SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

An Autonomous Institution

DEPARTMENT OF CSE-IoT (CS & BCT)

COURSE NAME : 23GEB101 DESIGN THINKING AND INNOVATION

I YEAR II SEMESTER

UNIT I - Introduction

Topic: A brief insight to Design Thinking and Innovation

INTRODUCTION

Design Thinking is a powerful approach that combines empathy, creativity, and problem-solving to drive innovation. By deeply understanding user needs and iteratively testing solutions, this methodology helps organizations develop groundbreaking products and services.

What is Design Thinking?

1 Human-Centered

Design Thinking starts with understanding the people who will use the product or service.

2 Iterative

It's a cyclical process of prototyping, testing, and refining ideas based on user feedback.

3 Collaborative

Design Thinking brings together diverse perspectives to generate innovative solutions.

WHY DESIGN THINKING

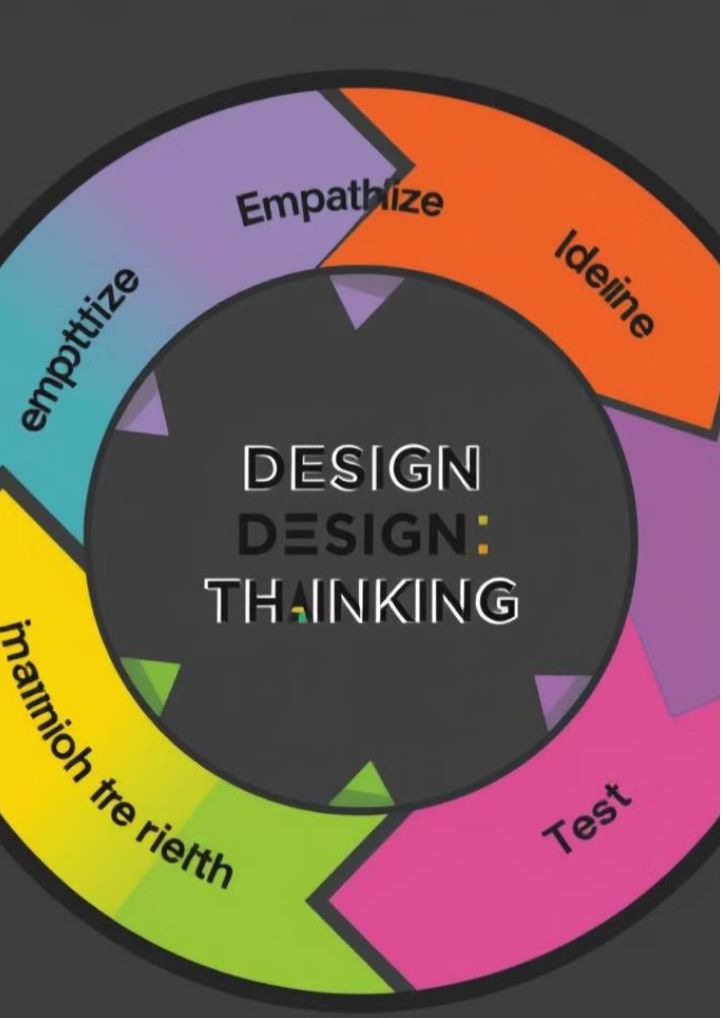
- Design thinking **fosters innovation**.
- Companies must innovate to survive and remain competitive in a rapidly changing environment.
- In design thinking, cross-functional teams work together to understand user needs and create solutions that address those needs.
- Moreover, the design thinking process helps unearth creative solutions.

WHY DESIGN THINKING

- **Innovation** is closely tied to Design Thinking.
- It refers to the process of translating ideas or inventions into products, services, or processes that create value and meet user needs in novel ways.
- Design Thinking enhances innovation by fostering an iterative, user-focused approach to problem-solving that encourages out-of-the-box thinking and adaptability.

WHY DESIGN THINKING

- Design teams use design thinking to tackle **ill-defined/unknown** problems (ie.,**wicked problems**).
- Wicked problems demand teams to think outside the box, take action immediately, and constantly iterate—all hallmarks of design thinking.
- Design thinking offers **practical methods and tools** that major companies like Google, Apple and Airbnb use to drive innovation. From architecture and engineering to technology and services, companies across industries have embraced the methodology to drive innovation and address complex problems



The 5 Stages of Design Thinking

1. Empathize

   Develop a deep understanding of user needs and pain points.

