

## Design Courses for B.Tech. Students

The two courses are the foundational courses in design for B. Tech. students. These courses will introduce design to undergraduate students and help them to apply their learnings in their academic and non-academic projects. The following abbreviation is used in the syllabus:

L: Lecture

T: Tutorial

P: Laboratory

S: Studio

CH: Contact Hours

CR: Credit

Course Number: DD - 301	L	T	P	S	CH	Credits
Course Name: Introduction to design	1	0	0	2	3	3

### Course Objective:

The course will introduce the fundamentals of design and discuss their applications in various design disciplines.

### Course Outcomes/Learnings

- Understanding about design and its evolution throughout history.
- Students will learn to identify characteristic features of each design movement and they can apply these learning in their assignments and future projects.
- Students will learn about the fundamentals of design and to apply them in classroom assignments and their academic projects.

### Syllabus:

#### **1. Industrial Design and its development – a brief history.**

Definitions of Design, Design movements: Arts and Crafts Movement, Art Nouveau, Modernism, Art Deco, Futurism, Bauhaus, Surrealism, Streamlining, Organic Design, Scandinavian Modern, Contemporary, Pop Art, Space Age, Minimalism, Postmodernism, Memphis, Deconstructivism.

[Assignment]

#### **2. Disciplines in design.**

- Industrial design - 3 Dimensional Design (Product Design, Ceramic and Glass Design, Furniture Design)
- Transportation design - Automotive design/Automotive styling.
- Visual communication - (Graphic Design, Typography, Animation Design, Motion Graphics, New Media Design, Exhibition Design, Packaging Design).
- Interaction design - (Human-Computer Interaction, Virtual Reality, Artificial Intelligence & Robotics)

[Assignment]

#### **3. Fundamentals of design**

A brief introduction to the elements of design (point, line, shape, space, form, value, color, and texture) and principles of design (balance, scale/proportion, contrast, pattern, emphasis, movement/rhythm, harmony, and unity). Introduction to Gestalt theory and its principles.

[Assignment]

#### **4. Industrial design and Engineering design**

Industrial Design and Engineering Design – a comparative analysis of their

approach. Industrial Design consideration in designing Products – User-Centered Design; Product Form; Human Factors; Material selection and Manufacturing Processes.

*[Assignments]*

**Text Books:**

- David Raizman.: History of modern design, Pearson Prentice Hall, 2011.
- Poppy Evans & Mark Thomas.: Exploring the elements of design, Cengage Learning, 2012.
- Charles H. Flurscheim.: Industrial design in engineering: a marriage of techniques. Design council, 1983.

**Reference Books:**

- Wucius Wong.: Principles of two-dimensional design. John Wiley & Sons, 1972.
- Marjorie Elliott Bevin.: Design Through Discovery: The Element and Principles. Wadsworth Publishing Co Inc. 1993
- Gail Greet Hannah.: Elements of Design: Rowena Reed Kostellow and the structure of visual relationships. Princeton Architectural Press, 2002.

**Case Studies:**

- Industrial design case studies on famous designs: Products by Charles Eames, Dieter Rams, James Dyson etc.
- Communication design case studies: famous logos and typography.

**Approach:**

- Class lectures and discussion on the fundamentals of design.
- Case study presentations.
- Individual and group assignments.

**Evaluation Criteria:**

- Understanding of the fundamentals and their applications in assignments.
- Active participation in class discussions.
- Performance in individual assignments and group assignments.
- Final submission of classwork.