



University of Mosul
College of Petroleum and Mining Engineering
Department of Petroleum Reservoir Engineering

Course Descriptions
1st Level / 1st Semester (Bologna Process)



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Ministry of Higher Education and Scientific Research

University of Mosul

College of Petroleum and Mining Engineering

Department of Petroleum Reservoir Engineering



Course Descriptions

Petroleum Reservoir Engineering

Level One

(Bologna Process)

2025–2024

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Geology of Engineering I		Module Delivery	
Module Type	Support		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	PRE 111			
ECTS Credits	7			
SWL (hr/sem)	175			
Module Level	1	Semester of Delivery		1
Administering Department	Petroleum Reservoir Engineering	College	Petroleum and Mining Engineering	
Module Leader	Dr.Yasser Hassan Kddo		e-mail	E-mail: Dryasser.hassan@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.	
Module Tutor	Bushra Abdula Mohamed		e-mail	E-mail: geobushra@uomosul.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date	10/09/2024	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 Objectives أهداف المادة الدراسية	The main objectives of the course are: This course aims in helping the students: • To know the basic of geology, its scope and its various branches • To introduce fundamental aspects of Earth and Planetary system and its related changes with time. This course will emphasize the knowledge on the solar system and planets, Geological time-scale. • Learn the basics of crystallography and its application to optical mineralogy; • Understand the fundamental concepts of crystal structure, morphology and its application to mineral sciences. Optical mineralogy part will help the student to understand microscopic techniques applicable to mineralogical and petrographic studies. • The primary objective of the Mineralogy course is to train students in identifying common rock forming minerals and help the student to learn in detail the different important minerals. • The students will get to know the different types of rocks (Igneous , sedimentary and metamorphic rocks) • The students will able to understand the texture, structures and process of formation of Igneous rocks. • The students will able to understand the four types of sedimentary rocks (clastic, chemical, biochemical and organic sedimentary rocks) • The students will able to understand the Processes and agenesis of metamorphism • The students will able to Know all types of metamorphic rocks.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon successful completion of this course, students will be able to: 1. Gain Knowledge about the history of Earth's development, 2. Know the solar system; Earth's structure and composition, geological timescale, weathering, 3. Understand the fundamental of crystallography and mineralogy. 5. Learn the techniques in recognition and identification of mineral by physical properties 6. Learn about the magmatic differentiation processes 7. Understand the diversity of igneous rocks and the variety of tectonic environments. 8. Identify and study various types sedimentary rocks in field and under microscope 10. Can understand the difference between various types of sedimentary rocks 11. Understand various types of sedimentary depositional environments and their importance for hydrocarbon systems and groundwater accumulation. 12. Understand various types of metamorphic rocks.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A - basic of geology, its scope and its various branches</u> (Physical geology- Historical geology- Petrology- Petroleum geology- Paleontology- Stratigraphy- Economic geology- Structure geology- Geophysics)- Solar system

	components- Internal structure of the earth – Crust – Mantle- Core -The characteristic of the Temperature, Pressure and Density of the Earth's Interior. [20 hrs.] <u>Part B- Crystal and Minerals</u> – The crystals- imaginary and real elements of crystals- The minerals – how was minerals form- classification of minerals- physical properties of minerals – (Color- Hardness- Transparency- Cleavage etc.) [20hrs] <u>Part C- The Igneous Rocks</u> – Igneous rocks – Volcanic and Plutonic igneous rocks- chemical classification of igneous rocks- Forms of igneous rocks- Bowen's Reaction Series. [20hrs] <u>Part D – External heat energy and sedimentary rocks.</u> – Weathering and erosion – physical and chemical weathering- Sedimentary rocks – clastic sedimentary rocks (conglomerate – breccia – sandstone- claystone – siltstone- shale- marl) – chemical sedimentary rocks (limestone – rock salt – gypsum – anhydrite)–biochemical sedimentary rocks – organic sedimentary rocks (Coal and Black shale) . [25hrs]. <u>Part F- Metamorphism and Metamorphic rocks</u> – Metamorphism – Heat – pressure – chemical fluids, Metamorphic rocks – Foliated and non-foliated rocks . – Sedimentary basins and Paleo environments. [15hrs]
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	This course is designed to give students a fundamental understanding of various minerals, their classification, structure and properties, teach the identification of the common rock-forming minerals and demonstrate how minerals make up igneous and metamorphic rocks also study very important sedimentary rocks from rock samples . The course main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises to know how can use the student syllabus content in the field of engineering geology project and use application of engineering geology in the scientific trip.

Student Workload (SWL) الحمل الدراسي للطالب محسوب ل ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	89	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

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

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction: Concept of geology, Importance of geology in oil exploration, Steps of petroleum exploration
Week 2	The earth and the solar system
Week 3	Minerals (definition, chem. composition, crystal systems)
Week 4	Minerals (physical properties, classification of minerals)
Week 5	Rocks & their study, rock cycles
Week 6	Internal Earth Energy
Week 7	Igneous rocks
Week 8	External Earth Energy
Week 9	Weathering and Erosion Types
Week 10	Sedimentary rocks
Week 11	Description and Classification of certain important sedimentary rocks
Week 12	Depositional environments
Week 13	Important Reservoir Rocks
Week 14	Agents Of Metamorphism and Types of Metamorphism
Week 15	Metamorphic rocks
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Definition of crystal - Morphological characters of crystals - Faces - Forms - Edge - Solid angles - Interfacial angle.
Week 2	Lab 2: Physical Properties of Minerals like ,Form, Color , Lusters , Cleavage , Fractures , Hardness and specific gravity and chemical composition of the minerals.
Week 3	Lab 3: Study Igneous it's Texture, Chemical compositions of igneous rocks, rate of cooling and Plutonic and Volcanic rocks.
Week 4	Lab 4: Study of important Sedimentary rocks.
Week 5	Lab 5: Study of Metamorphic rocks.
Week 6	Lab 6: Practical study of porosity and permeability of sedimentary rocks.
Week 7	Lab 7: Practical study of facies.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Banger, K.M., 2004; Principles of Engineering Geology. Standard publisher's distributors. 1705-B,Nai Sarak,delhi-110006.	Yes
Recommended Texts	Parbin,S., 2004; Engineering and General geology. Six edition (revised and enlarged). S,K,Kataria and sons. J.S.Offset printers.	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

