Ministry of Higher Education and
Scientific Research - Iraq

University of Warith Al_Anbiyaa....
College of Engineering
Oil and Gas Department

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

		Module Delivery
Module Title	Properties and transportation of crude oil and gas	
Module Type	Core	☒ Theory
Module Code	OGE222	☐ Lecture
ECTS Credits	5	☒ Lab
		☐ Tutorial
SWL (hr/sem)	125	☐ Practical
		☐ Seminar

Module Level	UGII	**Semester of Delivery**		4
Administering Department	OGE	**College**	ENG	
Module Leader	Dr.Salam Jabar	**e-mail**	salam.jabar@uowa.edu.iq	
Module Leader's Acad. Title	Ass. Prof. Dr	**Module Leader's Qualification**		PhD
Module Tutor	Asst.lect yahya hadi	**e-mail**	E-mail:Yahya.hadi@uowa.edu.iq	
Peer Reviewer Name	Name	**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0	

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	ENG213	**Semester**	3
Prerequisite module	UOW121	**Semester**	2
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Providing students with science and knowledge in oil and gas different types of transportation as single-phase flow and two-phase flow, Stresses types, study the types of pumps, compressors, legislation and laws relating to the transfer and storage of oil and gas, methods of storage and calculations of economic diameter. Also study the characteristics of crude oil and its products in terms of classification and use Products and methods of obtaining them as well as disposal methods of unwanted compounds in crude oil or its various products (light, medium and heavy).
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- To give the student the knowledge in pipeline, horizontal and non-horizontal flow calculation as single and two-phase flow. 2- To give student the knowledge of sizing and specifying pipe, selection of route, protection against corrosion pipe lying. Types of oil and gas transportations. 3- To give student the idea about tanks, pressure vessels, design and selection of storage tanks. 4- To give the student the knowledge and experiments of Petroleum assay (carbon residue, asphaltene content) Density, distillation, Light hydrocarbon, salt content, Sulfur content, Viscosity and pour point. 5- To give student the knowledge of Crude oil properties, Industrial process of distillation towers and fraction processes. 6- To give student the idea liquid petroleum gases (LPG), gasoline blending components, and naphtha, jet fuel, kerosene, and distillates, and Lubricated oil, Residue Fuel Oil, Wax, Asphlitane.

Indicative Contents المحتويات الإرشادية	This course focus to crude oil and gas properties first part then in the second part study oil and gas transportation which make the students through the application of module learning outcomes concepts to develop the problem-solving skills essential to good engineering practice of practical applications of Properties and transportation of crude oil and gas.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	1. Lectures. 2- Discussion. 3- Presentations and Listening. 4- Encourage students to team working. 5- Encouraging students to submit reports on problem and solutions related to the curriculum.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

| Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	75	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

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	**Source of Oil and classifications, Petroleum assay (carbon residue , asphaltene content) Density, Viscosity, Distillation process, Light hydrocarbon, salt content.**
Week 2	**Sulfur content, pour point, Properties of Oil Stock, fractional Industries, Industrial process of distillation towers and fraction processes, Basic operation in petroleum processing.**
Week 3	**Light products and Their properties (Gasoline blending components, and naphtha, Liquid petroleum gases (LPG))**
Week 4	**Mid-range Oil Products (Jet fuel, kerosene)**
Week 5	**Heavy Oil products and Their Properties (Residue Fuel Oil, Wax (classification, types) , Lubricants)**

