

Ministry of Higher Education and Scientific Research

University of Mosul

College of Petroleum and Mining Engineering



Courses Description

Mining Engineering Department

Level One/ Semester One / Bologna Process

2025-2026



MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Geology for Engineers		Module Delivery
Module Type	C		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	ME111		
ECTS Credits	7.00		
SWL (hr/sem)	175		
Module Level	UGI	Semester of Delivery	
Administering Department	Mining engineering	College	Petroleum and Mining Engineering
Module Leader	Eman Kassim Yahya	e-mail	eman.q@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	PH.D.
Module Tutor	Mauj Ali Hussain yasir faris ghamin	e-mail	mauj.ali@uomosul.edu.iq yasser_ghanem@uomosul.edu.iq
Peer Reviewer Name	Eman Kassim Yahya	e-mail	eman.q@uomosul.edu.iq
Scientific Committee Approval Date	15/10/2025	Version Number	1

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	Petroleum geology, Geochemistry of ores	Semester	2

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: 1- Study the formation of the earth sphere. 2- Initial structure of the earth. 3- Crystal system and how the minerals crystallized in different systems. 4- Different type of the minerals, with studies the optical and cohesive properties of the minerals. 5- Study the rocks and rock cycle. 6- Study the types of rocks (igneous, sedimentary and metamorphic rocks). 7- Study the sedimentary processes (weathering, transportation and deposition). 8- Study the geological structures. 9- Study the plate tectonics 10- Study the hydrology. 11- Study the GIS.
Module learning Outcomes مخرجات التعلم للمادة الدراسية	1- To know how can use the student syllabus content in the field of engineering geology project. 2- To use application of engineering geology in the scientific trip. 3- To learn mainly how the students are answer the questions in the examination. 4. Introduction: Concept of geology, Importance of geology in mining. Origin of the Earth - Age of the Earth, Earth and Planetary system, size, shape. Structure and constitution of the interior of the earth; atmosphere and greenhouse effect; Isostasy; elements of seismology;

	5. classification types the rocks (igneous, metamorphic, sedimentary) and identification by hand specimens. 6. Identification the minerals by hand specimen.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A-theoretical Geology for engineers. Introduction: Concept of geology, Importance of geology in mining. Origin of the Earth - Age of the Earth, Earth and Planetary system, size, shape. Structure and constitution of the interior of the earth; atmosphere and greenhouse effect; Isostasy; elements of seismology;(6hr). Mineralogy Minerals – definition, formation and mode of occurrences. Identification – physical properties (like Form, Colour , Luster , Cleavage, Fractures ,Hardness and specific gravity), chemical properties and Optical properties of some minerals. Classification of minerals.(2hr) Rocks, Rocks cycle, Types and Characteristics, Weathering and Erosion Types., Sedimentary Rocks, igneous rocks, sedimentary rock, fossils.(12hr) Economic geology Definition, fuel, ores, industry rocks. Petroleum geology(2hr). Structural Geology: Plate Tectonic Theory, Stratigraphy ,Geological Time Scale.(8hr) Introduction GIS(2hr) Part B practical Crystals(4hr) Minerals by hand specimens. Physical Properties Of Rocks. Sedimentary rocks identification by hand specimens Igneous rocks identification by hand specimens, metamorphic rocks identification by hand specimens(12hr) The contour map , Geological concepts and methods in the mining cycle: exploration, Exploitation and closure of mines. Application of sequence Theory to interpretation of the stratigraphic record(10 hr) Application of GIS.(4hr)

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies

Type something like: The main strategy that will be adopted in delivering this engineering geology 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. e.g. lectures, seminars, online learning, laboratories, practice- based.

Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	78	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	97	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب 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 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Geology for engineers.
Week 2	Introduction: Concept of geology, Importance of geology in mining. Origin of the Earth - Age of the Earth, Earth and Planetary system, size, shape. Structure and constitution of the interior of the earth; atmosphere and greenhouse effect; Isostasy; elements of seismology;
Week 3	Mineralogy Minerals – definition, formation and mode of occurrences. Identification – physical properties (like Form, Color, Luster, Cleavage, Fractures, Hardness and specific gravity), chemical properties and Optical properties of some minerals. Classification of minerals.
Week 4	Plate Tectonic Theory
Week 5	Rocks, Rocks cycle, Types and Characteristics
Week 6	Weathering and Erosion Types.
Week 7	Sedimentary Rocks
Week 8	Igneous Rocks
Week 9	Metamorphic Rocks
Week 10	Structural Geology: Stratified rocks and their structures. Attitude of strata. Outcrop and in crop
Week 11	Stereographic projection.
Week 12	Economic geology Definition, fuel, ores, industry rocks.
Week 13	Stratigraphy Definition and scope. Stratigraphic correlation.
Week 14	Geological Time Scale.
Week 15	Environments deposition.

