

GUJARAT TECHNOLOGICAL UNIVERSITY

Master of Engineering (Rubber Technology)

Semester – IV

Teaching scheme

Sr.No	Subject	Teaching Scheme(Hours)			Credits
		Theory	Tutorial	Practical	
744001	Thermosetting Resins & Silane Technology	4	2	0	5
740001	Mid semester Thesis Progress Review	0	0	0	5
740002	Dissertation Phase-II	0	0	24	10
Total		04	0	26	20

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Semester – IV

Subject Name : Thermosetting Resins & Silane Technology

Subject Code: 744001

Sr.No.	Subject Content
1.	Introduction: History of Hydrocarbon Resins, Reinforcing Effect, Petroleum Resins, Polyterpene Resins, Aliphatic Resins, Cyclopentadiene Resins, Resinex Resins, Miscellaneous Resins etc.
2.	Compounding: Different types of elastomers, tackifiers, fillers, plasticisers, softeners, antioxidants, curing agents and sequestering agents etc.
3.	Requirements: Glass transition Temperature, Viscosity Change ,Resin Action, Obtaining Tack, Function of Tackifiers
4.	Identification : Color, Compatibility, stability, observation , Effect on applications, etc.
5.	Hydrocarbon Resin: Resin Manufacturing, Molecular Weight Distribution, Different Testing Methods , Properties etc.
6.	Phenolic Resin: Chemistry, Manufacture, Properties , Applications etc.
7.	Amino Resin : Chemistry, Characteristics, Manufacturing, Catalysts and Hardeners, Properties , Applications etc.
8.	Acrylic Adhesives and Sealants : Acrylic Monomers, Production, Properties, Applications, Flocking Adhesives, Building Adhesives, Pressure Sensitive Adhesives, Acrylic Sealants etc.
9.	Unsaturated Polyester Resins: Composition of Reinforced Polyester Systems, Formulation, Fabrication, Laminating, Molding, Filament Winding, Pultrusion, Properties, Applications etc.
10.	Polyurethanes & Epoxy Resins: Epoxy Resins: Chemistry of preparation and Curing, Properties, Applications etc. Polyurethanes : Urethane Chemistry, Flexible and Rigid Foams, RIM Urethanes etc.
11.	Silane – Coupling Agent : Definition of Silane, Importance, Benefits, Silane Chemistry, Silane description, Mode of action, Filler Treatment, Applications etc.

Text Book :

1. Resins in Rubber by Gardner L. Brown

Reference Book :

1. Handbook of Adhesives by Irving Skeist.

2. Textbook of Polymer Science by Fred W. Billmyer