Grading Scheme

مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Engineering Mechanics I (Statics)		Module Delivery	
Module Type	Support		☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	PRE 112			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	One	Semester of Delivery		One
Administering Department	Petroleum Reservoir Engineering	College	Petroleum and Mining Engineering	
Module Leader	Ayad M. Ahmed Alwaise		e-mail	Ayad_waise@yahoo.com
Module Leader's Acad. Title	lecture	Module Leader's Qualification	Ph.D.	
Module Tutor	Sarah Saad Abduljabbar		e-mail	sarahsaad3860707@uomosul.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date	30/10/2024	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 Objectives أهداف المادة الدراسية	1. To develop problem solving skills and understanding of statics and applications physics theory through the application of techniques. 2. To understand forces, Moments and equilibrium system. 3. This course deals with the basic concept of Mechanical Engineering. 4. This is the basic subject for all statics and forces applications. 5. To understand concept of moment and forces problems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Gain a foundational understanding of the fundamental physical and mathematical principles underlying mechanics. 2. Apply analytical techniques to analyze and calculate resultant forces acting on bodies in equilibrium. 3. Differentiate vector operations for normal forces, resultant moments, and couples 4. Identify and interpret forces acting on bodies using the free-body diagram approach for problem-solving.. 5. Analyze equilibrium systems involving frictional forces. 6. Determine the centroid of composite bodies and calculate the moment of inertia for a given body and specified axes
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – Newton's Theory</u> Statics is a type of science that helps people design safe and strong structures, like bridges and buildings. It's all about studying how things stay in place even when they are not moving. This is important for engineers and physicists who want to understand how materials react to different forces, like the ones that happen when an airplane takes off or lands. By studying statics, people can make better things and improve technology. [15 hrs.] Statics is a branch of mechanics that deals with the study of stationary objects and systems under the action of external forces. In other words, statics is concerned with the analysis of forces acting on objects that are not in motion. It is an essential subject for engineers and physicists as it is the foundation for the study of mechanics, which is the branch of physics that deals with the motion of objects. Statics is a crucial sub-topic of mechanics and is essential in engineering and physics courses. [15 hrs.] It deals with the study of forces acting on objects that are not moving. The primary objectives of statics are to determine the forces acting on an object, the moments of forces acting on an object, and the equilibrium conditions of an object. The study of statics is essential for the design of structures, such as bridges, buildings, and machines, to ensure that they are safe and reliable. [10 hrs.] Revision problem classes [6 hrs.] The study of statics is also important in understanding the behavior of materials under different conditions. It helps engineers and physicists to understand how different materials react to external forces and how they can be designed to

	withstand these forces. For example, in aerospace engineering, the study of statics is essential in the design of aircraft and spacecraft to ensure that they can withstand the forces of takeoff, landing, and flight. In general, the study of statics is crucial for the development of new technologies and the improvement of existing ones. [15 hrs.]
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The objective of this course is to enhance the ability of first-year students to predict and evaluate the impacts of forces, moments, couples, and distributed loads on bodies. The main approach employed in this course is to foster student engagement through active participation in discussions and problem-solving exercises. By doing so, students are encouraged to develop and refine their critical thinking skills, enabling them to analyze and understand the influence of applied forces on bodies. This approach is facilitated through classroom lectures, interactive tutorials, and the inclusion of real- life applications that capture students' interest and attention

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #3
	Classwork	3	10% (10)	4,6 and 12	LO # 2,3, 4,5, and ,6
	Homework	1	10% (10)	Continuous	All
	Project	1	10% (10)	13	LO #4, #5 and #6
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO # 1-4
	Final Exam	3hr	50% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to engineering mechanics
Week 2	Newton's Second Law
Week 3	Forces and Resultant
Week 4	Forces and Resultant
Week 5	Moment
Week 6	Moment
Week 7	Moment of Couple
Week 8	Free body diagram
Week 9	Equilibrium
Week 10	Equilibrium
Week 11	Centroid
Week 12	Centroid
Week 13	Moment of Inertia
Week 14	Moment of Inertia
Week 15	Frictions
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Hibbeler, RC, "Engineering Mechanics Statics", 13th edition, 2013.	Yes
Recommended Texts	Meriam, James L., and L. Glenn Kraige, "Engineering mechanics: statics", John Wiley & Sons, 2012.	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	Mathematics I		Module Delivery
Module Type	Basic		☒ Theory ☒ Lecture ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	PRE 113		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	Petroleum Reservoir Engineering	College	Petroleum and Mining Engineering
Module Leader	Ziadoon Mohanad Khalil	e-mail	ziadoon.khaleel@uomosul.edu.iq
Module Leader's Acad. Title	Assistant lecturer	Module Leader's Qualification	MSc.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	1/9/2024	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 Objectives أهداف المادة الدراسية	This course is intended to learn student the fundamentals of domain and range, learn students how they can draw the trigonometric functions, limits, types of integrals including fractional integral, quantify the area under curve, differentiation, and an introduction about the Polar Coordinates as well as the parametric equations.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Increase the students skills to deal with the mathematical engineering questions. 2- Increase the level of students in thinking. 3- Prepare the students to understand more developed materials. 4- Determine the area under curve using integration in which the students can use this method to determine the reservoir volume. 5- Perform a connection between the mathematical equations with the petroleum engineering major. 6- Use the optimum approaches to find the solution of mathematical questions.
Indicative Contents المحتويات الإرشادية	Indicative contents: Module 1: An Introduction of Mathematics Module 2: Domain and Range of Functions Module 3: Drawing the Trigonometric functions Module 4: Limits (Continuous and Discontinuous Module 5: Transformation functions including Period, Horizontal and Vertical shifts, and Amplitude Module 6: Differentiation and derivative methods Module 7: Infinite and Finite Integrals Module 8: Integration Methods Module 9: An Introduction to Polar Coordinates

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, homework's, discussion in class, and help session. This will be achieved through classes and interactive tutorials.
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

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

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المناهج الاسبوعي النظري

	Material Covered
Week 1	Module 1: An Introduction of Mathematics
Week 2	Module 2: Domain and Range of Functions
Week 3	Module 3: Functions and their Graphs
Week 4	Module 4: Power functions and Exponential functions
Week 5	Module 5: Trigonometric function and Graphing
Week 6	Module 6: Relation inverse between trigonometric function
Week 7	Module 7: Shifting and scalling graphs
Week 8	Module 8: Transformation functions
Week 9	Module 9: Period, Horizontal and Vertical ships, and Amplitude
Week 10	Module 10: The quick method of drawing trigonometric functions
Week 11	Module 11: Limits
Week 12	Module 12: Right-hand limits
Week 13	Module 13: left -hand limits
Week 14	Module 14: limits in Addition formulas
Week 15	Module 15: continuous functions

