

6	Polymer & Insulating Materials: Introduction and Definition of polymer and Monomer, Classification of polymer, Introduction to plastics: Thermoplastics and thermosetting plastic, Synthesis, properties and applications of (polyethylene, polypropylene, PVC, PTFE, polystyrene, Phenol formaldehyde, Acrylonitrile, Epoxy Resin, Nylon, polyester, Polycarbonate) Definition of Elastomer , Natural rubber, Vulcanization of rubber, Properties of rubber Definition, Classification and Properties of insulating materials: Glass wool and Thermocole.	07
7	Engineering Materials: Cement, constituting compound in cement, Manufacturing of Portland cement, setting and hardening of cement, Glass and its general properties Definition, classification, Properties and Applications of refractories. Definition, classification, Properties and Applications of Paints and Varnish. Definition, classification, Properties and Applications of Adhesives.	06

SUGGESTED LIST OF EXPERIMENTS

The experiments should be properly designed and implemented with an attempt to develop different types of skills leading to the achievement of the competency -

Sr.No.	Unit no.	Experiment
1	1	General Laboratory Rules and Safety Measurement & demonstration of equipments.
2	2	Volumetric Analysis (Strong Acid-Strong Base Titration)
3	3	Volumetric Analysis (Strong Acid-Weak Base Titration)
4	4	To determine pH-Values of given samples of Solution by using Universal Indicator and pH-meter.
5	5	Study of corrosion of metals in medium of different pH.
6	6	Study of Corrosion of Metals in the different mediums.
7	7	To determine the hardness of water samples.
8	8	To determine the viscosity of given liquid.
9	9	To determine Flash & Fire point of given lubricating oil.
10	10	Study of Construction and working of electrochemical cell.
11	11	Preparation of polystyrene, urea formaldehyde, phenol-formaldehyde (any one)
12	12	Study of Cement & Concrete.
13	13	To Study Of Metallurgical Microscope.
14	14	Study of different structures of metals by using Metallurgical Microscope.
15	Note	Minimum Ten Experiments should be performed by the students from the above given list or experiment related to above topics

SUGGESTED LEARNING RESOURCES

List of Books

Sr. No	Title of Books	Author	Publication
1	Engineering Chemistry	JAIN & JAIN	Dhanpat Rai and Sons
2	A Text Book of Polytechnic Chemistry	V.P. Mehta	Jain Brothers
3	A Text Book of Applied Chemistry	J. Rajaram	Tata McGraw Hill Co. New Delhi
4	Engineering Chemistry	S.S.Dara	S. Chand Publication
5	Industrial Chemistry	B.K.Sharma	Krishna Publication

List of Major Equipment/ Instrument

- pH - meter
- Red wood Viscometer
- Pesky Martin Apparatus / Abel's Apparatus
- Cleveland open cup apparatus.
- Glass wares
- Metallurgical Microscope.

SUGGESTED LIST OF PROPOSED STUDENT ACTIVITIES

Following is the list of proposed student activities like:

- Teacher guided self learning activities.
- Course/topic based internet based assignments.
- Library survey regarding Engineering Material used in different industries.
- Industrial Visits of one or Two Industries.
- Quiz & Brain storming session related to Polymeric materials.
- Sampling & Testing of water collected from different places.