

نموذج توصيف مقرر
Course Description Form

Name of College\Faculty : Science

اسم الكلية:

Name of Department: Chemistry

اسم القسم العلمي:

Course Name	Petroleum Chemistry and Petrochemicals	اسم المقرر
Course No.	CHEM 451	رقم المقرر
No. of Credits	3	عدد الوحدات
Theoretical Hours	2	عدد الساعات النظرية
Practical Hours	3	عدد الساعات المحلّية
Course topics	مواضيع المقرر	
Introduction to petroleum and petrochemicals: origin, occurrence, distribution, classifications, raw products, and feedstocks for petrochemicals. Petroleum processing, analysis, and characterization. Chemistry of refining: fractionation, thermal and catalytic cracking, hydroprocessing, thermal and catalytic reforming, isomerization, alkylation, and polymerization. Petrochemicals associated and derived from natural gas. Petrochemicals associated and derived from crude oil (paraffins, olefins, aromatics). Processes associated with oil production (heavy oil processing, oil enhancement and recovery, corrosion, heteroatom removal). Environmental aspects of gas and crude oil production. Additives, chemical and industrial catalysts.		
Text book: (Name, Author , Year , Publisher)	عنوان الكتاب : (الاسم ، المؤلف ، سنة الطبع ، دار النشر)	
1. The Chemistry and Technology of Petroleum, James Speight, 5th Edition, 2014. 2. Experimental Manual, Chemistry Department, Kuwait University, 2005.		
References: (Name , Author , Year . Publisher)	عنوان المرجع : (الاسم ، المؤلف ، سنة الطبع ، دار النشر)	
Petroleum Refining, Technology and Economics, James Gray, Marcel Dekker, New York, 4th Edition, 2001.		

Prerequisites CHEM 355			متطلبات المقرر			
Grading	Exams		%		الاختبارات	آلية رصد المقرر
	Quizzes		%		امتحانات قصيرة	
	H.W.		%		واجبات	
	Project (field study)		%		مشاريع (دراسة ميدانية)	
	Final		%		الاختبار النهائي	
	%					

Chapters included:

Chapter	Topic	Sections Included	Sections Excluded
CH.1	History and Terminology	,4,5,6,3	
CH.2	Classification	2.2 – 2.6	
CH.4	Kerogen	4.2 – 4.4	
CH.6	Recovery of Heavy Oil and Tar Sand Bitumen	1, 2, 3	
CH.9	Petroleum Analysis	1, 2, 3	
CH.12	Structure of Petroleum	1, 2, 3 4	
CH.18	Catalytic Cracking	1, 2, 4, 5	
CH.28	Environmental Aspects of Refining	1, 2, 4	

Course objectives					
No.	Course Objectives (Learning Outcomes)	Example(s) of relevant (Topics and activities)	Recommended Level to satisfy the objectives		
			High	Medium	Low
1	To highlight the importance of petroleum, its origin, and occurrence.			X	
2	To introduce the main features of petroleum: distillates and fractions, classification, and chemical characterization.			X	
3	To introduce the modern refining processes in the petroleum industry.		X		
4	To introduce the role of catalysts and environmental issues related to petroleum and up-to-date petrochemicals.		X		
5	To introduce the industries based on petroleum products.		X		
6	To introduce experiments on physicochemical separation and characterization of crude oil and distillates.			X	
Fields					
Skills					
Coordinator (Name and Rank) :		Convener of the organic chemistry			
Signature and stamp :					
Date:		11\ 11 \2025			