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Thomas, G. B., Weir, M. D., & Hass, J. (2018). Thomas' Calculus	Yes
Recommended Texts	Basic Engineering Mathematics , John Bird, BSc (Hons), CMath, CEng, CSci, FIMA, FIET, MIEE, FIIE, FCollT (Fifth edition)	Yes
Websites	None	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	English language		Module Delivery	
Module Type	Basic		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOM102			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	1	Semester of Delivery		1
Administering Department	Petroleum Reservoir Engineering	College	Petroleum and Mining Engineering	
Module Leader	Amira Rifae Hannawi		e-mail	amira.rifae@uomosul.edu.iq
Module Leader's Acad. Title	Assist. Lecturer		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	None		Semester	
Co-requisites module	None		Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. to enable the learner to communicate effectively and appropriately in real life situation. 2. to use English effectively for study purpose across the curriculum. 3. to develop interest in and appreciation of language 4. to develop and integrate the use of the language skills i.e. Reading, Speaking and Writing . 5. to revise and reinforce structure and grammar already learnt.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. 1. Define The ability to read English with understanding the student is able to understand the total content 2. Identify the ability to understand English when it is spoken. 3. Promote the ability to write English correctly . 4. Outline the correct usage of the grammatical items. 5. Describing and Identify some concepts of petroleum and mining study to enhance students' lexicon of specific terms . 6. List students' weaknesses in an attempt to strengthen and overcome them
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – Present tense</u> Simple present tens , the uses of simple present tense , present continuous tense, present perfective tense, vocabularies . [15 hrs] <u>Part B – past tense</u> Simple past tens , the uses of simple past tense , past continuous tense, past perfective tense, vocabularies . [15 hrs] <u>Part c – future</u> Future forms, Hot verbs- take, put – Telephoning , Expressions of quantity. – 'export and ex'port, Business expressions and numbers Modals and rel. [15hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The main strategy that will be adopted in delivering English language is to encourage students' participation in the exercises, discussion and use brainstorming by asking many questions to keep in touch with the students . while at the same time refining and expanding their critical thinking skills and give and receive feedback from the students. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.
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Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا

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

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #3 #4and #6
	Assignments	2	10% (10)	2 and 12	LO #1 #2 and #5
	Report	1	10% (10)	13	LO #1#2 and #4
Summative assessment	Midterm Exam	2hr	10% (10)	7	All
	Final Exam	3hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction - Simple present tens + vocabulary
Week 2	The uses of simple present tens + vocabulary
Week 3	present continuous tens + vocabulary
Week 4	Present perfective tense + vocabulary
Week 5	Present perfective continuous tense + vocabulary
Week 6	Examination
Week 7	Simple Past tense + vocabulary
Week 8	The uses of past tense + vocabulary
Week 9	Past continuous tense + vocabulary
Week 10	Past perfect tense + vocabulary
Week 11	Past perfective continuous tense + vocabulary
Week 12	Future forms, Hot verbs- take, put – Telephoning + vocabulary
Week 13	Expressions of quantity. – 'export and ex'port + vocabulary
Week 14	Business expressions and numbers + vocabulary
Week 15	Questions and negatives, - prefixes and antonyms, - Being polite +vocabulary
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	New-headway-plus-upper- intermediate-students-book. New-headway-plus-upperintermediate-students-workbook	No
Recommended Texts	Textbook and curriculums approved by the scientific committee and academic accreditation committee .	yes
Websites	Upper-Intermediate Fourth Edition Headway Student's Site Oxford University Press (oup.com) Tenses in Academic Writing English for Uni University of Adelaide	

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Engineering Drawing		Module Delivery	
Module Type	Support		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	PRE 114			
ECTS Credits	7			
SWL (hr/sem)	175			
Module Level	One	Semester of Delivery		One
Administering Department	Petroleum Reservoir Engineering	College	Petroleum and Mining Engineering	
Module Leader	Sarah Jamal Halata		e-mail	sarahjamal@umosul.edu.iq
Module Leader's Acad. Title	Assistant lecture	Module Leader's Qualification	MS.C	
Module Tutor	Sura Mohamed Ali Zena Nofal Mohamed salah		e-mail	swazaal@uomosul.edu.iq zinanaufal@uomosul.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date	30/10/2024	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 Objectives أهداف المادة الدراسية	1. Understanding the important of engineering drawing . 2. Learning how to draw the shapes, angels and lines and others which is essential for engineer. 3. Develop student's imagination and ability to represent the shape size and specifications of physical objects. 4. Understand the main idea of using dimensions for engineering drawing. 5. Familiarize with different drawing equipment, technical standards and procedures for construction of geometric figures. This will give students ability to draw three-dimension objects on the paper and to draw the pectoral drawings. 6. Learning the principle of projection.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. The student should know the types of geometric lines. 2. Be able to perform geometric operations. 3. Be able to draw regular geometric shapes. 4. Draw arcs and tangents. 5. Be able to deduce geometric projections. 6. Be able to draw a three-dimensional shape.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Introduction about Engineering drawing and Instruments & their use The purpose of engineering drawing ,The tools that are used in engineering drawing and how it are using ,Fixing the sheets and Layout the sheets of drawing (9hrs). Types of line Know all type of lines in engineering drawing and the which pencils are used to draw each type (3hrs). Constructional geometry draw the single line, parallel lines by many method using triangles or by compass and dividing the line and angle to equal parts, Making tangents (6 hrs). Dimensions Learn the roles of writing the dimensions and scales in engineering drawing (9hrs). Tangent arc Learning the draw of arc tangents a line, arc tangents a point and arc tangents another arc (9hrs) Regular polygon and Ellipse Triangles ,square , pentagon , hexagon & the method of how to draw any regular polygon . (12hrs). Reverse curves (6hrs) Isometric drawing Isometric drawing for objects contain perpendicular surfaces, include surfaces. and curved surfaces. (18hrs) Sketching (3hrs).

	Projections The types and principle of projection(6hrs)
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	In this course the topics covered are based on syllabus for undergraduate studies in engineering. the lecture would be arranged in a sequences and starts from the basic concepts of geometrical construction and engineering curves and progress and isometric drawing to the principles of projections, the Strategies of this course include : Lectures: theoretical subject will be explained through lecture. Classwork: after all theoretical lectures the student draws and applies a exercise which achieves the aim of lecture. Homework : every week , homework will be given to increase a skill of a student.