2. Define

   Frame the problem statement to guide the ideation process.

3. Ideate

   Generate a wide range of creative solutions to the defined problem.

Empathize: Understanding User Needs

Observe

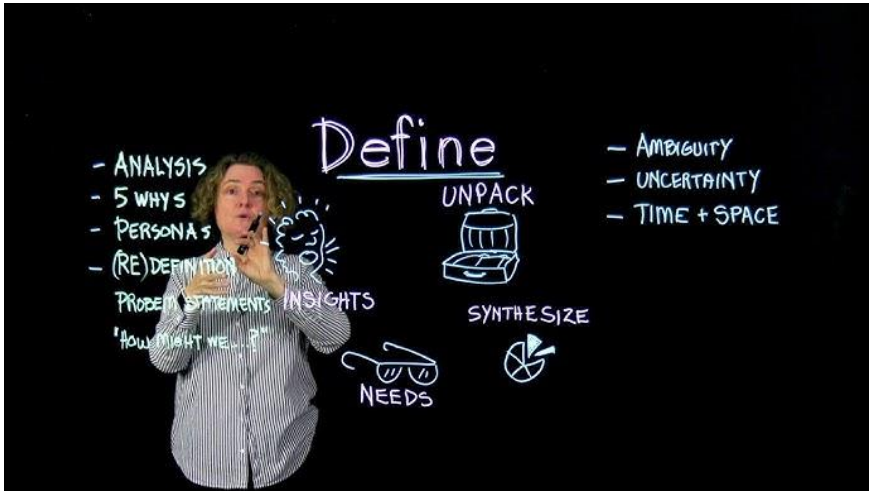
Watch users interact with the product or service to uncover their behaviors and pain points.

Engage

Interview users to deeply understand their motivations, challenges, and expectations.

Immerse

Experience the user's journey firsthand to gain a personal understanding of their perspective.



Define: Framing the Problem

Consolidate Insights

Analyze user research to identify patterns, pain points, and unmet needs.

Define the Problem

Craft a clear and concise problem statement to guide the ideation process.

Refine the Scope

Ensure the problem statement is specific, actionable, and feasible to address.

Ideate: Generating Creative Solutions

1 **Divergent Thinking**

Explore a wide range of ideas without judgment or constraints.

2 **Collaborative Ideation**

Bring diverse perspectives together to cross-pollinate ideas.

3 **Quantity over Quality**

Focus on generating a large number of ideas before evaluating them.

Prototype: Bringing Ideas to Life

1

Rapid Prototyping

Quickly create low-fidelity prototypes to test and refine ideas.

