

SRM UNIVESITY
FACULTY OF ENGINEERING AND TECHNOLOGY
SCHOOL OF CHEMICAL ENGINEERING
DEPARTMENT OF CHEMICAL ENGINEERING

COURSE PLAN

Course Code : CH0204
Course Title : Organic Chemical Technology
Semester : 4th
Branch/ Year/ Section : B. Tech – Chemical Engineering/ II
Course Time : January – May 2011

Day	Hour	Timing
Monday	5 th & 6 th	01:30 pm to 02:20 pm
Tuesday	2 nd	09:35 am to 10:25 am
Wednesday		
Thursday		
Friday	6 th	02:20 pm to 03:10 pm

Location: Valliamai Polytechnic Block, Chemical Engineering Department, Room. No. 412, III - Floor.

Faculty Details

Section	Name	Office	Office hours	Mail Id
Chemical Engineering B- Section	Balasubramanian. S	VPT Block 3 rd Floor	08:30 am to 04:00 pm	balasubramanians@ktr.srmuniv.ac.in

Text Books

- George T. Austin, *Shreve's Chemical Process Industries*, 5th Edn., McGraw-Hill International Editions, Singapore, 1984
- Gopala Rao M. and Marshall Sittig, *Dryden's Outlines of Chemical Technology*, 3rd Edn., East-West Press, New Delhi, 1997

Reference Book

- Chemical vol. I, II, III, & IV, *Chemical Engineering Education Development Centre*, IIT Madras, 1975-78

Prerequisite

CH0203 Inorganic Chemical Technology

Objectives

To familiarize:

- The manufacturing processes of natural organic products
- The manufacturing processes of synthetic organic chemicals
- The manufacturing processes of plastics
- The manufacturing processes of synthetic fibers
- Nuclear industries

Internal Assessment details

Cycle Test	– I	: 10 Marks
Cycle Test	– II	: 10 Marks
Model Exam		: 20 Marks
Surprise Test		: 5 Marks
Attendance		: 5 Marks
Total		: 50 Marks

Test Schedule

S. No	*Date	Test	Topics	Duration
1	Between 21/02/2011 and 25/02/2011	Cycle Test – I	30%	2 Periods
2	Between 04/04/2011 and 08/04/2011	Cycle Test – II	30%	2 Periods
3	Between 03/05/2011 and 11/04/2011	Model Exam	100%	3 hours

*Date given is tentative and students are requested to update the final date of tests from department notice board.

Surprise Tests

There is a surprise test in this course. The surprise tests will not be announced before and it will cover the materials until the previous day.

Home Assignments

There will be home assignments in this course. All the assignments will be announced during the lecture hours. The assignments have to be submitted on or before the last date of submission; late submissions will not be entertained. Students can work in groups comprising two in each group. In such a case, single assignment can be submitted.

Final internal marks will be a weighted average of Cycle Test – I, Cycle Test – II, Surprise Test, and a final Model Exam.

Course objectives and Program Outcomes

Course Objective *	Program outcome *
<ol style="list-style-type: none">1. To expose the students on how raw materials are converted into useful products that are organic in nature. [1]2. To teach unit operations and unit processes those are employed in the manufacture of organic products. [2, 3]3. To teach various schematic, block, symbols and legends representations used in processes flow diagrams of manufacturing process. [1, 2, 3]4. To familiarize manufacturing process of natural organic products such as edible and essential oils, soaps and detergents. [4, 5]5. To familiarize manufacture of synthetic chemicals those are organic in nature such as methane and syngas, ethylene and acetylene, propylene. Chemical from aromatics, benzene, toluene, xylene and naphthalene. [4, 5]6. To familiarize manufacture of thermo plastic and thermo setting resins such as polyethylene, polypropylene, phenolic resins, and epoxy resins, polymers and their engineering applications. [4, 5]7. To familiarize manufacture of synthetic fibers such as polyamides, polyesters and acrylics from monomers - processes for the production of natural and synthetic rubbers, leathers - dyes and intermediates. [4, 5]8. To teach nuclear reaction, uranium and thorium fission. Nuclear fuels, nuclear reactors, fission and fusion reactions. Processing of nuclear fuels and waste disposal. [5]9. To show students a comprehensive picture of chemical industries with diverse operations those are carried on. * Links shown in brackets are to course outcomes that satisfy the above objectives.	<ol style="list-style-type: none">1. Analyze the flow of raw material to product formation quantitatively and qualitatively in each step of processes. [1,2]2. Organize and prepare process flow diagrams. [3,4,5,6,7]3. Apply the concepts of unit operation and unit processes that are employed in design of process plants. [4, 5, 6, 7]4. Analyze the upstream and downstream processes that are encountered in manufacturing process. [4,5,6,7]5. Analyze nuclear raw material separation and preparation of nuclear fuels. [8]6. Write organized and cohesive technical documents that are employed in manufacturing processes. [4, 5, 6, 7, 8] <p>* Links shown in brackets are to the program educational outcomes.</p>

Teaching Methodology

- Chalk and talk for the entire course

Tentative lesson plan

Lectures	Lecture Title	Contents	Schedule
Lecture 1	Introduction	An overview of topics covered in this course – in brief	Day 1
Lecture 2	Introduction on Organic Chemical Industries – Natural Products	Various operations involved in Organic Chemical Industries. Manufacture of edible and essential oils, soaps, detergents and glycerin.	Week 1
Lecture 3	Natural Products	Manufacture of pulp and paper, starch and its derivative, and sugar.	Week 2
Lecture 4	Synthetic Organic Chemicals	Methane and Synthesis gas, Ethylene and acetylene, Propylene.	Week 3
Lecture 5	Synthetic Organic Chemicals	Chemical from aromatics, Benzene, toluene, xylene and naphthalene.	Week 4
Lecture 9	Plastics	Production of thermo plastic and thermo setting resins such as polyethylene, and polypropylene	Week 5
Lecture 10	Plastics	Production of phenolic resins, and epoxy resins, polymers and their engineering applications.	Week 6
Lecture 11	Synthetic Fibers	Production of polyamides, polyesters and acrylics from monomers.	Week 7
Lecture 12	Synthetic Fibers	Processes for the production of natural and synthetic rubbers, leathers - dyes and intermediates.	Week 8
Lecture 13	Nuclear Industry	Nuclear reaction, uranium and thorium fission. Nuclear fuels, Nuclear reactors, fission and fusion reactions.	Week 9
Lecture 14	Nuclear Industry	Processing of nuclear fuels and waste disposal.	Week 10
Lecture 15	Conclusion	Overall discussion on all the chapters covered in this course	Week 11

Staff

HoD