



MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية



Module Information				
معلومات المادة الدراسية				
Module Title	Chemistry		Module Delivery	
Module Type	Core		☒ Theory ☒ Lecture Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	PENG124			
ECTS Credits	4			
SWL (hr/sem)	63			
Module Level	1	Semester of Delivery		2
Administering Department	PENG	College	ENG	
Module Leader	Ali Jaafer Gafel		e-mail	alighafel@alayen.edu.iq
Module Leader's Acad. Title	teacher		Module Leader's Qualification	M.Sc.
Module Tutor			e-mail	
Peer Reviewer Name			e-mail	
Scientific Committee Approval Date			Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	PE201 Petroleum Properties	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	Analytical Chemistry: Analytical Chemistry is a module within the petroleum engineering department that focuses on the principles and techniques used to analyze and characterize various substances related to the oil and gas industry. It provides students with a strong foundation in chemical analysis methods that are essential for understanding and solving problems in petroleum engineering. The Analytical Chemistry module equips petroleum engineering students with the necessary skills to analyze and interpret chemical data relevant to the oil and gas industry. It enables them to evaluate the quality of petroleum products, assess environmental impacts, and make informed decisions based on analytical results.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The course covers economic and petroleum science which can be used to analyze oil resource, oil markets, oil companies, alternative energy prices, students will engage in the field of petroleum strategy research, oil marketing, Types of oil in the world, oil reserves in the world Also global energy strategy. Petroleum Engineering Economics is a module within the petroleum engineering department that focuses on the economic analysis and decision-making processes involved in the oil and gas industry. This module combines principles of economics with the technical aspects of petroleum engineering to evaluate the financial viability of exploration, production, and development projects. Petroleum Engineering Economics equips students with the necessary skills to analyze the financial aspects of petroleum projects, evaluate investment opportunities, and make informed decisions in the oil and gas industry. It provides a valuable foundation for professionals involved in project management, investment analysis, and economic planning within the petroleum engineering field.
Indicative Contents المحتويات الإرشادية	The course of petroleum engineering economics refers to the economic growth, redistribution of income, price stability, the course objective is to get interview and basic understanding of the economic size of petroleum field, net present value and other indications on whether an investment will be profitable, petroleum fiscal system and how the value of oil is shared between companies and government, also exploiting petroleum resources also development of production economy. Student will study all the above paragraphs. Lecture titles FIRST TERM - Oil and gas reserve - Organization of petroleum exporting and importing countries - International supply and demand of petroleum - Classification of petroleum - Petroleum pricing - Alternative energy - International strategy of energy - Time value of money - Types of interest rate - Rate of return - Methods of engineering decisions - Depreciation

	Depletion Amortization Lecture titles SECOND TERM Inflation Sensitivity analysis of engineering projects Risk analysis Production decline curve Evaluation of future production of oil and gas and well sand Expenditure and net present value Total drilling cost Total drilling cost examples Fixed cost calculations Cost of producing blast hole Total drilling cost break down Marginal cost & sunk cost Economic Efficiency Locational Economics Determination of lower cost site
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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 30 points from the total mark, which includes assignments and oral examinations and quarterly in addition to presentations. *70 marks for the final exam

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	37	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
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 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Lab.	2	20% (20)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
	Final Exam	2.5hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction
Week 2	Review of concepts chemistry
Week 3	. Stoichiometry . chemical reaction and heat
Week 4,5,6,7	- organic chemistry - fuels International strategy of energy - various batteries and electronic cells
Week 8	principles of corrosion
Week 9,10,11	water for domestic uses

Week 12,13,14	industrial water
Week 15	atmospheric pollution

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي العملي	
	Material Covered
Week 1	Introduction
Week 2	Review of concepts chemistry
Week 3	. titration
Week 4,5,6,7	acid base titration
Week 8	indicators
Week 9,10,11	preparation in chemical
Week 12,13,14	petroleum chemistry
Week 15	electric chemical

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Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	chemistry textbook	Yes
Recommended Texts	-Chemistry and Chemical Reactivity, 2nd Ed., Saunders College, 1991. -Matthews, C. K., van Holde, K.E., and Ahern, K. G., Biochemistry, 3rd Ed., Addison Wesley Longman, 2000	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.				