



B.E/B.TECH DEGREE EXAMINATIONS: NOV/DEC 2022

(Regulation 2018)

Third Semester

(Common to Automobile, ECE, EEE, EIE, ISE, IT Branches)

U18MCR0001 – Fundamentals of 3D Printing

COURSE OUTCOMES

- CO1:** Discuss the basics concepts of 3D printing technology.
CO2: Explain the basics of computer graphics.
CO3: Develop CAD models for 3D printing.
CO4: Select a specific material for the given application.
CO5: Explain various method for designing and modeling for industrial applications.
CO6: Import and Export CAD data and generate .stl file.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

- | | |
|--|-----------------------|
| 1. Write a short note on “3D Printing”. | CO1 [K ₂] |
| 2. Contrast additive manufacturing and conventional manufacturing. | CO1 [K ₃] |
| 3. Define computer graphics. | CO2 [K ₂] |
| 4. List two transformations under viewing and explain them. | CO2 [K ₂] |
| 5. Enumerate the different stages in product development cycle. | CO3 [K ₂] |
| 6. Write few CAD modelling softwares. | CO3 [K ₂] |
| 7. List the factors to be considered for material selection for 3D printing. | CO4 [K ₂] |
| 8. Discuss how ABS material is used in medical applications. | CO4 [K ₂] |
| 9. Explain how 3D printing is used in education. | CO5 [K ₂] |
| 10. Write a short note on stl file format. | CO6 [K ₂] |

Answer any FIVE Questions:-

PART B (5 x 16 = 80 Marks)

(Answer not more than 400 words)

- | | |
|--|-----------------------|
| 11. With a diagram, discuss the general working principle (five-steps) of 3D printing in detail. | CO1 [K ₃] |
| 12. With examples, discuss the various transformation that are applied in computer | CO2 [K ₃] |

graphics.

13. Considering a bottle as a product, justify whether it is part model or an assembly model. Explain the procedure to model the same in Solid Works. CO3 [K₃]
14. Classify 3D printing techniques based on the materials used. Explain how acrylate resin is used in Stereolithography for making products. CO4 [K₃]
15. Explain with examples, the 3D Printing applications in various domains. CO5 [K₃]
16. List the neutral formats available in exporting 3D models. Discuss the importance of stl file in 3D printing. CO6 [K₃]
