

SARDAR PATEL UNIVERSITY
Programme & Subject: P. G. Diploma in Defence Materials
Semester: I
Syllabus with effect from: June - 2015

Paper Code: PT01CDMC03	Total Credit: 4
Title Of Paper: Polymer Science	

Unit	Description in Detail	Weightage (%)
I	General introduction-Classification, nomenclature, isomerism, industrial scenario, intramolecular forces and confirmations	25%
II	Chemistry of Polymerization – chain growth polymerization (free-radical, cationic, anionic, co-ordination, ring-opening polymerizations) mechanism and phase techniques, kinetics of the above polymerizations	25%
III	Characterization and analysis of polymers- average Molecular weight, Molecular weight distribution, fractionations, Molecular weight determination methods (end-group analysis, colligative properties including vapour pressure and membrane osmometry, light scattering and GPC) Mw distribution Curves.	25%
IV	Polymer Technology and Processing: Plastics, fibres, elastomers, adhesives (general features, few examples for individual class of polymers), polymer reactions, polymer additives, Processing: - Casting, thermoforming, foaming, lamination, reinforcing, compounding and molding)	25%

Basic Text & Reference Books:-

- P. Bahadur, N V Sastry; Principles of Polymer Science, 2nd edition, Narosa Publishing House, New Delhi
- V R Gowariker, N V Viswanathan, Jayadev Sreedhar; Polymer Science, New Age International Publishers
- Elias H-G., An Introduction to Polymer Science, VCH, Weinheim, 1st edition
- Cowie J. M. G., Polymers: Chemistry and Physics of Modern Materials. Blackie Publishers, London, 3rd edition
- Carraher Jr. C. E., Seymour/Carraher's Polymer Chemistry: An Introduction. Marcel Dekker Inc., New York, 4th edition

