

CBCS SCHEME - Make-Up Exam

USN

[illegible]

BAE405A

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2025
Additive Manufacturing (3D Printing)

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.

2. *M*: Marks, *L*: Bloom's level, *C*: Course outcomes.

Module – 1			M	L	C
Q.1	a.	What is Additive Manufacturing? Explain the generic additive manufacturing process in detail.	10	L1	CO1
	b.	Distinguish between AM and CNC machining based on various factors influencing the end product.	10	L1	CO1
OR					
Q.2	a.	Explain additive manufacturing process chain.	10	L1	CO1
	b.	Discuss the issues faced in the material handling during additive manufacturing processes.	10	L1	CO1
Module – 2					
Q.3	a.	Explain the photo polymerization processes and list the methods of photo polymerization.	6	L1	CO2
	b.	Explain the stereo lithography process of AM. Discuss its advantages, limitations and applications.	14	L2	CO2
OR					
Q.4	a.	Discuss the FDM process in detail with help of neat sketches.	10	L2	CO2
	b.	Explain the Bio-Extrusion process of AM and discuss its applications, benefits and drawbacks.	10	L2	CO2
Module – 3					
Q.5	a.	Discuss the technical challenges faced in additive manufacturing/printing process.	6	L2	CO2
	b.	Explain the process of Laminated object manufacturing. List the advantages, disadvantages and applications.	14	L2	CO4
OR					
Q.6	a.	Explain the Beam deposition process. Discuss the factors affecting the Beam deposition.	10	L3	CO3
	b.	Discuss the following: i) DW Thermal Spray ii) Micro dispensing and laser induced forward transfer.	10	L3	CO3

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Module – 4					
Q.7	a.	Describe the challenges of process selection of AM.	10	L3	CO4
	b.	Discuss the process involved in PPC.	10	L3	CO4
OR					
Q.8	a.	Discuss the steps involved in preparing the CAD model for AM and the problems with STL files.	10	L3	CO4
	b.	List the types of post processing operations and discuss the support removal techniques.	10	L3	CO4
Module – 5					
Q.9	a.	Discuss the discrete and porous multiple material processes. Explain its challenges.	10	L3	CO3
	b.	Elucidate the engineering analysis models of additive manufacturing.	10	L3	CO3
OR					
Q.10	a.	Describe Remanufacturing. Explain the applications and benefits of AM in remanufacturing.	10	L3	CO4
	b.	Write a note on: i) Align technology ii) LCC in additive manufacturing	10	L3	CO4
