MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Petroleum Refining			**Module Delivery**	
Module Type	**Core learning activity**			☐ **Theory** ☒ **Lecture** ☒ **Lab** **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	FEK200				
ECTS Credits	**8**				
SWL (hr/sem)	**200**				
Module Level		TCKII	**Semester of Delivery**		3
Administering Department		FE	**College**		
Module Leader	Assist lec. Asan Suad Mohammed		**e-mail**	assen.suad84@ntu.edu.iq	
Module Leader's Acad. Title		Assist Lecturer	**Module Leader's Qualification**		Ph.D.
Module Tutor			**e-mail**	E-mail	
Peer Reviewer 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	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1- refinery is to produce gasoline, diesel or asphalt, key objectives include improving return on investment (ROI), net profitability and cash flow. Great strides have been made in improving plant efficiency and productivity by implementing online, interactive compute.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1-Using the latest teaching methods and allowing students to discuss and evaluating the student's intellectual curiosity and imagination. 2-Expresses the role of petroleum refinery in engineering fields. 3- Ability to cope with ambiguity, positive interaction with others, common sense and good judgement 4-Explains the fundamentals of petroleum refinery. 5-Providing the ability to design systems to meet the required needs in the field of fuel and energy engineering. 6-Introducing students to contemporary techniques, skills and equipment in the engineering field. 7--Written and oral communication skills, initiative and sensitivity to the interests and views of others and ability to take directions.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: 1 - Thermophysical Properties of Petroleum Fractions and Crude Oils 2 - Crude Distillation, Catalytic Reforming and Isomerization. 3-Thermal cracking and cooking, hydro conversion 4-fluidised catalytic cracking, product blending, alkylation, hydrogen production Clean fuel residue upgrading.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم	
Strategies	Explanation of the concept of petroleum refinery can be done using various relevant methods and strategies to make it easier for students to understand, for example through laboratory or practicum activities, using problem-based learning, or problems solving. In this case, the learning can be a combination of conceptual understanding, exercises, and problem teaching. Problems are an important feature of petroleum refinery as it helps in developing thinking and serves to expand the field of interest, so the selection of problem sequences is an important aspect of increasing deductive and inductive reasoning.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	108	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	8
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	92	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

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 / Lab.	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	Chemical Composition of Petroleum
Week 2	Physical properties of feedstock's and products
Week 3	Pipe Still Heater:
Week 4	Emulsions
Week 5	Atmospheric distillation:
Week 6	Fractional distillation
Week 7	Upgrading Processes
Week 8	Visberaking
Week 9	Treating Processes
Week 10	Manufacturing of Lubricating Oils
Week 11	Hydrotraeting
Week 12	Solvent Extraction
Week 13	Product Blending
Week 14	Alkylation or Polymerization
Week 15	Sulfur Removed

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered

Week 1	Determination of density 1-Hydrometer method
Week 2	Determination of density ,1- Pycnometer method
Week 3	Determination of water and cediments in crude oil by centrifuge
Week 4	Determination of carbon residue in petroleum products
Week 5	Determination of ash content in petroleum products
Week 6	Determination of viscosity in petroleum products
Week 7	Determination of aniline point
Week 8	Determination of flash point
Week 9	Determination of ignition point
Week 10	Final exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	W. L. Petroleum Refinery Engineering, Tata McGraw Hill Publishing Company Limited, 1985.	yes
Recommended Texts	Oil refinery operation book	yes
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.