



GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering

Subject Code: 3172015

Semester – VII

Subject Name: Industrial Design and Applied Ergonomics

Type of course: Engineering Science (Open Elective)

Prerequisite: Zeal to learn the subject

Rationale: This course aims at developing the concepts of ergonomics and aesthetics for a product and how they can be applied for industrial product. It also sets up the understanding of importance of color, form, display and style in a product such as automobiles, machines and instruments.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	0	3	70	30	0	0	100

Content:

Sr. No.	Content	Total Hrs
1	Introduction: An approach to industrial design -elements of design structure for industrial design in engineering application in modern manufacturing systems, general approach to the man-machine relationship- workstation design-working position.	08
2	Control and Displays: Shapes and sizes of various controls and displays-multiple, displays and control situations - design of major controls in automobiles, machine tools etc.	09
3	Ergonomics and Production: ergonomics and product design -ergonomics in automated systems- expert systems for ergonomic design. Anthropometric data and its applications in ergonomic, design- limitations of anthropometric data, use of computerized database.	06
4	Visual Effects of Line and Form: The mechanics of seeing- psychology of seeing general influences of line and form, Colour and light -colour and objects- colour and the eye -colour consistency- colour terms- reactions to colour and colour continuation -colour on engineering equipments.	06
5	Aesthetic Concepts: Concept of unity- concept of order with variety -concept of purpose style and environment, Aesthetic expressions, components of style - house style, observation style in capital goods, case study.	07
6	Industrial Design in Practice: General design -specifying design equipments - rating the importance of industrial design - industrial design in the design process.	06



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Suggested Specification table with Marks (Theory): (For BE only)

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
30	30	10	10	10	10

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1. Industrial Design for Engineers - Mayall W.H. - London Hiffie books Ltd. -1988.
2. Introduction to Ergonomics - R. C. Bridger - McGraw Hill Publications - 1995.
3. Human Factor Engineering - Sanders & McCormick - McGraw Hill Publications – 6 th edition, 2002.

Course Outcomes:

After successful completion of the course the students shall be able to:

Sr. No.	CO statement	Marks % weightage
CO-1	Understand the aspect and importance of industrial design and ergonomics	25
CO-2	Understand the importance of controls and displays	25
CO-3	Understand the importance of ergonomics and aesthetics for a product	25
CO-4	Understand the importance of visual effects of line and colour	25

List of Open Source Software/learning website:

www.nptel.ac.in