Week 6	**Methods of Oil and Gas Transportation (single flow calculations) and Pipeline Transportation of single and Multi-phase Flow**
Week 7	**Efficiency of Pipeline Transportation with other types**
Week 8	**Multi-phase Flow**
Week 9	**Horizontal and Non-Horizontal Flow Calculation multi-phase flow**
Week 10	**Gas Flow in Series, Parallel and Network Pipelines, Gathering pipelines. The SCADA System for pipelines.**
Week 11	**Pipelines Economics, Pipelines Design, Pipeline networks, Sampling and Testing of Oil and Gas.**
Week 12	**Pumps and Compressors, Instrumentation and Control, Safety and Supervision.**
Week 13	**Rules and Regulation in Transportation and Storage of Oil and Gas, Economic pipe diameter.**
Week 14	**Types of Storage, Underground Storage of Natural Gas**
Week 15	**Preparatory week before the final Exam**
Week 16	**Preparatory week before the final Exam**
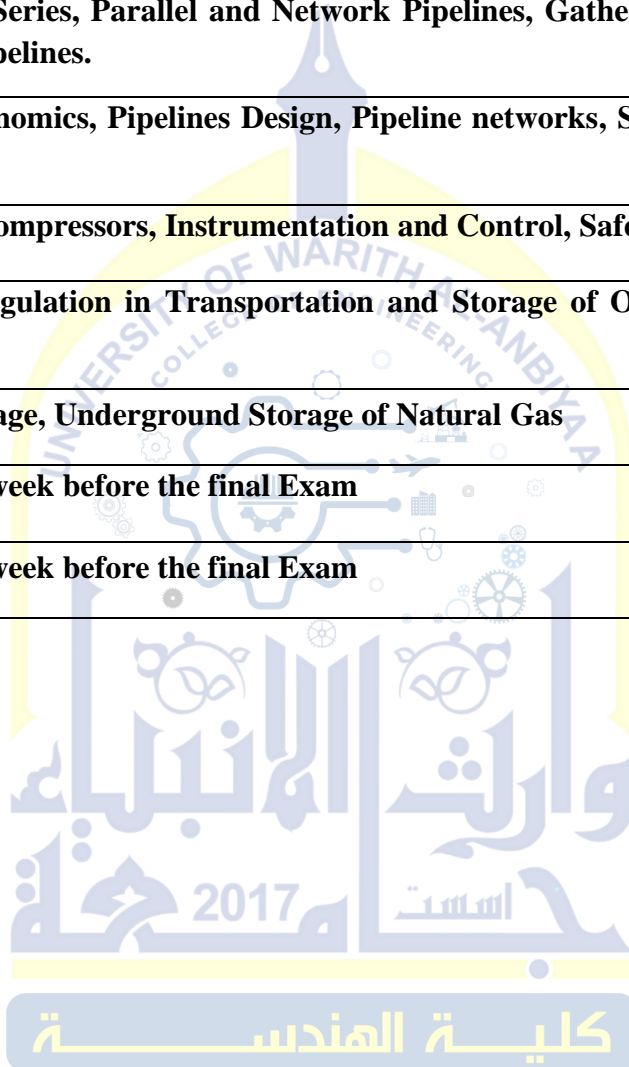
Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	density and specific gravity
Week 2	Astm distillation
Week 3	flash and fire point
Week 4	carbon residue and Ash content
Week 5	sulfur content
Week 6	smoke point
Week 7	octane and cetane number

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1- Emir Ceriþc, "Crude Oil , Processes and Products", ISBN (9958917343, 9789958917349). 2012. 2- Vasily .S and Raphael. I, Marcel Dekker, "Crude Oil Chemistry", Inc, New York Basel 2005. 3- James. G. Speight "Petroleum Chemistry and Refining", Applied Energy Technology Series, Taylor and Francis USA, 1998. 4- "Oil and Gas Production Handbook", Havard Devold., Wikipedia (The Free Encyclopedia), 2013. 5- "Gas Conditioning and Processing: The Basic Principles", John. M. C., Robert. A. H., Robert. N. M., Copyright Campbell Petroleum Series USA. 1992.	

	6- **"Production and Transportation of Oil and Gas B: Gathering and Transportation (Development in Petroleum Science)"**, A. P. Szilas, Elsevier Science Publishing Company 1986.
Recommended Texts	1- Emir Ceriþc, **"Crude Oil , Processes and Products"**, ISBN (9958917343, 9789958917349). 2012. 2- **"Oil and Gas Production Handbook"**, Havard Devold., Wikipedia (The Free Encyclopedia), 2013.
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.