



B.E DEGREE EXAMINATIONS: NOV/DEC 2024

(Regulation 2018)

Fifth Semester

MECHANICAL ENGINEERING

U18MEE0004: Design for Manufacturing and Environment

COURSE OUTCOMES

- CO1:** Understand the basics of DFM
CO2: Outline the factors of material and casting influencing form design.
CO3: Demonstrate machining and casting considerations in component design.
CO4: Understand and demonstrate the environmental considerations and assessment methods
CO5: Design a component with environmental considerations.
CO6: Apply the DFM Concepts.

Time: Three Hours

Maximum Marks: 100

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

- | | |
|--|-----------------------|
| 1. Describe manufacturing datum. | CO1 [K ₂] |
| 2. Express 'Basic Size' with an example. | CO1 [K ₂] |
| 3. Explain the major classification of material properties | CO1 [K ₂] |
| 4. Express any two design rule to facilitate arc welding. | CO2 [K ₂] |
| 5. Cite any two design rules for designing machine parts. | CO3 [K ₂] |
| 6. Explain clampability with an example. | CO3 [K ₂] |
| 7. Infer design for re manufacture | CO4 [K ₂] |
| 8. Observe examples for environmental global issues. | CO4 [K ₂] |
| 9. Indicate any two DFME softwares. | CO5 [K ₂] |
| 10. Discuss design for recycling | CO5 [K ₂] |

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

11.	Explain design principles for manufacturability with suitable examples	16	CO1	[K ₃]
12.	a) Explain form design of steel casting with examples	8	CO2	[K ₃]
	b) Explain rules for welding with suitable examples	8	CO2	[K ₃]
13.	Record simplification by separation and simplification by amalgamation with suitable examples.	16	CO3	[K ₃]
14.	a) Illustrate with examples the identification of possible and probable parting line in casting	10	CO3	[K ₂]
	b) Articulate cast holes and drilled holes with illustrations.	6	CO3	[K ₂]
15.	a) Write the design guidelines for design for environment with examples.	8	CO4	[K ₃]
	b) Explain AT&Ts environmentally responsible product assessment	8	CO4	[K ₃]
16.	a) Explain with suitable example redesign for manufacture	8	CO5	[K ₃]
	b) Collect few design softwares for DFE and its applications.	8	CO6	[K ₃]
