Faculty of Engineering & Technology

Petroleum Refining Engineering

Information :

Course Code :	PE 306	**Level :**	Undergraduate	**Course Hours :**	1.00- Hours

Department : Department of Petroleum Engineering

Instructor Information :

Title	Name	Office hours
Associate Professor	Tarek Mohamed Aboul Fotoh Mohamed	5

Area Of Study :

The Main Goals of this course are:
To understand the fundamentals of petroleum refining engineering.
To study and understand the physico-chemical characterstics of crude oils.
and products.
To analyze the data sheets for crude oils and products.
To understand the physical separation processes.
To understand the conversion operation processes.
To understand the mechanism of each process.

Description :

Crude oil fractionation, Details of the design of Atmospheric and Vacuum distillation Columns, Basic petroleum fractions from AD/AV complex, Refinery Gases, Gasoline Specifications and use in Internal Combustion Engines, ignition quality of gasoline, Pre-ignition and Detonation, Mechanism of Detonation, Naphtha Specification and uses, Aviation Turbine Fuel, Kerosene specifications (uses and production of Linear Alkyl Benzene LAB), Gas Oil and Diesel Fuel, Fuel oil and Asphalt specifications and uses, Wax distillates production, Manufacture of lubricating oils, Theory of friction and Lubrication, Manufacture of grease, Complex refinery schemes for processing of Natural Gas and crude oil, dehydration, desulphurization, Cracking and reforming Operations.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Demonstrate knowledge and understanding functions of each process in the petroleum refining.
2 -	Illustrate solving techniques of problems in the operation system of each process.
3 -	Describe the flow-diagram of petroleum refining processes.
4 -	Illustrate the characteristics of petroleum products.
5 -	Define and describe the function of catalysts in each process.
b.Intellectual Skills: :	
1 -	Ability to apply different techniques for solving the problems in the petroleum industry.
2 -	Choose the best and economic solution for the operation techniques.
c.Professional and Practical Skills: :	
1 -	Identify major problems in petrochemicals plants.

2 -	Demonstrate a comprehensive understanding of design methodologies related to chemical engineering
d.General and Transferable Skills: :	
1 -	Use scientific evidence based methods in the solution of problems
2 -	Work effectively as a team member

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Overview of all Petroleum Refining Processes	2	1	1
Crude Oil Classifications	2	1	1
Crude Oil Composition	2	1	1
Physico-chemical Characteristics of Crude Oil and Products	2	1	1
Atmospheric Distillation Process	2	1	1
Introduction to Petroleum Refining Engineering	2	1	1
Vacuum Distillation Process	2	1	1
Thermal Cracking Process	2	1	1
Catalytic Cracking Process	2	1	1
Catalytic Reforming Process	2	1	1
Catalytic Hydrotreating Process	2	1	1
Catalytic Hydrocracking Process	4	2	2
Alkylation and Isomerization Process	4	2	2

Teaching And Learning Methodologies :

Interactive Lecturing

Problem solving

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final exam	40.00	14	Comprehensive understanding of the Course
In Class Quizzes	10.00		Course understanding
Mid-Term exams	30.00		Course understanding
Performance/Attendance	20.00		Course understanding

Course Notes :

Available on pdf files

Recommended books :

Recommended Readings:
a) Wilbur Lundine Nelson, Petroleum Refinery Engineering, McGraw-Hill.

Periodicals :
non

Web Sites :
non