KUMARAGURU
college of technology
character is life

M.TECH DEGREE EXAMINATIONS: NOV/ DEC 2024

(Regulation 2024)

First Semester

TECHNICAL TEXTILES

24TXT502: Engineering Textiles

COURSE OUTCOMES

CO1: Apply engineering principles and concepts to distinguish between traditional and function-focus fibrous products.

CO2: Analyze the product development cycle to coordinate effectively in textile product development

CO3: Evaluate design conceptualization techniques to formulate effective textile product design concepts

CO4: Create textile product models using advanced modelling techniques to optimize design and performance.

CO5: Analyze material selection criteria to ensure the best performance and cost-effectiveness in textile products.

Time: Three Hours   **Maximum Marks: 100**

PART A (4*20 = 80 Marks)

1.	a)	Is textile engineering considered an engineering discipline? Provide a definition.	(2)	CO1	[K_1]
	b)	Are scientists and engineers the same? Highlight the differences.	(2)	CO1	[K_2]
	c)	Apply the fundamental concepts in the field of engineering with detailed explanations.	(16)	CO1	[K_3]
2.	a)	Traditionally, product development has been viewed primarily as an engineering challenge. Discuss the nature of product development in today's competitive market	(2)	CO2	[K_2]
	b)	A traditional technologist typically follows a 'product-in' approach. Explain this approach with examples.	(2)	CO2	[K_2]
	c)	Evaluate the fundamental steps of a product development project in detail.	(16)	CO2	[K_5]

3. a) Product justification relies on four key factors. Describe each of them.   (2)   CO3   [K$_2$]

    b) Explain the term 'Creative Emotion' in the context of problem-solving.   (2)   CO3   [K$_2$]

    c) Examine the key tasks involved in a product design cycle in detail.   (16) CO3   [K$_4$]

4   a) Identify and state the basic differences between pure mathematical modeling   (2)   CO4   [K$_1$]
        and empirical modeling.

    b) Summarize the purpose of conducting failure analysis on a material and   (2)   CO4   [K$_3$]
        describe the causes of failure.

    c) Apply and demonstrate the principles and elements of modeling in Artificial   (16)   CO4   [K$_3$]
        Neural Networks (ANN) in detail.

Answer any ONE Question
PART B (1*20 = 20 Marks)

5. a) List and explain the basic selection criteria for choosing an appropriate   (4)   CO5   [K$_2$]
        material during material selection.

    b) Assess the material cost-performance analysis in detail.   (16)   CO5   [K$_5$]

                                              OR

6. a) Define the following terms (i) Yield strength, (ii) Toughness   (4)   CO5   [K$_2$]

    b) Critically analyze material categorization, focusing on the classification and   (16)   CO5   [K$_5$]
        properties of polymers and composites in detail.

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