

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Materials Science)
Semester: III
Syllabus with Effect from: June - 2013

Paper Code: PS03EMTS03	Total Credit: 4
Title Of Paper: Testing Methods for Films and Rubbers	

Unit	Description in detail	Weightage (%)
I	Plasticity, rotating disk viscometer, plasticity tests and test methods, parallel plate plastometer, extrusion and mixing tests, scorch, vulcanization, vulcanization test, chemical methods, physical test methods, continuous measurement of vulcanization, uses of curemeter, effect of temperature on vulcanization rate.	25%
II	Stress-strain test, tensile tests, hardness, dynamic mechanical tests, free vibration tests, heat Build-up tests, crack tests, time-dependent properties, tear tests, friction test, adhesion properties measurement.	25%
III	Durability of coatings, adhesion, mechanical methods, tape method, scratch method, abrasion method, deceleration method, engineering methods for measuring adhesion. Basic concepts, nucleation rate measurements, island density measurement, critical condensation measurement, comparison between mechanical and nucleation methods, nature of adhesion forces, physisorption, chemisorption.	25%
IV	Stress measuring techniques, disk method, bending beam method, X-ray and electron diffraction techniques, other techniques.	25%

Basic Text & Reference Books:-

- Hand Book of Polymer Testing : Roger Brown.
- Rubber Technology : M. Morton.
- Handbook of Thin Films : Maissel and Glang