Student Workload (SWL) الحمل الدراسي للطالب محسوب ل ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	82	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.46
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

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

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction about Engineering drawing, Instruments & their use
Week 2	Fixing the sheets, Types of line, Lettering, Layout the sheets of drawing
Week 3	Constructional geometry (draw the single line, parallel lines, dividing the line and angle, Making tangents
Week 4	Dimensions
Week 5	Scale, Units, Quiz
Week 6	Tangent arc (arc tangents a line, arc tangents a point)
Week 7	Tangent arc (arc tangents another arc), Midterm Exam
Week 8	Regular polygon (Triangles, square, pentagon, hexagon & the method of how to draw any regular polygon.
Week 9	Reverse curves.
Week 10	Ellipse (draw the ellipse by many methods)
Week 11	Isometric drawing for objects contains perpendicular surfaces.
Week 12	Isometric drawing for objects contains include surfaces
Week 13	Isometric drawing for objects contains curved surfaces
Week 14	Projections ,Cutting plane
Week 15	Sketching, Quiz

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	A Textbook of Engineering Drawing, Shah P.J, 2008	Yes
Recommended Texts	A Textbook of Engineering Drawing, Shah P.J, 2008	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.

Curriculum update rate = 5%

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	HUMAN RIGHTS AND DEMOCRACY		Module Delivery
Module Type	Basic		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	UOM104		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	1	Semester of Delivery	
Administering Department	Petroleum Reservoir Engineering	College	Petroleum and Mining Engineering
Module Leader	Basma Mohamed Natheer Ahmed	e-mail	Bsmam2022@uomosul.edu.iq
Module Leader's Acad. Title	Assistant lecturer	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	10/09/2024	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 Objectives أهداف المادة الدراسية	Introducing the subject of the history and development of international relations from the Middle Ages to the end of the twentieth century, as well as clarification And interpreting the most important international and modern problems and issues that are affected by international relations, in order to bring the student to a high degree of political, intellectual and historical awareness to analyze the events and developments that occur in the world in this era. Modern and contemporary and try to judge them objectively.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of this course, students will be able to: A Knowledge and understanding 1 - The ability to understand what is right and human rights 2. The ability to differentiate between human rights in a way that is consistent with reality 3.The ability to understand the relationship between human rights and political science 4. The ability to provide appropriate advice A - The ability to identify and solve problems B -Subject-specific skills 1. - The ability to know the mechanism of political participation 2 - The ability to link theoretical study to practical reality
Indicative Contents المحتويات الإرشادية	This course is a "must have" for anyone working with the subsurface within the life application. Students will understand and employ the scientific method of inquiry to draw conclusions based on verifiable evidence. Students will explain the impact of scientific theories, discoveries, or technological changes on society. Students will demonstrate critical thinking skills in the analysis of scientific data. understand that real data can be uncertain and that one has to use common sense and understanding in order to find good answers to the interpretation problems.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Teaching/Learning Strategies include: 1- Direct Instruction in classroom, 3 hrs per week+ 1 hr per week tutorial. 2- Classroom Discussions

	3- tests, quizzes, class participation, projects, homework assignments, presentations. Methods of assessment for students. 1- Compulsory exercises 2- Quarterly exams. 3- Discussions and assignments for project. *The overall assessment for this course is as follows: Annual pursuit of 50 points from the total mark, which includes assignments, oral examinations and quarterly in addition to presentations. *50 marks for the final exam
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Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	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 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	None	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المناهج الاسبوعي النظري

	Material Covered
Week 1	The Concept and History of Democracy-Features and components of a democratic system-Constitution and democracy Elections
Week 2,3	Civil Society Organisations and Democracy -The relationship between human rights and democracy Genocide Crimes- Guarantees of public freedoms and rights
Week 4,5	Conditions of democracy-Good governance-Political participation -Elections and their characteristics Political pluralism
Week 6,7	Citizenship and its components-General concepts of democracy-A general introduction to the concept of human rights -The roots of human rights and their development in human history
Week 8, 9, 10, 11	The evolution of the idea of protecting human rights in the modern era-The international community and contemporary human rights-Human rights at the regional level-Human rights at the international level United Nations Mechanisms for the Protection of Human Rights-Human duties and restrictions on the exercise of human rights
Week 12, 13,14	International organisations and bodies involved in the defence of human rights-Professional ethics- Student Discipline Law in Higher Education Institutions-Human Rights Concepts
Week 15	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

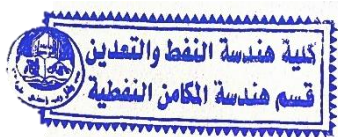
	Text	Available in the Library?
Required Texts	Required textbooks (curricular books, if any)	Yes
	Main references (sources)	
Recommended Texts	Recommended books and references (scientific journals, reports...)	No
Websites	Electronic References, Websites	

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.				



University of Mosul
College of Petroleum and Mining Engineering
Department of Petroleum Reservoir Engineering

Course Descriptions
1st Level / 2nd Semester (Bologna Process)



Dr. Maha Muneeb Al-Dabbagh
Head of Department

Dr. Ayman Mahmoud Ahmed
Chairman of the Scientific Committee

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Geology of Engineering II		Module Delivery	
Module Type	Support		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	PRE 121			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	1	Semester of Delivery		2
Administering Department	Petroleum Reservoir Engineering	College	Petroleum & Mining Engineering	
Module Leader	Yasser Hassan Kddo		e-mail	E-mail: Dryasser.hassan@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.	
Module Tutor	Bushra Abdula Mohamed		e-mail	E-mail: geobushra@uomosul.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date	10/09/2024	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 Objectives أهداف المادة الدراسية	The main objectives of the course are: This course aims in helping the students: • To know the basic of Plate tectonic theories and Continental drift hypothesis. • To introduce fundamental aspects of Plate tectonic boundaries. • Understand the Earth quake & mountain building activity • Student will gain knowledge about Stress, Strain and Defomation. • To introduce fundamental aspects of Structural geology . • Student will gain knowledge about Folds, Joints and Faults. • To introduce fundamental aspects of paleontology. • To know the basic of fossilization and types of fossils. • To introduce fundamental aspects of Stratigraphy. • The student will get to learn in detail the Iraqi Stratigraphy. • To understand the Geological time scale. • Understanding the origin and accumulation aspects of hydrocarbon fields in Iraq.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon successful completion of this course, students will be able to: 1. Gain Knowledge about the history of Earth's development. 2. Historical development of continental movements. 3. Learn how mountains, earthquakes and volcanic eruption occurs. 4. Understand the different types of Folds and Faults 5. Understand structural Petroleum traps. 6. Learn how fossils formed and its applications was. 7. Describe and identify fossils based on their morphology and their modification with time. 8. Deal with Categories of Stratigraphic Classification 9. Learn the development of life forms on the earth. 10. Know Various aspects of the hydrocarbon system.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – Continetnal drift hypotheis and plate tectonic theory.</u> (Alfered Wegner hypothesis- Plate tectonic- Convergent plate boundaries – Divergent plate boundaries – Transform plate boundaries). [10 hrs.] <u>Part B- Structural geology</u> – The description of folds – anticline – syncline – symmetrical fold – assymetrical folds – overturned folds) - Normal fault – reverse fault- thrust fault – Joints) [15hrs] <u>Part C- The Paleontology and Stratigraphy</u> – Fossils – Microfossils – Index fossils- type of fossilization – Correlation and age determination. Principle of serigraphy – Lithostrigrphic units – Biostratigrphic units – Chronostrigraphic units. [20hrs] <u>Part D – Geological time scale</u> – Relative and absolute age- Precambrian- Phanerozoic – Paleozoic – Mesozoic and Cenozoic age) . [20hrs]. <u>Part F- Hydrocarbon Accumulation</u> – Petroleum system – types of traps- types of kerogens – Iraqi Oil Fields – [15hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	This course is designed to give students a fundamental understanding of very important branches of geology, teach the understand how was morphologic earth change over time and how the modern contents formed. How crustal movement make up deformation like folds and faults and metamorphic rocks also study very. The course main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises to know how can use the student the tools like fossils in the petroleum exploration.
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المناهج الاسبوعي النظري

