



B.E. DEGREE EXAMINATIONS: NOV/DEC 2022

(Regulation 2018)

Third Semester

MECHANICAL ENGINEERING

U18MET3004: Computer Aided Design

COURSE OUTCOMES

- CO1:** Apply the concepts of computer graphics and graphics systems
CO2: Apply transformations and graphics pipeline procedure.
CO3: Apply the concepts of various types of curves and surfaces.
CO4: Practice the solid modelling features
CO5: Apply various Graphic file standards with their importance.
CO6: Apply Interactive Computer Programming techniques.

Time: Three Hours

Maximum Marks: 100

**Answer all the Questions:-
 PART A (10 x 2 = 20 Marks)
 (Answer not more than 40 words)**

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|--|-----|-------------------|
| 1. Infer the idea behind the working of line drawing algorithm. | CO1 | [K ₂] |
| 2. CAD systems are useful for implementing concurrent engineering. Justify. | CO1 | [K ₂] |
| 3. Differentiate Viewing from Clipping. | CO2 | [K ₂] |
| 4. Give the procedure for transformations between the co-ordinate systems. | CO2 | [K ₂] |
| 5. Summarize the important properties of Bezier curve. | CO3 | [K ₂] |
| 6. Discuss about the blending surface. | CO3 | [K ₂] |
| 7. Show the various types of sweep representation in a solid model. | CO4 | [K ₂] |
| 8. Illustrate with block diagram about the steps in generation of assembly models. | CO4 | [K ₂] |
| 9. Explain the requirements of CAD data exchange. | CO5 | [K ₂] |
| 10. Indicate with the aid of neat sketch, the types of colors in a HSV (Hue Space Vector) color model. | CO6 | [K ₂] |

**Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)**

11.	Explain with example about the Bresenham algorithm for straight line.	16	CO1	[K ₂]
12.	Illustrate and Explain translation, rotation, scaling, reflection, shear in 2D transformation.	16	CO2	[K ₃]
13.	Explain in detail about B-Spline curves and surfaces.	16	CO3	[K ₂]
14.	Outline the boundary representation technique in solid modeling.	16	CO4	[K ₂]
15.	a) Utilize the worst-case arithmetic method for tolerance analysis	8	CO4	[K ₃]
	b) Explain with example about the assembly modeling techniques.	8	CO4	[K ₂]
16.	a) Summarize the general structure of IGES format.	8	CO5	[K ₂]
	b) Compare CMY and RGB color model for engineering application.	8	CO6	[K ₂]
