Ministry of Higher Education and Scientific Research
University of Misan
College of Engineering
Department of Petroleum Engineering
Committee of Quality Assurance and Academic Accreditation

Academic Program and Course Description Guide for the Bachelor's Program in Petroleum Engineering According to the Bologna Process for the First and Second Stages

2024-2025

Academic Program Description Form

University Name: Misan University

Faculty/Institute: College of Engineering

Scientific Department: Petroleum Engineering Department

Academic or Professional Program Name: Bachelor's Petroleum Engineering

Final Certificate Name: Bachelor

Academic System: Bologna Process (first and second stages)

Description Preparation Date: 1/6/2024

File Completion Date: 1/7/2025

Signature:

Head of Department Name:

Assist. Prof. Dr. Jabbar Raheem Rashed

Date: 7/9/2025

Signature:

Scientific Associate Name:

Assist. Prof. Dr. Hassnin Abbas Hassan

Date: 8/9/2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Prof. Dr. Abbas Oda Dawood

Date: 9/9/2025

Signature:

Approval of the Dean

Prof. Dr. Abbas Oda Dawood

9/9/2025

Abbas O. Dawood

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1. Program Vision

Petroleum engineering department is willing to be internationally remarkable school in petroleum industry related programs.

2. Program Mission

The department strives to prepare very well scientifically equipped engineers having significant leader spirit and positive attitude.

3. Program Objectives

1- Ability to apply the knowledge of science mathematics and engineering.
2- Ability to work in multi-disciplinary team work.
3- Ability to determine the problems and find the solution.
4- Ability to communicate effectively.
5- Knowing the ethical and practical responsibility.
6- Ability to utilize modern technology and engineering tools.
7- Ability to analyze data and implement the experiments.

4. Program Accreditation

Does the program have program accreditation? And from which agency?
NO

5. Other external influences

Is there a sponsor for the program?
College of engineering /University of Misan

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	**6**	**13**	**11.11%**	**basic**
College Requirements	**9**	**37**	**31.62%**	**basic**
Department Requirements	**13**	**64**	**54.70%**	**basic**

Summer Training	**---**	**---**	**----**	**3th stage**
Other	**1**	**3**	**2.56%**	**ministerial**

* This can include notes whether the course is basic or optional.

Year/Level	Course Code	Course Name	Class lecture CL(hr/w)	Lab. (hr/w)
1/ 1	**PE111**	**General geology**	**3**	**2**
1 /1	**ENG122**	**Math I**	**5**	**-**
1 /1	**UOM122**	**Computer**	**2**	**2**
1 /1	**PE112**	**Engineering mechanics**	**4**	**-**
1 /1	**UOM121**	**Democracy and human rights**	**2**	
1 /1	**PE113**	**Strength of material**	**2**	
1 /1	**ENG123**	**Engineering workshop**	**1**	**2**
1 /1	**UOM123**	**Arabic language**	**2**	
1 /1	**PE121**	**Sedimentology and stratigraphy**	**3**	**2**
1 /1	**ENG124**	**Math II**	**5**	
1 /1	**ENG125**	**Phyiscs**	**3**	
1 /1	**PE122**	**Thermodynamic**	**3**	
1 /1	**ENG126**	**Chemistry**	**2**	**2**
1 /1	**UOM120**	**English language I**	**2**	
1 /1	**ENG128**	**Engineering Drawing**	**1**	**3**
2/1	**PE211**	**Structural geology**	**3**	**2**
2/1	**PE212**	**Electrical Engineering Technology**	**3**	**2**
2/1	**PE213**	**Fluid Mechanics – Static**	**4**	
2/1	**ENG201**	**Applied Math I**	**4**	
2/1	**PE214**	**Petroleum Properties**	**4**	
2/1	**UOM202**	**English Language II**	**2**	
2/1	**PE221**	**Petroleum Geology**	**3**	**2**
2/1	**ENG202**	**Applied Math II**	**4**	
2/1	**PE222**	**Fundamental of Petroleum Engineering**	**3**	
2/1	**ENG127**	**Computer II**	**2**	**2**
2/1	**PE223**	**Engineering Ethics**	**2**	
2/1	**PE224**	**Fluid Mechanics – Dynamic**	**3**	**2**
2/1	**UOM203**	**Arabic Language II**	**2**	
2/1	**MNS120**	**Bath Crime**	**2**	

7. Expected learning outcomes of the program

Knowledge	
Learning Outcomes 1	Ability to apply the knowledge of science mathematics and engineering.
Skills	
Learning Outcomes 2	Ability to determine the problems and find the solution

Learning Outcomes 3	Ability to communicate effectively.
Ethics	
Learning Outcomes 4	Knowing the ethical and practical responsibility.
Learning Outcomes 5	Ability to utilize modern technology and engineering tools.

8. Teaching and Learning Strategies

Visual, laboratory, and electronic tools, as well as any means that contribute to delivering ideas and content accurately.

9. Evaluation methods

Daily quizzes, seminars, reports, and homework assignments.

10.Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor		1			1	
Assist Prof.	3	2			5	
Lecture	2	4			6	
Assist. Lec.	8	8			12	4

Professional Development

Mentoring new faculty members

New college members are guided through various aspects before becoming actively involved in the educational process and being assigned theoretical courses. They are also introduced to all academic and administrative components of the department through several measures, including: highlighting the important role of university professors in guiding Petroleum Engineering students toward their future careers; emphasizing the significance of the professor's character and academic competence and their direct impact on students in all aspects; and stressing the importance of attention to even minor details and consulting senior and more experienced faculty members before making important decisions.

Professional development of faculty members

Participation in a teaching methods course, engagement with senior college members who

have extensive academic experience, involvement in laboratory work, and subsequently, the preparation of a simple seminar on a specific topic.

11. Acceptance Criterion

"Multiple admission channels (Central Admission, Special Government Education, Families of Martyrs, …)"

12. The most important sources of information about the program

"International, Arab, and Iraqi universities, as well as the current college members.

13. Program Development Plan

"Continuous review of the program implementation plan and the provision of feedback throughout the academic year."

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**General Geology**			**Module Delivery**	
Module Type	**Core**			☒ **Theory**	
Module Code	**PE 111**			☒ **Lecture**	
ECTS Credits	**5**			☒ **Lab**	
SWL (hr/sem)	**125**			☐**Tutorial**	
				☐**Practical**	
				☐**Seminar**	
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. PE		**College**	Type College Code	
Module Leader	Riaed Al-saedi		**e-mail**	dr.ra.iraq@uomisan.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	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	1/10/2024		**Version Number**	1.0	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	This course draws from all fields of geosciences to explore the evolution of Planet Earth. Topics include: an introduction to earth materials (minerals, rocks, soils, and water); Earth's interior structure; geological processes in operation on and beneath the surface of the earth and their effects (weathering, erosion, deformation and geologic structures, earthquakes, plate tectonics).
Module Learning Outcomes	This learning outcome implies that upon completing the geology module, students should have achieved the following: 1- Knowledge of Geological Processes: Students should have a solid understanding of the fundamental processes that shape the Earth, such as plate tectonics, erosion, weathering, and deposition. 2- Understanding of Geological Principles: Students should be familiar with key geological principles, including rock formation and identification, geological time, and the interpretation of geological maps and cross-sections. 3- Application of Geology: Students should be able to apply their knowledge of geology to analyze and interpret geological phenomena, such as the formation of mountains, earthquakes, volcanoes, and the distribution of natural resources. They should also be capable to apply knowledge of topographic maps to quantify geometrical aspects of topography. 4- Critical Thinking and Problem-Solving: Students should develop critical

	thinking skills and be able to apply geological concepts to solve problems and make informed decisions in both academic and real-world contexts. 5- Communication of Geological Concepts: Students should be able to effectively communicate geological concepts, findings, and interpretations using appropriate scientific terminology and conventions, both in written and oral forms.

Learning and Teaching Strategies	
Strategies	Geology, as a scientific discipline, involves the study of the Earth's structure, composition, history, and processes. The learning and teaching strategies employed in geology often focus on a combination of theoretical knowledge, practical fieldwork, laboratory analysis, and interactive discussions. Here are some common learning and teaching strategies used in geology: Laboratory work: Geology involves various laboratory techniques for analyzing rocks, minerals, and other geological materials. Laboratory work provides hands-on experience in using tools and instruments like microscopes, spectrometers, and chemical analysis equipment. Students learn how to identify minerals, analyze rock formations, and interpret geological data through experiments and sample analysis or from geological maps. Visual aids and multimedia: Geology often relies on visual representations to understand complex concepts. The use of diagrams, maps, charts, and models helps students visualize geological processes, landforms, and structural features. Multimedia resources like videos, animations, and virtual reality (VR) simulations can enhance learning by providing interactive and immersive experiences.
Student Workload (SWL)	

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	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	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Geology The Earth System and Earth materials. The universe and Planet Earth; Earth composition and Earth structure
Week 2	Earth history and geological time, Relative dating; Absolute age
Week 3	Plate tectonic theory, The Type of Plate margins, Consequences of Plate Tectonics
Week 4	Formation and classification of minerals Physical and chemical properties of Minerals. The mineral groups, Mohr's Scale
Week 5	Rock cycle and Types of rocks
Week 6	Igneous rock, Classification of Igneous rock Rocks.
Week 7	**Midterm Exam**
Week 8	Sediments and Sedimentary Rocks, Classification of Sedimentary Rocks.
Week 9	Metamorphism and Metamorphic Rocks
Week 10	Weathering and Erosion, Mass Wasting
Week 11	Structural geology. Tectonic and deformation; Folding; Faulting
Week 12	Earth energy and resources. Hydrocarbon; Oil shale and coal; Radioactive; Metals and ores; Non-metallic industrial minerals; Renewable energy
Week 13	Project Discussions
Week 14	**Preparatory week before the final Exam**

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Crystallography (symmetry and crystal systems)
Week 2	Lab 2: Physical Properties of Minerals and Mineral Identification
Week 3	Lab 3: Rock Groups and Rock Properties, Rock Identification
Week 4	Lab 4: Igneous rocks (Identification and classification of igneous rocks)
Week 5	Lab 5: Sedimentary rocks (Identification and classification of sedimentary rocks)
Week 6	Lab 6: Geological map (Topography map (Contour Maps), Profiles, and Gradients)
Week 7	Lab 7: Reading and Interpreting Geological Maps: Identification of rock formations, structures, and geological features.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Physical geology, Plumer Carelson,2020	Yes
Recommended Texts	Edward J. Tarbuck, Frederick K. Latgens (2011), Earth, An Introduction to Physical Geology (10th Edition), Pearson Prentice Hall, USA.	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية		
Module Title	**Mathematics 1**	**Module Delivery**
Module Type	**Basic**	☒**Theory** ☐ **Lecture**
Module Code	**ENG 122**	
ECTS Credits	**5**	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

SWL (hr/sem)	**125**	☐ **Lab** ☒**Tutorial** ☐**Practical** ☐**Seminar**

Module Level	1	**Semester of Delivery**	1
Administering Department	Type Dept. PE	**College**	Type College Code
Module Leader	Sarah Jumah	**e-mail**	
Module Leader's Acad. Title	Asst. Lecturer	**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	1/10/2024	**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	Mathematics I aims to provide a comprehensive introduction to the mathematical concepts and techniques that are fundamental to study electrical engineering. During this course, students will develop a solid mathematical foundation that will support their understanding of advanced electrical engineering topics in subsequent semesters. The main module objectives are:

	1. Introduce students to the basic mathematical concepts and notation. 2. Develop proficiency in algebraic manipulations and solving equations. 3. Introduce students to understand the concepts of sets, intervals and inequalities. 4. Provide an understanding of analytical geometry. 5. Provide an understanding of trigonometric functions and their applications. 6. Familiarize students with basic concepts of differentiation and the laws of differentiation on various mathematical functions. 7. Familiarize students with basic concepts in linear algebra.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Students will be able to: 1. Understand the basic concepts related to this course. 2. Learn the concept of mathematical functions and related mathematical operations. 3. Understand how to represent mathematical functions and equations by drawing. 4. Understand trigonometric functions and their applications. 5. Learn the concept of differentiation and the laws of differentiation on various mathematical functions. 6. Understand how to apply differentiation to various engineering applications in general and applications related to Electrical Engineering in particular. 7. Understand some of the mathematical topics that needed to be understood to enter other courses in the Department of PETROLUME Engineering
Indicative Contents المحتويات الإرشادية	Introduction to calculus: ● Equations and solution methods. ● Elements and Sets.

	● Real Numbers and The Real Line. ● Interval, Union and Intersections of intervals. ● Inequalities. ● Analytical Geometry, Distance between Points and Midpoint Formula. ● Slope and Equation of Line. ● Functions (Sums, Difference, Product and Quotients of Functions). ● Domain and Range (Rf) of functions. ● Composition of Functions: ● Absolute Value Function. ● Graph of Functions (Graph of Curves). ● Shifting, Shrinking and Stretching of functions. ● Trigonometric Functions Derivatives ● Definition. ● Derivatives by the Limits. ● Laws of Derivatives. ● Second and Higher Order Derivative. ● Implicit Differentiation. ● The quotient rule for Derivative. ● The Chain Rule. ● Derivative of Parametric Equations. ● Derivative of Trigonometric Functions. ● Applications of Derivatives. Matrices ● Introduction to Matrices: Definition and notation of matrices, matrix elements, size or dimensions of a matrix, special types of matrices (square, rectangular, row vector, column vector), equality of matrices.

	● Matrix Operations: Addition and subtraction of matrices, scalar multiplication, matrix multiplication. ● Matrix determinant. ● Matrix Inverses. ● Matrix transpose. ● Systems of Linear Equations. ● Cramer's rule. Limits and Continuity ● Introduction. ● Definition. ● Properties of the Limits. ● Right-hand limits and left-hand limits. ● Limit Involving Infinity. ● Continuous Function. ● Algebraic properties of continuous functions.

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 in solving problems. This will be achieved

	through classes, interactive tutorials, home works and quizzes.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	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	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All

Total assessment	100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to calculus, Equations and solution methods, Elements and Sets, Real Numbers and The Real Line, Interval, Union and Intersections of Intervals, and Inequalities.
Week 2	Analytical Geometry: Distance between points, Slope and equation of Line, Point Slope Equation, The Distance from Point to a Line, and Angles between two Lines.
Week 3	Assignment + Quiz + Functions : Definition, Domain and Range of Functions, Absolute Value Function, The Greatest Integer Function, and Composition of Functions.
Week 4	Graph of Functions: Symmetry Test for Graphs, Shifting, Shrinking and Stretching.
Week 5	Assignment + Trigonometric Functions: Definition and Identities of Trigonometric Functions, Graph of Trigonometric Functions.
Week 6	Quiz + Derivatives: Definition, Derivatives by the Limits, Laws of Derivatives, and Second and Higher Order Derivative
Week 7	Implicit Differentiation and the Quotient rule for Derivatives.
Week 8	The Chain Rule, Derivative of Parametric Equations, and Derivative of Trigonometric Functions.
Week 9	Assignment + Quiz + Applications of Derivatives, Analysis of Functions: Increase and Decrease, Concavity and Inflection Points, Horizontal and Vertical Asymptotes, and Oblique Asymptotes

Week 10	Mid Term + Matrices: Introduction to Matrices: Definition and notation of matrices, matrix elements, dimensions of a matrix, special types of matrices (square, rectangular, row vector, column vector)
Week 11	Matrices: equality of matrices, Matrix Operations: Addition and subtraction of matrices, scalar multiplication, matrix multiplication, Matrix determinant, Matrix Inverses, Matrix transpose.
Week 12	Assignment + Matrices: Systems of Linear Equations and Cramer's rule.
Week 13	Quiz + Limits and Continuity: Introduction, Definition, and Properties of the Limits.
Week 14	Right-hand limits and left-hand limits, Limit Involving Infinity, Continuous Function, and Algebraic properties of continuous functions.
Week 15	**Review and solve related problems.**
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Thomas, G. B., Weir, M. D., Hass, J., Giordano, F. R., & Korkmaz, R. (2010). *Thomas' calculus* (Vol. 12). Boston: Pearson.	Yes
Recommended Texts	Thomas, G. B., Weir, M. D., Hass, J., Giordano, F. R., & Korkmaz, R. (2010). *Thomas' calculus* (Vol. 12). Boston: Pearson.	No
Websites		

