



M.TECH. DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Second Semester

COMMON TO BIO / EST / IE

P18INT0002: Product Design and Development

COURSE OUTCOMES

- CO1:** Apply concepts of product development and outline product planning process.
- CO2:** Apply relative importance of customer needs in establishing product specifications.
- CO3:** Identify concept generation activities and summarize the methodology involved in concept selection and testing.
- CO4:** Outline supply chain considerations in product architecture and understand the industrial design process.
- CO5:** Apply design for manufacturing concepts in estimating manufacturing costs.
- CO6:** Apply principles of prototyping in product development economics and highlight importance of managing projects.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Assertion (A): Market share and customer willingness to pay are the ultimate indicators of product quality. CO1 [K₂]
Reason (R): For a specific sales volume and a specific sales price, product cost influences how much profit the company makes.
- a) Both (A) and (R) are true and (R) is the correct reason for (A)
 - b) Both (A) and (R) are true and (R) is not the correct reason for (A)
 - c) (A) is false but (R) is true
 - d) (A) is true but (R) is false

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|-----|---|--|-----|-------------------|
| 19. | What purposes do prototypes serve? | | CO5 | [K ₂] |
| 20. | When ought economic analysis to be carried out? | | CO6 | [K ₂] |

PART C (10 x 5 = 50 Marks)

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|-----|---|--|-----|-------------------|
| 21. | Describe the characteristics of product development | | CO1 | [K ₂] |
| 22. | Clarify the four types of product development projects | | CO1 | [K ₂] |
| 23. | What is mission statement and tell its importance | | CO2 | [K ₂] |
| 24. | Advocate some general hints for effective interaction with customers | | CO2 | [K ₂] |
| 25. | Put forward available apparent methods to external search for solutions | | CO3 | [K ₂] |
| 26. | Explain the concept testing procedure | | CO3 | [K ₃] |
| 27. | Identify the key motives for product change | | CO4 | [K ₂] |
| 28. | Elucidate the qualitative factors influencing project success | | CO5 | [K ₂] |
| 29. | Discuss the elements of economic analysis | | CO5 | [K ₂] |
| 30. | Demonstrate the concept of CAVEATS in projects | | CO6 | [K ₂] |

Answer any TWO Questions

PART D (2 x 10 = 20 Marks)

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|-----|--|---|-----|-------------------|
| 31. | (a) Suggest the three functions which are central to a product development project | 5 | CO1 | [K ₃] |
| | (b) What are the short comes of inefficient product planning | 5 | | |
| 32. | Assess the importance of industrial design using the ergonomic dimensions | | CO4 | [K ₃] |
| 33. | Elucidate the principles of prototyping in detail | | CO5 | [K ₂] |
