

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

**COURSE NAME-DESIGN THINKING**  
**SYLLABUS FOR B.E. 3/4 – VI SEMESTER**  
 For Mechanical

**W.E.F-2025-2026**

<b>Instruction: (1+1)2 Hours</b>	<b>SEE: 40</b>	<b>Course code: U25HS640EH</b>
<b>Credits: 1</b>	<b>CIE: 30</b>	<b>Duration of SEE: 2 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 stages of design thinking and the role of empathy in design.</li> <li>2. Learn techniques to brainstorm and frame problem statements effectively.</li> <li>3. Develop prototyping and feedback techniques for iterative improvements.</li> <li>4. Apply design thinking to solve community challenges and real-world problems.</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. Students will articulate the stages of design thinking and create empathy maps for user-centered solutions.</li> <li>2. Students will use ideation tools and define clear, actionable problem statements.</li> <li>3. Students will create low-fidelity prototypes and refine solutions based on feedback.</li> <li>4. Students will demonstrate design thinking by creating innovative prototypes for specific challenges.</li> </ol>

**OVERVIEW:**

In a fast-changing world driven by innovation, AI, and user-centric solutions, Design Thinking equips engineering students with the mindset and tools to solve real-world problems creatively and collaboratively. This course introduces a structured, human-centered approach to innovation through empathy, ideation, prototyping, and iteration. Students will engage in hands-on activities that enhance creativity, adaptability, and practical problem-solving.

**UNIT 1: Introduction to Design Thinking**

Help build a strong foundation in user-centric innovation by understanding the design thinking process and developing empathy to uncover real user needs.

1.1 Stages of Design Thinking

1.2 Case Studies of Innovative Solutions

1.3 Empathy in Design

Learning Outcomes:

- Understand the five stages of the design thinking process
- Analyze real-world innovations using the design thinking lens
- Create empathy maps by observing and interpreting user needs

**UNIT 2: Ideation and Problem Definition**

Train to convert user insights into well-defined engineering problems and generate multiple solution ideas using structured creativity techniques.

*Jaqueline  
Dolfin*



- 2.1 Brainstorming Techniques
- 2.2 Framing the Right Problem Statement
- 2.3 Ideation Tools (Affinity Mapping)

Learning Outcomes:

- Generate multiple ideas using structured creativity techniques
- Frame user-centered problem statements from gathered insights
- Organize and cluster ideas using ideation tools

### **UNIT 3: Prototyping and Feedback**

Develop practical skills to rapidly prototype engineering solutions and iteratively improve them based on user testing and feedback.

- 3.1 Creating Low-Fidelity Prototypes
- 3.2 Gathering and Implementing Feedback
- 3.3 Iterative Improvements

Learning Outcomes:

- Design simple prototypes that communicate core ideas
- Collect meaningful feedback through observation and interaction
- Refine prototypes through successive iterations for better user fit

### **UNIT 4: Real-World Applications**

Learn to apply the full design thinking process to real-life engineering, business, or social challenges, enhancing teamwork and innovation readiness.

- 4.1 Design Thinking in Business and Technology
- 4.2 Creating Solutions for Community Challenges
- 4.3 Group Project: Prototype a Solution

Learning Outcomes:

- Apply the complete design thinking cycle to real-world problems
- Collaborate in teams to design and test user-centered solutions
- Present working prototypes and justify design decisions with user insights

### **Suggested Books**

1. Change by Design by Tim Brown (IDEO)
2. Creative Confidence by Tom Kelley & David Kelley
3. The Art of Innovation by Tom Kelley
4. The Design of Everyday Things by Don Norman

### **LEARNING RESOURCES**

[learn.talentsprint.com](https://learn.talentsprint.com)

*Jaqueline*



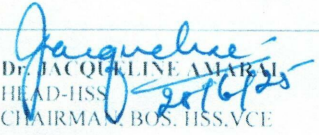

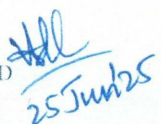

The break-up of CIE: Internal Tests + Assignments + Quizzes

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

Duration for SEE : 180 Minutes

SIGNATURES:-

 <b>Dr. JACQUELINE AMALAJI</b> HEAD-HSS CHAIRMAN, BOS, HSS,VCE	 <b>PROF. B. VIJAYA</b> HEAD, DEPARTMENT OF ENGLISH, OSMANIA UNIVERSITY & DIRECTOR, ENGLISH LANGUAGE TEACHING CENTRE (ELTC), OSMANIA UNIVERSITY
<b>Dr. JOY ANURADHA</b> SUBJECT EXPERT UNIVERSITY OF HYDERABAD 	<b>DR. JOY HANS</b> CORPORATE REPRESENTATIVE 
MEMBERS OF HSS, VCE :- <b>Dr. G. MEENA</b> <b>Dr. K. JHANSI RANI</b>	MEMBERS OF HSS, VCE :- <b>Dr. B. SHEELA RANI SIMON</b> <b>Dr. T. SUNAND EMMANUEL</b>