Grading Scheme

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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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Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Computer I**			**Module Delivery**	
Module Type	**Basic**			☒**Theory** ☐**Lecture** ☒**Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	**UOM 122**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level			**Semester of Delivery**	2	
Administering Department	Type Dept. PE		**College**	Type College Code	
Module Leader	**Nsaif Jasim**		**e-mail**		
Module Leader's Acad. Title	Asst. Professor		**Module Leader's Qualification**		
Module Tutor	**Nsaif Jasim**		**e-mail**	nsf_jsm@uomisan.edu.iq	
Peer Reviewer Name	**Ali dhahir**		**e-mail**	ali_dh11@uomisan.edu.iq	
Scientific Committee Approval Date	1/10/2024		**Version Number**	1.0	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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. تعريف الطالب بكيفية استخدام الحاسوب من خلال تعريفة على نظام التشغيل والبرامج الخدمية التي سوف تساعده في دراسته مثل برامج الأوفيس (word 2010 , excel 2010)** **2. التعرف على البرنامج المستخدم لكتابة الاكواد والواجهات بلغة الفجول بيسك والتعرف على اساسيات اللغة وكيفية كتابة الجمل الشرطية وانواع الاوامر لتنفيذها التعرف على العمليات التكرارية واهم الاوامر المستخدمة في التكرار.**
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**1- قدره الطالب على التعامل مع الحاسب الالي وإدارة الملفات والمجلدات** **2- تعلم لغة برمجية مرئية مرنة تلبي الغرض الأساسي لكتابة البرامج التي تساعد الطالب في فهم اساسيات البرمجة وإمكانية التحليل ويتم ذلك من خلال التالي:** **أ- تنصيب برنامج الفجول بيسك** **ب- معرفة الاساسيات وكيفية استدعاء المتغيرات ونوع البيانات التي يتم ادراجها** **ت- معرفة استخدام الجمل الشرطية وتطبيق البرامج الخاصة بها** **ث- معرفة كيفية تكرار تنفيذ الايعازات المتعددة والاوامر المستخدمة في التكرار** **ج- التعرف على بعض الايعازات ذات استخدام محدد لتنفيذ امر** **ح- التعرف على المكتبات المستخدمة والغرض من استدعاءها** خ- **التعرف على كيفية تنفيذ العمليات المنطقية والرياضية**
Indicative Contents المحتويات الإرشادية	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	الطريقة الألقائيه الطريقة الحوارية الطريقة الناشطة (تعتمد على نشاط الطالب)

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	22	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Computer basics $ Computer's components**
Week 2	**Operating System (windows 10)**
Week 3	**Application software (Microsoft Office)**
Week 4	**MS word 1**
Week 5	**MS word2**
Week 6	**Excel 1**
Week 7	**Excel 2**

Week 8	**Install program of VB Basic**
Week 9	**study most of VB Basic components**
Week 10	**Arithmetic and logic operations & Input / Output program**
Week 11	**Public and private variables**
Week 12	**If condition & Nested if**
Week 13	**Loops (for) , Loops (while) & Nested loops**
Week 14	**Preparatory week before the final Exam**
Week 15	**the final Exam**

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Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	**Computer basics $ Computer's components**
Week 2	**Operating System (windows 10)**
Week 3	**Application software (Microsoft Office)**
Week 4	**MS word 1**
Week 5	**MS word2**
Week 6	**Excel 1**
Week 7	**Excel2**
Week 8	**Install program of VB Basic**
Week 9	**study most of VB Basic components**
Week 10	**Arithmetic and logic operations & Input/Output program**
Week 11	**Public and private variables**
Week 12	**If condition & Nested if**
Week 13	**Loops (for)**
Week 14	**Loops (while) & Nested loops**
Week 15	**Preparatory week before the final Exam**

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Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts		
Recommended Texts	https://codebun.com/visual-basic-programs-for-beginners-with-examples/	No
Websites	يمكن الولوج الى صفحة الموضوع او من خلال موقع الكلية **www.uomisan.edu.iq/moodle** Getting started with VBA in Office | Microsoft Learn	

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

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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	**Basic**			☒**Theory**	
Module Code	**PE 112**			☒**Lecture**	
ECTS Credits	**5**			☐**Lab**	
SWL (hr/sem)	**125**			☐**Tutorial**	
				☐**Practical**	
				☐**Seminar**	
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. PE		**College**	Type College Code	
Module Leader	Ali Hussein Hassan		**e-mail**	al_azzawwi@uomisan.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Scientific Committee Approval Date	1/10/2024	**Version Number**	1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Drilling Engineering, production Engineering	**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 aims of Engineering Mechanics are to provide a fundamental understanding of the principles and laws governing the behavior of physical systems, with a focus on mechanical systems. This discipline is essential for engineers as it lays the foundation for analyzing and solving problems related to the design, operation, and maintenance of structures and machines. The specific module aims of Engineering Mechanics may vary depending on the educational institution and the level of study. However, here are some common aims that are typically covered in Engineering Mechanics courses: Overall, the module aims to equip students with a solid foundation in mechanics, enabling them to analyze and design mechanical systems and structures, and providing a basis for further study in engineering disciplines such as civil, mechanical, and aerospace engineering.
Module Learning Outcomes	The specific learning outcomes of an Engineering Mechanics module may vary depending on the educational institution and the level of study. However, here are some common learning outcomes that are typically associated with Engineering Mechanics courses:

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مخرجات التعلم للمادة الدراسية	Knowledge and understanding of fundamental principles: Students should demonstrate a solid understanding of the fundamental principles of mechanics, including Newton's laws of motion, equilibrium conditions, conservation of energy and momentum, and their application to mechanical systems. Problem-solving skills: Students should be able to apply the principles of mechanics to solve engineering problems. They should demonstrate the ability to analyze and model the behavior of mechanical systems, calculate forces, moments, and stresses, and apply appropriate equations and formulas to solve problems. Effective communication and teamwork: Students should be able to communicate their ideas, analysis, and solutions effectively, both in written and verbal forms. They should also be able to work collaboratively in teams, demonstrating effective teamwork and the ability to contribute to group discussions and projects. These learning outcomes aim to provide students with a solid foundation in Engineering Mechanics, preparing them for further study or professional practice in engineering disciplines that require a strong understanding of mechanics, such as civil engineering, mechanical engineering, aerospace engineering, and more. .
Indicative Contents المحتويات الإرشادية	Introduction to Engineering Mechanics: Overview of mechanics and its importance in engineering, Fundamental concepts and definitions, Units and dimensions, Scalars and Vectors: Differentiation between scalar and vector quantities, Vector operations, such as addition, subtraction, and multiplication, Components and coordinate systems, Force Systems and Equilibrium: Types of forces (e.g., gravitational, applied, frictional) Resultant and equilibrium conditions Free-body diagrams and analysis of forces

	Newton's Laws of Motion: Newton's three laws of motion and their applications Force and acceleration Application of Newton's laws to solve problems Applications of Newton's Laws: Motion of particles in one and two dimensions Projectile motion Circular motion and centripetal force Work, Energy, and Power: Work done by forces Kinetic and potential energy Conservation of mechanical energy Power and efficiency Impulse and Momentum: Linear momentum and its conservation Impulse-momentum theorem Collisions and impact Statics of Rigid Bodies: Equilibrium conditions for rigid bodies Analysis of trusses, frames, and machines Distributed forces and centroids Friction and its effects

	Kinematics of Rigid Bodies: Translation, rotation, and general plane motion Angular velocity and acceleration Relative motion analysis Dynamics of Rigid Bodies: Moment of inertia and its properties Equations of motion for rotating bodies Torque and angular momentum Structural Analysis: Analysis of simple structures (e.g., beams, columns) Axial loading, bending moments, and shear forces Stress and strain analysis Applications to Engineering Problems: Application of Engineering Mechanics principles to real-world engineering problems Case studies and examples from various engineering disciplines Design considerations and optimization These topics provide a comprehensive overview of Engineering Mechanics, covering the fundamental principles and their applications to various mechanical systems and structures. The actual contents and depth of coverage may vary, and additional topics may be included based on the specific requirements of the curriculum and the level of study.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم	
Strategies	Lectures: Lectures are a common teaching method used to deliver key concepts and theoretical foundations of Engineering Mechanics. In lectures, instructors present the material using visual aids, demonstrations, and examples. This allows students to gain a theoretical understanding of the subject matter. Tutorials and Problem-solving Sessions: Tutorials and problem-solving sessions provide students with opportunities to apply the principles and concepts learned in lectures to solve engineering problems. In these sessions, students work through practice problems individually or in groups, guided by the instructor. This helps reinforce understanding, develop problem-solving skills, and clarify any misconceptions. Laboratory Sessions: Laboratory sessions provide hands-on experience with physical experiments or computer simulations related to Engineering Mechanics. These sessions allow students to observe and measure physical phenomena, validate theoretical concepts, and develop practical skills in data collection and analysis. Lab sessions may also involve the use of software tools for modeling and simulation. Interactive Discussions: Interactive discussions, such as seminars or group discussions, encourage active participation and critical thinking among students. Instructors may present case studies, real-world examples, or challenging problems to stimulate discussion and promote deeper understanding of Engineering Mechanics principles. This strategy also allows students to share their perspectives, ask questions, and engage in collaborative learning. Computer-Aided Learning: Computer-aided learning tools, such as online tutorials, interactive simulations, or virtual laboratories, can enhance understanding and provide additional resources for students. These tools enable students to explore concepts, visualize complex phenomena, and engage in self-paced learning. Design and Project Work: Design projects or assignments related to Engineering Mechanics provide opportunities for students to apply their knowledge and skills to practical engineering problems. Students may be tasked with analyzing and designing structures, evaluating mechanical systems, or optimizing designs based on given constraints. These projects enhance critical thinking, problem-solving abilities, and teamwork. Formative Assessments: Formative assessments, such as quizzes, in-class exercises, or online assessments, are used to provide feedback and monitor students' progress throughout the

	module. These assessments help identify areas where students may need additional support or clarification, allowing instructors to adjust their teaching methods accordingly.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا

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

Module Evaluation

تقييم المادة الدراسية

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

Total assessment	100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري		
	Material Covered	
Week 1	Force system: (force, moment, couple, resultant of forces)	Statics
Week 2	Equilibrium: (Conditions of Equilibrium, Free Body Diagram, Two and Three Force Member)	
Week 3	Friction: (Characteristics of Friction, Types of Friction and Application of Friction).	
Week 4	Center of Gravity and Centroid: (Center of Mass and Body, Centroids of Lines, Area and Volume, Composite Bodies and Figures).	
Week 5	Moments of Inertia: (Definition of Moments of Inertia for Area, Moments of Inertia for Composite Areas and Moments of Inertia for an Area about Inclined Axes).	
Week 6	(Newton's Laws: (First, Second and third Law)	Dynamics
Week 7	Mid-term Exam	
Week 8	Kinematic of Particle: (Rectilinear Motion, Curvilinear Motion)	
Week 9	Kinetic of Particle: (Force, Mass and acceleration).	
Week 10	Kinetic of Particle: (Work and Energy and Rotation).	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**

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Required Texts	**Meriam, J.L. and Kraige, L.G. 2002., Engineering Mechanics Statics, Fifth Edition, John Willey & Sons Inc.**	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	Democracy and human rights	**Module Delivery**
Module Type	**Basic**	☒**Theory**
Module Code	UOM 121	

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ECTS Credits	**2**	☐**Lecture** ☐**Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**
SWL (hr/sem)	**50**	

Module Level	1	**Semester of Delivery**	**1**
Administering Department	Type Dept. Code	**College**	Type College Code
Module Leader	Moaed Hassian	**e-mail**	
Module Leader's Acad. Title	Assis.Lec.	**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		**Version Number**	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

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أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1-To gain an understanding of the philosophic and political backgrounds that underpin the concept of human rights, enabling students to grasp the multifaceted nature of this complex field. 2-To learn about the significant historical documents that have contributed to the development and formation of human rights theories, enriching their knowledge of the history and evolution of human rights. 3-To engage in critical examination and discussion of current political and ethical debates surrounding human rights, fostering critical thinking and encouraging students to form their own perspectives on these issues. 4-To study key legal documents and understand the work of crucial governmental and non-governmental institutions currently involved in the protection and promotion of human rights. This objective aims to make students aware of the global landscape of human rights protection and how it operates. 5-To undertake a detailed examination of at least one current problem area in human rights protection, providing a practical application of knowledge and giving students a deeper understanding of the complexities and challenges faced in human rights protection. 6-To promote an understanding and appreciation of the importance of human rights in all areas of life, including engineering, highlighting the significance of ethical considerations in technical professions. 7-To encourage students to consider how their future work as engineers could potentially impact human rights, fostering a sense of social responsibility and ethical awareness in their professional practice. 8-To cultivate skills in research, analysis, and argumentation related to human rights, thereby enhancing students' overall academic and intellectual skills.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Understand the historical, philosophical, and political context of human rights, appreciating the complexities and dimensions of the concept. 2- Be familiar with significant historical documents and milestones that have contributed to the evolution of human rights theories and their role in shaping the current understanding of human rights. 3- Analyze and articulate positions on contemporary political and ethical debates about human rights, demonstrating critical thinking skills and a broad understanding of the issues.

	4- Identify and understand the roles of major governmental and nongovernmental institutions in the promotion and protection of human rights, demonstrating an awareness of the broader global landscape of human rights advocacy. 5- Analyze a specific, current problem area in human rights protection, applying theoretical knowledge to real-world situations and demonstrating problem- solving skills. 6- Appreciate the relevance and importance of human rights considerations within their field of study, electrical engineering, and the broader engineering context. 7- Exhibit an understanding of the ethical responsibilities and potential impacts of engineering projects on human rights, preparing them to consider these factors in their future professional practice. 8- Show competence in researching, analyzing, and articulating arguments related to human rights, demonstrating development in academic skills applicable beyond this specific module. By achieving these learning outcomes, students will have not only a strong foundational understanding of human rights and its relevance to their discipline but also enhanced critical thinking and problem-solving skills.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Introduces students to the philosophic and political background of the concept of human rights. 2. Discusses important documents as part of the history of the development of human rights theories. 3. Examines important issues in current political and ethical debates about human rights. 4. Reviews core legal documents and the work of the most important governmental and nongovernmental institutions currently involved in human rights protection and promotion. 5. Examines at least one current problem area in human rights protection

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم	
Strategies	1. Lectures: Traditional lectures will be used to introduce fundamental concepts, providing students with a strong theoretical foundation in the philosophic and political backgrounds of human rights, the history of human rights theories, and the role of various institutions in human rights protection and promotion. 2. Interactive Discussions: To facilitate critical thinking and engagement, class sessions will often involve interactive discussions. These might revolve around the analysis of important historical documents, current debates on human rights issues, or case studies of specific problem areas in human rights protection. 3. Group Projects: Students will work in groups to analyze a specific problem in human rights protection, encouraging teamwork, fostering a deeper understanding of the issue, and enabling students to apply theoretical knowledge to practical scenarios. 4. Guest Lectures: Inviting practitioners from the field, such as human rights activists, legal professionals, or engineers working on ethical issues, can provide students with real-world insights and inspire them to consider the impact of their work on human rights. 5. Research Assignments: Individual or group assignments might require students to conduct research on a specific topic related to human rights. This encourages independent learning, develops research skills, and deepens their understanding of the subject. 6. Case Studies: By analyzing and discussing real-world cases in class, students can understand the practical application of human rights theories, grasp the challenges faced in human rights protection, and consider the relevance of these issues in their own field of study. 7. Online Resources: Making use of online resources, such as academic articles, video lectures, podcasts, or documentaries, can supplement the course material and offer different perspectives on the subject matter. 8. Reflection Papers: Students could write reflection papers on how they see human rights intersecting with their engineering studies and future careers, promoting introspection and ethical awareness. These strategies aim to promote an active learning environment where students can deeply engage with the subject matter, enhancing their understanding and fostering

	important skills such as critical thinking, teamwork, research, and communication.

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

Module Evaluation تقييم المادة الدراسية				
	Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**

Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	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	مدخل عام الى مفهوم حقوق الانسان
Week 2	حقوق الانسان في الحضارات القديمة والشرائع السماوية
Week 3	تطور فكرة حماية حقوق الانسان في العصر الحديث
Week 4	المجتمع الدولي وحقوق الانسان
Week 5	اليات الامم المتحدة لحماية حقوق الانسان
Week 6	واجبات الانسان والقيود الواردة على ممارسة حقوق الانسان
Week 7	المنظمات والهيئات الدولية المعنية بحماية حقوق الانسان

Week 8	اخلاقيات المهنة تعليمات انضباط الطلبة في مؤسسات التعليم العالي رقم 160 لسنة 2007	
Week 9	مفهوم وتاريخ الديمقراطية	
Week 10	سمات النظام الديمقراطي ومكوناته	
Week 11	الدستور والديمقراطية	
Week 12	العلاقة بين حقوق الانسان والديمقراطية	
Week 13	ضمانات الحريات والحقوق العامة	
Week 14	الديمقراطية المعاصرة و شروط قيام الديمقراطية الدستورية	
Week 15	the Final Exam	

Learning and Teaching Resources

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مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	حقوق الانسان والديمقراطية: ا.م.د غسان كريم مجذاب و ا.م.د امجد زين العابدين , 2021	
Recommended Texts	حقوق الانسان والديمقراطية: ا.م.د غسان كريم مجذاب و ا.م.د امجد زين العابدين , 2021	
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.

