SUBJECT NO-CH62046, SUBJECT NAME- MANUFACTURING AND CHARACTERISATION OF POLYMER MATRIX COMPOSITES

LTP- 3-1-0,CRD- 4

SYLLABUS :-

Fundamentals of Composites: Introduction of Composites, Polymer matrix and reinforcement, Composite Properties, Estimation of Properties using micromechanics, Failure of CompositesComposite Manufacturing Process: Introduction, Material-manufacturing process-Property relationship, Manufacturing of prepeg and SMC, Molding, Resin transfer and vacuum infusion molding, compression molding, Filament winding, Pultrusion Process Modeling: Continuity and Darcys equation, modeling of RTM processing, pultrusion and autoclave process. Testing and Characterization: Characterization and testing of matrix properties, Characterization and testing of curing agent, Characterization and testing of reinforcement properties, Characterization and testing of Finished product, Physical properties, Mechanical properties, Fire and toxicity, Manufacturing defects, Lifetime estimation, Typical quality assurance program Fabrication and joining technologyText/Reference Books:1.Composites Manufacturing: Materials, Product, and Process Engineering by Sanjay Mazumdar 2.Fiber-reinforced Composites by P.K. Mallick3. Process Modeling in Composite Manufacturing by S. Advani