2

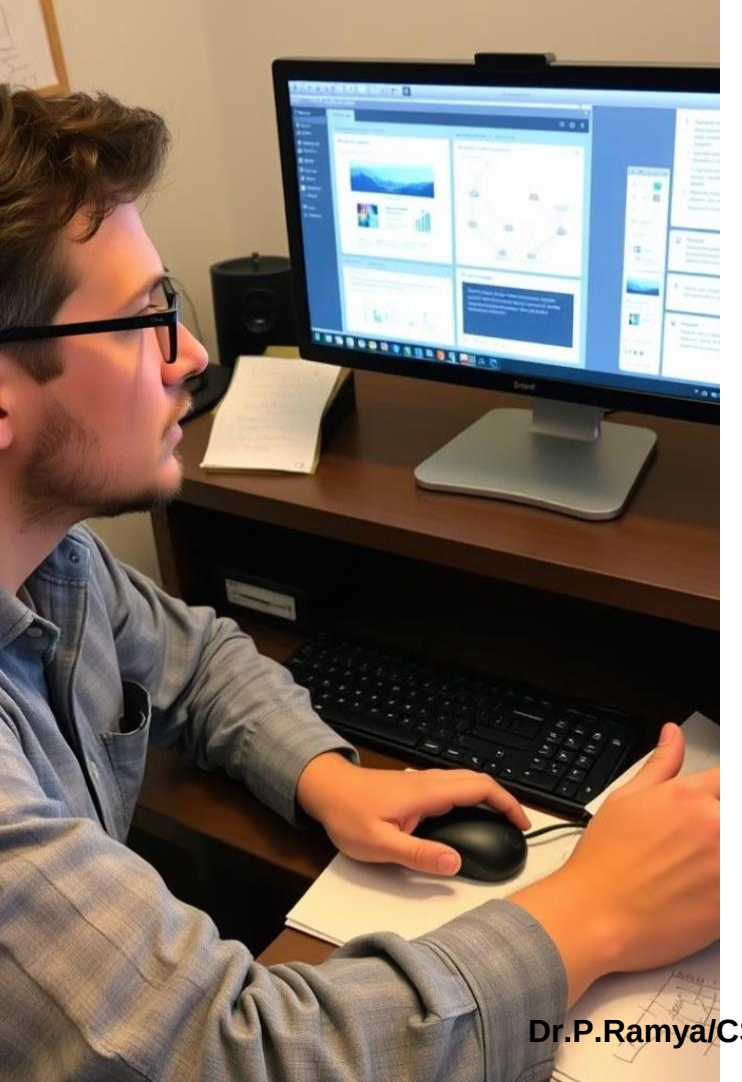
Gathering Feedback

Solicit feedback from users to understand the strengths and weaknesses of the prototype.

3

Iterating and Improving

Analyze user feedback and make adjustments to the prototype to enhance the solution.



Test: Iterating and Refining

User Feedback

Gather insights from real users to validate the effectiveness of the solution.

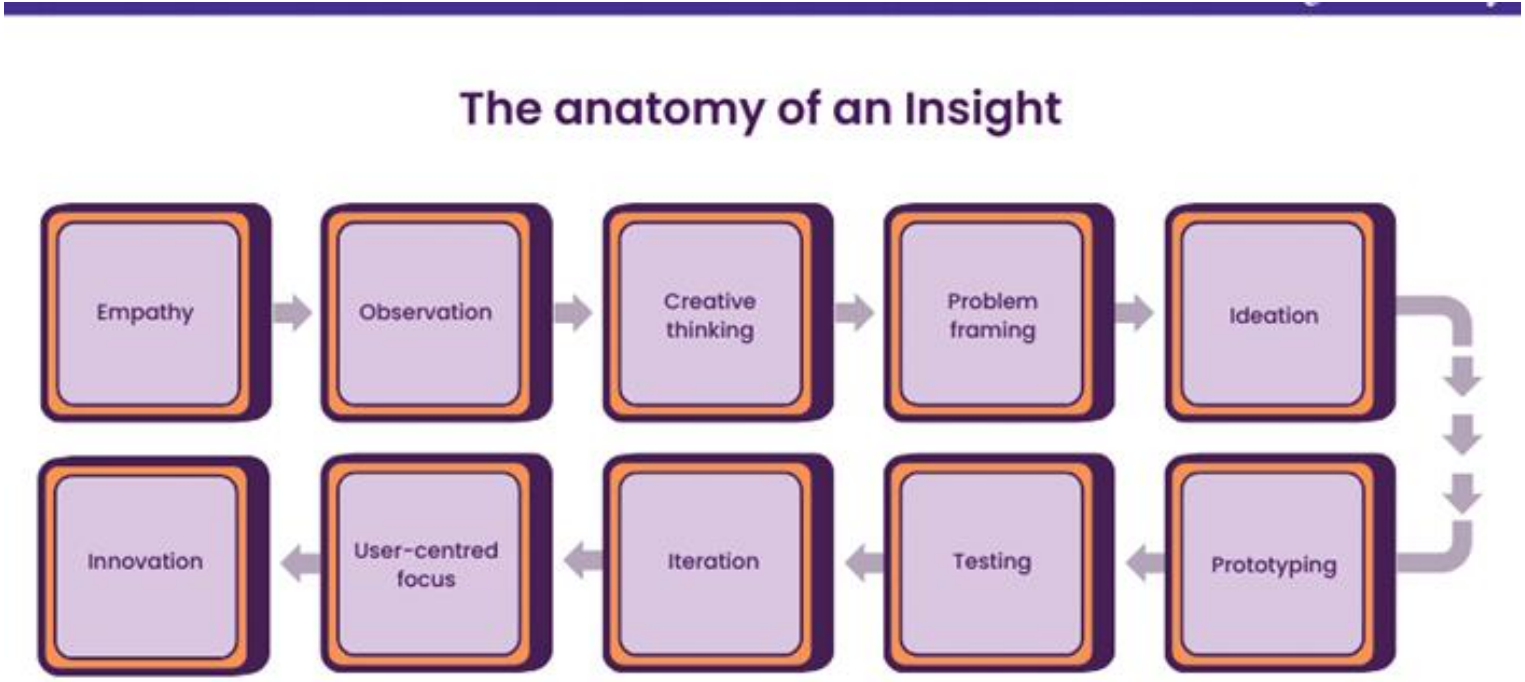
Identify Improvements

Analyze the test results to identify areas for further refinement and enhancement.