	Material Covered
Week 1	Introduction: Continental drift and Plate Tectonic theory.
Week 2	Plate Tectonic Boundaries
Week 3	Structural Geology
Week 4	Type of Folds
Week 5	Types of Faults and Joints
Week 6	Types of Petroleum Traps
Week 7	Paleontology and Fossils
Week 8	Microfossils
Week 9	Stratigraphy Principles
Week 10	Lithostratigraphic Units
Week 11	Biostratigraphic and Chronostratigraphic Units
Week 12	Geological Time Scale
Week 13	Paleozoic – Mesozoic – Cenozoic
Week 14	The Petroleum System
Week 15	Iraqi Oil Fields
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المناهج الاسبوعي للمختبر

	Material Covered
Week 1	Contour maps and their interpretation - Exercises to predict trend of the outcrop of horizontal, vertical and inclined beds with respect to topography - Deciphering dip and strike of outcrops.
Week 2	Construction of map when 3 points over a bedding plane are given - Construction of vertical section - Order of superposition - vertical thickness of formation.
Week 3	Reading of folds and fault maps - Construction of vertical sections - Determination of ages of structures - Geological history.
Week 4	Solving simple dip and strike problems by Trigonometrical and graphic trigonometrical methods. al methods -determination of true thickness of beds by calculations - Three point problems by Training on surveying tools: theodolite , GPS, and other field instruments to create a geologic map & cross sections.
Week 5	Study the importance of macro fossils: Brachiopoda ,Pelecypoda , Gastropoda , Graptolites , Coral , Trilobite , Plants
Week 6	Study the importance of microfossils Foraminifera , Ostracoda , Pollen and Spores , nanocalcareous (thin section).
Week 7	Study the importance of microfossils Dinoflagellates, Acritarchs.

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Banger, K.M., 2004; Principles of Engineering Geology. Standard publisher's distributors. 1705-B,Nai Sarak,delhi-110006.	Yes
Recommended Texts	Parbin,S., 2004; Engineering and General geology. Six edition (revised and enlarged). S,K,Kataria and sons. J.S.Offset printers.	No
Websites	https://www.coursera.org/courses?query=geology	

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Engineering Mechanics II (Dynamics)		Module Delivery	
Module Type	Support or related learning activity		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	PRE 122			
ECTS Credits	4			
SWL (hr/sem)	100			
Module Level	1	Semester of Delivery		2
Administering Department	PRE	College	PMEUOM	
Module Leader	Sarah Saad Abduljabbar		e-mail	sarahsaad3860707@uomosul.edu.iq
Module Leader's Acad. Title	Ass. Lecturer		Module Leader's Qualification	Master
Module Tutor	Name (if available)		e-mail	E-mail
Peer Reviewer Name	Name		e-mail	E-mail
Scientific Committee Approval Date	10/09/2024		Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	1. To develop problem solving skills and understanding of dynamics and applications physics theory through the application of techniques. 2. To understand displacements, velocity and accelerations system. 3. This course deals with the basic concept of Mechanical Engineering. 4. This is the basic subject for all Dynamics and forces applications. 5. To understand concept of work and energy problems. 6. The forces that act on an object can be external, such as gravity, friction, or air resistance, or they can be internal, such as the forces that hold the particles of an object together
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	After completion of the course, the student should be able to: 1. Explain and calculate the centroid and moment of inertia for rigid bodies 2. Describe and calculate the motion (position, velocity, acceleration) for particles and solids in plane motion. 3. Apply free-body diagrams and solve Newton's 2nd law for plane problems. 4. Use different approaches to solve dynamic problems of particles in plane motion. 5. Understand the concepts of work, kinetic energy, potential energy relations, as well as linear and angular impulse and momentum 6. Analyze forces to describe the motion of rigid bodies using Newton's 2nd law directly or indirectly using work, energy, impulse, and momentum
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Dynamics is a branch of physics that deals with the study of motion and forces acting on a body. It is the study of how objects move, interact with each other, and respond to different forces. Dynamics is an important subject in physics, and it is used to explain many natural phenomena, from the movement of planets to the behavior of tiny particles. [15 hrs.] Dynamics is concerned with the motion of objects, and it is often used to describe the movement of objects in three dimensions. In dynamics, the focus is on understanding how forces affect the motion of an object. The forces that act on an object can be external, such as gravity, friction, or air resistance, or they can be internal, such as the forces that hold the particles of an object together. Dynamics is a complex subject, and it requires a deep understanding of physics and mathematics to fully grasp its principles. Dynamics is a fundamental part of physics, and it is used in many different fields, from engineering to astronomy. [15 hrs.] It deals with the study of forces acting on objects that are not moving. The primary objectives of Dynamics are to determine the forces acting on an object, the moments of forces acting on an object, and the equilibrium conditions of an object. The study of Dynamics is essential for the design of structures, such as bridges, buildings, and machines, to ensure that they are safe and reliable. [10 hrs.] Revision problem classes [6 hrs.] The study of dynamics is also important in understanding the behavior of materials under different conditions. Understanding dynamics is crucial in the design and construction of machines and structures, as it allows engineers to predict how these objects will behave under different forces. In astronomy, dynamics is used to study the movement of planets and stars, and it is used to predict the behavior of celestial bodies over time. As such, dynamics is a critical subject in physics, and it is essential for anyone who wants to study the natural world in depth. [15 hrs.]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The main approach for delivering this module is to foster student engagement and enhance their critical thinking abilities through active participation in exercises. This will be achieved by conducting classes, interactive tutorials, and incorporating captivating experiments that involve practical sampling activities.
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	80	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	20	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.33
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المناهج الاسبوعي النظري

