



**PARVATHANENI BRAHMAYYA  
SIDDHARTHA COLLEGE OF ARTS & SCIENCE**  
*Autonomous*  
Siddhartha Nagar, Vijayawada-520010  
*Re-accredited at 'A+' by the NAAC*

## **23CSSDL101: DESIGN THINKING**

**SEMESTER-I**

**30Hours**

**Credits: 2**

### **Course Type: Skill Development**

**Programmes:** BCA Honours, B. Sc Honours (Mathematics), B. Sc Honours (Statistics), B. Sc Honours (Electronics), B. Sc Honours (Computer Science), B. Sc Honours (Computer Science with Cognitive Systems), B. Sc Honours (Data Science), B. Sc Honours (Data Analytics), B. Sc Honours (Artificial Intelligence).

### **Course Outcomes:**

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1. To understand the principles and fundamentals of Design Thinking as a problem-solving methodology.
2. To foster creative thinking and ideation techniques to generate innovative solutions.
3. To learn rapid prototyping methods for iterative testing and refinement of design concepts.

Unit 1: Introduction to Design Thinking: Definition and history of Design Thinking, Core principles and mindset, Applications in various fields (e.g., product design, service design, social innovation).

Unit 2: Empathizing with Users: Techniques for understanding user needs and behaviors, Conducting interviews and observations, Creating user personas. Defining the Problem: Problem statement formulation, Identifying root causes and reframing problems, Stakeholder analysis and prioritization.

Unit 3: Ideation and Creativity: Brainstorming techniques and exercises, Divergent and convergent thinking, Idea selection and evaluation. Prototyping and Testing: Rapid prototyping methods (low-fidelity and high-fidelity), Conducting user tests and feedback collection, Iterative design and refinement. Collaboration and Teamwork: Effective teamwork in Design Thinking projects, Roles and responsibilities within multidisciplinary teams, Communication and presentation skills.

### **Class Participation Activities:**

- Active engagement in discussions, exercises, and group activities.
- Individual and Group Assignments: Reflections, problem-solving tasks, and project deliverables.
- Design Thinking Project: A comprehensive project applying Design Thinking principles to address a real-world problem.
- Presentations: Presenting design concepts, prototypes, and project outcomes.

### **Text Books:**

1. "Design Thinking: A Paradigm Shift in Design" by Prateek Hame and Aman Vohra.
2. "Design Thinking: An Indian Perspective" by Pooja Khati.

3. "Design Thinking: A Manual for Innovation" by Joana N. Vasconcelos.
4. "Design Thinking in India: The Next Big Leap" by Yatin Sethi.

**Reference Books:**

1. "Design Thinking: Understanding How Designers Think and Work" by Nigel Cross.
2. "Design Thinking: Process and Methods Manual" by Robert Curedale.
3. "Design Thinking for Visual Communication" by Gavin Ambrose and Paul Harris.
4. "Design Thinking: A Guide to Creative Problem Solving for Everyone" by Bruce Hannah.
5. "101 Design Methods: A Structured Approach for Driving Innovation in Your Organization" by Vijay Kumar.

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## Model Paper

**23CSSDL101: DESIGN THINKING**

**Max: 35 Marks**

**Time: 120 Min**

**Pass Minimum: 14 Marks**

**Offered to :** BCA Honours, B. Sc Honours (Mathematics), B. Sc Honours (Statistics), B. Sc Honours (Electronics), B. Sc Honours (Computer Science), B. Sc Honours (Computer Science with Cognitive Systems), B. Sc Honours (Data Science), B. Sc Honours (Data Analytics), B. Sc Honours (Artificial Intelligence).

### Section-A

Answer any **THREE** from the following 3x5 =15Marks

1. Explain the need of design thinking. (CO1, L1)
2. Discuss the history of design thinking. (CO1, L1)
3. Explain the role of creating personas in problem solving. (CO2, L1)
4. How to formulate problem statement? (CO2, L1)
5. Discuss the role of communication skills in problem solving. (CO3, L1)

### Section-B

Answer any **TWO** from the following 2 x10 = 20Marks

6. Explain various applications of design thinking. (CO1, L1)
7. Discuss techniques for understanding user needs and behaviours. (CO2, L1)
8. Discuss about effective teamwork in design thinking projects. (CO3, L1)

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