

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	thermodynamic		Module Delivery	
Module Type	core		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	PE210			
ECTS Credits	4			
SWL (hr/sem)	60			
Module Level	2	Semester of Delivery		1
Administering Department	Petroleum Engineering	College	Engineering college	
Module Leader	Dr. Haider Hussein Hamad		e-mail	Haider.Hamad@coeng.uobaghdad.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	10/09/2024	Version Number	1.0	

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	physics	Semester	
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 thermodynamic through the application of techniques. 2. gives insights into the role of thermodynamic in the search for and application 3. The module covers a number of topics, and how these are used to determine important fundamentals parameters such as work, energy, power, and thermal concept 4. Students will understand the first and second law of thermodynamic. 5. Students will understand the phase behavior 6. Students will demonstrate the applications of thermodynamic laws
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of this course, students will be able to: 1- Discuss the units of measurement for the thermodynamic topics presented in this course. 2- Describe the energy, system, laws of thermodynamic 3- Apply the Work-Energy theorem and the conservation of energy principle. 4- Describe the characteristics of matter in solid, liquid, and gas state.
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.
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	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	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	
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
	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
Week 2,3	Basic thermodynamic concept and units of measurement.
Week 4,5	System, process, path, properties

Week 6,7	Energy types ,Conservation of Energy for closed system
Week 8, 9, 10, 11	Ideal gas , enthalpy, specific heat, conservation of energy for open system
Week 12, 13,14	Phase behavior, second law of thermodynamic, application of second law
Week 15	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Engineering thermodynamics by Cengel	Yes
Recommended Texts	Engineering thermodynamic by Rajput	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
	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.				