
Module Leader	Dr.Ammar		e-mail	Dr.ammarthamir@uomosul.edu.iq	
Module Leader's Acad. Title	Assist. Professor		Module Leader's Qualification	Ph.D.	
Module Tutor	-----		e-mail	E-mail	
Peer Reviewer Name	------		e-mail	E-mail	
Scientific Committee Approval Date	12/06/2023		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 Objectives أهداف المادة الدراسية	There is a need to know how to deal with a large amount of data. The objectives of this module is how to generate informative data and how to extract information from data and to explain the valuable methods to present these data and extract the conclusions from them. Additionally, the module include how to describe the data in a clear manner.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**CLO-1:** Represent the collected data in a frequency table and histograms **CLO-2**: Identify the methods of statistical description **CLO-3:** Measure the deviation and dispersion of the data from the centre if it is symmetrical or skewed. **CLO-4:** Explaining the principles of probability and its use in statistical tests **CLO-5** Using probability laws as a tools to find the percentage of occasion occurrence. **CLO-6:** Employing probability distributions in decision-making **CLO-7:** Applying probability to test the hypotheses. **CLO-8:** Utilize normal distribution curve in the analysis of the problems. **CLO-9:** Using statistics as a tool for quality assurance of laboratory test. **CLO-10:** Test the relationships between variables.
Indicative Contents المحتويات الإرشادية	Part A – Introduction to Statistics (3 hrs.) Part B – Frequency distribution and data presentation (6 hrs.) Part C – Measures of central tendency and variation (6 hrs.) Part D – Probability distribution, rules and laws (6 hrs.) Part E – Probability and combinatorial analysis (6 hrs.) Part F – Discrete and continuous probability distributions (6 hrs.) Part G – Normal distribution and hypotheses testing (9 hrs) Part H – Correlation between variables

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	This course will include lectures, individual & group assignments. Exercises will include different methods to treat the data statistically according to type of data. The course will be taught in Arabic, and all mandatory assignments have to be submitted within the deadlines to be admitted to the exams.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.1
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	7	15% (15)	2, 3, 4, 5, 7, 8, 9	CLO-1, CLO-2, CLO-3, CLO-4, CLO4, CLO5 and CLO-7
	Assignments	3	15% (15)	2, 5, 7	CLO-1, CLO-2, CLO-4 and CLO5
	Report	1	10 % (10)		CLO-7, CLO-10
Summative assessment	Midterm Exam	2	10% (10)	5 and 10	(1)CLO-1, CLO-2, CLO-3; (2) CLO-4, CLO-5 and CLO-6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الأسبوعي النظري

	Material Covered
Week 1	Nature of Statistics: Introduction, statistical notations Frequency Distributions: Frequency Distribution Table, Cumulative Frequency
Week 2	Graphical presentation: Frequency Distribution, Cumulative Frequency Distribution. Measures of central Tendency for raw and tabulated data: The Mean: Arithmetic, Geometric
Week 3	Harmonic mean, Median, Mode. Measures of Dispersion or Variation: Range, Mean Deviation,
Week 4	Variance and Standard deviation for raw and tabulated data, Standardized score, Relationship between central tendency measures and unimodal distribution
Week 5	Probability and distributions: Sample space, probability rules, events and cases,
Week 6	Probability laws: Addition law, Multiplication law.
Week 7	Combinations and permutations. Conditional probability
Week 8	Probability and Combinatorial analysis, Probability tree diagram
Week 9	Definition and classification of random variables, Discrete probability distribution: Binomial distribution
Week 10	Poisson distribution. Continuous distribution: Normal distribution
Week 11	Application of Normal distribution
Week 12	Hypotheses testing: Z-test, p-value method for hypothesis testing
Week 13	t distribution: t-test for a mean
Week 14	Chi-square distribution: Confidence interval for variance, Chi-square test for variance and standard deviation
Week 15	Correlation : Correlation coefficient
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Introduction to Statistics by Al-Rawi Kh.	Yes
Recommended Texts	• Statistics for Sanitary Engineers by Berthouex and Brown, 2nd ed. (2002)	No
Websites	https://uomosul.edu.iq/en/engineering/environmental-engineering-dept/	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Drawing by Computer			**Module Delivery**	
Module Type	Support			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ENV126				
ECTS Credits	5.0				
SWL (hr/sem)	125				
Module Level		1	**Semester of Delivery**		2
Administering Department		ENV8	**College**	ENG4	
Module Leader	Mohammed Hisham		**e-mail**	m.h.alkafaf@uomosul.edu.iq	
Module Leader's Acad. Title		Assetant Lectures	**Module Leader's Qualification**		MSC
Module Tutor	Ayad Abdullah Yousif hassan Abeer Khalil		**e-mail**	ayad_engineer@uomosul.edu.iq engyousif123@uomosul.edu.iq abeer.khalil@uomosul.edu.iq	
Peer Reviewer Name			**e-mail**	E-mail	
Scientific Committee Approval Date		12/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Engineering Drawing	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	This course contains comprehensive training in AutoCAD. It incorporates the features, commands, and techniques for creating, editing, and printing 2D drawings with AutoCAD LT.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**CLO-1:** Become familiar with the AutoCAD user interface. (i) **CLO-2**: Understand the fundamental concepts and features of AutoCAD. (i) **CLO-3:** Use the precision drafting tools in AutoCAD to develop accurate technical drawings. (i) **CLO-4:** Present drawings in a detailed and visually impressive manner. (ii)
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A Getting started with AutoCAD (4 hrs) Part B Basic drawing and editing commands (drawing lines, erasing objects, drawing vertica lines, drawing rectangles, drawing circles, undo and redo actions) (8 hrs) Part C Create a simple drawing (4 hrs) Part D Making changes in your drawing (selecting objects for editing, moving objects, copying rotating objects, scaling objects, mirroring objects) (12 hrs) Part E Annotation commands; Hatch , hatch edit , Image draw order (24 hrs) Part F Organizing drawing with layers , creating new drawings with templates , layer states (8 hrs)

Strategies	This course has several components that include lectures, classwork, homework and quiz. The course will be taught in English, and all mandatory assignments have to be submitted within the deadlines to be admitted to the exams.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.0
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, 10	All
	Classwork	7	12 % (12)	2, 3, 4, 9,11,12,13	All
	homework	2	8 % (8)	5,8	All
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	All
	Exp. exam	1 hr	10 %(10)	15	All
	Final Exam	3hr	40% (40)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	**Getting started with AutoCAD**
Week 2 - 5	**drawing lines, erasing objects, drawing vertical and horizontal lines, drawing rectangles, drawing circles, undo and redo actions**
Week 6	**Create a simple drawing**
Week 8-13	**Annotation commands; Hatch, hatch edit, Image draw order**
Week 14-15	**Organizing drawing with layers , creating new drawings with templates, layer states**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Autodesk AutoCAD 2018 online Help	Yes
Websites	https://uomosul.edu.iq/en/engineering/environmental-engineering-dept/	

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

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