# SNS COLLEGE OF TECHNOLOGY

**Coimbatore-35**
**An Autonomous Institution**

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade(Cycle III)
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

# DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

## SMART IOT APPLICATIONS

### III YEAR/ V SEMESTER
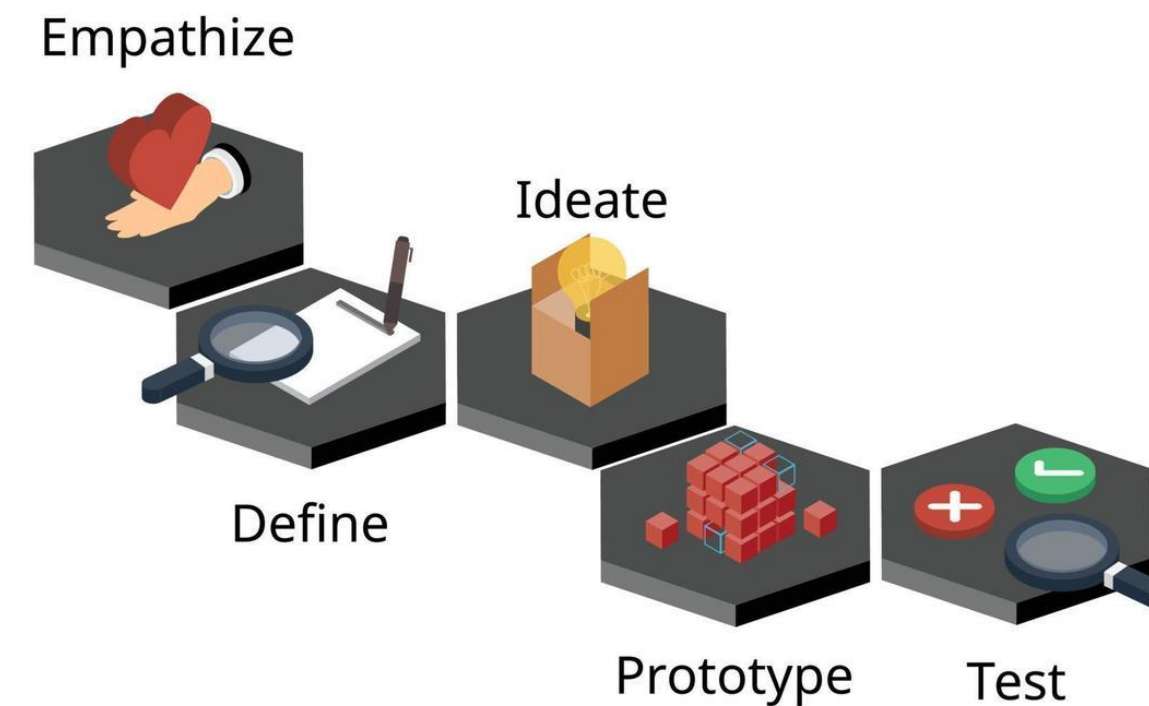
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## UNIT 1 –BASIC APPLICATIONS

## TOPIC-4  DESIGN THINKING BASED CASE STUDY IN WASTE MANAGEMENT

# What is Design Thinking?

• Human-centered approach to innovation

• Five phases: Empathize, Define, Ideate, Prototype, Test



Design Thinking Process

https://static.vecteezy.com/system/resources/previews/010/826/961/non_2x/design-thinking-process-for-way-of-working-that-seeks-to-understand-users-and-solve-problems-it-consists-of-five-phases-of-empathize-define-ideate-prototype-and-test-vector.jpg

# Waste Management Challenges

• Increasing waste generation

• Inefficient waste collection and disposal systems

• Environmental and health impacts

• Lack of public awareness and engagement

# APPLYING DESIGN THINKING TO WASTE MANAGEMENT

- Understanding the user needs and problems

- Reframing the problem statement

- Generating innovative solutions

- Prototyping and testing



https://mir-s3-cdn-cf.behance.net/project_modules/max_1200/07a6aa76950981.5dd2e8c1aac40.jpg

TOPIC 4 -DESIGN THINKING BASED CASE STUDY ON WASTE MANAGEMENT /SMART IOT APPLICATIONS /RAMYA  E/ECE/SNSCT

# EMPATHIZE PHASE

•Conducting interviews with stakeholders (residents, waste workers,

authorities)

