

IC130 Applied Chemistry for Engineers

Credit: Credit: 3-0-0-3

Prerequisite: Consent of the faculty member

Students intended for: B.Tech

Elective or Core: Core

Semester: Even/Odd

Course objective: The course is a blend of some fundamental chemistry concepts and applied chemistry topics. The course along with CY101 P (Chemistry Practicum) is intended to give a flavor to the students about how the basic chemistry concepts can be applied in real life Engineering applications/problems.

Course content:

- **Spectroscopy**- Introduction and classification, Fundamental principles, Instrumentation and applications of Ultra Violet-Visible Spectroscopy, Infra-Red Spectroscopy, Raman Spectroscopy and Nuclear Magnetic Resonance Spectroscopy [12 Lectures]
- **Polymer Chemistry**- Introduction, Polymerisation, Properties, Polymer processing, Industrial polymers, conducting polymers [8 Lectures]
- **Fuels and Combustion**- Properties of fuels, Calorific value, Petroleum and petrochemicals, biofuels [6 Lectures]
- **Electrochemistry**- Applications of electrochemistry at the interface of science and technology, Batteries, Fuel cells, Biomedical devices, Corrosion and its control [10 Lectures]
- **Lubricants**- Mechanism of lubrication, Types, Properties and selection of lubricants [6 Lectures]

Text Books

Applied Chemistry - A Textbook for Engineers and Technologists by H.D. Gesser, Springer
Engineering Chemistry by Wiley India Editorial Team, Wiley India Pvt. Ltd., 2011
Engineering Chemistry by Shashi Chawla

Reference Books

Modern Spectroscopy by J. M. Hollas, Wiley India Pvt. Ltd.
Fundamentals of molecular spectroscopy by Colin Banwell and Elaine McCash, Tata McGraw Hill Education Pvt. Ltd.
Text Book Polymer Science by Fred W. Billmeyer, Wiley India Pvt. Ltd.