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

MODULE DESCRIPTION FORM

Module Information معلومات المادة الدراسية					
Module Title	**Strength of Materials**			**Module Delivery**	
Module Type	**BASIC**			☒**Theory** ☐**Lecture** ☒**Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	**PE 113**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	**1**		**Semester of Delivery**	1	
Administering Department	Type Dept. PE		**College**	Type College Code	
Module Leader	Noor K. Faheed		**e-mail**	Noor.kf@uomisan.edu.iq	
Module Leader's Acad. Title	Teacher		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	1/10/2024		**Version Number**	1.0	

Relation with other Modules			
Prerequisite module	Mechanics of Materials	**Semester**	
Co-requisites module	None	**Semester**	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims أهداف المادة الدراسية	• As the engineering design of different components, structures etc. used in practice are done using different kinds of materials, it is essential to understand the basic behavior of such materials
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Lectures series on Strength of Materials are prepared, explaining the fundamentals in a simple and lucid manner so that the students can grasp the basics of the application of loading system and its consequence in a deformable body.

Learning and Teaching Strategies	
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.

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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

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

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	**Introduction to strength of materials** • Introduction—Concept of Simple Stress and Strain • Axial Loading; Normal Stress • Shearing Stress • Bearing Stress
Week 2	• Stress and Strain—Axial Loading • Tensile test • Stress-Strain Diagram • True Stress and True Strain
Week 3	• Hooke's Law; Modulus of Elasticity • Deformations of Members under Axial Loading • Plastic Deformations • Elastic versus Plastic Behavior of a Material
Week 4	• Poisson's Ratio • Longitudinal strain • Lateral strain • Application of Poisson's ratio to a two-dimensional stress system
Week 5	• Shear stress • Shear strain • Modulus of rigidity • Thermal Stress
Week 6	• Thin Cylinders and Shells • Thin cylinders under internal pressure • Hoop or circumferential stress • Longitudinal stress • Changes in dimensions
Week 7	• Thin spherical shell under internal pressure • Change in internal volume
Week 8	• Torsion • Simple torsion theory • The Angle Of Twist • Shear Stress And Shear Strain In Shafts

	• The Maximum Shear Stress
Week 9	• Series connection of the shafts • Parallel Connection Of The Shafts • Power Transmitted By Shafts
Week 10	• Helical Springs • Spring deformation • SPRINGS IN SERIES • Spring in parallel
Week 11	• Flanged bolt
Week 12	• Slope and deflection of beams • Buckling
Week 13	• Bending theory and second moment of area
Week 14	• Final Project and Exam Preparation • Exam preparation and review
Week 15	• Final Exam

Delivery Plan (Weekly Lab. Syllabus) **المنهاج الاسبوعي للمختبر**	
	Material Covered
Week 1	Lab 1: Tensile Test
Week 2	Lab 2: Compression Test
Week 3	Lab 3: Shear Test
Week 4	Lab 4: Impact Test
Week 5	Lab 5: Hardness Test
Week 6	Lab 6: Torsion Test
Week 7	Lab 7; bending test
Week 8	Lab 13:Review

Week 9	Lab 14:Examination
Week 10	Lab 15:Final examination

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	• Strength of Materials 3rd Edition. • Mechanics of Materials, Ninth Edition, 2014, Published by Pearson Prentice Hall R.C. Hibbeler	Yes
Recommended Texts	• Mechanics of Materials, Seventh Edition, 2015 Published by McGraw-Hill Education • Ferdinand P. Beer • E. Russell Johnston, Jr. • John T. DeWolf David F. Mazurek	No
Websites		

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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.

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Engineering workshop			**Module Delivery**	
Module Type	**Basic**			☒**Theory** ☒**Lecture** ☐ **Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	**ENG 123**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level		1	**Semester of Delivery**		1
Administering Department		Type Dept. PE	**College**	Type College Code	
Module Leader	Saad Hannon & Hussain Madhi		**e-mail**		
Module Leader's Acad. Title		Asst. Lecturer	**Module Leader's Qualification**		Ms.C
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval		1/10/2024	**Version Number**		1.0

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Date			

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 introduce basic workshop practices, production, labor, and time requirements of workshop operations.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	This course is essential in all engineering branches providing the students with the general basics of engineering science. by completing this course, students will be able: - 1- To understand how the world, both natural and man-made, works. 2-To have a good knowledge of safety rules on-site in an industrial environment and increase the knowledge about the use of working tools, instruments, and machines. 3-To present a general guide for solving problems. 4-To introduce the concept of free body diagram and equilibrium equation.

Indicative Contents المحتويات الإرشادية	Workshop Skills The students are introduced to training programs in four workshops: welding, turning, carpentry, and casting.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Maintain the ray of hope for the weak individuals through the stable opportunity to override failure. Motivate the spirit of competition between the students

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	27	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**CARPENTRY : Carpentry Tools, Cutting Tools, Planes**
Week 2	**Boring Tools, Jigsaw, Power planes, Circular saw, Router Cutters, Orbital Sander**
Week 3	**FITTING : Holding Tools, Striking Tools, Cutting Tools**
Week 4	**Measuring, Marketing and Testing Tools, Impact Driver, Chain Saw, Angle Grinder**
Week 5	**Drilling Machine, Nail Gun, Impact Wrench, Cut off Machine**
Week 6	**WELDING Arc welding equipment**
Week 7	**Gas welding: Oxy acetylene welding equipment**
Week 8	**Soldering equipment, Brazing equipment** Structure Item: Indirect Questions
Week 9	**TURNING Turning machine (lathe)**
Week 10	**Cutting machine** +Quiz
Week 11	**Drilling machine**

Week 12	**Milling machine**
Week 13	**CASTING: Furnaces**
Week 14	**Sand Casting, Molding box, Cores, Casting inspection equipment**
Week 15	**FORGEABILITY: Anvil, Forging Hand Tools, Hammers, Tongs, Hearth, Swage block** Exam preparation and review
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		Yes
Recommended Texts		No
Websites		

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	**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 DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية		
Module Title	**Arabic Language 1**	**Module Delivery**
Module Type	**Basic**	☐**Theory** ☒ **Lecture** ☐**Lab** ☐**Tutorial** ☐**Practical**
Module Code	**UOM 123**	
ECTS Credits	**2**	
SWL (hr/sem)	**50**	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

			☐Seminar		
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. PE		**College**	Type College Code	
Module Leader	Mohammed Abdhussain Mohammed		**e-mail**	Moh.albahadli@uomisan.edu.iq	
Module Leader's Acad. Title	Assist Lec		**Module Leader's Qualification**	Msc	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/09/2024		**Version Number**	1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module		**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims	**ان الهدف من تدريس مادة اللغة العربية في هذا القسم هو الكفاءة اللغوية للطلبة وتمكينهم من**

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أهداف المادة الدراسية	التعبير عن أفكارهم ومشاريعهم بلغة عربية فصيحة واضحة خالية من الغلط واللون العامي والاعجمي بأبسط الطرق . فاللغة هي أداة الايصال الأولى بين أفراد المجتمع ،ومتى تمكن الأنسان من لغته استطاع الوصول الى أذهان الآخرين بحيث يسهل تعامله معهم ويتمكن من تحقيق هدفه في العمل. وان ذلك يؤدي الى تحقيق التوازن المفترض في ثقافة الطلبة فهو يضمن نوعاَ من التعادل بين مناهج المادة العلمية ووسيلة ايصالها او التعبير عنها .
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	أ- الاهداف المعرفية . أ1- يتعلم الطالب خلال الفصل الدراسي بعض اساسيات مادة اللغة العربية . أ2- فهم تاريخ واساسيات نشأ قواعد اللغة العربية . أ3- يتعلم كيفية كتابة تقرير او بحث او طلب اجازة بدون اخطاء لغوية او كتابية . أ4- يتعلم الطالب كيفية كتابة الانشاء ومنها الى طريقة كتابة التقارير والبحوث العلمية : ب- الاهداف المهاراتية الخاصة بالموضوع : جعل الطالب قادرا على ان . ب1 - يتعلم كيفية كتابة انواع الهمزة سواء كانت همزة قطع او وصل وكيفية لفظها . ب2- يتعلم نبذة عن كتابة الهمزة سواء على الالف او الياء او الواو او مفردة على السطر . ب3- يفرق بين الظاء والضاد . ب4- يفرق بين التاء المربوطة والهاء
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	. د1- تمكين الطلبة من كتابة التقارير حول المواضيع الخاصة بجميع المواد وصياغتها بعيدا عن الاخطاء اللغوية . د2-تمكين الطلبة من كيفية استخدام المفردات الصحيحة وذلك من خلال الرجوع للقواميس . د3-رفع ثقة الطالب بنفسه من خلال خوض بعض المحادثات والمناظرات اللغوية ولا سيما الشعرية منها د4- تنمية مهارات الطلبة في كيفية التعامل مع مشاكل اللغة على الصعيدين اللفظي والكتابي وكيفية التعامل

	معها.

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

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

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Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	قواعد اللغة العربية : الكلام وما يتألف منه : الاسم ، والفعل والحرف الفعل واقسامه ، عالماته ، الفعل الماضي قواعد فعل الأمر ، الحرف وما يتميز به
Week 2	الفعل واقسامه ، عالماته ، الفعل الماضي
Week 3	قواعد فعل الأمر ، الحرف وما يتميز به
Week 4	الأعراب والبناء ، وعلاماته الأعراب ، والمثنى والملحق به
Week 5	ادب ، ونص شعري ، ودراسة وتحليل جمع المذكر السالم / والملحق به
Week 6	الملحقة بالأسماء الستة
Week 7	**امتحان نصف الفصل**
Week 8	المبتدأ والخبر ، انواع المبتدأ واحكامه
Week 9	قواعد : الخبر ، تعريفه وانواعه اختبار يومي
Week 10	أملاء : قواعد كتابه الهمزة
Week 11	ادب : نص نثري . دراسة وتحليل
Week 12	قواعد : اغلاط لغوية شائعة
Week 13	أملاء : قواعد كتابه الألف في نهاية الكلمة
Week 14	محاضرة عامه ومناقشات
Week 15	**Preparatory week before the final Exam**

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	شرح ابن عقيل على الفية ابن مالك .بيروت دار الكتب العامة 1985 ، تحقيق محي الدين عبد الحميد.	Yes
Recommended Texts	جامع الدروس العربية . بيروت دار الكتب العلمية 1984 . 1987، تأليف مصطفى - الغلاييني - اللغة العربية لغير أقسام الاختصاص .مؤسسه دار الكتب بغداد 1981 ، تأليف عبد القادر حسين أمين . والدكتور رشيد العبيدي	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

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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MODULE DESCRIPTION FORM

Module Information					
Module Title	**Stratigraphy and Sedimentology**			**Module Delivery**	
Module Type	**Core**			☒**Theory**	
Module Code	**PE 121**			☒**Lecture**	
ECTS Credits	**5**			☐ **Lab**	
SWL (hr/sem)	**125**			☐**Tutorial**	
				☐**Practical**	
				☐**Seminar**	
Module Level			**Semester of Delivery**	1	
Administering Department	Type Dept. PE		**College**	Type College Code	
Module Leader	Riaed Al Siaede		**e-mail**	DR.RA.IRAQ@UOMISAN.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	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	1/10/2024		**Version Number**	1.0	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**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	teaching and applying the principle of historical geology and the relative age of geological events and the relation between these events and the accumulation of petroleum. Also the distribution of sedimentary environments and the petrophysical properties of each sedimentary basin were explained.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The student will understand the depositional environments and the historical events which controlled the distribution of oil fields, and how can used this knowledge to explore new oil traps and analysis the quality of reservoir rocks.
Indicative Contents المحتويات الإرشادية	Maps, Figures and movies.

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)			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

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

assessment	**Final Exam**	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Define the stratigraphy. The methods for rock age measurements The relative and absolute age determination methods.
Week 2	The main geological principles. Find relative age of geological formations by geological principles.
Week 3	Geological time scale
Week 4	The depositional environments Continental environments.
Week 5	Transitional depositional environment
Week 6	Marine depositional environment.
Week 7	Marine depositional environment.
Week 8	The relation between plate tectonic and depositional environment
Week 9	The designation of rock units The Formation, Member and Group.

Week 10	The Geological succession of Iraq oil fields.
Week 11	The classification of main sedimentary rock groups
Week 12	Terrigenous rocks Classification Texture. Sorting, roundness. Maturity.
Week 13	Carbonate rock depositional environment and classification.
Week 14	Examples about sedimentary environments.
Week 15	Project Discussions , Preparatory week before the final Exam
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Lab 1: geological time scale principals
Week 2	Lab 2: relative age measuring
Week 3	Lab 3: transgression and regression
Week 4	Lab 4: thin section classification
Week 5	Lab 5: the development of depositional environment

Week 6	Lab 6: Facies maps
Week 7	Lab 7: analysis facies maps.

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Physical geology, Plumer Carelson,2020	Yes
Recommended Texts	Principles of Sedimentology and Stratigraphy (4th Edition), Boggs,2005.	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	**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 DESCRIPTION FORM

Module Information					
Module Title	**Mathematics II**			**Module Delivery**	
Module Type	**Basic**			☒**Theory**	
Module Code	**ENG 124**			☒**Lecture**	
ECTS Credits	**5**			☐ **Lab**	
SWL (hr/sem)	**125**			☐**Tutorial**	
				☐**Practical**	
				☐**Seminar**	
Module Level		1	**Semester of Delivery**		1
Administering Department		Type Dept. PE	**College**	Type College Code	
Module Leader	Sara jumaa		**e-mail**		
Module Leader's Acad. Title		Asst. 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		1/10/2024	**Version Number**		1.0

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Date			

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	Mathematics II aims to introduce students to the concept of integration and its importance to electrical engineering. Students will learn various integration methods, applications of definite integrals, and numerical integration. In addition to that, transcendental functions, complex numbers and polar coordinates will be covered in Mathematics II. The module objectives can be concluded as follow: 1. Introduce students to understand the concept of integration and how to solve related problems. 2. Identify different integration techniques and use them correctly to find the integrals of different functions. 3. Understand the effective methods of using integrals in problems related to electrical engineering applications. 4. Understand how to deal with complex numbers and use it with all associated mathematical operations 5. Familiarize students with the concepts of polar coordinates.
Module Learning Outcomes	Students will be able to: 1. Understand the concept of integration and its importance in engineering

مخرجات التعلم للمادة الدراسية	applications. 2. Demonstrate proficiency in performing basic integration operations. 3. Apply integration techniques, including substitution, integration by parts, partial fractions, and trigonometric substitutions, to solve a variety of engineering problems. 4. Analyze and interpret the geometric and physical significance of definite integrals in the context of electrical engineering, such as computing areas and volumes. 5. Utilize numerical integration techniques, such as the trapezoidal rule and Simpson's rule, to approximate definite integrals in practical scenarios. 6. Perform arithmetic operations with complex numbers and find complex conjugates. 7. Convert equations between rectangular and polar forms.
Indicative Contents المحتويات الإرشادية	Indefinite Integrals ● Rules for indefinite integrals ● Integration of trigonometric functions ● Solving Initial Value Problems with Indefinite Integrals ● Definite Integrals ● Rules for Definite Integrals Techniques of Integration ● Basic Integration Formulas (by Substitution) ● Integration by Parts ● Tabular integration. ● Trigonometric Integrals ● Definite integrals of odd and even functions ● Integration by Trigonometric Substitutions ● Integrating Rational Functions by Partial Fractions

	● Integration by substitution ● Numerical integration (The Trapezoidal Rule and Simpson Rule) Application of Integrals: ● Area under a curve ● Finding the area between two curves ● Volume of solids of revolution ● Length of curves Transcendental Functions: ● Inverse functions ● Logarithmic functions Complex Numbers: ● Complex numbers and operations ● Graphical representation of complex numbers ● Polar form of a complex number Polar Coordinates: ● Definition of polar coordinates ● Polar equations and graphs ● Polar and cartesian coordinates ● Graphing polar coordinate equations
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 in solving problems. This will be achieved through classes, interactive tutorials, home works and quizzes.

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	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	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Integration: Indefinite Integrals, Rules for Indefinite Integrals, Integration of Trigonometric Functions.
Week 2	Solving Initial Value Problems with Indefinite Integrals, Definite Integrals, Rules for Definite Integrals.
Week 3	Assignment + Quiz + Techniques of Integration, Basic Integration Formulas by Substitution, and Integration by Parts.
Week 4	Tabular Integration, Trigonometric Integrals, and Definite Integrals of Odd and Even Functions.
Week 5	Assignment + Quiz + Integration by Trigonometric Substitutions.
Week 6	Integrating Rational Functions by Partial Fractions.
Week 7	Integration by Substitution and Integrating of the Roots.
Week 8	Mid Term + Numerical integration: Trapezoidal Rule and Simpson Rule.
Week 9	Application of Integrals: Area Under a Curve and Finding Area between two Curves.
Week 10	Volume of Solids of Revolution.
Week 11	Length of Plane curves and Area of Surface of Revolution.
Week 12	Assignment + Quiz + Transcendental Functions: Inverse Functions and Logarithmic Functions.
Week 13	Complex Numbers, Complex Numbers and Operations, Graphical Representation of Complex Numbers, and Polar Form of a Complex Number.
Week 14	Polar Coordinates: Definition of Polar Coordinates, Polar Equations and Graphs, Polar and Cartesian Coordinates, and Graphing Polar Coordinate Equations.
Week 15	Assignment + Quiz + **Review and solve related problems.**
Week 16	**Preparatory week before the final Exam**

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts		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.