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1-2: Crystals
Week 3	Lab3: Minerals by hand specimens.
Week 4	Lab 4:the contour map
Week 5	Lab 5: Physical Properties Of Rocks.
Week 6-7	Lab 6-7: Sedimentary rocks identification by hand specimens.
Week 8	Lab8: Igneous rocks identification by hand specimens.

Week 9	Lab9: Metamorphic rocks identification by hand specimens.
Week 10	Lab10: Geological Maps: fold, fault,
Week 11	Lab11: Application Stereographic projection.
Week 12	Lab12: Geological concepts and methods in the mining cycle: exploration, Exploitation and closure of mines.
Week 13	Lab13: Application of sequence Theory to interpretation of the stratigraphic record
Week 14	Lab14: the contour map 1
Week 15	Lab15: contour maps topographic maps.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1- Parbin,S., 2004; Engineering and General geology. Six edition(revised and enlarged). S,K,Kataria and sons. J.S.Offset printers. 2- Garg ,S.K., 2003;Physical and engineering geology. Khana publisher. 3- Wicander, R. and James, S.M.,. 1995; Essentials of geology. West Publishing Company. 4- Mahapatra ,G.B., 2004; Text book of physical geology. CBS Publisher Distributors 5-Egger, A.E.,2003; "Earth Structure: A Virtual Journey to the Center of the Earth," <i>Visionlearning</i> Vol. EAS (1).	NO
Recommended Texts	Banger, K.M., 2004; Principles of Engineering Geology. Standard publisher's distributors. 1705-B,Nai Sarak,delhi-110006.	No
Websites	https://www.geologypage.com/2019/04/engineering-geology.html	

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (فيد 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 (manual & AUTO-CAD)		Module Delivery	
Module Type	B		☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☒ Practical ☐ Seminar	
Module Code	ME112			
ECTS Credits	7			
SWL (hr/sem)	175			
Module Level	UGI	Semester of Delivery		1
Administering Department	Mining engineering	College	Petroleum and Mining Engineering	
Module Leader	Ali A. Hussein Al-Zubaidi		e-mail	ali.ameer86@uomosul.edu.iq
Module Leader's Acad. Title	Asst. L		Module Leader's Qualification	MSc.
Module Tutor	Zina Nofel Mohammed Sarah Mwafaq Adulazeez Shahad Salim Ibrahim		e-mail	zinanaufal@uomosul.edu.iq saraaltaie87@uomosul.edu.iq shahadsibrahim88@uomosul.edu.iq
Peer Reviewer Name	Eman Kassim Yahya		e-mail	eman.q@uomosul.edu.iq
Scientific Committee Approval Date	10/15/2025		Version Number	1

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	The purpose of an engineering drawing is to clearly and accurately capture all geometric features of a product or component so that a manufacturer or engineer can produced the required item. This study-unit covers the principles and practice of engineering drawing. It aims at providing students with the basics in understanding, reading and generating engineering drawings
Module learning Outcomes مخرجات التعلم للمادة الدراسية	Develop the ability to produce simple engineering drawing and sketches based on current practice. Develop the skills to read manufacturing and construction drawings used in industry Develop a working knowledge of the layout of plant and equipment Develop skills in abstracting information from calculation sheets and schematic diagrams to produce working drawings for manufacturers, installers and fabricators
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – Manual Drawing</u> Introduction to engineering drawing . instrument and accessories , folding of drawing sheets Drawing sheet layout and title block, type of lines , lettering Drawing a Parallel and perpendicular lines and drawing special angle Geometrical construction :bisecting a straight line and dividing a straight line into a given number of equal parts [12 hr] Drawing an arc tangent two lines , Drawing an arc tangent to a given point on the line Drawing an arc tangent to a line and an arc Bisect a given arc angle. Drawing a circle and tangents Construction of line tangents two circles (open belt , closed belt). Construction of an arc tangent of given radius to two given arcs [12 hr] Drawing ellipse Drawing an ogee curve[6 hr] Geometrical shapes: pentagon and hexagon in a given circle and construct a hexagon and pentagon by giving the length of the side Drawing an octagon ,General method of drawing any polygon Dimensioning, scales and unites Orthographic projections: theory of Orthographic projections, the six principle view[12 hr]

