Course Type	Course Code	Name of the Course	L	T	P	Credits
OE	CHO301	Petroleum Refining	3	0	0	9

Course Objective
This course will present an overview of the modern, integrated petroleum refinery, its feedstocks, product slate and the processes employed to convert crude oil and intermediate streams into finished products. Hydrocarbon chemistry, crude oil properties and fuel product quality will be discussed. Each refining process will be presented, covering operating description and conditions, feedstock and catalyst selection, product yields, and the relationship between process parameters, unit performance and product output and properties.
Learning Outcomes
This course will provide major insights into both primary and secondary processes in a typical petroleum refinery industry.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	**Crude Oils:** Introduction to crude oils -composition and evaluation, testing of petroleum products	**05**	To gain knowledge about crude oil
2	**Preprocessing and Basic Separations:** Pretreatment of crude oil, atmospheric and vacuum distillation, temperature cuts and characteristics, various products - gasoline, kerosene/ATF (solvent extraction) and diesel production	**10**	To gain knowledge about preprocessing and basic separation processes of crude oil
3	**Enhancement of Refinery Products:** Thermal and catalytic cracking processes (FCC), rebuilding processes, reforming	**10**	To know about the different type of enhancement of refinery products
4	**Purification Processes:** Desulphurization and denitrogenation processes, removal of aromatics	**05**	To learn about the various purification processes of crude oil
5	**Lube Oil:** Manufacturing and de-waxing using various solvents	**03**	To learn about various lubricating oils
6	**Storage Processes:** Storage, stability, blending	**03**	Learn about various storage processes
7	**Environmental Issues:** Thermal efficiency and environmental aspects	**03**	Environmental aspects to realized

Textbooks:

1. Mall, I.D. (2018). Petroleum Refining Technology, 2nd Ed. CBS Publishing.

Reference Books:

1. James, G. Speight, G. J. and Ozum, B. (2002). Petroleum Refining Processes. Marcel Dekker Inc., New York
2. Nelson, WL. (1958). Petroleum Refinery Engineering. McGraw Hill. 4th Ed.
3. Bhaskara, Rao B. K. (2017). Modern Petroleum Refining Process, 6th Ed. Oxford & IBH.