Course Type	CourseCode	Nameof the Course	L	T	P	Credits
DP	NMEC528	Additive Manufacturing Lab	0	0	3	1.5

CourseObjective
To provide practical knowledge on Additive Manufacturing Processes and their capabilities.
LearningOutcomes
Upon successful completion of this course, students will: • Able to fabricate different components through Additive Manufacturing Process • It will help the students to understand the current trend in research on Additive Manufacturing.

Unit No.	Topicsto beCovered	Lecture Hours	LearningOutcome
1	Demonstration to Different 3D printers and Introduction to CAD modelling	3	Students will understand the basics of 3D printing
2	Fabrication of the component through 3D printer using SLA	3	Understanding on the different printing process, their capabilities and limitations.
3	Fabrication of the component through 3D printer using DLP	3	
4	Fabrication of the component through 3D printer using FDM	3	
5	Experiment on Wire Arc Additive Manufacturing WAAM): Analysis of deposited bead and its characterizations	6	Will understand the WAAM process and its process parameters
6	Introduction to Simufact Additive Manufacturing software	3	Understanding on Simufact software
7	Simulation of the developed residual stresses in 3D printed part	6	Understand the simulation of Additive Manufacturing Processes
8	Project + Evaluation	15	Student able to carry out research in the field of Additive Manufacturing
	TOTAL	42	

Text Books:

1. Gibson, I, Rosen, D W., and Stucker, B., Additive Manufacturing Methodologies: Rapid Prototyping to Direct Digital Manufacturing, Springer, 2015
2. Chua C.K., Leong K.F., and Lim C.S., "Rapid prototyping: Principles and applications", Third Edition, World Scientific Publishers, 2010

Reference Books:

1. Chee Kai Chua, Kah Fai Leong, 3D Printing and Additive Manufacturing: Principles and Applications: Fourth Edition of Rapid Prototyping, World Scientific Publishers, 2014