

SSLC, HSE, DIPLOMA, B.E/B.TECH, M.E/M.TECH, MBA, MCA

Notes

Syllabus

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OCH552 PRINCIPLES OF CHEMICAL ENGINEERING

DETAILED SYLLABUS

OBJECTIVES:

- To understand the overall view of the chemical engineering subjects

UNIT I

Chemistry, Chemical Engineering and Chemical Technology; Chemical process industries: History and their role in Society; Role of Chemical Engineer; History and Personalities of Chemical Engineering; Greatest achievements of Chemical Engineering.

UNIT II

Components of Chemical Engineering: Role of Mathematics, Physics, Chemistry and Biology; Thermodynamics, Transport Phenomena, Chemical Kinetics and Process dynamics, design and control.

UNIT III

Concept of Unit Processes and Unit Operations; Description of different Unit Processes and Unit Operations; Designing of equipments; Flowsheet representation of process plants, Evolution of an Industry – Sulphuric acid and Soda ash manufacture. Demonstration of simple chemical engineering experiments; Plant visit to a chemical industry

UNIT IV

Role of Computer in Chemical Engineering; Chemical Engineering Software; Visit to Process Simulation Lab; Relation between Chemical Engineering and other engineering disciplines; Traditional vs. modern Chemical Engineering; Versatility of Chemical Engineering: Role of Chemical Engineers in the area of Food, Medical, Energy, Environmental, Biochemical, Electronics etc. Plant visit to an allied industry.

UNIT V

Paradigm shifts in Chemical Engineering; Range of scales in Chemical Engineering; Opportunities for Chemical Engineers; Future of Chemical Engineering.

OUTCOMES

- On completion of the course, students will attain knowledge in fluid behavior and solid properties.
- Understand the concept of chemical engineering principles

TEXT BOOKS:

1. Badger W.L. and Banchero J.T., "Introduction to Chemical Engineering", 6th Edition, Tata McGraw Hill, 1997.

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2. Dryden, C.E., "Outlines of Chemicals Technology", Edited and Revised by Gopala Rao, M. and M.Sittig, 2nd Edition, Affiliated East-West press, 1993.

3. Randolph Norris Shreve, George T. Austin, "Shreve'e Chemical Process Industries", 5th edition, McGraw Hill, 1984

REFERENCES:

1. McCabe, W.L., Smith, J. C. and Harriot, P. "Unit operations in Chemical Engineering", McGraw Hill, 7th Edition, 2001

2. Finlayson, B. A., Introduction to Chemical Engineering Computing, John Wiley & Sons, New Jersey, 2006.