
	<p>Ministry of Higher Education and Scientific Research - Iraq</p> <p>University of Warith Al-Anbiyaa.... College of Engineering Oil and Gas Department</p>	
---	---	---

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Petroleum Geology		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	OGE221		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	UGII	Semester of Delivery	
Administering Department	OGE	College	ENG
Module Leader	Hawraa Majeed Obaid	e-mail	Hawraa.majeed@uowa.edu.iq
Module Leader's Acad. Title	Assist. Lect.	Module Leader's Qualification	MSc
Module Tutor	NA	e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	OGE215	Semester	3
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	Understanding the nature of the organic-rich source rock, the paleoquifers in which the petroleum flowed, and the trapping mechanism are important parts of Petroleum Geology. A petroleum engineers needs to have a broad knowledge of sedimentary geology (sedimentology and petrography), stratigraphy, structural geology, and hydrogeology.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ul style="list-style-type: none"> * An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics. * An ability to develop the confidence necessary to successfully solve Mathematical problems with a computer. * An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
Indicative Contents المحتويات الإرشادية	The outcomes of this course are used to construct the evolutionary histories of sedimentary basins. Thus, a successful petroleum engineers needs a broad background, and a willingness to learn and apply a wide range of information and techniques to the problems of finding, developing, and exploiting a petroleum reservoir.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	<ol style="list-style-type: none"> 1. Have a basic understanding of the petroleum system, petroleum as a resource, and the value chain. 2. Have a basic understanding of petroleum formation and origin. 3. Understand how geologists conduct the search for petroleum resources through the value chain or the life cycle of a petroleum resource. This will include the processes involved and actual examples. 4. Learn details on how to begin evaluating a hydrocarbon play and developing a prospect. 5. Learn the concepts of migration and accumulation of hydrocarbon 6. Learn the principles of mapping a subsurface reservoir.
-------------------	---

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	INTRODUCTION What is petroleum geology?, Principal of petroleum geology, Why is Carbon so Important in the Life Cycle, Oil and Gas.
Week 2	ORIGIN OF PETROLEUM FORMS Characteristics of petroleum reservoirs, Exploration activities in a sedimentary basin.
Week 3	PETROLEUM TRAP 1 General Considerations, Structural Traps, Types of Structural traps, Stratigraphic Traps,
Week 4	PETROLEUM TRAP 2 Types of stratigraphic traps, Combination Traps, Hydrodynamic Traps
Week 5	ORIGIN, MIGRATION, AND ACCUMULATION 1 Origin of petroleum, Total Organic Carbon (TOC), Source Rocks, TOC Types,

Week 6	ORIGIN, MIGRATION, AND ACCUMULATION 2 Conversion of OM to HC, Dehydrogenization and Carbonization, Deoxygenization and Carbonization.
Week 7	SOURCE ROCK QUALITY Maturation, Purposes of maturation indicators, Lopatin's TTI Index, Other Maturation Indicators, Oil Source Rock Criteria.
Week 8	MIGRATION OF HYDROCARBON 1 General considerations, Formation water, Formation water composition, Pressure and temperature during burial,
Week 9	MIGRATION OF HYDROCARBON 2 Evidence for Migration, Primary Migration, Primary Migration Controversy, Primary Migration Mechanisms ,Secondary Migration, Migration Pathways
Week 10	PETROLEUM RESERVOIR CHARACTERISTIC
Week 11	EXPLORATION TECHNIQUES FOR HYDROCARBON Surface geology, Subsurface geology, Drilling operations
Week 12	MAPS AND CROSS SECTIONS Contour maps, Geologic maps, Cross sections
Week 13	PETROLEUM GEOLOGY OF IRAQ AND SURROUNDING REGIONS 1
Week 14	PETROLEUM GEOLOGY OF IRAQ AND SURROUNDING REGIONS 2
Week 15	Preparatory week before the final Exam
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Basic Petroleum Geology, Peter K. Link	Yes
Recommended Texts	Elements of Petroleum Geology (2nd edition): Academic Press, Toronto,	No
Websites		

كلية الهندسة

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.