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

MODULE DESCRIPTION FORM

Module Information					
Module Title	**Physics**			**Module Delivery**	
Module Type	**Basic**			☒**Theory**	
Module Code	**ENG 125**			☒**Lecture**	
ECTS Credits	**4**			☐ **Lab**	
SWL (hr/sem)	**100**			☐**Tutorial**	
				☐**Practical**	
				☐**Seminar**	
Module Level	2		**Semester of Delivery**	2	
Administering Department	Type Dept. PE		**College**	Type College Code	
Module Leader	Maryam J. Jaafar		**e-mail**	mariamjabor94@gmail.com	
Module Leader's Acad. Title	Asst. Lect.		**Module Leader's Qualification**	Asst. Lect.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Scientific Committee Approval Date	1/10/2024	**Version Number**	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Physics provides the student with sufficient information about the nature of materials and how to use measurement units in different systems to measure the different properties of materials through understanding their nature, entering into the energy system and preserving it, and providing him with important information about the types of movements and their representation with functions. Then study fluids and their principles
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Physics plays a crucial role in the petroleum industry in various ways. Below are a few examples: 1. The principles of physics are extensively used to explore petroleum reservoirs. Techniques such as seismic surveying involve creating shock waves that penetrate the ground and are reflected on the surface by changes in rock layers. The data collected is then analyzed using physical principles to determine the structure and composition of the Earth's interior. This helps to locate possible petroleum reservoirs. 2. Fluid Dynamics: The study of fluid flow is a significant part of the petroleum industry. Oil recovery processes, such as primary, secondary, and tertiary, depend heavily on understanding how oil, water, and gas move through porous rock formations. The principles of fluid mechanics, a branch of physics, are fundamental in

	designing and optimizing these processes. 3. Thermodynamics: Petroleum extraction often involves changing pressure and temperature conditions. Understanding these changes and how they affect the properties of crude oil and natural gas is critical for efficient extraction and refining. For instance, phase changes from gas to liquid (condensation) and liquid to gas (evaporation) are common in the industry, governed by the principles of thermodynamics. 4. Reservoir Physics: Physics helps in understanding and modeling reservoir behaviors. Using different physical principles can predict how the reservoir will react to different drilling and extraction strategies, which can optimize the production strategy. 5. Materials Science: Physics also impacts the materials used in the petroleum industry. From the metallurgy of drill bits to the design of pipelines that can withstand extreme pressures and temperatures, an understanding of the physical properties of materials is essential. In summary, physics principles are fundamental to the petroleum industry, impacting everything from the initial exploration of oil and gas deposits to the extraction and refining of these resources..
Indicative Contents المحتويات الإرشادية	Materials Science: Physics also impacts the materials used in the petroleum industry. From the metallurgy of drill bits to the design of pipelines that can withstand extreme pressures and temperatures, an understanding of the physical properties of materials is essential.

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.

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
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	2
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)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	What Is Physics, Measuring Things, The International System of Units, Dimensions of some important variables, Energy, Work, Power, Gravitational Potential Energy, Kinetic energy, The Conservation of Energy, Oscillatory Motion, Simple Harmonic Motion
Week 2	Energy in Simple Harmonic Motion, Periodic time and sinusoidal nature for SHM, Position as a Function of Time in SHM, Velocity and Acceleration as Functions of Time in SHM. Wave motion, Types of Waves and Their Speeds: Transverse and Longitudinal Speed of Transverse Waves, Speed of Longitudinal Waves, Energy Transported by Waves, Intensity Related to Amplitude and Frequency.
Week 3	Wave motion, Types of Waves and Their Speeds: Transverse and Longitudinal Speed of Transverse Waves, Speed of Longitudinal Waves, Energy Transported by Waves, Intensity Related to Amplitude and Frequency. Sound waves, ,Fluid, Density, viscosity
Week 4	Pressure, Pascal principle, Archimedes principle, Phases of Matter, Density and Specific Gravity, Pressure in Fluids, Atmospheric Pressure and Gauge Pressure. Quiz
Week 5	Gauge Pressure, Fluids in Motion; Flow Rate, the Equation of Continuity, Bernoulli's Equation, Heat, Specific Heat, Heat Transfer, Conduction
Week 6	Convection, Radiation, Coulomb's Law, Flux, Electric potential, Gauss law, Electric Charge and Electric Field, Insulators and Conductors, Semiconductors. Contact angle,
Week 7	Stress, Strain, Surface tension, Interfacial tension.
Week 8	Introduction to Temperature And Heat, Temperature and the Zeroth Law of Thermodynamics, Heat transfer and its methods, Temperature Scales, Specific heat, Specific volume, Calorimetry
Week 9	Phases and Properties of Pure Substances, Property Diagrams for Phase-Change Processes, Thermal equilibrium, Thermal expansion

Week 10	Linear, areal and volume expansion of solid, Volume expansion of liquid and gases, Gas laws, The Ideal-Gas Equation of State. Quiz.
Week 11	Compressibility Factor—A Measure of Deviation from Ideal-Gas Behavior, Other Equations of State, Exergy Transfer by Work, Applications of work.
Week 12	Energy Conversion and General Energy Analysis, Energy Balance, Energy Change of a System, and Mechanisms of Energy Transfer, Thermal Energy Reservoirs, Heat Engines, Basic Considerations in the Analysis of Power Cycles, The Carnot Cycle and Its Value in Engineering
Week 13	Basic Considerations in the Analysis of Power Cycles, The Carnot Cycle and Its Value in Engineering Entropy, Entropy Change of Liquids and Solids,
Week 14	The Entropy Change of Ideal Gases Entropy, Entropy Change of Liquids and Solids, The Entropy Change of Ideal Gases
Week 15	Completion of student presentations Exam preparation and review
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Halliday, David, Robert Resnick, and Jearl Walker. *Fundamentals of physics*. John Wiley & Sons, 2013.	
Recommended Texts	Serway, R. A., & Jewett, J. W. (2018). Physics for scientists and engineers. Cengage learning.	
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Grading Scheme				
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.

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

MODULE DESCRIPTION FORM

Module Information					
Module Title	**Thermodynamic**			**Module Delivery**	
Module Type	**Basic**			☒**Theory**	
Module Code	**PE 122**			☒**Lecture**	
ECTS Credits	**4**			☐ **Lab**	
SWL (hr/sem)	**100**			☐**Tutorial**	
				☐**Practical**	
				☐**Seminar**	
Module Level	2		**Semester of Delivery**	2	
Administering Department	Type Dept. PE		**College**	Type College Code	
Module Leader	Qudama Mohammed Qasim		**e-mail**		
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	lecturer	
Module Tutor	Name (if available)		**e-mail**	E-mail	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	1/10/2024	**Version Number**	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Thermodynamic provides the student with sufficient information about the nature of materials and how to use measurement units in different systems to measure the different properties of materials through understanding their nature, entering into the energy system and preserving it, and providing him with important information about the types of movements and their representation with functions. Then study fluids and their principles
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Thermodynamic plays a crucial role in the petroleum industry in various ways. Below are a few examples: 1. The principles of Thermodynamic are extensively used to explore petroleum reservoirs. Techniques such as seismic surveying involve creating shock waves that penetrate the ground and are reflected on the surface by changes in rock layers. The data collected is then analyzed using physical principles to determine the structure and composition of the Earth's interior. This helps to locate possible petroleum reservoirs.

	2. Fluid Dynamics: The study of fluid flow is a significant part of the petroleum industry. Oil recovery processes, such as primary, secondary, and tertiary, depend heavily on understanding how oil, water, and gas move through porous rock formations. The principles of fluid mechanics, a branch of physics, are fundamental in designing and optimizing these processes. 3. Thermodynamics: Petroleum extraction often involves changing pressure and temperature conditions. Understanding these changes and how they affect the properties of crude oil and natural gas is critical for efficient extraction and refining. For instance, phase changes from gas to liquid (condensation) and liquid to gas (evaporation) are common in the industry, governed by the principles of thermodynamics. 4. Reservoir Physics: Thermodynamic helps in understanding and modeling reservoir behaviors. Using different physical principles can predict how the reservoir will react to different drilling and extraction strategies, which can optimize the production strategy. 5. Materials Science: Thermodynamic also impacts the materials used in the petroleum industry. From the metallurgy of drill bits to the design of pipelines that can withstand extreme pressures and temperatures, an understanding of the physical properties of materials is essential. In summary, Thermodynamic principles are fundamental to the petroleum industry, impacting everything from the initial exploration of oil and gas deposits to the extraction and refining of these resources..
Indicative Contents المحتويات الإرشادية	Reservoir Physics: Thermodynamic helps in understanding and modeling reservoir behaviors. Using different physical principles can predict how the reservoir will react to different drilling and extraction strategies, which can optimize the production strategy.

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

	interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
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	2
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)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Energy in Simple Harmonic Motion, Periodic time and sinusoidal nature for SHM, Position as a Function of Time in SHM, Velocity and Acceleration as Functions of Time in SHM. Wave motion, Types of Waves and Their Speeds
Week 2	Transverse and Longitudinal Speed of Transverse Waves, Speed of Longitudinal Waves, Energy Transported by Waves, Intensity Related to Amplitude and Frequency.
Week 3	Gauge Pressure, Fluids in Motion; Flow Rate, the Equation of Continuity
Week 4	Bernoulli's Equation, quiz
Week 5	Heat, Specific Heat, Heat Transfer, Conduction
Week 6	Convection, Radiation, Coulomb's Law, Flux, Electric potential, Gauss law, Electric Charge and Electric Field, Insulators and Conductors, Semiconductors. Contact angle,
Week 7	Introduction to Temperature And Heat, Temperature and the Zeroth Law of Thermodynamics

Week 8	Heat transfer and its methods, Temperature Scales, Specific heat, Specific volume, Calorimetry
Week 9	Phases and Properties of Pure Substances, Property Diagrams for Phase-Change Processes, Thermal equilibrium, Thermal expansion
Week 10	Linear, areal and volume expansion of solid, Volume expansion of liquid and gases, Gas laws, The Ideal-Gas Equation of State. Quiz.
Week 11	Compressibility Factor—A Measure of Deviation from Ideal-Gas Behavior, Other Equations of State, Exergy Transfer by Work, Applications of work.
Week 12	Energy Conversion and General Energy Analysis, Energy Balance, Energy Change of a System, and Mechanisms of Energy Transfer, Thermal Energy Reservoirs, Heat Engines, Basic Considerations in the Analysis of Power Cycles, The Carnot Cycle and Its Value in Engineering
Week 13	Basic Considerations in the Analysis of Power Cycles, The Carnot Cycle and Its Value in Engineering Entropy, Entropy Change of Liquids and Solids,
Week 14	The Entropy Change of Ideal Gases Entropy, Entropy Change of Liquids and Solids, The Entropy Change of Ideal Gases
Week 15	Completion of student presentations Exam preparation and review
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Halliday, David, Robert Resnick, and Jearl Walker. *Fundamentals of physics*. John Wiley & Sons, 2013.	
Recommended Texts	Serway, R. A., & Jewett, J. W. (2018). Physics for scientists and engineers. Cengage learning.	
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.

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

MODULE DESCRIPTION FORM

Module Information معلومات المادة الدراسية					
Module Title	**Chemistry**			**Module Delivery**	
Module Type	**Basic**			☒**Theory** ☐**Lecture** ☒**Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	**ENG 126**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level		**1**	**Semester of Delivery**		**2**
Administering Department		Type Dept. Code	**College**	Type College Code	
Module Leader	Salam Abdul-Zahra Khalefa		**e-mail**	Salam.iq2022@uomisan.edu.iq	
Module Leader's Acad. Title		Assis.Lec.	**Module Leader's Qualification**		Master
Module Tutor	Name (if available)		**e-mail**	E-mail	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date		**Version Number**	

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. Review of basic concepts: This includes reviewing the fundamental concepts in chemistry and ensuring a proper understanding of them. 2. Chemical stoichiometry: This involves studying percentages, chemical reactions, and the associated calculations. 3. Chemical reactions and heat: This include studying chemical reactions and the energy released or consumed during these reactions. 4. Organic chemistry: This focuses on the study of organic compounds and their chemical functions. 5. Fuels: This involves studying different types of fuels, their properties, and their uses. 6. Various batteries and electronic cells: This include studying different types of batteries and electronic cells and their applications. 7. Principles of corrosion: This aims to understand the principles of corrosion, its mechanisms, and methods of prevention. 8. Water for domestic uses: This relates to the properties of water and its applications in domestic settings and water treatment. 9. Industrial water: This focuses on the properties and uses of water in industry and its treatment. 10. Atmospheric pollution: This involves studying air pollution, its sources, and its

	impact on the environment.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. A solid understanding of the fundamental concepts in chemistry. 2. The ability to study percentages, chemical reactions, and perform related calculations. 3. Understanding of chemical reactions and the energy released or consumed during these reactions. 4. Comprehensive knowledge of organic compounds and their chemical functions. 5. Study of different types of fuels, their properties, and their uses. 6. In-depth understanding of various batteries, electronic cells, and their applications. 7. Understanding the principles of corrosion, its mechanisms, and preventive methods. 8. Understanding the properties of water and its applications in domestic settings and water treatment. 9. Knowledge of the properties and uses of water in industry and its treatment. 10. Study of air pollution, its sources, and its impact on the environment.
Indicative Contents المحتويات الإرشادية	1- Review of basic concepts: Reviewing fundamental concepts in chemistry such as atoms, elements, and molecular structure. Chemical forces, reactions, and chemical equilibrium. Factors affecting the rate of chemical reactions. 2- Chemical stoichiometry: Calculating chemical stoichiometry and related chemical reactions. Using percentages and chemical equations in stoichiometry calculations. 3- Chemical reactions and heat: Studying the energy released or consumed during chemical reactions. Applying the concept of heat changes in chemical reactions. 4- Organic chemistry: Studying organic compounds, their classification, and chemical properties. Understanding basic organic reactions and their chemical functions. 5- Fuels:

	Studying different types of fuels, including fossil fuels and biofuels. Understanding the properties and uses of fuels in industry, transportation, and energy. 6- Various batteries and electronic cells: Studying different types of batteries and electronic cells and their operating principles. Exploring applications of batteries and electronic cells in electronic devices and renewable energy. 7- Principles of corrosion: Studying corrosion mechanisms and contributing factors. Analyzing different types of corrosion, such as chemical corrosion and electrochemical corrosion. Studying corrosion prevention and protection techniques, such as the use of corrosion-resistant materials and protective coatings. 8- Water for domestic uses: Understanding the properties of water and its treatment for domestic purposes. Studying water quality standards and household water treatment processes like filtration and disinfection. 9- Industrial water: Exploring the uses of water in industry and understanding the treatment methods for industrial water preparation. Studying the applications of water in industrial processes such as cooling, cleaning, and drying. 10- Atmospheric pollution: Studying sources of air pollution and their impact on the environment and public health. Analyzing common air pollutants such as greenhouse gases, particulate matter, and volatile organic compounds. Studying pollution control techniques and legislation related to air quality protection.

	This academic curriculum aims to enhance students' understanding of the fundamental concepts and knowledge in these various chemical fields and raise awareness of relevant environmental issues. The expected outcomes for students include a deeper understanding of chemical principles and the ability to apply them in different scientific and technological contexts.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy in delivering the Chemistry module to first-year students in the Petroleum Engineering department relies on both theoretical and practical aspects, including laboratory work, homework assignments, and scientific report writing. The strategy emphasizes encouraging student participation in exercises and interactive learning while developing and expanding their practical skills through hands-on laboratory work. The focus will be on acquiring theoretical and practical knowledge, completing homework assignments, and preparing scientific reports and projects.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
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	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem)	100		

الحمل الدراسي الكلي للطالب خلال الفصل	

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	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)

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Review Of Basic Concepts (Analytical Chemistry)
Week 2	Concentration & Units for Expressing Concentration
Week 3	Chemical Stoichiometry
Week 4	Chemical Reactions and Heat
Week 5	Organic Chemistry
Week 6	Types of Hydrocarbons
Week 7	Mid-Term Exam
Week 8	Introduction to Fuels
Week 9	Various Batteries and Electronic Cells
Week 10	Principles Of Corrosion
Week 11	Control Of Corrosion
Week 12	Environmental Pollution
Week 13	Industrial Water
Week 14	Water For Domestic Uses
Week 15	Water Pollution and Preparatory Week Before the Final Exam
Week 16	Preparatory Week Before the Final Exam

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Preparation of a solution of pure sodium carbonate (initial standard solution)
Week 2	Preparation of hydrochloric acid solution (secondary standard solution)
Week 3	Titration of Hydrochloric Acid with Sodium carbonate
Week 4	Titration of Hydrochloric Acid with Sodium Hydroxide
Week 5	The reaction of a mixture (strong base and weak base) with a strong acid

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	1. Quantitative Chemical Analysis" by Daniel C. Harris 2. Chemistry: The Central Science" by Theodore L. Brown, H. Eugene LeMay, Bruce E. Bursten, Catherine Murphy, and Patrick Woodward 3. Organic Chemistry" by Paula Yurkanis Bruice 4. Principles of Corrosion Engineering and Corrosion Control" by Zaki Ahmad 5. Environmental Chemistry" by Stanley E. Manahan	
Recommended Texts		
Websites		

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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.

