

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD**  
**DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES**

**COURSE NAME-DESIGN THINKING**  
 (Open Elective) SYLLABUS FOR B.E. 3/4 – V SEMESTER

**W.E.F-2023-2024**

<b>Instruction: 3 Hours</b>	<b>SEE: 60</b>	<b>Course code: U21OE630EH</b>
<b>Credits: 3</b>	<b>CIE: 40</b>	<b>Duration of SEE: 3 Hours</b>
<b>COURSE OBJECTIVES</b>  <b>The course will enable the learners to:</b> <ol style="list-style-type: none"> <li>1. Understand the critical design thinking skills needed to either improve an existing product or thinking design a new product.</li> <li>2. Learn to identify customer needs and draft customer needs statements as your first step toward user innovations.</li> <li>3. Learn how to translate user needs into product specifications quantitatively, and how establishing product metrics can help to define those specifications.</li> <li>4. Learn to apply creativity, brainstorming, and concept generation process in designing needs solutions.</li> <li>5. Learn to select and implement a product development process that's aligned with your project needs. Explore prototyping methods, strategies, and real-life examples where these have been applied to create a design that represents customer needs and product specifications.</li> </ol>		<b>COURSE OUTCOMES</b>  <b>At the end of the course the learners will be able to: -</b> <ol style="list-style-type: none"> <li>1. Learn the concepts that drive design thinking.</li> <li>2. Submit project ideas around user Innovations.</li> <li>3. Identify prospective customer needs and user groups.</li> <li>4. Translate needs into product specifications</li> <li>5. Build out the product architecture, Create a prototype and present the prototype.</li> </ol>

**Unit 1: Design Thinking Skills**

Understand the critical design thinking skills needed to either improve an existing product or design a new product.

- 1.1 The Need for Design Thinking
- 1.2 What makes design thinking unique?
- 1.3 Design thinking checklist

**Unit 2: Identifying Customer Needs**

Learn to identify customer needs and draft customer needs statements as your first step towards user innovations.

- 2.1 Think Users' First
- 2.2 Users' inherent needs
- 2.3 Empathy and Design Thinking
- 2.4 Asking the Right Questions
- 2.5 Persona Empathy map

**Unit 3: Product Specifications**

Learn how to translate user needs into product specifications quantitatively, and how establishing product metrics can help define those specifications

- 3.1 Creating a Design Brief Template
- 3.2 Stakeholder map template
- 3.3 Customer journey template
- 3.4 Context map template
- 3.5 Opportunity map template

## Unit 4: Applied Creativity

Learn to apply creativity, brainstorming, and concept generation process in designing needs solutions.

- 4.1 The need to ideate
- 4.2 The Rules of ideation
- 4.3 Participating in an ideation session
- 4.4 Building a Creative Culture
- 4.5 Divergent—5 common ideation techniques

## Unit 5: Product Development Processes and Prototyping

Learn to select and implement a product development process that's aligned to your project needs. Explore prototyping methods, strategies, and real-life examples where these have been applied to create a design that represents customer needs and product specifications.

- 5.1 The need for a prototype
- 5.2 The Need to Test and how to conduct a structured test
- 5.3 How to conduct the observers' debrief

### METHODOLOGY

- Case Studies
- Demonstration
- Presentations
- Expert lectures
- Writing and Audio-visual lessons

### ASSESSMENTS

- Online assignments
- Individual and Group

### Suggested Books

The Art of Innovation, by Tom Kelley\*  
 Insight Out, by Tina Seelig\*  
 Change by Design, Tim Brown  
 Weird Ideas That Work, by Robert Sutton\*  
 Wired to Care, by Dev Patnaik  
 Rapid Viz, by Kurt Hanks and Larry Belliston

The break-up of CIE: Internal Tests + Assignments + Quizzes

1	No. of Internal tests	:	<input type="text" value="2"/>	Max. Marks	:	<input type="text" value="30"/>
2	No. of assignments	:	<input type="text" value="3"/>	Max. Marks	:	<input type="text" value="5"/>
3	No. of Quizzes	:	<input type="text" value="3"/>	Max. Marks	:	<input type="text" value="5"/>

Duration of Internal Tests : 90 Minutes

**Dr Jacqueline Amaral**  
 Head-HSS & BoS Chairman—VCE