J.S. University, Shikohabad

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Value Added Course

Petrochemicals

(VAC-144)

Department of Chemistry

	J.S. University, Shikohabad Department of Chemistry	Value Added Course
		AY:2021-2022

PETROCHEMICALS: VAC-144

Learning Objective:

This Course will provide knowledge of Petrochemicals

Duration: 30 Hours.

Course Outcomes: -

After completion of the course the student shall be able to:-

CO-1 Importance and formation of Petroleum, and Physical & Thermal properties of petroleum.

CO-2 Technology for the production of Methanol, acetone, acrylonitrile andisopropanol.

CO-3 Synthesis and uses of the Herbicides (2,4-D and MCP), Fumigants,Nematicides and Rodenticides.

CO-4 Importance of the petrochemical industry, Quality control and Petroleum Distribution, Environmental concern and Emission Norms.

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Syllabus Outline: VAC-144

1. Module-1 **(08 Hours)**

Introduction to Petroleum & Hydrocarbons

Origin and formation of Petroleum, Petroleum Reserves and Deposits, Composition of crude oil, Non- hydrocarbon components in Petroleum, Asphltenes and Resins. Characterization of crude oil: TBP and ASTM distillation, Classification by chemical composition, Correlation Index, Density, API gravity, Viscosity, UOP characterization factor, etc. Physical & Thermal properties of petroleum, Petroleum products and their quality control.

2. Module-2 **(08 Hours)**

Petroleum Refining Processes

Thermal conversion processes: Visbreaking, Delayed Coking, Fluid coking, Flexicoking, etc Catalytic conversion processes: Fluid Catalytic Cracking, RFCC, DCC, Hydrocracking, Hydrotreating Processes, etc. Catalytic Reforming, Alkylation, Polymerization, Isomerisation etc.

3. Module-3 **(07 Hours)**

Petrochemical Technology

(a) Technology for the production of Methanol, Ethylene oxide, Ethylene glycol and Vinyl Chloride, Acetic acid

(b) Technology for the Production of acetone, acrylonitrile, linear alkyl benzene

(c) Technology for the production of benzene, toluene, xylines, phenol, styrene

(d) Technology for the production of isopropanol, butadiene, isobutene, isobutene

4. Module-4 **(07 Hours)**

Indian Petrochemical Industry and Environmental Concerns

Indian Petrochemical Industry: Indian reserves, Indian Refining Scenario, Quality control and Petroleum Distribution, Environmental concern and Emission Norms, Refinery waste Disposal Practices.

References:

1. Hand Book of Petroleum refining Processes by ROBERT MEYERS, 3rd Edition, Tata McGraw Hill
2. Chemistry of Petrochemical Processes by SAMI MATAR & LEWIS HATCH, 2nd Edition, Gulf Publishing Company
3. Handbook of Petroleum, Product Analysis, JAMES G. SPEIGHT, John Wiley & Sons, Inc.

(Name of Faculty)	(Name of Faculty)	(Name of Faculty)
Course Coordinator	Dean Academics	Director/Principle/ Dean of Faculty/Department
Mr. Nitin Goyal	Dr. Akhilesh	Dr. Amit Kr.