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

MODULE DESCRIPTION FORM

Module Information					
Module Title	**English language I**			**Module Delivery**	
Module Type	**Basic**			☒**Theory** ☒**Lecture** ☐ **Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	**UOM 120**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		1	**Semester of Delivery**		2
Administering Department		Type Dept. PE	**College**	Type College Code	
Module Leader	Ali Nooruldeen Abdulkareem		**e-mail**	ali.nooruldeen@uomisan.edu.iq	
Module Leader's Acad. Title		Asst. Lecturer	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Scientific Committee Approval Date	1/10/2024	**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 students with a comprehensive understanding of reading comprehension strategies, essential grammar structures, vocabulary development, and effective communication skills. By the end of the module, students should be able to read and understand various texts, use grammar structures accurately, expand their vocabulary, and communicate effectively in English.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of the module, students should have developed their reading comprehension skills, acquired a solid understanding of the grammar structures covered, expanded their vocabulary, and improved their speaking and listening abilities. They should be able to communicate effectively in English, understand and analyze various texts, and use idiomatic expressions and collocations appropriately.
Indicative Contents	These indicative contents provide an overview of the specific areas and topics covered within the syllabus, focusing on reading comprehension, grammar

المحتويات الإرشادية	structures, vocabulary development, speaking and listening skills, and assessment. The actual content and materials used may vary based on the curriculum and resources available.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The strategies aim to create an engaging and interactive learning environment where students can actively participate in language acquisition. The combination of explicit instruction, meaningful practice, and real-world application helps students develop their language skills effectively.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	67	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to the course and syllabus overview Reading Comprehension: Strategies for effective reading Structure Item: Present Simple (Formation and usage)
Week 2	Reading Comprehension: Main ideas and supporting details Structure Item: Present Continuous (Formation and usage)
Week 3	Reading Comprehension: Inference and critical thinking skills

	Structure Item: Past Simple (Formation and usage)
Week 4	Reading Comprehension: Vocabulary development and context clues Structure Item: Past Continuous (Formation and usage)
Week 5	Reading Comprehension: Summarizing and synthesizing information Structure Item: Present Perfect (Formation and usage). Quiz
Week 6	Reading Comprehension: Text organization and paragraph comprehension Structure Item: Future Simple (Formation and usage)
Week 7	Reading Comprehension: Practice with different text types (fiction, non-fiction, etc.) Structure Item: Conditional Statements (Types I, II, III)
Week 8	Reading Comprehension: Practice with longer passages and multiple-choice questions Structure Item: Indirect Questions
Week 9	Reading Comprehension: Analyzing author's tone and purpose Structure Item: Simple Statement and Definite/Indefinite Articles
Week 10	Reading Comprehension: Practice with comprehension questions and short answer responses Structure Item: Idioms (Introduction and common examples). Quiz
Week 11	Speaking and Listening Skills: Oral presentations and discussions Structure Item: Review of previously covered grammar structures
Week 12	Speaking and Listening Skills: Role-plays and debates Structure Item: Review and reinforcement of grammar structures
Week 13	Speaking and Listening Skills: Group discussions and problem-solving activities Vocabulary Development: Idioms and collocations (continued practice). Report due
Week 14	Vocabulary Development: Expanding vocabulary through reading and word exercises Speaking and Listening Skills: Listening comprehension activities and note-taking practice

Week 15	Final Project and Exam Preparation. Completion of the project. Exam preparation and review
Week 16	**Preparatory week before the final Exam**

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.

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

MODULE DESCRIPTION FORM

Module Information					
Module Title	**Structural Geology**			**Module Delivery**	
Module Type	**Core**			☒**Theory** ☒**Lecture** ☒**Lab** ☐**Tutorial** ☒**Practical** ☐**Seminar**	
Module Code	**PE 211**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level		2	**Semester of Delivery**		1
Administering Department		Type Dept. PE	**College**	Type College Code	
Module Leader	Fadhil Kassim Jabbar		**e-mail**	drfkjabbar@uomisan.edu.iq	
Module Leader's Acad. Title		An adjunct instructor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Scientific Committee Approval Date	1/10/2024	**Version Number**	1.0

Relation with other Modules			
Prerequisite module	Sedimentology and Stratigraphy	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims أهداف المادة الدراسية	Structural Geology: Structural geology is a module within the petroleum engineering department that focuses on the study of geological structures and their significance in the exploration and production of hydrocarbons. It explores the deformation and tectonic processes that have shaped the Earth's crust and their implications for the distribution and behavior of subsurface reservoirs. The Structural Geology module provides petroleum engineering students with a fundamental understanding of geological structures and their importance in hydrocarbon exploration and production. It enables them to analyze and interpret subsurface data, assess reservoir potential, and make informed decisions regarding well placement, drilling operations, and reservoir management. Within structural geology, which is the main focus of the course, you will learn in-depth about geological structures that form in different tectonic regimes, the process of their formation, their geometry, and their physical properties. The course also consists of a practical module where you will learn to measure and analyze these structures both in the field and in the laboratory.
Module Learning Outcomes	Students will learn theory of stress and deformation of rocks, classification and formation of geological structures, such as faults, folds, foliations, and lineations, and about the formation of geological structures in different tectonic regimes and conditions. Moreover, students can define the stress and

مخرجات التعلم للمادة الدراسية	strain and can relate these to the geometry of folded and faulted regions

Learning and Teaching Strategies	
Strategies	After taking this course, students should be able to: ➢ Differentiate between tectonic and structural geology topics. ➢ Know the structural set-up of different tectonic regimes. ➢ Know the brittle, ductile and plastic deformation. ➢ Understand deformation mechanisms at micro- and macro-scales. ➢ Describe the geometry and properties of different deformation structures. ➢ Run structural fieldwork and use structural field data in geometrical and kinematic analyses. ➢ Visualize and interpret structural observations and measurements with the help of stereonets. ➢ Interpret geological maps and profiles and use stereographic projection to solve structural geologic problems. ➢ Use digital tools such as compass, stereonet, GPS to collect and interpret data.

Student Workload (SWL)			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to Structural Geology The Earth is a Dynamic Planet Understanding Plate Tectonic Theory Why is structural geology important?
Week 2	The Fundamental Structures Categories of Geological Structures Contacts between Rock Bodies Primary Structures Secondary Structures

Week 3	Dynamic Analysis of Stress Force, stress, and strength Types of stresses Shear Stress and Normal Stress The Fundamental Equations for Stress Calculation of Lithostatic Stress Overburden Stress Mohr Circle for Stress Quiz
Week 4	Kinematic Analysis of Strain Rock Deformation Types of Deformation Controls on Deformation of a Rock Progressive Deformation
Week 5	Kinematic Analysis of Strain Components of Kinematics Analysis Deformation and strain Types of strain Fundamental Strain Equations Pure and Simpler Shear Strain
Week 6	Kinematic Analysis of Strain Mohr Strain Diagram Homogenous Strain Special Types of Homogenous Strain

	Relationship Between Stress and Strain Limitation of The Concept of Stress in Structural Geology
Week 7	Mohr-Coulomb failure Compressive Strength Tests Tensile strength tests with no confining pressure Determining Failure Envelope Quiz
Week 8	Mohr-Coulomb failure Coulomb Law of Failure Byerlee's Law Von Mises failure envelope Effect of pore-fluid pressure
Week 9	Joints and Shear Fractures Joints Classification of joints Importance of Joints Modes of fractures
Week 10	Joints and Shear Fractures Origin of Joints Joint Systems Categories of Joints Fracture Analysis Dynamic interpretation of fractures Conjugate shear fractures

Week 11	Faults Types of Faults Normal and Detachment Faults Reverse and Thrust Faults Quiz
Week 12	Faults Strike-Slip Faults Oblique slip faults Grabens and Horsts
Week 13	Folds and Folding Geometric Features of a Fold Fold Classification Anticlines and Synclines Geometry of the Fold
Week 14	Folds and Folding Fold Systems Special fold types (Chevron Folds) Dynamics of Folding Kinematic Models of Folding
Week 15	Final Project and Exam Preparation Completion of a Structural Geology project Exam preparation and review
Week 16	**Preparatory week before the final Exam**

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Lab 1: Orientation of Structures (Strike and dip measurements)
Week 2	Lab 2: Drawing Geological Cross Section Profile and Interpretation of Geological Maps
Week 3	Lab 3: Geometric Methods: Attitude Calculations Using Three-Point Problems
Week 4	Lab 4: Geometric Methods: Dimension Calculations
Week 5	Lab 5: Stereographic Projections (Stereonets): Angles between Lines and Planes
Week 6	Lab 6: Calculation of Layer Attitude in Drill Holes
Week 7	Lab 7: Analysis of Data from Rock-Deformation Experiments

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	*Structural Geology. Twiss and Moores (2007) (2nd Edition). W.H. Freeman and Company.*	No
Recommended Texts	*STRUCTURAL GEOLOGY: An Introduction to Geometrical Techniques, Donald M. Ragan, 2009, Cambridge University Press, 632 pp.*	No
Websites	https:// https://petrowiki.spe.org/Structural_geology	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 – 100	Outstanding Performance
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Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

MODULE DESCRIPTION FORM

Module Information معلومات المادة الدراسية				
Module Title	**Electrical Engineering Technology**		**Module Delivery**	
Module Type	**Basic**		☒**Theory** ☒**Lecture** ☒**Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	**PE 212**			
ECTS Credits	**5**			
SWL (hr/sem)	**125**			
Module Level	2		**Semester of Delivery**	1
Administering Department	Type Dept. PE		**College**	Type College Code
Module Leader	**Nsaif Jasim**		**e-mail**	D.alhumairi@uomisan.edu.iq
Module Leader's Acad. Title	Asst. Professor		**Module Leader's Qualification**	
Module Tutor	**Nsaif Jasim**		**e-mail**	**nsf_jsm@uomisan.edu.iq**
Peer Reviewer Name	Name		**e-mail**	E-mail

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Scientific Committee Approval Date	1/10/2024	**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	
Module Aims أهداف المادة الدراسية	- فهم ومعرفة دوائر التيار المستمر -التعرف على رموز الدوائر الكهربائية للتيار المستمر. -تطوير مهارات الطالب في استخدام طرق التحليل و نظريات الشبكات. - تطوير التفكير المجرد، المنطقي والناقد والقدرة على التفكير بشكل حاسم على عملهم وعمل الآخرين
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**أ الأهداف المعرفية** -التعرف الرموز و المصطلحات الأساسية للهندسة الكهربائية. -التعرف أساسيات دوائر التيار المستمر. -معرفة كيفية استخدام طرق التحليل. -معرفة نظريات الشبكات الكهربائية. -التعرف على حل الدوائر الكهربائية باستخدام طرق التحليل ونظريات الشبكات.

	ب الأهداف المهاراتية الخاصة بالمقرر -التعرف على حل مشاكل الدوائر الكهربائية المتعلقة. -التعرف على استخدام الحاسبات العلمية المتقدمة . -التعرف على كيفية استخدام أقصر الحلول في الهندسة الكهربائية . -التعرف على كيفية إيجاد الحل للمشاكل الهندسية باستخدام طرق التحليل.
Indicative Contents المحتويات الإرشادية	زيادة المعرفة للمسؤولية المهنية والأخلاقية للمهندس. القدرة على التواصل بشكل فاعل تأثير الحلول الهندسية في السياق الاقتصادي والبيئي والاجتماعي خلق روح مواصلة التعلم ومواكبة التطورات العلمية في مجال العمل القدرة على استخدام التقنيات والمهارات والأدوات الهندسية الحديثة اللازمة لممارسة مهنة الهندسة.

Learning and Teaching Strategies	
Strategies	الطريقة الألقائيه الطريقة الحوارية الطريقة الناشطة (تعتمد على نشاط الطالب)

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
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)	37	**Unstructured SWL (h/w)**	2.5

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

Module Evaluation

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

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	**Introduction to D.C circuits** **Elect. Quantities** **Charge** **Elect. Force**
Week 2	**Conductors and insulators** **Current**

	Elect. potential and voltage Energy and power
Week 3	Fundamentals of elect. Circuits Resistance & resistively
Week 4	conductance & conductivity Effect of temp. on resistance Sources (voltage & current sources)
Week 5	Ohms low Kirchhoff's lows
Week 6	Principles of elect. circuits Series and parallel circuits
Week 7	Voltage divider rule Current divider rule
Week 8	Method of analysis Branch current method
Week 9	Mesh analysis
Week 10	Star-delta and delta-star conversion
Week 11	Network theorems. Superposition theory
Week 12	Source Transformation
Week 13	Thevenin's theorem
Week 14	Norton’s Theorem
Week 15	Maximum transfer theorem
Week 16	Preparatory week before the final Exam

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Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Lab 1: Introduction
Week 2	Lab 2: Kirchhoff's Voltage and Current Laws Experiment
Week 3	Lab 3: Ohms Law
Week 4	Lab 4: Open & close Circuit
Week 5	Lab 5: Superposition
Week 6	Lab 6: Thevenin's Theorem and Kirchhoff's Laws
Week 7	Lab 7: Norton's Theorem and Kirchhoff's Laws

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Past lectures	Yes
Recommended Texts	Introductory Circuit Analysis, Boylestad	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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.

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MODULE DESCRIPTION FORM

Module Information					
Module Title	**Fluid Mechanics- Static**			**Module Delivery**	
Module Type	**Core**			☒**Theory**	
Module Code	**PE 213**			☒**Lecture**	
ECTS Credits	**5**			☒**Lab**	
SWL (hr/sem)	**125**			☐**Tutorial**	
				☐**Practical**	
				☐**Seminar**	
Module Level	2		**Semester of Delivery**	1	
Administering Department	Type Dept. PE		**College**	Type College Code	
Module Leader	Abouther Thalib Halboose		**e-mail**	abouther@uomisan.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	1/10/2024		**Version Number**	1.0	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Drilling Engineering, Reservoir Engineering, production Engineering	**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 basic definitions and introductory concepts of fluid mechanics. 2. Introduce the description of pressure distribution in a static fluid 3. Introduce the description of phenomena associated with measuring static pressure in oil well and fluid mechanics applications in Petroleum Engineering. 4. Introduce Explain and derive the conservation laws that govern fluid motion (continuity, energy, and momentum equations). 5. Drive Bernoulli's Equation and its applications.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Define Fluids and Fluid Mechanics and distinguish between incompressible and compressible fluids, and understand and define the basic fluid properties; especially density and viscosity, and apply Newton's law of viscosity. 2. Calculate; the pressure in static fluid and understand how can calculate the static pressure in oil and gas well. 3. Understand the types of fluid and what are the Newtonian and non-Newtonian fluid 4. Be familiar with continuity, energy, and momentum equations, and their applications to fluid mechanics problems. 5. Be able to apply modern knowledge and to apply mathematics, science, engineering and technology to fluid mechanics problems and applications.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following.

	Definition of fluid, Units and dimensions (Systems of units) the centimetre-gram-second (cgs) system, the metre-kilogram-second (mks system and the Systeme International d'Unites (SI), British engineering system, Properties of fluid (Viscosity, Newtonian, non-Newtonian, density, surface tension, capillary Fluid static, Pascal law, Variation of pressure of a fluid at rest, Measurement of Pressure (Absolute pressure, Gauge pressure, Vacuum pressure), Manometer (mercury barometer, piezometer tube, the U-tube manometer, and the inclined-tube manometer), Pressures in oil and gas well General Conservation Laws, Steady-state mass balance for fluid flow, Energy Balances, Bernoulli's Equation, The Energy Line and the Hydraulic Grade Line, Application of use Bernoulli equation Free jet, Spraying Water into the Air, Siphoning Out Gasoline from a Fuel Tank, Measurement (Velocity Measurement by a Pitot Tube, the orifice meter, the nozzle meter, and the Venturi meter)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Fluid mechanics is an important area of study in physics and engineering. There are several learning and teaching strategies that instructors can use to help facilitate student understanding of this complex topic. Here are a few: Hands-on experience: One of the best ways to learn about fluid mechanics is through hands-on experiences. Students can conduct experiments, work on projects, and participate in simulations that allow them to directly see the principles of fluid mechanics in action. Visual aids: Another effective teaching strategy is the use of visual aids such as animations, diagrams, and videos. These can help to illustrate complex concepts in a more easily understandable way. Active learning: Active learning strategies, such as group work and problem-based learning, can help students to better understand fluid mechanics by encouraging them to interact with the material and each other.

