

Code: 19ES1302

**II B.Tech - I Semester – Regular Examinations – MARCH 2021**

**DESIGN THINKING**  
**(Common to ALL Branches)**

Duration: 3 hours

Max. Marks: 70

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- Note: 1. This question paper contains two Parts A and B.  
2. Part-A contains 5 short answer questions. Each Question carries 2 Marks.  
3. Part-B contains 5 essay questions with an internal choice from each unit. Each question carries 12 marks.  
4. All parts of Question paper must be answered in one place
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**PART – A**

1. a) Discuss briefly about the history of the origin of Design Thinking.
- b) Outline any two stages followed in Design Thinking from Stanford frame work.
- c) Mention any four prototyping techniques.
- d) Define organizational Innovation and Explain it.
- e) Describe the advantages if predictability component exists in business.

**PART – B**

**UNIT – I**

2. a) Differentiate between Engineering Design process and Design Thinking. 6 M
- b) Describe the role of design thinking in making systematic innovations with any case study. 6 M

**OR**

3. a) Explain design thinking and the process models. 6 M  
b) Summarize the application of design thinking methodology in various fields of engineering and sciences. 6 M

### **UNIT – II**

4. a) Explain the various steps involved in Human-centered design process. 6 M  
b) Describe the role of empathy in design using a relevant illustration. 6 M

OR

5. a) Illustrate the Define phase of design thinking using a necessary example/ case study. 6 M  
b) Compose a short-written material to understand empathy tools. 6 M

### **UNIT-III**

6. a) Mention various methods used to ideate a concept. How do you conduct brainstorming? 6 M  
b) Compile the advantages and disadvantages of Brainstorming technique. Mention the applications. 6 M

OR

7. a) Differentiate between a model and a prototype. Describe the various methods of prototyping. 6 M  
b) Compare the relative merits and demerits of user testing/validation in Design thinking context. 6 M

### **UNIT – IV**

8. a) Differentiate between an Invention and an innovation (product design context) with an example. 6 M
- b) Explain the various levels of innovation in detail. 6 M

OR

9. a) Explain how teams are helpful during product innovation. 6 M
- b) How does a product be defined? Explain its classification. 6 M

### **UNIT – V**

10. a) Describe in detail about how the design thinking principles redefine business. 6 M
- b) How does design thinking principles help to make strategies in corporate work? 6 M

OR

11. a) Differentiate between a business model and a business strategy using relevant illustration. 6 M
- b) Summarize the following business challenges: Growth and Predictability. 6 M