7th Semester	RPL7D006	Speciality Polymers	L-T-P 3-0-0	3 Credits

Module-I: **(10 hours)**

High temperature and fire resistant polymers –Requirement for heat resistancepolymers- polymers for high temperature Resistance –applications of heat resistant polymers like polyquinolines,polyquinoxalines- Aromatic polymers, polyphenylene sulphide, polysulphones, polyesters, polyamides, polyketones-Heterocyclic polymers.

Module-II: **(8 hours)**

Definition, classification, synthesis, characterization and application of polymer gels.Polymers in telecommunications and power transmission, polymers as insulators – electrical breakdown strength – capacitance, dielectric loss and cable alteration, polymers in telecommunications – submarine, cable insulation, low fire risk materials, polymers in power transmission – Optical fibre telecommunication cables.

Module-III: **(10 hours)**

Conducting polymers, conducting mechanisms, requirements for polymer to workas conductor, types of conducting polymers – doping of polymeric systems,polyaniline, polyacetylene, polyparaphenylene, polypyrrole, organometallicpolymers, Photosensitive polymers – synthesis, curing reactions, applications invarious fields.

Module-IV: **(10 hours)**

Polymers with electrical and electronic properties, polymers in non-linear optics,polymers withpiezoelectric, pyroelectric and ferroelectric properties, photoresistsfor semi-conductor fabrication – Polymers in telecommunications and powertransmission – liquid crystalline polymers.

Books:

[1] Manas Chanda, Salil.K.Roy, “Plastics Technology Hand book”, 2nd edition, Marcel Dekker, New York, 1993.
[2] Matrin.T.Goosey, “Plastics for Electronics”, Elsevier, Applied Science, 1985.
[3] R.W. Dyson, “Specialty Polymers”, Chapman & Hall, 2nd edition, 1998.