

# CBCS SCHEME

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18ME741

Seventh Semester B.E. Degree Examination, Dec.2023/Jan.2024

## Additive Manufacturing

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Differentiate between CNC and Additive Manufacturing. (10 Marks)  
b. Explain Additive Manufacturing Process Chain. (10 Marks)

OR

- 2 a. What is Additive Manufacturing? What are the benefits of AM? (10 Marks)  
b. With a block diagram, explain general integration of AM machine. (10 Marks)

### Module-2

- 3 a. With a neat sketch, explain photopolymerization process. (10 Marks)  
b. What are benefits and drawbacks of use of photopolymerization technology? (10 Marks)

OR

- 4 a. With a neat sketch, explain Selective Laser Sintering (SLS) process. (10 Marks)  
b. What is extrusion based system? With a neat sketch, explain Fused Deposition Modelling (FDM). (10 Marks)

### Module-3

- 5 a. With a neat sketch, explain the working of Laminated Object Manufacturing (LOM). (10 Marks)  
b. Write a note on research achievements in printing deposition process. (10 Marks)

OR

- 6 a. Explain with neat sketch, Beam Deposition Process. List advantages and limitations of the process. (10 Marks)  
b. What is direct write technology? Explain Ink based direct write technology. (10 Marks)

### Module-4

- 7 a. Write a note on selection methods for a part. (10 Marks)  
b. Explain the following post processing operations:  
(i) Support material removal  
(ii) Surface texture improvements (10 Marks)

OR

- 8 a. Explain different types of problems that occur in STL file. (10 Marks)  
b. Explain the following post processing operations :  
(i) Accuracy improvements  
(ii) Preparation for use as pattern (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

**Module-5**

- 9 a. Write a note on AM applications in the field of  
(i) Medical  
(ii) Automobile (10 Marks)
- b. Write a note on:  
(i) Align technology  
(ii) Siemens and phonak hearing (10 Marks)

**OR**

- 10 a. Write a note on AM applications in the field of  
(i) Aerospace  
(ii) Industrial design (10 Marks)
- b. Write a note on:  
(i) Life cycle Costing  
(ii) Future of direct digital marketing (10 Marks)

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