Course Type	Course Code	Name of Course	L	T	P	Credit
DE	MED404	Digital Manufacturing	3	0	0	9

Course Objective

To provide detailed understanding of advanced manufacturing processes. The prospect of future research will also discuss in the course which will encourage the PG/UG/JRF students to carryout research in the advance area.

Learning Outcomes

Upon successful completion of this course, students will:

- Broad understanding of digital Manufacturing processes using different technologies.
- Students will be able to think about the possibility of combining different process to develop more efficient AM process.
- It will help the students to select the best process among various alternative.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Introduction of digital manufacturing, need of digital manufacturing, application,	4	Understanding the evolution and need of AM processes.
2	Comparison between Additive Manufacturing (AM) processes and CNC Machining. Classification of AM processes.	9	It will develop the ability of select the process for particular application.
3	Basic principle of different additive Manufacturing processes, applications, benefits, limitations. Materials used in AM Technology,	18	Students will learn about the interface of AM with conventional manufacturing process. Understanding the importance of different material properties for different RP technology.
4	3D Printer Workflow and Software	5	Students will learn about interface of software with 3D printers
5	Pre-Processing and post processing operations in Additive Manufacturing:	6	The students will understand the use of pre requirement of AM process. Basic knowledge about the software requirement and processing of drawing.

Text books:

1. Gibson, I, Rosen, D W., and Stucker, B., Additive Manufacturing Methodologies: Rapid Prototyping to Direct Digital Manufacturing, Springer, 2015

Reference books:

2. Chee Kai Chua, Kah Fai Leong, 3D Printing and Additive Manufacturing: Principles and Applications: Fourth Edition of Rapid Prototyping, World Scientific Publishers, 2014
3. Chua C.K., Leong K.F., and Lim C.S., “Rapid prototyping: Principles and applications”, Third Edition, World Scientific Publishers, 2010
4. Gebhardt A., “Rapid prototyping”, Hanser Gardener Publications, 2003
5. Liou L.W. and Liou F.W., “Rapid Prototyping and Engineering applications: A tool box for prototype development”, CRC Press, 2007
6. Joan Horvath, Rich Cameron, Mastering 3D Printing in the Classroom, Library and Lab, Apress, 2018