Iterative Refinement

Continuously refine the solution based on user feedback and testing insights.

THE ANATOMY OF AN INSIGHT



How to improve insight generation with Design Thinking?

Step 1: Be a detective

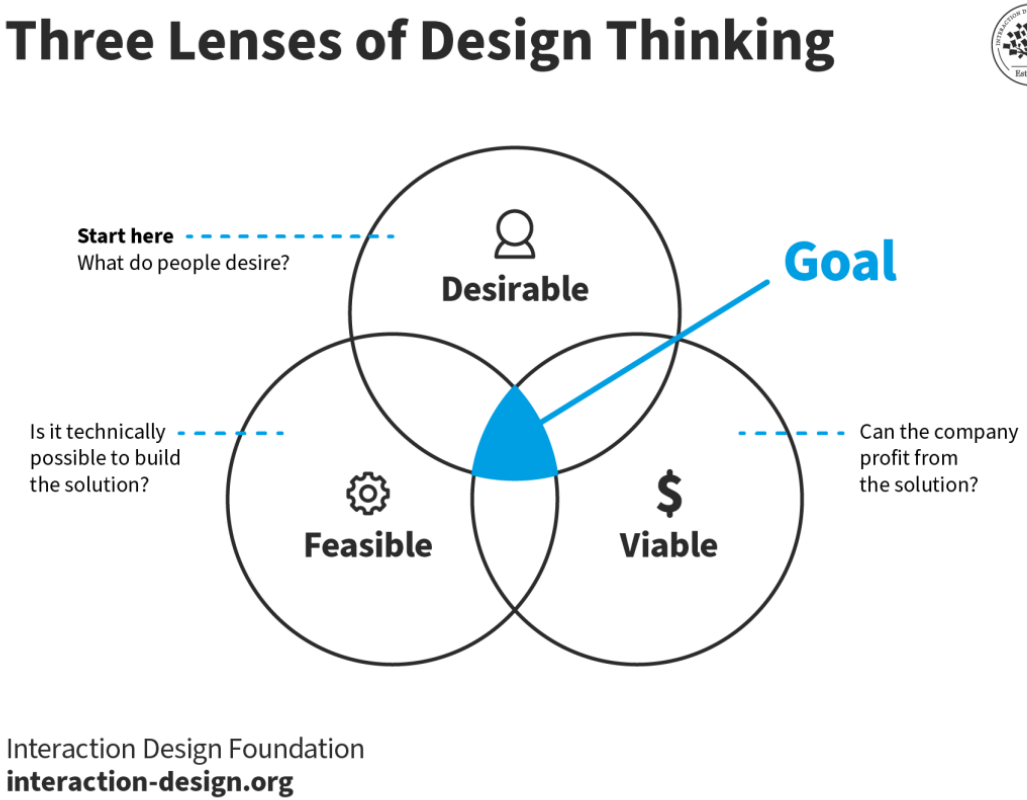
Step 2: Visualise

Step 3: Build empathy

Step 4: Prototyping

Step 5: Don’t let go

THE END GOAL OF DESIGN THINKING



DESIGN THINKING KEY MINDSETS

- Be empathetic
- Be collaborative
- Be optimistic
- Embrace ambiguity
- Be curious
- Reframe
- Embrace diversity
- Make tangible
- Take action

ASSESSMENT

1. Design Thinking is most effective when focused on which type of challenges?
    a) Highly technical challenges
    b) Human-centered problems
    c) Logistical supply chain issues
    d) Budgetary planning

2. Which of the following best describes Design Thinking?
    a) A linear problem-solving approach
    b) A user-centered, iterative process
    c) A process used only for product design
    d) A method to improve marketing strategies

ASSESSMENT

3. What is the first step in the Design Thinking process?
    a) Prototype
    b) Ideate
    c) Empathize
    d) Test

4. Which of the following is NOT a core principle of Design Thinking?
    a) Human-centered
    b) Collaboration
    c) Immediate implementation
    d) Experimentation

Reference

- https://www.interaction-design.org/literature/topics/design-thinking?srsltid=AfmBOor5Z8a_T2sjR1KRERkPbrTr70od5sdgvAMSeyBDEx7mhohJynkQ

- https://www.theknowledgeacademy.com/blog/design-thinking-insights/


Thank you