

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

COURSE NAME-DESIGN THINKING
SYLLABUS FOR B.E. 3/4 – V1 SEMESTER
For Mechanical

W.E.F-2025-2026

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

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.

Jacqueline
20/10/25

- 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

Jaguelene/

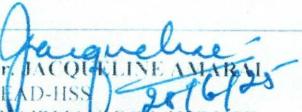
The break-up of CIE: Internal Tests + Assignments + Quizzes

1	No. of Internal tests	:	2	Max. Marks	:	30
2	No. of assignments	:	3	Max. Marks	:	5
3	No. of Quizzes	:	3	Max. Marks	:	5

Duration of Internal Tests : 90 Minutes

Duration for SEE : 180 Minutes

SIGNATURES:-

 Dr. JACQUELINE AMARAL HEAD-HSS CHAIRMAN, BOS, HSS, VCE <i>25/6/25</i>	<i>confidential</i> PROF. B. VIJAYA HEAD, DEPARTMENT OF ENGLISH, QM4502 007. OSMANIA UNIVERSITY HYDERABAD UNIVERSITY & DIRECTOR, ENGLISH LANGUAGE TEACHING CENTRE (ELTC), OSMANIA UNIVERSITY
Dr. JOY ANURADHA SUBJECT EXPERT UNIVERSITY OF HYDERABAD <i>25/6/25</i>	DR. JOY HANS CORPORATE REPRESENTATIVE <i>Joy Hans</i>
MEMBERS OF HSS, VCE :- Dr. G. MEENA Dr. K. JHANSI RANI	MEMBERS OF HSS, VCE :- Dr. B. SHEELA RANI SIMON Dr. T. SUNAND EMMANUEL