

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Gas Technology	Module Delivery	
Module Type	C	<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	UOMU0206065		
ECTS Credits	5		
SWL (hr/sem)	150		
Module Level	UGIII		
Administering Department	Fuel and energy Engineering Techniques	College	Technical Engineering College
Module Leader	Ammar Abdul Kadhim Fathi	e-mail	ammaraabdulkadhim@uomus.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	PhD in Mechanical Engineering
Module Tutor	Ali yaseen kadhim	e-mail	Ali.yaseen.kadhim@uomus.edu.iq
Peer Reviewer Name		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

<p>Module Aims أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> 1. General look on the importance of natural gas and its reverse 2. Natural Gas, Natural Gas kinds and gas reservoir characteristics, Phase Behavior, Chemical and Physical Properties. 3. Gas Compression, Compressions of Natural Gas, Types of gas compressors: Rotary, Jet, and Reciprocating natural gas compressors. 4. Gas Physical Separation, Separators, the removal of solid, water and condensates, Stabilization process, Drying of gaseous fuel by adsorption and absorption 5. Sweetening of Gaseous fuel, Sweetening by adsorption and absorption, Gas Flaring Reduction 6. Natural Gas Liquefaction(NGL), NGL fractionation: de-ethanizer, de-propanizer, de-butanizer 7. Liquefied Petroleum Gas (LPG), LPG methods, process, and description. Some problems associated with Natural Gas treatment and production. Hydrate control in gas production causes. Occurrence and control 8. Low Temperature Separation, Methods, process, and description. 9. Gas Gathering and Transportation, Pipe Line Design Calculation and Economics, Gas flow in serious, Parallel and Looped Pipeline 10. Hydrogen production, methods, process, and description.
<p>Module Learning Outcomes مخرجات التعلم للمادة الدراسية</p>	<p>The student able to:</p> <ol style="list-style-type: none"> 1. Understanding the general look on the importance of natural gas and its reverse. 2. Knowledge the Natural Gas kinds and gas reservoir characteristics, 3. Understanding the Phase Behavior, Chemical and Physical Properties of Natural Gas. 4. Understanding the Gas Compression, Compressions of Natural Gas, 5. Knowledge the types of gas compressors: Rotary, Jet, and Reciprocating natural gas compressors 6. Knowledge the Gas Physical Separation, Separators, the removal of solid, water and condensates, Stabilization process. 7. Understanding the Drying of gaseous fuel by adsorption and absorption. 8. Understanding the Sweetening of Gaseous fuel, Sweetening by adsorption and absorption, Gas Flaring Reduction 9. Know the Natural Gas Liquefaction(NGL), NGL fractionation: de-ethanizer, de-propanizer, de-butanizer 10. Understanding the Liquefied Petroleum Gas (LPG), LPG methods, process, and description. Some problems associated with Natural Gas treatment and production. 11. Understanding the Hydrate control in gas production causes. Occurrence and control. 12. Understanding the law Temperature Separation, Methods, process, and description. 13. Knowledge the Gas Gathering and Transportation, Pipe Line Design Calculation and Economics, Gas flow in serious, Parallel and Looped Pipeline 14. Understanding the Hydrogen production, methods, process, and description.
<p>Indicative Contents المحتويات الإرشادية</p>	<ul style="list-style-type: none"> • General look on the importance of natural gas and its reverse. (3hr) • Natural Gas, Natural Gas kinds and gas reservoir characteristics, Phase Behavior, Chemical and Physical Properties. (3hr)

	<ul style="list-style-type: none"> • Gas Compression, Compressions of Natural Gas, Types of gas compressors: Rotary, Jet, and Reciprocating natural gas compressors. (3hr) • Gas Physical Separation, Separators, the removal of solid, water and condensates, Stabilization process, Drying of gaseous fuel by adsorption and absorption. (6hr) • Sweetening of Gaseous fuel, Sweetening by adsorption and absorption, Gas Flaring Reduction. (3hr) • Natural Gas Liquefaction(NGL), NGL fractionation: de-ethanizer, de-propanizer, de-butanizer. (6hr) • Liquefied Petroleum Gas (LPG), LPG methods, process, and description. Some problems associated with Natural Gas treatment and production. Hydrate control in gas production causes. Occurrence and control. (6hr) • Low Temperature Separation, Methods, process, and description. (3hr) • Gas Gathering and Transportation, Pipe Line Design Calculation and Economics, Gas flow in serious, Parallel and Looped Pipeline. (6hr) • Hydrogen production, methods, process, and description. (3hr)
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Assessment is based on hand-in assignments, written exam, quizzes, reports, seminars, Practical testing and Online testing.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	59	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	91	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	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	4	10% (10)	3,6, 9,12	
	Assignments	2	10% (10)	6, 12	
	Projects	1	10% (10)	Continuous	
	Report	1	10% (10)	14	
Summative assessment	Midterm Exam	2 hr	10% (10)	7	
	Final Exam	2hr	50% (50)	15	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction, general look on the importance of natural gas and its reverse.
Week 2	Natural Gas kinds and gas reservoir characteristics,
Week 3	Phase Behavior, Chemical and Physical Properties of Natural Gas.
Week 4	Gas Compression, Compressions of Natural Gas,
Week 5	Types of gas compressors: Rotary, Jet, and Reciprocating natural gas compressors
Week 6	Gas Physical Separation, Separators, the removal of solid, water and condensates, Stabilization process.
Week 7	Drying of gaseous fuel by adsorption and absorption.
Week 8	Sweetening of Gaseous fuel, Sweetening by adsorption and absorption, Gas Flaring Reduction
Week 9	Natural Gas Liquefaction(NGL), NGL fractionation: de-ethanizer, de-propanizer, de-butanizer
Week 10	the Liquefied Petroleum Gas (LPG), LPG methods, process, and description. Some problems associated with Natural Gas treatment and production.
Week 11	Hydrate control in gas production causes. Occurrence and control.
Week 12	Law Temperature Separation, Methods, process, and description
Week 13	Gas Gathering and Transportation, Pipe Line Design Calculation and Economics, Gas flow in series, Parallel and Looped Pipeline

Week 14	Hydrogen production, methods, process, and description
Week 15	Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1& 2	
Week 3	
Week 4	
Week 5 & 6	
Week 7	
Week 8-9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1. Shreve's "Chemical Process Industries" 5 th edition (2001). 2. Joseph F. Hilyard " the oil and gas industry, a nontechnical guide	yes
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.