	Real-world examples: Using real-world examples can be a very effective teaching strategy in fluid mechanics. Students can better understand how these principles are applied in real life and this can help to increase their engagement and understanding. Concept mapping: Concept mapping is a teaching strategy where students create visual representations of their understanding of a particular topic. This can be particularly effective in fluid mechanics as it can help students to better understand the relationships between different concepts

Student Workload (SWL)

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All

	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introductory concepts to fluid mechanics
Week 2	Units and dimensions
Week 3	Properties of fluids
Week 4	Types of fluid (Newtonian and non-Newtonian fluids)
Week 5	Fluid statics: pressure distribution in static fluids
Week 6	Pressure measurements
Week 7	Mid-term Exam
Week 8	Fluid statics: application in petroleum Engineering
Week 9	Steady-state mass balance for fluid flow
Week 10	Energy Balances
Week 11	Bernoulli's Equation

Week 12	The Energy Line and the Hydraulic Grade Line
Week 13	Application of use Bernoulli equation
Week 14	Measurement of velocity
Week 15	Momentum balance
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	**Fundamentals of Fluid Mechanics by Munson**	online
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	**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 DESCRIPTION FORM

Module Information			
Module Title	**Applied Mathematics I**	**Module Delivery**	
Module Type	Basic		☒ **Theory**
Module Code	**ENG 201**		☐ **Lecture**
ECTS Credits	**5**		☐ **Lab**
SWL (hr/sem)	**125**		☒ **Tutorial**
			☐ **Practical**
			☐ **Seminar**

Module Level	2	**Semester of Delivery**	2
Administering Department	Mech. Department	**College**	Engineering College
Module Leader	Ali AL-MALIKI	**e-mail**	ali.al-maliki@uomisan.edu.iq
Module Leader's Acad. Title	Teacher Assistant	**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		**Version Number**	1.0

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Date			

Relation with other Modules			
Prerequisite module	Applied Mathematics II	**Semester**	2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims أهداف المادة الدراسية	1. Be educated on Mathematics methods. 2. Know the procedure of calculations. 3. Develop students understanding of useful Mathematics methods in engineering calculations. 4. Studying and solve applications using Mathematics.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The main outcome is a student have the knowledge of useful mathematics methods makes him deal with the problems, applications and calculations in different branches of science in Petroleum engineering

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 examples and exercises, while at the same time refining and expanding their logical thinking skills. This will be achieved through classes, interactive tutorials and by considering solving of simple applications.

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Student Workload (SWL)			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	3	15% (15)	5, 8, 14	All
	Assignments	2	10% (10)	6, 11	All
	Homework	2	10% (10)	3, 13	All
Summative assessment	**Midterm Exam**	2 hr	15% (15)	10	All
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	**Chapter One: PARTIAL DERIVATIVES** • Functions of Several Variables

	• Graphing a Function of Two Variables • Partial Derivatives
Week 2	**Chapter One: PARTIAL DERIVATIVES** • Second Order Partial Derivatives • The Chain Rule
Week 3	**Chapter One: PARTIAL DERIVATIVES** • Directional Derivatives and Gradient Vectors • Homework
Week 4	**Chapter One: PARTIAL DERIVATIVES** • Gradients and Tangents to Level Curves • Functions of Three Variables
Week 5	**Chapter One: PARTIAL DERIVATIVES** • Extreme Values and Saddle Points • Quiz.
Week 6	**Chapter One: PARTIAL DERIVATIVES** • Lagrange Multipliers • Assignment
Week 7	**Chapter Four: MULTIPLE INTEGRALS** • Double and Iterated Integrals over Rectangles • Double Integrals over General Regions
Week 8	**Chapter Four: MULTIPLE INTEGRALS** • Finding Limits of Integration • Properties of Double Integrals • Area by Double Integration • Quiz
Week 9	**Chapter Two: MULTIPLE INTEGRALS** • Double Integrals in Polar Coordinates • Finding Limits of Integration • Area in Polar Coordinates • Changing Cartesian Integrals into Polar Integrals
Week 10	**Chapter Two: MULTIPLE INTEGRALS** • Triple Integrals

	• Midterm.
Week 11	**Chapter Three: INFINITE SEQUENCES AND SERIES** • Introduction, Convergence and Divergence Test • Assignment
Week 12	**Chapter Three: DIFFERENTIAL EQUATIONS** • Fundamental Definitions • Solutions of First Order : variable separable • Solutions of First Order : exact
Week 13	**Chapter Three DIFFERENTIAL EQUATIONS** • Solutions of First Order : linear • Solutions of First Order : Bernoulli • Homework
Week 14	**Chapter Three: DIFFERENTIAL EQUATIONS** • Introduction to Solutions of second Order: Linear equation with constant coefficients, linear homogeneous equations with constant coefficients • Quiz.

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	George B. Thomas, Maurice D. Weir, Joel Hass, Frank R. Giordano - Thomas's calculus	
Recommended Texts	1. H.K. Dass - Advanced Engineering Mathematics-S Chand & Co Ltd (2007)	
Websites		

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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

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MODULE DESCRIPTION FORM

Module Information معلومات المادة الدراسية					
Module Title	**Petroleum Properties**			**Module Delivery**	
Module Type	**Core**			☒ **Theory**	
Module Code	**PE 214**			☐ **Lecture**	
ECTS Credits	**5**			☒ **Lab**	
SWL (hr/sem)	**125**			☐ **Tutorial**	
				☐ **Practical**	
				☐ **Seminar**	
Module Level	2		**Semester of Delivery**	1	
Administering Department	Type Dept. PE		**College**	Engineering College	
Module Leader	Hanon Hassan Mashkor		**e-mail**	Hanon.Hassan@uomisan.edu.iq	
Module Leader's Acad. Title	Assist. Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Scientific Committee Approval Date	20/06/2023	**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			
Module Aims أهداف المادة الدراسية	The main aims of the Petroleum Properties module will focuses on the study of the physical and chemical properties of petroleum fluids. It is essential for petroleum engineers to understand these properties as they directly influence the behavior of hydrocarbon reservoirs and the design of production and refining processes. By studying Petroleum Properties, students gain a comprehensive understanding of the behavior and characteristics of petroleum fluids. This knowledge is crucial for making informed decisions in reservoir management, production optimization, and field development planning.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The main module learning outcomes are: 1. Define the Composition of crude oil and its classifications 2. Identify the hydrocarbon and Nonhydrocarbon Components. 3. Recognize the chemical and physical properties. 4. Define the classification methods and Evaluation of Petroleum. 5. Discuss and Analysis of Crude Petroleum and its fractions 6. Define the Important Product-Properties and Test Methods 7. Study of the experimental test of crude oil properties and its products		
Indicative Contents المحتويات الإرشادية	The main indicative contents are: 1. Petroleum properties (Nature of Petroleum Fluids, Crude oil properties),		

	2. Characterization and Properties of Pure Hydrocarbons (classification, chemical compositions, chemical and physical properties), 3. Characterization and Properties of Pure Hydrocarbons; Density, specific gravity and coefficient of expansion, 4. Characterization and Properties of Pure Hydrocarbons; Viscosity, molecular weight, vapor pressure, 5. Characterization and Properties of Pure Hydrocarbons; Specific heat, lateen heat, heat of combustion, boiling range, flash point, pour point, 6. Prediction of the Composition of Petroleum Fractions, aniline point, penetration number, 7. Predication of PNA Composition, Elemental Composition, Other Properties, 8. Petroleum fraction and products, Soften point, crude oil evaluation, 9. Distribution functions for Properties of Hydrocarbon-plus Fractions, 10. Fractional distribution and TBP curve, 11. Characterization of Reservoir Fluids and Crude Oils, 12. Analysis of fractions, 13. Dehydration of crude oil, 14. Nature gas properties 15. Oilfield water properties

Learning and Teaching Strategies	
Strategies	The main strategies that will be adopted in delivering this unit are: 1- Encourage students to participate in the exercises. This is achieved through classes and interactive educational programmers.

	2- Improving and expanding critical thinking skills at the same time and by thinking about the type of simple experiments that include some sampling activities of interest to the students. 3-Raise students scientific and knowledge levels by employing the automatic technique, conversational approach, and active method.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5, 9	LO # 1, 2, 8,9 and 10
	Assignments	1	10% (10)	11	LO # 3, 4, 6, 7 and 11
	Projects / Lab.	1	10% (10)	Continuous	All

	Report	1	10% (10)	13	LO # 5, 11 and 12
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)	
	Material Covered
Week 1	• Introduction of petroleum properties (Nature of Petroleum Fluids, Crude oil properties)
Week 2	• Characterization and Properties of Pure Hydrocarbons (classification, chemical compositions, chemical and physical properties)
Week 3	• Density, specific gravity and coefficient of expansion.
Week 4	• Viscosity, molecular weight, vapor pressure.
Week 5	• Specific heat, lateen heat, heat of combustion, boiling range, flash point, pour point. • **Quiz**
Week 6	• Prediction of the Composition of Petroleum Fractions, aniline point, penetration number.
Week 7	• Predication of PNA Composition, Elemental Composition, Other Properties • **Mid- Term Exam**
Week 8	• Petroleum fraction and products, Soften point, crude oil evaluation.
Week 9	• Distribution functions for Properties of Hydrocarbon-plus Fractions • **Quiz**
Week 10	• Fractional distribution and TBP curve.
Week 11	• Characterization of Reservoir Fluids and Crude Oils

Week 12	• Analysis of fractions
Week 13	• Dehydration of crude oil
Week 14	• Nature gas properties
Week 15	• Oilfield water properties
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Lab 1: Relative density measurement for crude oil Experiment
Week 2	Lab 2: Flash point Experiment
Week 3	Lab 3: smoking point Experiment
Week 4	Lab 4: soften point Experiment
Week 5	Lab 5: Aniline point Experiment
Week 6	Lab 6: Radiation Heat Transfer Experiment
Week 7	Lab 7: Freezing point Experiment
Week 8	Lab 8: Melting point Experiment
Week 9	Lab 9: Ash Experiment
Week 10	Lab 10: TDS Experiment
Week 11	Lab 11: Partial distillation of crude oil
Week 12	Lab 13:Review
Week 13	Lab 14:Examination

Week 14	Lab 15:Final examination

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1-*Text of lectures* 2- *Riazi, M. R. Characterization and properties of petroleum fractions. Vol. 50. ASTM international, 2005.*	Yes
Recommended Texts	1- Properties of Petroleum Fluids 3rd Edition by William McCain.	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

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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

Module Information			
Module Title	**English Language II**	**Module Delivery**	
Module Type	**Basic**		☒**Theory**
Module Code	**UOM 202**		☒**Lecture**
ECTS Credits	**2**		☐**Lab**
SWL (hr/sem)	**50**		☐**Tutorial**
			☐**Practical**
			☐**Seminar**
Module Level	2	**Semester of Delivery**	1
Administering Department	Type Dept. PE	**College**	Type College Code
Module Leader	Abouther Thalib Halboose	**e-mail**	abouther@uomisan.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	Ph.D.

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	1/10/2024	**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	All fundamental courses	**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 aim of this module is to improve the technical English language skills of students in the field of petroleum engineering. The primary focus will be on developing proficiency in reading, writing, speaking and listening to technical content related to petroleum engineering. This module will also provide an understanding of the specific language used in the field and how to communicate effectively with other professionals.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of this module, students should be able to: 1. Understand and use technical vocabulary related to petroleum engineering. 2. Read and comprehend technical texts related to petroleum engineering. 3. Write technical reports and documents in a clear and concise manner. 4. Speak confidently about technical topics related to petroleum engineering. 5. Listen and understand technical discussions related to petroleum engineering.

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Indicative Contents المحتويات الإرشادية	1. Introduction to technical English in petroleum engineering 2. Technical vocabulary and terminology used in petroleum engineering 3. Reading and comprehension of technical texts related to petroleum engineering 4. Writing technical reports and documents in a clear and concise manner 5. Developing effective presentation skills for technical topics 6. Listening and understanding technical discussions related to petroleum engineering 7. Roleplay and simulations for technical communication in petroleum engineering 8. Case studies and problem-solving exercises.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	When it comes to learning and teaching technical English for petroleum engineering, there are several effective strategies that can be employed. Here are some suggestions: 1. Vocabulary Building: Emphasize the importance of petroleum engineering-specific vocabulary. Teach students industry-specific terminology, technical terms, and abbreviations commonly used in the field. Use real-world examples and case studies to reinforce vocabulary usage. 2. Reading Materials: Provide students with technical articles, research papers, industry reports, and manuals related to petroleum engineering. Encourage students to read and analyze these materials to improve their technical reading comprehension and understanding of industry-specific concepts. 3. Writing Practice: Assign writing tasks that require students to explain complex petroleum engineering concepts, write technical reports, or summarize technical research. Provide feedback and guidance to help students improve their technical writing skills. 4. Speaking and Listening Activities: Incorporate role-plays, discussions, and debates that focus on petroleum engineering topics. Encourage students to practice effective communication skills, such as presenting technical information, participating in meetings, and delivering presentations. 5. Field Trips and Guest Speakers: Organize field trips to petroleum engineering sites, such as drilling or refining facilities, to give students exposure to real-world applications. Invite guest speakers from the industry to share their experiences and insights, allowing students to interact with professionals and learn about the language used in the field. 6. Multimedia Resources: Utilize multimedia resources, such as videos, podcasts, and interactive online modules, to engage students and provide them with visual and auditory learning opportunities. These resources can cover topics like reservoir engineering, drilling techniques, or petroleum production processes. 7. Language Practice: Incorporate language-focused activities, such as grammar exercises or language games, to reinforce technical English skills. Tailor these activities to address common language challenges faced by petroleum engineering students, such as using prepositions accurately or understanding technical phrasal verbs. 8. Collaborative Projects: Assign group projects that require students to work together to solve petroleum engineering-related problems or scenarios. This encourages collaboration, critical thinking, and language practice within the context of the field. Remember, adapting teaching strategies to the needs and proficiency levels of students is crucial. Provide ample opportunities for practice, feedback, and individualized support to help students develop their technical English skills effectively.