	<u>Part B – AUTO-CAD</u> Introduction about Auto-CAD engineering drawing, Component of AutoCAD screen, Title bar , Menu bar , Tool bar , properties , Make a new drawing , saving , Unite , boundary of paper , ,Command line Draw list, Line , Xline , circle , arc , polyline ,polygon , point (dividing , measures) , Ellipse , Text , block Modify list Erase , offset , copy , Rotate , Array , Trim , Extend , Mirror , Move , Explode , Fillet , Chamfer Object snap , Polar tracking Dimensions [12 hr] Projections with AUTO-CAD Introduction about projections, types of projections, projections in third angle, Projections Of Object contain perpendicular surface only, projection of object contain include surface Isometric drawing in AUTO-CAD [12 hr].
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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.
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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	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	82	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
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Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	classwork	6	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Lab.	5	10% (10)	Continuous	All
	CLASSWORK	6	10%	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	20% (10)	7	LO #1 - #7
	Final Exam	3hr	40% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

	Material Covered
Week 1	Introduction to engineering drawing . instrument and accessories , folding of drawing sheets Drawing sheet layout and title block, type of lines , lettering
Week 2	Drawing a Parallel and perpendicular lines and drawing special angles Geometrical construction :bisecting a straight line and dividing a straight line into a given number of equal parts
Week 3	Drawing an arc tangent two lines , Drawing an arc tangent to a given point on the line Drawing an arc tangent to a line and an arc Bisect a given arc angle. Drawing a circle and tangents
Week 4	Construction of line tangents two circles (open belt , closed belt). Construction of an arc tangent of given radius to two given arcs
Week 5	Drawing ellipse Drawing an ogee curve
Week 6	Geometrical shapes: pentagon and hexagon in a given circle and construct a hexagon and pentagon by giving the length of the side Drawing an octagon ,General method of drawing any polygon Dimensioning, scales and unites
Week 7	Orthographic projections: theory of Orthographic projections, the six principle view
Week 8	Mid- exam Orthographic projections: theory of Orthographic projections, the six principle view
Week 9	Object orientation, selection of views, spacing the selected views Alternate –position views ,Hidden features ,center lines
Week 10	Isometric drawing and sketching
Week 11	Introduction about Auto-CAD engineering drawing, Component of AutoCAD screen, Title bar , Menu bar , Tool bar , properties , Make a new drawing , saving , Unite , boundary of paper , ,Command line Draw list, Line , Xline , circle , arc , polyline ,polygon , point (dividing , measures) , Ellipse , Text , block
Week 12	Modify list Erase , offset , copy , Rotate , Array , Trim , Extend, Mirror , Move , Explode , Fillet , Chamfer

	Object snap , Polar tracking Dimensions
Week 13	Projections
Week 14	Projections with AUTO-CAD Introduction about projections , types of projections, projections in third angle , Projections Of Object contain perpendicular surface only , projection of object contain include surface
Week 15	Isometric drawing in AUTO-CAD
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Engineering drawing and Graphic technology by Thomas E.Frengh , Charles J.Vierck , Robert J.Faster	Yes
Recommended Texts	Engineering Drawing (plane and solid geometry) by N. D. BHATT , 2011 Beginner's guide To engineering drawings by Dr .E.R. Latifee , 2005 Engineering drawing from first principles Using AutoCAD by Dennis Maguire . AutoCAD 2013 for Dummies by David Byrnes and Bill Fans	No

Grading Scheme

مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Mathematics I		Module Delivery
Module Type	B		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	DME113		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	UGI	Semester of Delivery	
Administering Department	Mining engineering	College	Petroleum and mining engineering
Module Leader	Abdullah Hussein Ibrahim	e-mail	abdallh.hussen@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph. D.
Module Tutor	None	e-mail	-----
Peer Reviewer Name	Eman Kassim Yahya	e-mail	eman.q@uomosul.edu.iq
Scientific Committee Approval Date	15/10/2025	Version Number	1

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module 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 ships, 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	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
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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

Delivery Plan (Weekly Syllabus)	
المناهج الاسبوعي النظري	
	Material Covered
Week 1	Module 1: An Introduction of Mathematics.
Week 2,3	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 scaling graphs.
Week 8	Module 8: Transformation functions.
Week 9	Module 9: Period, Horizontal and Vertical shifts, 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.
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Curriculum and Textbook	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	Engineering Mechanics		Module Delivery	
Module Type	Basic learning activities		☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	DME114			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGI	Semester of Delivery		1
Administering Department	Mining engineering	College	Petroleum and Mining Engineering	
Module Leader	Adil Akram Mahmood		e-mail	adel.akram88@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Lecturer		Module Leader's Qualification	MSc
Module Tutor			e-mail	
Peer Reviewer Name	Hudhaifa R. Hamzah		e-mail	hudhaifahamzah@uomosul.edu.iq
Scientific Committee Approval Date	15/10/2025	Version Number	1	

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	Strength of materials	Semester	4

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	- To develop problem-solving skills and understanding of statics and applications of physics theory through the application of techniques. - To understand forces, Moments, and equilibrium systems. - This course deals with the basic concept of Mechanical Engineering. - This is the basic subject for all statics and forces applications. - To understand the concept of the moment and forces problems.

