GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. SEMESTER : VIII

MANUFACTURING ENGINEERING

Subject Name: Rapid Manufacturing

Subject Code:183401

Teaching Scheme				Evaluation Scheme			
Theory	**Tutorial**	**Practical**	**Total**	**University Exam(E)**	**University Exam(P)**	**Mid Sem Exam(Theory) (M)**	**Practical (Internal)**
4	2	0	6	70	30	30	20

Sr No	Course Contents
1	**INTRODUCTION TO CONCURRENT ENGINEERING** Extensive definition of CE – CE design methodologies organizing for CE – CE tool box collaborative product development – IT support – Solid modeling – Product data management – collaborative product – Artificial intelligence – Expert systems – software hardware co – design.
2	**DESIGN STATE** Life cycle desin of products – opportunity for manufacturing enterprises – modality of concurrent engineering design – Automated Analysis Idealization control – concurrent Enginering in optimal structural design – Real time constraints.
3	**MANUFACTURING CONCEPTS AND ANALYSIS** Manufacturing competitiveness – checking design process – conceptual design mechanism – qualitative physical approach – An intelligent design ffor manufacturing system – JITsystem – low inventory – modular fixtures modeling and Reasoning for computer based Assembly planning – Design of Automated Manufacturing systems.
4	**RAPID PROTOTYPE TOOLING PROCESSES** Ed for coessiomn in product development classification of RP systems – Fused deposition modeling selective laser sintering – stereo lithography systems – laminated object manufacturijg.Solid ground curing – laser engineered net shaping (LENS).
5	**MODULAR AND RAPID TOOLING** Principle – Thermojet printer, Sander's model 3D printer, Genisys Xs printer, JP system object yudra system – In direct rapid tooling , silicon rubber tooling – aliminium fitted epoxy tooling – spray metal tooling, direct rapid tooling – quick cast process – copper polyamide, rapid tools sand casting tooling laminated tooling soft tooling Vs hard tooling.

TEXT BOOKS:

1. Anderson M.M and Hein L. Berlin, Integrated Product Development Springer Ver Log 1987.
2. Cleetus. J., Design for concurrent Engineering, Concurrent Engineering Research Center, and Mongantown W.V.1992.
3. Andrew Kusaik, Concurrent Engineering Automation tools and technology, Wiley John and Sons Inc 1992.

4. Prasad Concurrent Engineering Fundamentals – Integrated Product Development precentice Hall 1996.
5. Pham, D.T. and Dimov S.S., Rapid Manufacturing, Verlag, London, 2001.
6. Paul P.Jacob, Stereo Lithography and other Rapid Prototyping &Manufacturing Technologies, SME., New York,1996.