B.E DEGREE EXAMINATIONS: APRIL / MAY 2024

(Regulation 2018)

Seventh Semester

AERONATICAL ENGINEERING

U18AEE0018: Additive Manufacturing and Tooling

COURSE OUTCOMES

CO1: Classify the concepts and terminologies of additive manufacturing

CO2: Apply the reverse engineering concepts for design development

CO3: Identify the variety of additive manufacturing techniques based on end product applications

CO4: Design and develop newer tooling models

CO5: Familiarise with cutting edge technologies in rapid tooling and manufacturing

CO6: Analyse the cases relevant to Additive manufacturing

Time: Three Hours   **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

1. Compare AM with conventional Manufacturing.	CO1	[K$_2$]
2. Write notes on STL file format in AM.	CO1	[K$_2$]
3. Discuss the 3-D Scanning and 3-D digitizing.	CO2	[K$_2$]
4. What do you meant by detail design?	CO2	[K$_2$]
5. Justify the benefits of post processing.	CO3	[K$_2$]
6. Which material is suitable for FDM?	CO3	[K$_2$]
7. List any two benefits of using liquid based RPT over solid based RPT.	CO4	[K$_2$]
8. Enumerate any two advantages of LOM.	CO4	[K$_2$]
9. Define Rapid Tooling.	CO5	[K$_2$]
10. Compare rapid tooling with conventional tool.	CO6	[K$_2$]

Answer any FIVE Questions:-

PART B (5 x 16 = 80 Marks)

(Answer not more than 400 words)

11. Explain the Classification of AM processes.	16	CO1	[K$_2$]
12. a) Explain the reverse engineering concept.	10	CO2	[K$_2$]

b)	Explain about CAD model preparation in AM.	6	CO2	[K$_2$]
13.	Explain with neat sketch for AM process belongs to liquid based with resin material. List the advantages, disadvantages and applications.	16	CO3	[K$_2$]
14.	Explain laminated object manufacturing (LOM) process with diagram.	16	CO3	[K$_2$]
15.	State the basic principles of the SGC and explain its process with neat sketch. List the advantages, disadvantages and applications of SGC.	16	CO5	[K$_2$]
16. a)	Explain the Classification of Rapid Tooling.	10	CO6	[K$_2$]
b)	List the benefits of Rapid Tooling.	6	CO6	[K$_2$]

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