Year & Sem:	Course Code: ME3620	Course Name: **Additive Manufacturing**	No. of Credits: 4	L	T&PS	P
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UNIT-I: Introduction: Need - Development of RP system, RP Process chain, Impact of Rapid Prototyping on Product Development, Virtual Prototyping, Classification of RP system, Benefits and Applications Stereo Lithography System(SLA): Apparatus, Principle, Process parameter, Process details, Data Preparation, Data files and machine details, Advantages, Limitations and Applications.

UNIT II: Fusion Decomposition Modeling: Principle, Process Parameter, Path generation, Applications. Solid Ground Curing: Principle of Operation, Machine details, Products and Applications, Laminated Object Manufacturing: Principle of Operation, LOM materials, Process details, Applications.

UNIT –III: Concepts Modelers: Principle, Thermal Jet Printer, Sander's Model Market, 3-D printer, Selective Laser sintering (SLS), Object Quadra system. Laser Engineering Net Shaping (lens)

UNIT –IV: Rapid Tooling: Indirect Rapid tooling- Silicon rubber tooling- Aluminum filled epoxy tooling Spray metal tooling, Cast kriksite, 3Q keltool, etc, Direct Rapid Tooling Direct. AIM, Quick cast process, Copper polyamide, Rapid Tool, DMILS, Prometal, Sand casting tooling, Laminate tooling soft, Tooling vs. hard tooling. Software For RP: STL files, Overview of Solid view, Magics, Imics, Magic Communication, etc. Internet based software, Collaboration tools.

UNIT V: RAPID MANUFACTURING PROCESS OPTIMIZATION: Factors influencing accuracy, Data preparation error, Part building error, Error in finishing, Influence of build orientation. ALLIED PROCESS: Vacuum casting, surface digitizing, Surface generation from point cloud, Surface modification- Data transfer to solid models.

References/Text Books:

1. Chua Chee Kai, Leong Kah Fai, Chu Sing Lim, Rapid Prototyping: Principles and Applications in Manufacturing, World Scientific, 2010 2. Paul F.Jacobs – " Stereo lithography and other RP & M Technologies", SME, NY 1996
2.Flham D.T & Dinjoy S.S – " Rapid Manufacturing " Verlog London 2001
3.Lament wood, "Rapid automated", Indus Press New York.
4. Rafiq Noorani, RapidPrototyping: Principles and Applications in Manufacturing, John Wiley & Sons, 2006

Lecture Plan: Unit-I & -II syllabus for MID-I, Unit-III & -IV syllabus for MID-II and Unit-V & -VI syllabus for MID-III examinations.

Assignments (Web Links):

1.
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