Student Workload (SWL)

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	2	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
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 #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Analysis and function of the elements contained in sentences and clauses
Week 2	Analysis and function of the elements contained in sentences and clauses
Week 3	An international industry 1. Reading: An international company 2. Language spot (a, an, the) 3. Vocabulary: Tools and hardware 4. Pronunciation
Week 4	Upstream 1. Speaking: Talking about jobs 2. Writing: Spelling: e - the most common letter 3. Language spot: do and does, and wh- questions 4. Vocabulary: Some upstream jobs
Week 5	Downstream 1. Reading: Background 2. Number talk: Calculating 3. Language spot: Present Continuous 4. Vocabulary: Computers and control panels
Week 6	Safety first 1. Reading: Safety signs 2. Number talk: Weights and measures 3. Language spot: Modal verbs: can and must 4. Vocabulary: which kind of word
Week 7	Mid-term Exam
Week 8	Finding oil and gas 1. Reading: Seismic exploration 2. Writing: Writing sentences 3. Vocabulary: Some science

	4. Number talk: Global positioning
Week 9	Drilling 1. Reading: A drilling crew 2. Language spot: Adjective forms 3. Vocabulary: Understanding instructions 4. Speaking: Giving safety advice
Week 10	Working offshore 1. Number talk: Measuring and adjusting variables 2. Reading: A production platform 3. Language spot: Countable and uncountable nouns, Comparative sentences 4. Vocabulary: Electricity and circuits
Week 11	Oil and the environment 1. Writing: An environmental incident report, an informal email asking for information 2. Language spot: Past Simple be 3. Vocabulary: Preventing and dealing with eco-hazards and incidents 4. Reading: Preventing environmental damage
Week 12	Writing technical reports for 1. geology lab 2. drilling lab 3. fluid mechanics lab 4. reservoir engineering lab
Week 13	Punctuation
Week 14	Natural gas 1. Vocabulary: Gas production and distribution 2. Number talk: Talking about a bar chart, line graph, a pie chart
Week 15	The refinery 1. Reading: Fractional distillation 2. Writing: Explaining a process 3. Number talk: Temperature
Week 16	Preparatory week before the final Exam

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	**Oil and Gas, Level 1 - Lewis Lansford, D'Arcy Vallance**	online
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

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Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

MODULE DESCRIPTION FORM

Module Information

Module Title	**Petroleum Geology**	**Module Delivery**	
Module Type	**Core**		☒Theory ☒Lecture ☒Lab ☐Tutorial ☒Practical ☐Seminar
Module Code	**PE 221**		
ECTS Credits	**5**		
SWL (hr/sem)	**125**		

Module Level	2	**Semester of Delivery**	2
Administering Department	Type Dept. PE	**College**	Type College Code
Module Leader	Fadhil Kassim Jabbar	**e-mail**	drfkjabbar@uomisan.edu.iq
Module Leader's Acad. Title	An adjunct instructor	**Module Leader's Qualification**	Ph.D.
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	1/10/2024	**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Sedimentology and Stratigraphy	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Module Aims أهداف المادة الدراسية	Petroleum Geology: The module on Petroleum Geology focuses on the study of subsurface geological formations to identify and evaluate potential oil and gas reservoirs. It combines principles of geology, sedimentology, stratigraphy, and structural geology to understand the origin, distribution, and characteristics of hydrocarbon deposits. This module is designed to describe the different elements and processes that constitute the Petroleum system. The module presents the origin, types and characteristics of source rocks. It Contains the reservoir rocks and their properties to evaluate the reservoir potential prior to exploration and development of petroleum. The hydrocarbon migration and accumulation and entrapment style are also included in this course. The Petroleum Geology module provides students with the necessary knowledge and skills to understand the geological aspects of hydrocarbon exploration and production. By studying the subsurface geology, students can contribute to the identification and development of viable oil and gas reserves, supporting the overall field development and production operations in the petroleum industry.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Two main strands are followed during the course of this module. Firstly, the principal theoretical concepts of petroleum generation, migration, and accumulation, as well as oil exploration are introduced. Sessions each week will consist of lectures to present new theoretical material followed by practical sessions in which to apply various investigative techniques, including; drilling, well log interpretation, well correlation and basin modelling, sequence stratigraphy and seismic interpretation.
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies	
Strategies	On successful completion of this module, a student will be expected to be able to:

	- Understand the history of petroleum and hypothesis of generation -Explain the dynamics of a system to generate and accumulate oil and gas - Evaluate source rock potential and hydrocarbon potentiality - Characterize reservoir rocks, calculate porosity, permeability and saturation - Identify different types of oil traps and how they are formed -Visualize the petroleum system in order to identify migration pathways of hydrocarbon and predict the most suitable traps for accumulation - appraise the hydrocarbon potentiality and calculate the reserve in place

Student Workload (SWL)

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10

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

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to petroleum Geology • Overview of the petroleum system • Origin of Petroleum
Week 2	Methods of Petroleum Exploration • Geophysical and Geochemical Methods • Borehole Geophysics and 4D Seismic • Subsurface Geology and Remote Sensing • Formation Evaluation • Subsurface Geological Mapping
Week 3	Generation of Petroleum • Production of Organic Matter • Accumulation of Organic Matter
Week 4	Formation of Kerogen • Stages of Transformation of Organic Matter • Diagenesis, Catagenesis, Metagenesis • Types of Kerogen • Quiz
Week 5	Petroleum Source Rocks • Total Organic Carbon (TOC) • Thermal Maturation and Thermal maturation indicators • Types of Thermal Maturity Modeling
Week 6	The Reservoir Rocks • Porosity and Permeability • Capillary Pressure and Multi-phase fluid flows • Wettability and Wettability Index and Measurements • Texture of Reservoir Rocks

Week 7	The Reservoir Rocks • Effects of Diagenesis on Reservoir Quality • Hydrostatic/Lithostatic pressure gradient • Reservoir Rock Compressibility • Reservoir Continuity • Reservoir Characterization
Week 8	The Reservoir Rocks • Reserve Calculation • Production Methods • Quiz
Week 9	Petroleum Migration and Accumulation • Phases of Petroleum Migration • Mechanisms of Petroleum Migration • Primary migration and Secondary migration
Week 10	Hydrocarbon Traps and Seals • Elements of a Hydrocarbon Trap • Types of Hydrocarbon Traps
Week 11	Hydrocarbon Traps and Seals • Distribution of Petroleum within a Trap • Types of Hydrocarbon Traps in Iraq • Seals and Cap Rocks • Quiz
Week 12	Sedimentary Basins & Petroleum Systems • Basic Concepts • Mechanisms of Basin Formation • Classification of Sedimentary Basins
Week 13	Sedimentary Basins & Petroleum Systems • Distribution of Hydrocarbons in different types of basins • Basins and Petroleum System • Sedimentary Basins and Petroleum system of Iraq
Week 14	Physical & Chemical Properties of Petroleum • Characteristics of Crude Oil • Natural Gases

Week 15	Final Project and Exam Preparation Completion of a Petroleum Geology project Exam preparation and review
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	Lab 1: Lithostratigraphic Correlation
Week 2	Lab 2: Well Log Correlation
Week 3	Lab 3: Overview of Seismic Stratigraphy and Interpretation
Week 4	Lab 4: Direct Hydrocarbon Indicator (DHI) Mapping
Week 5	Lab 5: Modeling Source Generation and Analyzing a potential source rock
Week 6	Lab 6: Generating an Isochron Map
Week 7	Lab 7: Fault Seal Analysis and Hydrocarbon Charge

Learning and Teaching Resources

	Text	**Available in the Library?**
Required Texts	*Elements of Petroleum Geology*, 2nd ed., Richard Selley (Academic Press, 2nd edition 1998; 3rd edition 2014)	No
Recommended Texts	*The Petroleum Geology of Iraq*, A. A. M. Aqrawi, J. C. Goff, A. D. Horbury and F. N. Sadooni, ISBN: 978-0-901360-36-8 424 pages *Petroleum Geology*, North F. K., 1985, Allen & Unwin Publishing. Very good reference book on petroleum geology overall. Excellent examples, especially for the North Sea *Sedimentary Basins and Petroleum Geology of the Middle East*, 1997, A.S. Alsharhan, A.E.M. Nairn	No

Websites	https://www. https://wiki.aapg.org/Main_Page

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 DESCRIPTION FORM

Module Information		
Module Title	**Applied Mathematics II**	**Module Delivery**

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Module Type	Basic	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**
Module Code	**ENG 202**	
ECTS Credits	**5**	
SWL (hr/sem)	**125**	

Module Level	2	**Semester of Delivery**	2
Administering Department	Mech. Department	**College**	Engineering College
Module Leader	Ali AL-MALIKI	**e-mail**	ali.al-maliki@uomisan.edu.iq
Module Leader's Acad. Title	Teacher Assistant	**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		**Version Number**	1.0

Relation with other Modules

Prerequisite module	Applied Mathematics II	**Semester**	2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims أهداف المادة الدراسية	1. Be educated on Mathematics methods. 2. Know the procedure of calculations. 3. Develop students understanding of useful Mathematics methods in engineering calculations.

	4. Studying and solve applications using Mathematics.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The main outcome is a student have the knowledge of useful mathematics methods makes him deal with the problems, applications and calculations in different branches of science in Petroleum engineering
Indicative Contents المحتويات الإرشادية	

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 examples and exercises, while at the same time refining and expanding their logical thinking skills. This will be achieved through classes, interactive tutorials and by considering solving of simple applications.

Student Workload (SWL)

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

	Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Formative assessment	**Quizzes**	3	15% (15)	5, 8, 14	All
	Assignments	2	10% (10)	6, 11	All
	Homework	2	10% (10)	3, 13	All
Summative assessment	**Midterm Exam**	2 hr	15% (15)	10	All
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	**Chapter One: PARTIAL DERIVATIVES** • Functions of Several Variables • Graphing a Function of Two Variables • Partial Derivatives
Week 2	**Chapter One: PARTIAL DERIVATIVES** • Second Order Partial Derivatives • The Chain Rule
Week 3	**Chapter One: PARTIAL DERIVATIVES** • Directional Derivatives and Gradient Vectors • Homework
Week 4	**Chapter One: PARTIAL DERIVATIVES** • Gradients and Tangents to Level Curves • Functions of Three Variables
Week 5	**Chapter One: PARTIAL DERIVATIVES** • Extreme Values and Saddle Points • Quiz.
Week 6	**Chapter One: PARTIAL DERIVATIVES** • Lagrange Multipliers • Assignment
Week 7	**Chapter Four: MULTIPLE INTEGRALS** • Double and Iterated Integrals over Rectangles

	• Double Integrals over General Regions
Week 8	**Chapter Four: MULTIPLE INTEGRALS** • Finding Limits of Integration • Properties of Double Integrals • Area by Double Integration • Quiz
Week 9	**Chapter Two: MULTIPLE INTEGRALS** • Double Integrals in Polar Coordinates • Finding Limits of Integration • Area in Polar Coordinates • Changing Cartesian Integrals into Polar Integrals
Week 10	**Chapter Two: MULTIPLE INTEGRALS** • Triple Integrals • Midterm.
Week 11	**Chapter Three: INFINITE SEQUENCES AND SERIES** • Introduction, Convergence and Divergence Test • Assignment
Week 12	**Chapter Three: DIFFERENTIAL EQUATIONS** • Fundamental Definitions • Solutions of First Order : variable separable • Solutions of First Order : exact
Week 13	**Chapter Three DIFFERENTIAL EQUATIONS** • Solutions of First Order : linear • Solutions of First Order : Bernoulli • Homework
Week 14	**Chapter Three: DIFFERENTIAL EQUATIONS** • Introduction to Solutions of second Order: Linear equation with constant coefficients, linear homogeneous equations with constant coefficients • Quiz.
Week 15	**Chapter Three: DIFFERENTIAL EQUATIONS** • Introduction to Solutions of second Order: nonhomogeneous equations, solving of non-homogenous equations, variation of parameters

Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	George B. Thomas, Maurice D. Weir, Joel Hass, Frank R. Giordano - Thomas's calculus	
Recommended Texts	1. H.K. Dass - Advanced Engineering Mathematics-S Chand & Co Ltd (2007)	

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
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(0 – 49)	**F –** Fail	راسب	(0-44)	Considerable amount of work required

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MODULE DESCRIPTION FORM

Module Information		
Module Title	**Fundamentals of Petroleum Engineering**	**Module Delivery**
Module Type	**Core**	☒Theory ☒Lecture ☐ Lab ☐Tutorial ☐Practical
Module Code	**PE 222**	
ECTS Credits	**4**	
SWL (hr/sem)	**100**	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

		☐Seminar	
Module Level	2	**Semester of Delivery**	2
Administering Department	Type Dept. PE	**College**	Type College Code
Module Leader	Ali Nooruldeen Abdulkareem	**e-mail**	ali.nooruldeen@uomisan.edu.iq
Module Leader's Acad. Title	Asst. Lecturer	**Module Leader's Qualification**	Ph.D.
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	1/10/2024	**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

Module Aims أهداف المادة الدراسية	The aims provide a broad overview of the intended learning outcomes for the course, which aim to equip students with a solid foundation in petroleum engineering principles, techniques, and industry practices.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	These module learning outcomes reflect the desired knowledge, skills, and competencies that students should develop throughout the course in order to become competent petroleum engineering professionals.

Indicative Contents المحتويات الإرشادية	The indicative contents provide an overview of the key topics and areas of study that would be covered in a course on petroleum engineering. The specific depth of coverage and additional subtopics can be tailored based on the course duration and desired learning outcomes.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	In a course on petroleum engineering, various strategies can be implemented to enhance student learning and engagement. Here are some strategies that can be employed: Active Learning: Incorporate active learning strategies such as problem-based learning, case studies, group discussions, and hands-on exercises. This allows students to apply their knowledge, solve problems, and engage with the material actively. Practical Assignments: Assign practical projects and assignments that simulate real-world petroleum engineering tasks. This can include reservoir simulation exercises, well design projects, or data analysis from well logs and production data. By implementing these strategies, educators can create an engaging and comprehensive learning environment for students studying petroleum engineering. By implementing these strategies, educators can create an engaging and comprehensive learning environment for students studying petroleum engineering.

Student Workload (SWL)			
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	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	• Introduction to Petroleum Engineering • • Elements of petroleum engineering • Overview of the oil and gas industry • Origin of petroleum and formation of hydrocarbon reservoirs
Week 2	• Reservoir Rock Properties and Fluid Distribution • • Rock properties: porosity, permeability, and lithology • Fluid distribution within reservoirs • Saturation calculations and reservoir characterization
Week 3	• Volumetric Calculations of Oil in Place • • Estimating hydrocarbon reserves • Material balance equations and calculations

	• Introduction to reservoir simulation concepts
Week 4	• Natural Forces in Oil and Gas Reservoirs • • Reservoir pressure and temperature considerations • Fluid flow mechanisms: Darcy's law and fluid displacement • Capillary pressure and relative permeability
Week 5	• Oil Exploration Methods and Techniques • Geologic surveys and mapping • Seismic exploration and interpretation • Well log analysis for prospect evaluation • Quiz
Week 6	• Week 6: Rotary Drilling Principles and Techniques • Drilling rig components and their functions • Drilling fluids and their properties • Drilling bits and their selection
Week 7	• Casing Design and Installation • Casing types and sizes • Casing design considerations • Casing installation techniques and procedures
Week 8	• Cementing Operations • Cementing objectives and principles • Cementing materials and additives • Cementing process and quality control
Week 9	• Well Completion Techniques and Equipment • Wellhead equipment and its functions • Tubing and packer installation • Perforation techniques and considerations
Week 10	• Introduction to Well Logging • Well logging principles and objectives • Open-hole logging tools and interpretation • Logging while drilling (LWD) techniques • Quiz
Week 11	• Wireline Logging Tools and Interpretation • Introduction to wireline logging • Logging tool functions and measurements • Interpretation of logging data for formation evaluation

Week 12	• Formation Evaluation and Reservoir Characterization • Rock properties determination from logging data • Petrophysical analysis and interpretation • Reservoir characterization techniques
Week 13	• Artificial Lift Methods • Principles and types of artificial lift • Pumping systems: sucker rod pumps, electric submersible pumps (ESPs) • Gas lift systems and optimization • Report due
Week 14	• Field Development Planning and Case Studies • Reservoir management principles • Field development planning considerations • Case studies from Iraqi oil fields or other relevant examples
Week 15	• Final Project and Exam Preparation • Completion of the project • Exam preparation and review
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts		Yes
Recommended Texts		No
Websites		

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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

Module Information			
Module Title	**Computer II**	**Module Delivery**	
Module Type	**Basic**	☒Theory ☒Lecture ☒Lab ☐Tutorial ☐Practical ☐Seminar	
Module Code	**ENG 127**		
ECTS Credits	**4**		
SWL (hr/sem)	**100**		
Module Level	2	**Semester of Delivery**	2
Administering Department	Type Dept. PE	**College**	Type College Code

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Module Leader		**e-mail**	
Module Leader's Acad. Title	Asst. Professor	**Module Leader's Qualification**	
Module Tutor	**Nsaif Jasim**	**e-mail**	**nsf_jsm@uomisan.edu.iq**
Peer Reviewer Name	**Ali dhahir**	**e-mail**	**ali_dh11@uomisan.edu.iq**
Scientific Committee Approval Date	1/10/2024	**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	**التعرف على البرامج المستخدمة لكتابة الاكواد بلغة C++ والماتلاب** **التعرف على اساسيات لغة C++ والماتلاب** **كيفية كتابة الجمل الشرطية وانواع الاوامر لتنفيذها** **التعرف على العمليات التكرارية واهم الاوامر المستخدمة في التكرار**
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**1- تنصيب البرنامج الخاص بكتابة الكود C++ وبرنامج الماتلاب Matlab** **2- معرفة الاساسيات وكيفية استدعاء المتغيرات ونوع البيانات التي يتم ادراجها** **3- معرفة استخدام الجمل الشرطية وتطبيق البرامج الخاصة بها** **4- معرفة كيفية تكرار تنفيذ الايعازات لبي انات متعددة والاوامر المستخدمة في التكرار** **5- التعرف على بعض الايعازات ذات استخدام محدد لتنفيذ امر** **6- التعرف على المكتبات المستخدمة والغرض من استدعاءها** **7- التعرف على كيفية تنفيذ العمليات المنطقية والرياضية**

	8. التعرف على كيفية الرسم في برنامج الماتلاب
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies	
Strategies	الطريقة الألقائيه الطريقة الحوارية الطريقة الناشطة (تعتمد على نشاط الطالب)

Student Workload (SWL)			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11

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

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Install program of C++ & Basics of C++
Week 2	Arithmetic and logic operations & Input/Output program
Week 3	Stdio library & Public and private variables
Week 4	If condition & Nested if
Week 5	Loops (for)
Week 6	Loops (while) & Nested loops
Week 7	Install program of MATLAB
Week 8	Arithmetic and logic operations
Week 9	Input/Output functions
Week 10	If condition & Nested if
Week 11	Loops (for)
Week 12	Loops (while) & Nested loops
Week 13	2d plot
Week 14	3d plot
Week 15	Preparatory week before the final Exam

