

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	General Geology (II)		Module Delivery
Module Type	Basic		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	PENG116		
ECTS Credits	7		
SWL (hr/sem)	175		
Module Level	1	Semester of Delivery	
Administering Department	Petroleum Engineering	College	College of Engineering
Module Leader	Ali Kadhim Bawwag	e-mail	alikadhim19914545@gmail.com
Module Leader's Acad. Title	Assistant lecturer	Module Leader's Qualification	Master.
Module Tutor	Ali Kadhim Bawwag	e-mail	E-mail alikadhim19914545@gmail.com
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date		Version Number	1.0

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



Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	• Understand the formation, properties, and significance of groundwater as a natural resource. • Explain the processes and factors that influence the movement and storage of groundwater in aquifers. • Identify and classify different types of structural features resulting from crustal deformation. • Describe the processes involved in mountain building movements and their impact on the Earth's surface. • Explain the causes and characteristics of earthquakes and their relationship to plate tectonics. • Understand the interior structure of the Earth, including the composition and properties of its different layers. • Describe the principles and methods used in determining geological time and interpreting Earth's history. • Explain the importance of fossils and other key evidence in reconstructing past environments and life forms. • Identify and describe major events in Earth's history, such as mass extinctions and evolutionary milestones. • Understand the theory of plate tectonics and its role in shaping Earth's surface features and geological processes. • Explain the mechanisms of continental drift and the formation of continents, ocean basins, and mountain ranges. • Analyze and interpret geological data and evidence to support various geological concepts and theories.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of the module, students will be able to: A2.1: Understand the fundamental concepts and principles of groundwater, including its occurrence, movement, and management. A2.2: Identify and analyze different types of structural features resulting from crustal deformation, and explain their geological significance. A2.3: Describe the processes involved in mountain building movements and their impact on the Earth's surface. A2.4: Explain the causes and characteristics of earthquakes and their relationship to plate tectonics. A2.5: Demonstrate knowledge of the Earth's interior structure, including the composition and properties of its different layers. A2.6: Apply the principles and methods of geological time and dating to interpret Earth's history and reconstruct past environments. A3.1: Analyze and interpret geological evidence, such as fossils and rock layers, to reconstruct Earth's history and understand evolutionary processes. A3.2: Explain the mechanisms of continental drift and the formation of continents, ocean basins, and mountain ranges.

	B.2.2 Communicate verbally and in writing with a range of audiences using contemporary tools. Skills B.3.2 Practice the strategies of searching for information in life – long self-learning C.2.2 Supervise and monitor engineering projects, taking into consideration other trades requirements. Ethics C.3.2 Make use of codes of practice and standards, quality guidelines,
Indicative Contents المحتويات الإرشادية	Introduction to Geology and Earth's Systems (10 hours) • Overview of geology as a science • Earth's systems and their interactions • Introduction to geological time and processes Groundwater (20 hours) • Introduction to groundwater and its importance • Groundwater occurrence and properties • Groundwater exploration and management Crustal Deformation and Structural Features (25 hours) • Types of crustal deformation: folding and faulting • Rock structures and their classification • Geological maps and cross-sections Mountain Building Movements (20 hours) • Tectonic forces and mountain building processes • Types of mountains and their formation • Orogenic belts and their significance Earthquakes and Seismic Activity (25 hours) 1. Causes and characteristics of earthquakes 2. Seismic waves and their behavior 3. Earthquake monitoring and hazard assessment Earth's Interior and Plate Tectonics (30 hours) • Structure and composition of the Earth's interior • Theory of plate tectonics and continental drift • Plate boundaries and associated geological features Geologic Time and Dating Methods (15 hours) • Principles of relative and absolute dating • Geologic time scale and major divisions of Earth's history • Fossils and their use in dating and correlating rocks Historical Geology and Evolution of Life (30 hours) • Evolutionary processes and the fossil record • Major events in Earth's history and their impact • Stratigraphy and geological correlations Plate Tectonics and Global Geology (20 hours) • Plate tectonic boundaries and their effects • Volcanism, earthquakes, and mountain building • Continental drift and paleogeography

	Applied Geology and Environmental Issues (20 hours) • Geology and natural resource exploration • Geologic hazards and their mitigation • Environmental geology and sustainable practices
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	• Presentation • Interactive learning • Discussions • Brainstorming • Group solving problems • Problem- based learning • self - learning

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	7
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	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	A1,A2,A3,C1,B1,B2,B3 andB8
	Assignments	2	10% (10)	2 and 12	A1,A2,A3,,B1C1,,B4 andB8
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	A1,A2,A3,C1,B1,B2,B3 andB8

Summative assessment	Midterm Exam	2hr	10% (10)	7	A1,A2,A3,C1,B1,B2,B3 and B8
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	- Earth's systems and interactions - Geological processes
Week 2	- Plate Tectonics and Continental Drift - Plate tectonic processes and their effects - Continental drift and paleogeography - Volcanism, earthquakes, and mountain building
Week 3	- Groundwater - Introduction to groundwater
Week 4	- Groundwater occurrence and properties - Groundwater exploration and management
Week 5	Crustal Deformation and Structural Features
Week 6	- Types of crustal deformation: folding and faulting - Rock structures and their significance
Week 7	Mountain Building Movements
Week 8	Tectonic forces and mountain building processes
Week 9	Orogenic belts and their formation
Week 10	- Earthquakes and Seismic Activity - Causes and characteristics of earthquakes
Week 11	- Seismic waves and their behavior - Earthquake monitoring and hazard assessment
Week 12	- Earth's Interior and Plate Tectonics - Earth's interior structure and composition
Week 13	- Geologic Time and Stratigraphy - Principles of relative and absolute dating - Geologic time scale and major divisions of Earth's history
Week 14	- Historical Geology - Evolution of life on Earth - Fossil record and its significance - Stratigraphy and geological correlations
Week 15	Final Assessment, including Problem-Solving Questions and Application-Based Scenarios
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction to Geological maps
Week 2-4	Contour maps principals, construct contour maps
Week 5	Geological maps, strike lines and true dip fundamentals
Week 6-7	Finding strike and true dip of a geological map with cross section
Week 8	Mid-term exam
Week 9-10	Geological maps with faulting
Week 11-13	Relative age dating
Week 14	Final assessment

Learning and Teaching Resources

مصادر التعلم والتدريس

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

Grading Scheme

مخطط الدرجات

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

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