	Material Covered
Week 1	Introduction to engineering mechanics (Dynamics)
Week 2,3	Rectilinear Kinematics: Continuous Motion Rectilinear
Week 4,5	Rectilinear Kinematics: Erratic Motion
Week 6,7	General Curvilinear Motion
Week 8, 9, 10, 11	Motion of a Projectile
week 9,10	Absolute Dependent Motion Analysis of Two Particles
Week 12, 13,14	The Work of a Force
Week 15	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	R. C. Hibbeler, Engineering Mechanics: Dynamics 13th edition	Yes
Recommended Texts	J.L. Meriam, L.G. Kraige and J. N. Bolton. Engineering Mechanics: Dynamics 8th edition, 2015.	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	Mathematics II		Module Delivery
Module Type	Basic		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	PRE 123		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	
Administering Department	Petroleum Reservoir Engineering	College	Petroleum & Mining Engineering
Module Leader	Ziadoon Mohanad Khalil	e-mail	ziadoon.khaleel@uomosul.edu.iq
Module Leader's Acad. Title	Assistant lecturer	Module Leader's Qualification	Master
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/02/2024	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	PRE 113, Mathematics I	Semester	First
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	This course is intended to learn student the fundamentals of domain and range, learn students how they can draw the trigonometric functions, limits, types of integrals including fractional integral, quantify the area under curve, differentiation, and an introduction about the Polar Coordinates as well as the parametric equations.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Increase the students skills to deal with the mathematical engineering questions. 2- Increase the level of students in thinking. 3- Prepare the students to understand more developed materials. 4- Determine the area under curve using integration in which the students can use this method to determine the reservoir volume. 5- Perform a connection between the mathematical equations with the petroleum engineering major. 6- Use the optimum approaches to find the solution of mathematical questions.
Indicative Contents المحتويات الإرشادية	Indicative contents: Module 1: An Introduction of Mathematics Module 2: Domain and Range of Functions Module 3: Drawing the Trigonometric functions Module 4: Limits (Continuous and Discontinuous Module 5: Transformation functions including Period, Horizontal and Vertical shifts, and Amplitude Module 6: Differentiation and derivative methods Module 7: Infinite and Finite Integrals Module 8: Integration Methods Module 9: An Introduction to Polar Coordinates

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, homework's, discussion in class, and help session. This will be achieved through classes and interactive tutorials.
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Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	71	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.8
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	54	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

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

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Module 1: Differentiation
Week 2,3	Module 2: Differentiation Rules
Week 3	Module 3: Higher derivative
Week 4	Module 4: derivative Trigonometric function
Week 5	Module 5: derivative of the inverse Trigonometric function
Week 6	Module 6: chain Rule
Week 7	Module 7: Parametric equations
Week 8	Module 8: L-Hopital Rule
Week 9	Module 9: Integration

Week 10	Module 10:Indefinite integrals
Week 11	Module 11 :Definite integrals
Week 12	Module 12: integral of Rational function
Week 13	Module 13:integration factors
Week 14	Module14: Integration by partes
Week 15	Module 15: Application of Definite integrals

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Thomas, G. B., Weir, M. D., & Hass, J. (2018). Thomas'Calculus (14th ed.).	Yes
Recommended Texts	Calculus I	No
Websites	None	

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 I		Module Delivery	
Module Type	Basic		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOM101			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	1	Semester of Delivery		2
Administering Department	Petroleum Reservoir Engineering	College	Petroleum & Mining Engineering	
Module Leader	Ahmed Mohammed Ali		e-mail	ahmed.m.ali@uomosul.edu.iq
Module Leader's Acad. Title	Asst. Professor	Module Leader's Qualification	PhD	
Module Tutor			e-mail	E-mail
Peer Reviewer Name			e-mail	E-mail
Scientific Committee Approval Date	20/1/2025	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	The aim of this semester is to enable students to read correctly and acquire the ability to use language correctly in communication with others, such as speed, quality of delivery, and eloquence. It also aims to teach students to listen well, develop their literary taste, and accustom them to correct, clear expressions
Module Learning Outcomes	CLO1: Introducing the student to the necessity of practicing the rules of writing and speaking in classical Arabic .

مخرجات التعلم للمادة الدراسية	CLO2: Introducing the student to the levels of the Arabic language system CLO3: Deepening the student's connection with the Arab and Islamic heritage. CLO4: Promote scientific research in the field of Arabic language and its sciences to prepare studies and research . CLO5: Showing the beauty of the Arabic language, the breadth of its meanings and its constructional styles. CLO6: Enabling the student to overcome and correct linguistic errors . CLO7: Developing the student's literary taste to understand the aesthetic aspects of speech style, images and meanings . CLO8: Introducing the most prominent poets of the Abbasid era		
Indicative Contents المحتويات الإرشادية	• أهمية اللغة العربية ونشأة علوم اللغة العربية • الأفعال • المبتدأ والخبر • النواسخ : كان واخواتها • ان واخواتها • علامات الترقيم • أخطاء لغوية شائعة • خصائص الشعر والنثر • المنصوبات • المفعول به • المفعول لأجله • المفعول المطلق • قواعد العدد • حية الشاعر السياب ومميزات شعره • نص شعري للسياب		
Learning and Teaching Strategies استراتيجيات التعلم والتعليم			
Strategies	The primary goal of Arabic language lessons is to eliminate the difficulty and rigidity that may accompany some of the topics covered in these lessons, in addition to conveying the required ideas and information to students in ways that are understandable and appropriate to their individual differences. The most prominent focus of the lectures is Arabic grammar and literature. The study consists of lectures, exams, in-class assignments, discussions, and homework.		
Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2.2

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

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

Delivery Plan (Weekly Syllabus)	
المنهاج الأسبوعي النظري	
	Material Covered
Week 1	أهمية اللغة العربية ونشأة علوم اللغة العربية
Week 2	الأفعال
Week 3	المبتدأ والخبر
Week 4	النواسخ : كان واخواتها
Week 5	ان واخواتها
Week 6	علامات الترقيم
Week 7	أخطاء لغوية شائعة
Week 8	خصائص الشعر والنثر
Week 9	المنصوبات
Week 10	المفعول به
Week 11	المفعول لأجله
Week 12	المفعول المطلق
Week 13	قواعد العدد

Week 14	حياة الشاعر السياب ومميزات شعره
Week 15	نص شعري للسياب

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	اللغة العربية لأقسام غير الاختصاص / مجموعة من المؤلفين	YES
Recommended Texts	كتب النحو / كتب الاملاء / المنهاج في القواعد والإعراب	No
Websites		

