III Year B.Tech. Mechanical Engg. I - Semester	L	T	P	To	C
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ME 329 RAPID PROTOTYPING

Course Description & Objectives:

This subject provides students with an understanding of the various rapid prototyping, rapid tooling technologies; The knowledge to select appropriate technologies for product development purposes.

Course Outcomes:

1. *Understand the principle, parameters and applications of R P processes*
2. *Recognize various types of rapid tooling*
3. *Identify different allied processes*

UNIT - I Introduction:

Need for the compression in product development, History of RP systems, Survey of applications, Growth of RP industry, Classification of RP systems.

UNIT-II RP Process:

Principle, process parameters, process details and applications of Stereo lithography systems, Selective Laser Sintering, Fused Deposition Modeling,

UNIT-III RP Process:

Principle, process parameters, process details and applications of Laminated Object Manufacturing, Solid Ground Curing, Laser Engineered Net Shaping, 3D Printing.

UNIT-IV Rapid Tooling

Indirect rapid tooling - silicone rubber tooling, aluminum filled epoxy tooling, spray metal tooling, Direct rapid tooling - direct AIM, copper polyamide, sand casting tooling, laminate tooling, soft tooling Vs hard tooling.

UNIT-V Rapid Manufacturing Process:

Rapid Manufacturing Process Optimization- Factors influencing accuracy, data preparation errors, part building errors, errors in finishing, influence of part build orientation.

TEXT BOOKS:

1. Pham D T and Dimov S S, “Rapid Manufacturing”, Verlag, 2001.
2. Paul F Jacobs, “Stereo lithography and other RP&M Technologies”, SME, 1996.

REFERENCE BOOKS:

1. Terry Wohlers, “Wohlers Report 2001”, Wohlers Associates, 2008.