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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E. **Semester: VII**

Branch: Industrial Engineering and Management **Duration: 3 hrs.**

Course Code: 22IM7PEIDE **Max Marks: 100**

Course: Industrial Design and Ergonomics

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	CO	PO	Marks
1	a)	Explain the general approach to the man-machine relationship in ergonomics with a case study.	CO1	PO1	**10**
	b)	Explain the elements of design structure for engineering applications in modern manufacturing systems with examples.	CO2	PO2	**10**
		OR			
2	a)	Illustrate the role of industrial design in engineering applications, emphasizing its impact on product development.	CO1	PO2	**10**
	b)	Discuss the significance of ergonomics in industrial design with respect to modern manufacturing systems.	CO2	PO1 PO2	**10**
		UNIT - II			
3	a)	How are ergonomic principles applied in the design of machine tools? Discuss with examples.	CO1	PO1	**10**
	b)	Discuss the key principles of designing major controls in automobiles, providing examples.	CO2	PO2	**10**
		OR			
4	a)	Describe the design considerations for shapes and sizes of various controls and displays.	CO3	PO3	**10**
	b)	Explain the design challenges and solutions for multiple displays and control situations.	CO1	PO2	**10**
		UNIT - III			
5	a)	Discuss the importance of ergonomics in product design, providing examples from automated systems.	CO1	PO1	**10**
	b)	Explain the integration of ergonomics in automated systems, emphasizing its impact on production efficiency.	CO2	PO2	**10**

			OR			
	6	a)	How does the use of a computerized database improve the ergonomic design process? Provide examples.	*CO3*	*PO3*	**10**
		b)	Discuss the challenges of applying anthropometric data in product design with a relevant case study.	*CO3*	*PO3*	**10**
			UNIT - IV			
	7	a)	Explain the mechanics of seeing and its influence on industrial design.	*CO1*	*PO2*	**10**
		b)	Discuss the role of color in engineering equipment design, focusing on color consistency and reactions to color.	*CO3*	*PO3*	**10**
			OR			
	8	a)	How do line and form influence the aesthetics of industrial equipment? Provide examples.	*CO2*	*PO2* *PO3*	**10**
		b)	Discuss the psychology of seeing and its general influence on line and form in design.	*CO1*	*PO2* *PO3*	**10**
			UNIT - V			
	9	a)	Discuss the concept of unity, order with variety, and purpose in aesthetic design with examples.	*CO1*	*PO2*	**10**
		b)	Discuss the practical applications of industrial design, with a case study on a real-world product.	*CO3*	*PO3*	**10**
			OR			
	10	a)	Explain the role of style in industrial design, emphasizing components like house style and observation style.	*CO2*	*PO3*	**10**
		b)	Analyze the aesthetic expressions in capital goods, providing examples from industrial design.	*CO3*	*PO3*	**10**

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