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Engineering Drawing using computer		Module Delivery	
Module Type	S		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	PRE 124			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGI	Semester of Delivery		Two
Administering Department	PER	College	PMEUOM	
Module Leader	Sarah Jamal Halata		e-mail	sarahjamal@umosul.edu.iq
Module Leader's Acad. Title	Assistant lecture		Module Leader's Qualification	MS.C
Module Tutor	Sura M. Ali Zaidoon Mohanad		e-mail	swazaal@uomosul.edu.iq zaidoon.khaleel@uomosul.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date	11/09/2024	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. Understanding the advantage of engineering drawing using computer. 2. Knowing how to save and export files and adjustment the size and units. 3. Knowing all the menu in the menu bar. 4. Learning each command in the Draw list. 5. Learning each command in the Modify list. 6. Understand how to draw 2D in AutoCAD. 7. Understand how to modify any shapes. 8. Explain and draw the projections of 3D shapes. 9. Conclusion the 3D shapes from their projection. 10. Learning the principle of 3D shapes
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the course students will be able to: • Apply basic CAD concepts to develop and construct accurate 2D geometry through creation of basic geometric constructions. • Create, manipulate and edit 2D drawings and figures. • Produce 2D Orthographic Projections. • Drawing of isometric view.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Introduction about computers and AutoCAD component of AutoCAD screen, Title bar, Menu bar , properties, Make a new drawing, saving , Adjustment the boundary of screen and units ,command line. (12hrs). Draw list Line, Xline, circle, polygon ,, Arc ,polyline, point ,Ellipse ,Text ,Block (12hrs). Modify list Erase, offset, copy , Rotate, Array, Trim, Extend, Mirror, Move, Explode, Fillet, Chamfer (12hrs). Object snap, Polar tracking, Dimensions. (6hrs) Projection Introduction about projections, Type of projections, projections in third angle, projection of objects contain perpendicular surface only , projection of objects contain include surface, projection of curved surfaces(12hrs). Finding a missing view, Section. (6hrs). Isometric drawing Isometric drawing for objects contains perpendicular surfaces, including surfaces. and curved surfaces. (12hrs)

	3D in AutoCAD Introduction about 3D in AutoCAD(6hrs). Assembly , finding the 3D viewing from projection (6hrs).
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	In this course the topics covered are based on syllabus for undergraduate studies in engineering. the lecture would be arranged in a sequence and starts from the knowing about all menus in menu bar and the commands of , the Strategies of this course include: Lectures: theoretical subjects will be explained through lectures. Classwork: after all theoretical lectures the student draws and applies a exercise which achieves the aim of the lecture. Homework: every week , homework will be given to increase a skill of a student.

Student Workload (SWL) الحمل الدراسي للطلاب محسوب ل ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	93	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	32	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	125		

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

Delivery Plan (Weekly Syllabus)

المناهج الاسبوعي النظري

	Material Covered
Week 1	Introduction about computer and AutoCAD , component of AutoCAD screen , Title bar ,Menu bar , properties.
Week 2	Make a new drawing, saving ,unite , boundary of screen ,command line.
Week 3	Draw list Line, Xline, circle, polygon
Week 4	Draw list Arc, polyline, point ,Ellipse ,Text ,Block
Week 5	Modify list Erase ,offset ,copy , Rotate, properties .
Week 6	Modify list Array ,Trim ,Extend , Mirror ,Move , Explode, Fillet , Chamfer , Quiz
Week 7	Object snap , Polar tracking, Midterm Exam
Week 8	Dimensions.
Week 9	Projection Introduction about projections, Type of projections , projections in third angle , projection of objects contain perpendicular surface only.
Week 10	projection of objects contains include surface, projection of curved surfaces.
Week 11	Finding a missing view, Section, Quiz.
Week 12	Isometric drawing for objects contains perpendicular surfaces.
Week 13	Isometric drawing for objects contains includes surfaces, Isometric drawing for objects contains curved surfaces
Week 14	3D in AutoCAD Introduction about 3D in AutoCAD
Week 15	Assembly, finding the 3D viewing from projection

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Engineering drawing from first principles using AutoCAD by Dennis Maguirs.	NO
Recommended Texts	A Student Guide for In-Depth Coverage of AutoCAD's AutoCAD 2023 Instructor, James Leach ,Shawna Lockhart, 2023.	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	Principles of Petroleum Engineering		Module Delivery	
Module Type	Core		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	PRE125			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	1	Semester of Delivery		2
Administering Department	Petroleum Reservoir Engineering	College	Petroleum and Mining Engineering	
Module Leader	Dr. Mahmood Salman Ahmed		e-mail	mahmood.salman@uomosul.edu.iq
Module Leader's Acad. Title		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	30/1/2025	Version Number		

Relation with other Modules				
العلاقة مع المواد الدراسية الأخرى				
Prerequisite module	Geophysics,geology		Semester	1
Co-requisites module			Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	1. To develop problem solving skills and understanding of petroleum Engineering through the application of techniques. 2. Gives insights into the role of petroleum engineering in the search and application. 3. The module covers a number of measurement methods and how these are used . to determine important fundamentals parameters such as Bulk volume, grain volume, pore volume and porosity concept 4. This is the basic subject for all petrophysical properties. 5. To understand permeability ,capillary pressure , wettability. 6. To perform sp-log and gamma ray analysis.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize how A geophysicist adds to the information of a geologist by studying the physics of the earth. 2. List the Petroleum exploration: a process of determining the location of petroleum reservoir. This process, Direct indications ,Geological methods, 3 . physical measurement of subsurface condition made from surface location. There are three types of methods, which are: • Gravitational (gravity survey)• Magnetic survey• Seismic survey. 4. Summarize what is meant by a Migration of Petroleum. 5. Discuss the Parameters Controlling Petroleum Occurrence . 6. Describe Lithology of Petroleum Reservoirs t. 7. classified Petroleum Traps. 8. Classification of reservoirs fluid types 9. Drilling rig A modern rotary rig as consists of several systems but the power system. hoisting system. rotation system. circulation system. well control (blowout prevention system). 10. What is well completion . 11. Porosity Logs - General. geophysical methods
Indicative Contents المحتويات الإرشادية	This course is a "must have" for anyone working with the subsurface within the life application. Students will understand and employ the scientific method of inquiry to draw conclusions based on verifiable evidence. Students will explain the impact of scientific theories, discoveries, or technological changes on society. Students will demonstrate critical thinking skills in the analysis of scientific data. understand that real data can be uncertain and that one has to use common sense and understanding in order to find good answers to the interpretation problems

