CBCS SCHEME

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21ME744

Seventh Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
Product Design and Ergonomics

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-1

1 a. Define Product Design and explain its importance in the production – consumption cycle. (10 Marks)

b. Differentiate between Design by Evaluation and Design by Innovation. (Add 2 examples each). (10 Marks)

OR

2 a. Explain the seven phases of design in Asimow's model and their significance in product development. (10 Marks)

b. What is the significance of allowance in product design? How does it impact manufacturing process? (10 Marks)

Module-2

3 a. Define Ergonomics and explain its relevance in Industrial design. (06 Marks)

b. Explain the significance of man-machine relationship in workstation design. (07 Marks)

c. What are anthropometric data, how are they applied in ergonomic design. (07 Marks)

OR

4 a. Explain the general approach to designing a workstation in terms of ergonomics. (08 Marks)

b. How is computerized anthropometric data used in modern product design? (07 Marks)

c. Explain the role of ergonomics in automated systems. (05 Marks)

Module-3

5 a. Define the concept of unity in aesthetics and explain its importance in product design. (06 Marks)

b. What does the concept of order with variety mean? How is it applied in design? (08 Marks)

c. Discuss the concept of purpose in aesthetic design. (06 Marks)

OR

6 a. Define the components of style in design and describe how they contribute to a product's identity. (07 Marks)

b. What is a case study and how can it be used to understand aesthetic concepts in design. Add suitable example. (08 Marks)

c. Compare the principles of house style and observation style, highlighting their applications in design. (05 Marks)

Module-4

7 a. Define the mechanics of seeing and explain its relevance to understanding line and form. (06 Marks)

b. What are the general influences of line on human perception? (07 Marks)

c. Discuss how form impacts visual communication and design aesthetics. (07 Marks)

OR

8 a. Evaluate the role of form in creating harmony and constraint in a design. Provide examples from industrial or graphic design. (10 Marks)

b. Consider a case where the inappropriate use of line and form negatively affected a design. How could understanding their visual effects have improved the outcome. (10 Marks)

Module-5

9 a. Define Office ergonomics and explain its significance in improving productivity and comfort. (10 Marks)

b. What is ergonomics of technology management and how does it impact organizational efficiency. (10 Marks)

OR

10 a. Define Consumer Ergonomics and its role in product design. (06 Marks)

b. How do ergonomics contribute to ensuring quality and safety in the workplace? (07 Marks)

c. Define Quality of life and explain how ergonomic principles influence it. (07 Marks)

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