

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

Paper Code: PS03EMTS01	Total Credit: 4
Title Of Paper: Composite Materials	

Unit	Description in detail	Weightage (%)
I	Types of composite materials – Dispersion strengthened composites, particulate composites, concretes, laminar composites and introduction to fiber reinforced composites. Fiber reinforced composites with different matrix systems, polymer matrix (thermoset and thermoplastic) matrix composites, metal matrix composites and ceramic matrix composites.	25%
II	Types of reinforcements – Whiskers and fibers, preparation, structure and properties of different reinforcing fibers, carbon fibers, glass fibers, polymer fibers and alumina fibers.	25%
III	Interfaces in composites and micromechanics of composites molding processes for reinforced composites – contact molding, vacuum bag molding, pressure bag molding, vacuum impregnation and injection molding, transfer molding, pultrusion, filament winding, Fabrication of Metal and Ceramic matrix composition.	25%
IV	Test procedures for mechanical testing, physical properties, void content for fiber reinforced composites. Mechanical Properties of composite, Effect of fiber volume content, orientation of fibers & void contents on mechanical properties of composite, fracture behaviour of composites, Thermal properties of composites. Applications of composites in different field.	25%

Basic Text & Reference Books:-

- Science and Engineering of Materials --- D. R. Askeland
- Science of engineering materials – Manas Chandra
- Hand Book of composites – G. Lubin
- Composites Materials by K. K. Chawla.
- An introduction to composites materials – D. Hull