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Teaching/Learning Strategies include: 1- Direct Instruction in classroom, 2 hrs per week. 2- Classroom Discussions 3- tests, quizzes, class participation, projects, homework assignments, presentations.
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	Methods of assessment for students. 1- Compulsory exercises 2- Quarterly exams. 3- Discussions and assignments for project. *The overall assessment for this course is as follows: Annual pursuit of 50 points from the total mark, which includes assignments, oral examinations and quarterly in addition to presentations. *50marks for the final exam
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Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	None	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction – of petroleum engineering
Week 2	Origin of petroleum
Week 3	Learn the students the importance of learning the rock science
Week 4	Understanding the exploration methods including gravity, magnetic, and seismic methods
Week 5	Applications of Porosity . Variation of porosity with depth
Week 6	Saturation
Week 7	Permeability . Permeability Classification , Darcy's law
Week 8	Rock compressibility , Wettability , capillary pressure
Week 9	Oil PVT Properties , Gas PVT Properties, Compressibility Factor (Z-Factor)
Week 10	Recovery. Reservoir Drive Mechanisms . Secondary Recovery. Tertiary Recovery (EOR)
Week 11	Reservoir type -Binary system
Week 12	Drilling Engineering. Type of rig , type of drilling fluid ,hosting system, rotary system
Week 13	Well completion. Completion Design criteria. Well completion equipments
Week 14	Well log . Resistivity and Measurement Concept. Resistivity Application
Week 15	WELL LOGGING – PART 3 [SP, GR, CAL]

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري		
Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Fundamentals of petroleum engineering collage of Eng	Yes
Recommended Texts	1- Fundamentals of petrol textbook 2- Fundamentals of petroleum engineering	No
Websites		

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Computer Science I		Module Delivery
Module Type	Basic		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☒ Practical ☒ Seminar
Module Code	UOM103		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	1	Semester of Delivery	
Administering Department	Petroleum Reservoir Engineering	College	Petroleum & Mining Engineering
Module Leader	Ziadoon Mohanad Khalil	e-mail	ziadoon.khaleel@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	Master
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/02/2024	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 Objectives أهداف المادة الدراسية	Elements of a computer, Windows system (history, elements, functions, applications, special types); Microsoft office (Word, Excel, Power Point); Internet (types of networks, search tools, method of search, E-mail; Web page.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	This module introduces students to the fundamental principles of computer programming and its applications in the field of petroleum engineering. It aims to equip students with programming skills to solve engineering problems, analyze data, and develop software tools for various petroleum engineering tasks. The Computer Programming module provides petroleum engineering students with a strong foundation in programming concepts and techniques, enabling them to leverage computational tools and algorithms to solve industry-specific problems efficiently. By acquiring programming skills, students enhance their problem-solving abilities and become well-equipped to navigate the digital landscape of the petroleum industry.
Indicative Contents المحتويات الإرشادية	Lecture titles • Understand the reason behind studying computer parts and its main applications. • Review the basics of MS PowerPoint • Custom animation • Add photos, videos and sound effects • Save as a webpage • Print presentations as handouts • Embed YouTube videos • create slideshows composed of text, graphics, and other objects. • which can be displayed on-screen and shown by the presenter or printed out on transparencies or slides. • review the main purpose of MS word • An overview of the interface features • Creating documents • Setting the printing options • Formatting text, styles, and paragraphs • Creating Lists and Constructing Advanced Tables • Creating bulleted and numbered lists • Creating tables • Editing and formatting tables • Creating Professional Documents • Word-referencing features • Creating and updating the TOC • Using citations to build a bibliography • Adding citation sources • Generating the bibliography • Editing the citation style • Working with master documents or subdocuments • Customizing page layouts • Inserting a cover page quick part • Converting text into columns • Inserting and modifying section breaks • Adding section breaks • Headers and footers • Inserting page numbers

	• Choosing a different first page • Numbering from a specific page number • Different header and footer sections • Introduction to Microsoft Excel • identify the main parts of the Excel window. • Identify the purpose of the commands on the menu bar. • Work with the buttons on the toolbar. • Explain the purpose of options available for printing a spreadsheet. • Enter and format text and numbers into cells. • Successfully move from one cell to another containing formulas and text. • Copy, Cut and Paste text and formulas • excel charts
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students. * Lectures are conducted by face-to-face education in the classroom, two hours per week, and students' technical reports. * Conducting dialogues and discussions with the request Methods of assessment for students. * Quarterly exams. * Discussions and assignments. *The overall assessment for this course is as follows: Annual pursuit of 50 points from the total mark, which includes assignments and oral examinations and quarterly in addition to presentations. *50 marks for the final exam

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

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

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1,2	• Introduction to computer parts • Understand the reason behind studying computer parts and its main applications. • Review the basics of MS PowerPoint • Custom animation • Add photos, videos and sound effects
Week 3	• Save as a webpage • Print presentations as handouts • Embed YouTube videos • create slideshows composed of text, graphics, and other objects. • which can be displayed on-screen and shown by the presenter or printed out on transparencies or slides.
Week 4	• review the main purpose of MS word • An overview of the interface features • Creating documents • Setting the printing options • Formatting text, styles, and paragraphs • Creating Lists and Constructing Advanced Tables
Week 5	• Creating bulleted and numbered lists • Creating tables • Editing and formatting tables • Creating Professional Documents • Word-referencing features • Creating and updating the TOC • Using citations to build a bibliography • Adding citation sources

Week 6,7	• Generating the bibliography • Editing the citation style • Working with master documents or subdocuments • Customizing page layouts • Inserting a cover page quick part • Converting text into columns • Inserting and modifying section breaks • Adding section breaks • Headers and footers • Inserting page numbers • Choosing a different first page • Numbering from a specific page number • Different header and footer sections
Week 8	• Introduction to Microsoft Excel • identify the main parts of the Excel window. • Identify the purpose of the commands on the menu bar. • Work with the buttons on the toolbar.
Week 9,10	• Explain the purpose of options available for printing a spreadsheet. • Enter and format text and numbers into cells. • Successfully move from one cell to another containing formulas and text. • Copy, Cut and Paste text and formulas
Week 11,12	• Using Formulas and Functions • Using Operators in Formulas • Using Cell References in Formulas • Entering Formulas • Displaying Formulas • Using Functions in Formulas • Using the AutoSum Button • Inserting Functions • Using Formula AutoComplete
Week 13,14	• Working with Charts • Creating Charts • Selecting Chart Elements • Changing the Chart Type • Changing the Chart Data • Changing the Chart Layout • Formatting Charts • Moving Charts • Deleting Charts • Using Formulas and Functions • Using Cell References in Formulas
Week 15	• Internet :types of networks • search tools, method of search • E-mail; Web page

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Curriculum and textbook	No
Recommended Texts	- L. Foulke, "Learn Microsoft Office 2019 : a guide to getting started with Word, PowerPoint, Excel, Access, and Outlook." p. 111, 2020.	No
Websites	none	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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