GUJARAT TECHNOLOGICAL UNIVERSITY

Minor Degree – 3 D Printing
Subject Code : N116AN01

Semester – 6 (w.e.f. AY 2025-26)
Subject Name : Additive Manufacturing Lab

Prerequisite : Nil

Rationale : This course aims to familiarize students with basic terminologies of the 3 D printing (Additive Manufacturing) and essential knowledge required to get started in Additive manufacturing.

Teaching and Examination Scheme :

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE (E)	PA (M)	ESE (V)	PA (I)	80
0	0	4	2	0	0	80	0	

Content: This course aims to familiarize students with fundamental practical aspects of the 3 D printing (Additive Manufacturing) and essential knowledge required to get started in Additive manufacturing with supportive solid modelling practice in Laboratory.

Suggested Specification table with Marks (Theory): (For BE only)

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
-	-	25	25	25	25

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Reference Books/Material :

1) C. K. Chua, K. F. Leong, C. S. Lim, Rapid Prototyping – Principles and Applications, World Scientific publishing Co. Pte Ltd, 3rd Edition, 2010.
2) R. Noorani, 3D Printing Technology, Applications and Selection, CRC Press, 2017.
3) Additive Manufacturing Technologies and Applications, Special Issue Editors Salvatore BrischettoPaolo Maggiore Carlo Giovanni Ferro, MDPI.
4) David F. Rogers, J. A. Adams, "Mathematical Elements for Computer Graphics", TMH, 2008.
5) Anupam Saxena, Birendra Sahay, "Computer Aided Engineering Design", Springer, 2005.
6) Michael E. Mortenson, "Geometric Modeling", Wiley, NY, 1997.
7) Ian Stroud, Hildegarde Nagy," Solid Modelling and CAD Systems", Springer, 2011.

List of Practicals :

1. Practice of 2D and 3D model of engineering components.
2. Study operational instruction for 3D printing.
3. Study and exercise on selection of additive manufacturing process for a given material and application.
4. To manufacturer 3D components on available 3D printers.
5. Study and compare cost effectiveness of manufactured components.
6. Demonstrate additive manufacturing product for an end application.

Course Outcomes :

At the end of the course, student should be able to :

Sr. No.	CO statement	Marks % weightage
CO-1	Create 3D Model for 3D Printing.	25
CO-2	Select the process of additive manufacturing.	25
CO-3	Analyze the additive manufacturing product for cost effectiveness.	25
CO-4	Demonstrate additive manufacturing product for an end application.	25