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Install program of C++ & Basics of C++
Week 2	apply some examples on Arithmetic and logic operations & Input/Output program
Week 3	Stdio library & Public and private variables
Week 4	If condition & Nested if
Week 5	Loops (for)
Week 6	Loops (while) & Nested loops
Week 7	Writing through the editor or script
Week 8	Arithmetic and logic operations
Week 9	Input/Output functions
Week 10	If condition & Nested if
Week 11	Loops (for)
Week 12	Loops (while) & Nested loops
Week 13	2d plot
Week 14	3d plot
Week 15	Preparatory week before the final Exam

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	موسوعة البرمجة بلغة # C++ 1	Yes

	البرمجة بلغة # C++ مع الأمثلة والتمارين	
Recommended Texts	# C++ How to program/ Paul Deitel, Harvey Deitel	No
Websites	يمكن الولوج الى صفحة الموضوع او من خلال موقع الكلية www.uomisan.edu.iq/moodle او Video Portal Main Page - MATLAB & Simulink (mathworks.com)	

Grading Scheme				
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

MODULE DESCRIPTION FORM

Module Information			
Module Title	**Engineering Ethics**	**Module Delivery**	
Module Type	**Basic**	☒ **Theory**	
Module Code	**PE 223**	☐ **Lecture**	
ECTS Credits	4	☐ **Lab**	
SWL (hr/sem)	**100**	☐ **Tutorial**	
		☐ **Practical**	
		☐ **Seminar**	
Module Level	2	**Semester of Delivery**	2
Administering Department	Type Dept. PE	**College**	Type College Code
Module Leader	Mudhaffar Yacoub Hussein	**e-mail**	myhussein2017@uomisan.edu.iq
Module Leader's Acad. Title	Asst. Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	1/10/2024	**Version Number**	1.0

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Ethics in petroleum engineering involves considering the moral and social implications of activities and decisions made within the industry.	**Semester**	
Co-requisites module		**Semester**	
Module Aims, Learning Outcomes and Indicative Contents			
Module Aims أهداف المادة الدراسية	Course Aims: - To enhance students' analytical, critical, and creative thinking skills in relation to ethical issues in engineering. - To familiarize students with classic cases in engineering ethics and typical ethical and professional issues that arise in engineering. - To train students in analyzing complex problems and finding ethical resolutions		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Learning Outcomes: - Develop the ability to identify and evaluate ethical issues in engineering. - Apply ethical frameworks and principles to engineering decision-making. - Demonstrate an understanding of the relationship between ethics and the law in engineering. - Analyze and solve ethical dilemmas in engineering practice. - Communicate ethical considerations effectively in written and oral forms		
Indicative Contents المحتويات الإرشادية	1. What's meant by Ethics?		

	2. Why should a future engineer bother studying ethics at all? 3. Engineering is managing the unknown. 4. Engineering design is about creating new devices and products. - How well does it work? - How will it affect people? - What changes will this lead to in society? - How well will this work under all of the conditions that it will be exposed to? - Is it safe? If there are some safety concerns, how bad are they? 5. Difference Between Personal and Professional Ethics. 6. Ethics and the Law. 7. Ethical problems.

Learning and Teaching Strategies	
Strategies	Teaching Strategies for the Course: - Case studies and real-world examples to illustrate ethical dilemmas in engineering. - Group discussions and debates to encourage critical thinking and perspective sharing. - Ethical decision-making frameworks and tools for analyzing and resolving ethical problems. - Guest lectures from industry professionals to provide practical insights. - Assignments and projects requiring ethical analysis and reflection. - Role-playing exercises to simulate ethical scenarios and decision-making processes. Please note that these points are based on the provided keywords and may

	require further refinement and elaboration when developing the actual course material.

Student Workload (SWL)			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

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

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Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	• Introduction to Course Materials.
Week 2	• The Profession of Engineering. 1
Week 3	• The Profession of Engineering. 2
Week 4	• Professionalism and Codes of Ethics. 1
Week 5	• Professionalism and Codes of Ethics. 2 • Quiz
Week 6	• Understanding Ethical Problems. 1
Week 7	Midterm Exam
Week 8	• Understanding Ethical Problems. 2
Week 9	• Ethical Problem-Solving Techniques. 1
Week 10	• Ethical Problem-Solving Techniques. 2 • Quiz.
Week 11	• Risk, Safety, and Accidents.
Week 12	• The Rights and Responsibilities of Engineers. 1
Week 13	• The Rights and Responsibilities of Engineers.2 .
Week 14	• Ethics in Research and Experimentation.

Week 15	• Global Issues. • Exam preparation and review
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1- Charles B. Fleddermann, "Engineering Ethics", Fourth Edition,2012, Pearson Education, Inc., publishing as Prentice Hall, 1 Lake Street, Upper Saddle River, NJ 07458,USA. 2- Charles B. Fleddermann, "Engineering Ethics",Thired Edition, 2008 , Pearson Education, Inc., publishing as Prentice Hall, 1 Lake Street, Upper Saddle River, NJ 07458,USA. 3-Naagarazan R.S., "A Textbook on Professional Ethics and Human Values",2006, New Age International (P) Ltd., Publishers, New Delhi, India.	No
Recommended Texts	1-Charles E. Harris, Michael S. Pritchard, Michael J. Rabins, "Engineering Ethics, Concepts and Cases", Fourth Edition, 2009,Wadsworth, USA.	No
Websites		

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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

Module Information

Module Title	**Fluid Mechanics Dynamic**	**Module Delivery**	
Module Type	Basic		☒**Theory**
Module Code	**PE 224**		☒**Lecture**
ECTS Credits	5		☒**Lab**
SWL (hr/sem)	125		☐**Tutorial**
			☐**Practical**
			☐**Seminar**

Module Level	2	**Semester of Delivery**	2
Administering Department	Type Dept. Code	**College**	Type College Code
Module Leader	Abouther Thalib Halboose	**e-mail**	abouther@uomisan.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	Ph.D.
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	1/10/2024	**Version Number**	1.0

Relation with other Modules

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Drilling Engineering, Reservoir Engineering, production Engineering	**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	6. Introduce the principles of viscous flow in pipes. 7. Define the Reynold's number to introduce the laminar flow and turbulent flow 8. Introduce Moody chart 9. Introduce pumps and pumps connection. 10. Dimensional Analysis 11. Multiphase flow
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	6. Be able to know the type of flow 7. Be able to derive the velocity profile and shear stress distribution in pipes 8. Calculate frictional losses in pipe problems for both laminar and turbulent flows, by using Moody Diagram. 9. Calculate secondary (minor) losses for various pipes fittings and connections. 10. Be able to analyze and design pumping stations and connection 11. Be able to use of The Rayleigh Method in dimensional analysis 12. Apply the Buckingham pi theorem and develop a set of dimensionless variables for a given flow situation. 13. Discuss the use of dimensionless variables in data analysis. 14. Be able to apply modern knowledge and to apply mathematics, science, engineering and technology to fluid mechanics problems and applications. 15. Be able to understand the fundamental two-phase flow.

Indicative Contents المحتويات الإرشادية	Laminar and Turbulent Flows Reynolds Number, The Entrance Region, Entry Lengths Laminar Flow in Pipes, Pressure Drop and Head Loss, Effect of Gravity on Velocity and Flow Rate in Laminar Flow, Laminar Flow in Noncircular Pipes, Turbulent Flow, The Moody Chart, Major Losses, Minor Losses Dimensional Analysis, The Rayleigh Method, Buckingham Pi Theorem, Determination of Pi Terms, Some Additional Comments About Dimensional Analysis, Flow of multiphase mixtures, Properties of multiphase mixtures, The continuity equation for multiphase mixtures, The momentum equation for multiphase mixtures

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Fluid mechanics is an important area of study in physics and engineering. There are several learning and teaching strategies that instructors can use to help facilitate student understanding of this complex topic. Here are a few: Hands-on experience: One of the best ways to learn about fluid mechanics is through hands-on experiences. Students can conduct experiments, work on projects, and participate in simulations that allow them to directly see the principles of fluid mechanics in action. Visual aids: Another effective teaching strategy is the use of visual aids such as animations, diagrams, and videos. These can help to illustrate complex concepts in a more easily understandable way. Active learning: Active learning strategies, such as group work and problem-based learning, can help students to better understand fluid mechanics by encouraging them to interact with the material and each other. Real-world examples: Using real-world examples can be a very effective teaching strategy in fluid mechanics. Students can better understand how these principles are applied in real life and

	this can help to increase their engagement and understanding. Concept mapping: Concept mapping is a teaching strategy where students create visual representations of their understanding of a particular topic. This can be particularly effective in fluid mechanics as it can help students to better understand the relationships between different concepts

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
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	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduce the principles of viscous flow in pipes.
Week 2	Define Reynolds Number to know the laminar and turbulent flow
Week 3	The Entrance Region, Entry Lengths Laminar Flow in Pipes,
Week 4	Pressure Drop and Head Loss, Effect of Gravity on Velocity and Flow Rate in Laminar Flow
Week 5	Laminar Flow in Noncircular Pipes, Turbulent Flow, The Moody Chart,
Week 6	Major Losses, Minor Losses
Week 7	Mid-term Exam
Week 8	Dimensional Analysis
Week 9	The Rayleigh Method,
Week 10	Buckingham Pi Theorem
Week 11	Determination of Pi Terms Some Additional Comments About Dimensional Analysis
Week 12	Flow of multiphase mixtures
Week 13	Properties of multiphase mixtures
Week 14	The continuity equation for multiphase mixtures
Week 15	The momentum equation for multiphase mixtures

Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Fluid properties
Week 2	Lab 2: Dead weight calibrated
Week 3	Lab 3: Manometers
Week 4	Lab 4: Visualization of the flow in the channels
Week 5	Lab 5: Pitot static tube
Week 6	Lab 6: Bernoulli´s Theorem Demonstration
Week 7	Lab 7: Reynolds number

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Required Texts	Fundamentals of Fluid Mechanics by Munson	Online
Recommended Texts		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 DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Arabic Language 1**			**Module Delivery**	
Module Type	**Basic**			☐**Theory** ☒ **Lecture** ☐**Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	**UOM 123**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. PE		**College**	Type College Code	
Module Leader	Mohammed Abdhussain Mohammed		**e-mail**	Moh.albahadli@uomisan.edu.iq	
Module Leader's Acad. Title	Assist Lec		**Module Leader's Qualification**	Msc	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/09/2024		**Version Number**	1.0	

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	**ان الهدف من تدريس مادة اللغة العربية في هذا القسم هو الكفاءة اللغوية للطلبة وتمكينهم من التعبير عن أفكارهم ومشاريعهم بلغة عربية فصيحة واضحة خالية من الغلط واللون العامي والاعجمي بأبسط الطرق .** **فاللغة هي أداة الايصال الأولى بين أفراد المجتمع ،ومتى تمكن الأنسان من لغته استطاع الوصول الى أذهان الآخرين بحيث يسهل تعامله معهم ويتمكن من تحقيق هدفه في العمل.** **وان ذلك يؤدي الى تحقيق التوازن المفترض في ثقافة الطلبة فهو يضمن نوعاً من التعادل بين مناهج المادة العلمية ووسيلة ايصالها او التعبير عنها .**
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**أ. الاهداف المعرفية** **. 1- يتعلم الطالب خلال الفصل الدراسي بعض اساسيات مادة اللغة العربية** **. 2- فهم تاريخ واساسيات نشأ قواعد اللغة العربية** **. 3- يتعلم كيفية كتابة تقرير او بحث او طلب اجازة بدون اخطاء لغوية او كتابية** **. 4- يتعلم الطالب كيفية كتابة الانشاء ومنها الى طريقة كتابة التقارير والبحوث العلمية** **ب- الاهداف المهاراتية الخاصة بالموضوع :** **جعل الطالب قادرا على ان :** **. ب1 - يتعلم كيفية كتابة انواع الهمزة سواء كانت همزة قطع او وصل وكيفية لفظها** **. ب2- يتعلم نبذة عن كتابة الهمزة سواء على الالف او الياء او الواو او مفردة على السطر**

	ب3- يفرق بين الظاء والضاد ب4- يفرق بين التاء المربوطة والهاء
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	د1- تمكين الطلبة من كتابة التقارير حول المواضيع الخاصة بجميع المواد وصياغتها بعيدا عن الاخطاء اللغوية د2-تمكين الطلبة من كيفية استخدام المفردات الصحيحة وذلك من خلال الرجوع للقواميس د3-رفع ثقة الطالب بنفسه من خلال خوض بعض المحادثات والمناظرات اللغوية ولا سيما الشعرية منها د4- تنمية مهارات الطلبة في كيفية التعامل مع مشاكل اللغة على الصعيدين اللفظي والكتابي وكيفية التعامل معها

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

Module Evaluation تقييم المادة الدراسية				
	Time/Nu	**Weight (Marks)**	**Week Due**	**Relevant Learning**

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	قواعد اللغة العربية : الكلام وما يتألف منه : الاسم ، والفعل والحرف الفعل واقسامه ، عالماته ، الفعل الماضي قواعد فعل الأمر ، الحرف وما يتميز به
Week 2	الفعل واقسامه ، عالماته ، الفعل الماضي
Week 3	قواعد فعل الأمر ، الحرف وما يتميز به
Week 4	الاعراب والبناء ، وعلاماته الأعراب ، والمثنى والملحق به
Week 5	ادب ، ونص شعري ، ودراسة وتحليل جمع المذكر السالم / والملحق به
Week 6	الملحقة بالأسماء الستة
Week 7	**امتحان نصف الفصل**
Week 8	المبتدأ والخبر ، انواع المبتدأ واحكامه
Week 9	قواعد : الخبر ، تعريفه وانواعه اختبار يومي
Week 10	أملاء : قواعد كتابه الهمزة
Week 11	ادب : نص نثري . دراسة وتحليل

Week 12	قواعد : اغلاط لغوية شائعة
Week 13	أملاء : قواعد كتابه الألف في نهاية الكلمة
Week 14	محاضرة عامه ومناقشات
Week 15	**Preparatory week before the final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	شرح ابن عقيل على الفية ابن مالك .بيروت دار الكتب العامة 1985 ، تحقيق محي الدين عبد الحميد.	Yes
Recommended Texts	جامع الدروس العربية . بيروت دار الكتب العلمية 1984 . 1987، تأليف مصطفى الغلايني - اللغة العربية لغير أقسام الاختصاص .مؤسسه دار الكتب بغداد 1981 ، تأليف عبد القادر حسين أمين . والدكتور رشيد العبيدي -	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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MODULE DESCRIPTION FORM

Module Information		
Module Title	**Bath crime party**	**Module Delivery**

Academic Description Of Subjects For The First Stage According Bologna System For Academic Year 2024-2025

Module Type	**Basic**	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**
Module Code	**MNS 120**	
ECTS Credits	3	
SWL (hr/sem)	**75**	

Module Level	2	**Semester of Delivery**	2
Administering Department	Type Dept. PE	**College**	Type College Code
Module Leader	Muaid Kareem	**e-mail**	
Module Leader's Acad. Title	Asst. teacher	**Module Leader's Qualification**	Msc.
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	1/10/2024	**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	**لتعرف والاطلاع على مجموعة من الجرائم التي ارتكبها حزب البعث البائد والمنحل بحق أبناء الشعب العراقي ومن مختلف المكونات لأطيافه ولتأسيس وعي للطلبة لرفض جميع اشكال الظلم والتسلط لهذه الأنظمة والمطالبة بجميع الحقوق المدنية والسياسية**

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Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**1-تعرف الطالب على جرائم البعث وفق قانون المحكمة الجنائية العراقية,**
Indicative Contents المحتويات الإرشادية	**لتعرف على القرارات الصادرة من المحكمة الجنائية**

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	**اثناء المحاضرات واستخدام طريقة النقاش والحوار**

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
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	**Quizzes**	2	10% (10)	1	LO #1, 2, 10 and 11

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	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	
Week 15	
Week 16	

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	1- Charles B. Fleddermann, "Engineering Ethics", Fourth Edition,2012, Pearson Education, Inc., publishing as Prentice Hall, 1 Lake Street, Upper Saddle River, NJ 07458,USA. 2- Charles B. Fleddermann, "Engineering Ethics",Thired Edition, 2008 , Pearson Education, Inc., publishing as Prentice Hall, 1 Lake Street, Upper Saddle River, NJ 07458,USA. 3-Naagarazan R.S., "A Textbook on Professional Ethics and Human Values",2006, New Age International (P) Ltd., Publishers, New Delhi, India.	No
Recommended Texts	1-Charles E. Harris, Michael S. Pritchard, Michael J. Rabins, "Engineering Ethics, Concepts and Cases", Fourth Edition, 2009,Wadsworth, USA.	No

Grading Scheme

Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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Fail Group **(0 – 49)**	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
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