•Observing waste management processes

•Identifying pain points and needs
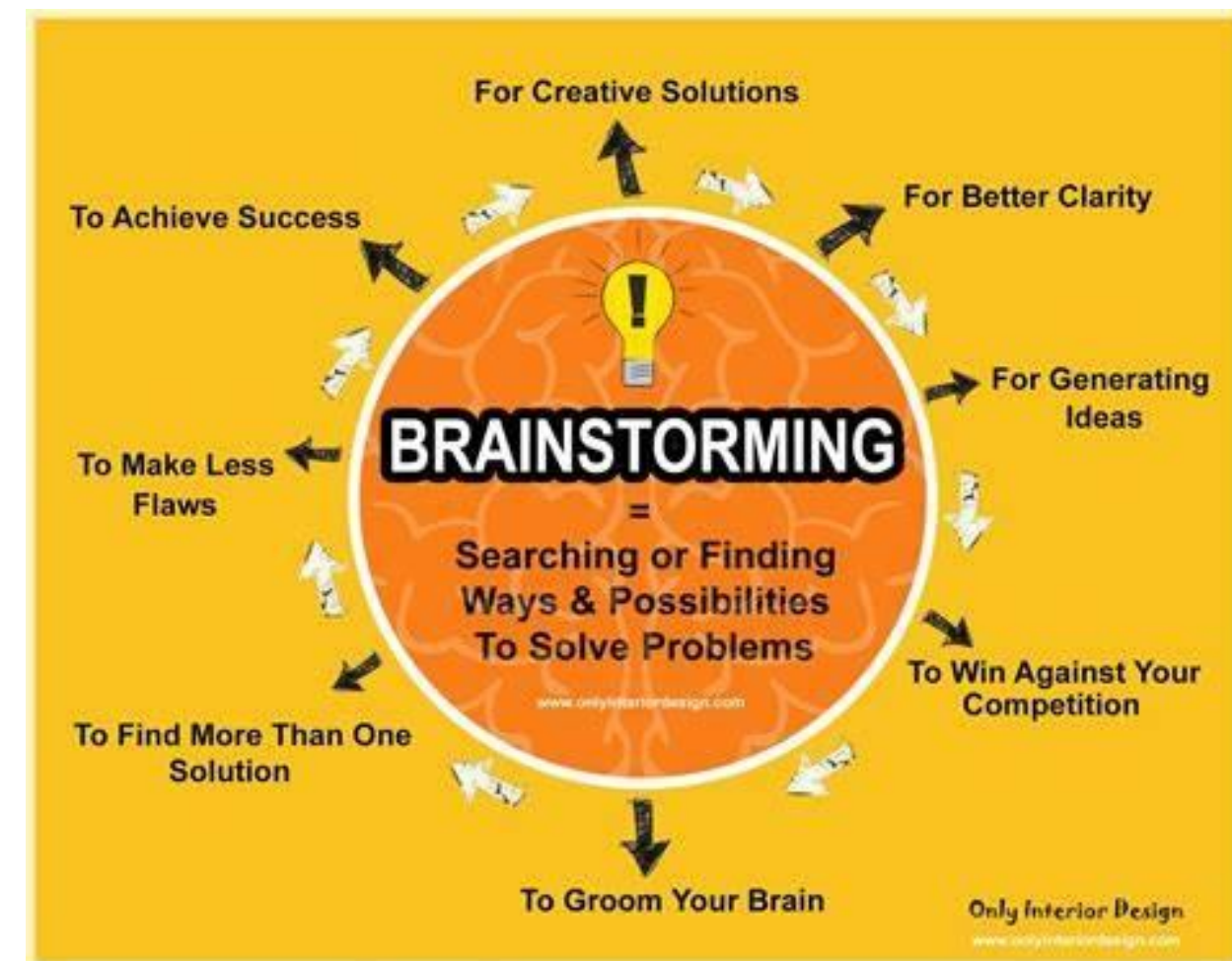
•Key insights gathered

# DEFINE PHASE

• Analyzing data from the empathize phase

• Creating user personas

• Formulating a clear problem statement

• Example problem statement: "How might we improve the efficiency of waste

collection in urban areas to reduce environmental impact?"

# IDEATE PHASE

• Brainstorming sessions with diverse teams

• Using creativity techniques (e.g., mind mapping, SCAMPER)

• Generating a wide range of ideas

• Selecting the most promising solutions



Reference: https://th.bing.com/th/id/OIP.V_8LHvs-LZE0aY6JFJLRPwAAAA?rs=1&pid=ImgDetMain

# PROTOTYPE PHASE

• Developing low-fidelity prototypes of selected solutions

• Iterative process of building, testing, and refining prototypes

• Examples of prototypes: Smart waste bins, mobile apps for waste

segregation, community composting units

# TEST PHASE

- Testing prototypes with real users

- Collecting feedback and observing usage

- Making necessary adjustments based on user feedback

- Measuring the impact of implemented solutions



Reference: https://th.bing.com/th/id/OIP.V_8LHvs-LZE0aY6JFJLRPwAAAA?rs=1&pid=ImgDetMain

# Assessment

1.What is Design thinking

2.List the steps in Design thinking

3.How Waste management  process done  using Design Thinking process

# REFERENCES

1. WWF, Living Planet Report 2012: Biodiversity, Biocapacity and Better Choices, WWF International, Gland, Switzerland 2012

2. WWF, Living Planet Report 2016: Risk and Resilience in a New Era, WWF International, Gland, Switzerland 2016.

3. N. Van Buren, M. Demmers, R. Van der Heijden, F. Witlox, Sustainability 2016, 8, 647.

# THANK YOU