

CBCS SCHEME

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BAE405A

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2025

Additive Manufacturing

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.	Enlist the eight steps in additive manufacturing process chain and explain.	10	L1	CO1
	b.	Discuss the issues faced in the material handling during additive manufacturing process.	10	L1	CO1
OR					
Q.2	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
Module – 2					
Q.3	a.	Explain the bio-extrusion process of AM and discuss its applications, benefits and drawbacks.	8	L2	CO2
	b.	Explain the stereolithography process of AM. Discuss its advantages, limitation and application.	12	L2	CO2
OR					
Q.4	a.	Explain the photo polymerization processes and list the methods of photopolymerization.	8	L1	CO2
	b.	Discuss the FDM process in detail, with help of neat sketches.	12	L2	CO2
Module – 3					
Q.5	a.	Explain the process of laminated object manufacturing. List the advantages, disadvantages and applications.	14	L2	CO4
	b.	Discuss the technical challenges faced in additive manufacturing/printing process.	6	L2	CO2
OR					
Q.6	a.	Discuss the following : (i) DW thermal spray. (ii) Micro dispensing and lower induced forward transfer.	10	L3	CO3
	b.	Explain the Beam Deposition process. Discuss the factors affecting the beam deposition.	10	L3	CO3
Module – 4					
Q.7	a.	Discuss the process involved in PPC.	10	L3	CO4
	b.	Describe the challenges of process selection of AM.	10	L3	CO4
OR					
Q.8	a.	List the types of post processing operations and discuss the support removal techniques.	10	L3	CO4

	b.	Discuss the steps involved in preparing the CAD Model for AM and the problems with STL files.	10	L3	CO4
Module – 5					
Q.9	a.	Describe remanufacturing. Explain the applications and benefits of AM in remanufacturing.	10	L3	CO4
	b.	Write a short note on : (i) Align technology. (ii) LCC in Additive Manufacturing.	10	L3	CO4
OR					
Q.10	a.	Elucidate the Engineering Analysis Models of additive manufacturing.	10	L3	CO3
	b.	Discuss the discrete and porous multiple material processes. Explain its challenges.	10	L3	CO3