Module learning Outcomes مخرجات التعلم للمادة الدراسية	Important: Write a Learning Outcomes, better to be equal to the number of study weeks. 1-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. 2- Determine the forces acting on a structure or mechanical component: Students learn how to analyze complex systems and identify the forces acting on each individual component. This understanding is crucial for designing structures and machines that can withstand expected loads without failure. 3- Understanding of torque and power transmission: Moments are also used to analyze the transmission of torque and power in mechanical systems. Students learn how to determine the torque required for various mechanical components, such as gears, shafts, and pulleys, to ensure proper operation and efficient power transmission. 4-Free body diagrams: Students learn how to construct free body diagrams that represent the forces and moments acting on a rigid body. They learn to identify and label the forces and moments correctly, which aids in the analysis of equilibrium conditions. 5-Moment equations: Students learn to set up and solve moment equations to determine unknown forces or moments in a system. They learn how to apply the principle of moments to balance and stabilize structures and machines. 6-Some of the key learning outcomes include: Understanding Frictional Forces, Determining Static Friction, Analyzing Equilibrium, Solving Engineering Problems. 7-Dynamics is studying how things move and how different forces affect how they move. It helps us understand how planets move in space and how machines work. It's really important in science and helps us learn about how things in the world move. 8-Understanding Curvature and Tangential Components: Curvilinear motion involves the concept of curvature, which measures how sharply a path deviates from a straight line. By studying this topic, you gain an understanding of curvature and its implications in motion analysis. Additionally, you learn to determine tangential components of velocity and acceleration along the curvilinear path. 9-Understanding Projectile Motion: By studying the motion of a projectile, you gain a thorough understanding of the fundamental principles of projectile motion. You learn about the trajectory, range, maximum height, and time of flight of a projectile.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 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. [10 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. [10hrs.] 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. [10 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. [8 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. [4 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. [6 hrs.]
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials, and by considering types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	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	6
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 #5, #6
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Tutorial	1	10%(10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #9
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to engineering mechanics+second newton`s law
Week 2	Forces and Resultant
Week 3	Moment
Week 4	Moment of Couple+ Free body diagram
Week 5	Equilibrium+ Quizze
Week 6	Centroid
Week 7	Mid exam+ Centroid
Week 8	Moment of Inertia
Week 9	Frictions

Week 10	Introduction to engineering mechanics (Dynamics) + Quizze
Week 11	Rectilinear Kinematics: Continuous Motion
Week 12	Rectilinear Kinematics: Erratic Motion
Week 13	General Curvilinear Motion
Week 14	Motion of a Projectile
Week 15	The Work of a Force
Week 16	The preparatory week before the Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Engineering Mechanics (Statics) Hibbller 13 rd Edition Meriam	Yes
Recommended Texts	Engineering Mechanics (Dynamics) Hibbller 13 rd Edition Meriam	yes
Websites	https://www.google.com/search?client=firefox-b-d&q=engineering+mechanics+statics&si=AMnBZoFs9uB3Z_GHFPC_zPRokU4h1kiG1kM_Tt6zs41M5kAusrUywe1ttS3dYXXzQp9e0wyyHZ8lpNloWGPcATvDW7ntpdhPPVrc6JSu-QxYEZXpC1KVRcv7g6v9Xld3sYvWisKUoKjk&ictx=1&ved=2ahUKewj18Lev0bH_AhUfxgIHHcJNDfMQnZMFegQIVRAC	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	English language		Module Delivery	
Module Type	B		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOM1021			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	UGI	Semester of Delivery		1
Administering Department	mining Engineering	College	Petroleum and mining engineering college	
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	non		e-mail	E-mail
Peer Reviewer Name	Eman Kassim Yahya		e-mail	eman.q@uomosul.edu.iq
Scientific Committee Approval Date	15/10/2025	Version Number	1	

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module 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 التعليم والتعلم

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.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب ل 15 اسبوع

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل		Structured SWL (h/w) الحمل الدراسي المنتظم للطالب اسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل		Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب اسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل			

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 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) المناهج الأسبوعي 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- upper -intermediate-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	HUMAN RIGHTS AND DEMOCRACY		Module Delivery	
Module Type	Basic		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOM1040			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	UGI	Semester of Delivery		1
Administering Department	Petroleum 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	Non		e-mail	
Peer Reviewer Name	Eman Kassim Yahya	e-mail	eman.q@uomosul.edu.iq	
Scientific Committee Approval Date	15/10/2025	Version Number	1	

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 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)

المنهاج 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	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 (فقد 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.				