

Branch Name:	BCA (Bachelor of Computer Applications)
Program Code:	CS101
Course Title:	Design Thinking and Innovation
Course Code:	24-SEC202-2C
Pre-requisite Course:	Basic awareness of real-life problems and simple thinking skills to understand and apply creative ideas for problem solving.

Course Objective:

This course is intended to make the students:

- Introduce students to design-based thinking approach to solve problems.
- Observe and assimilate unstructured information to well framed solvable problems.
- Introduce student to templates of ideation.
- Understand the importance of prototyping in the innovation journey.
- Implementing innovation projects.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)								
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory				Practical				Total
				University Assessment		Continuous Assessment		University Assessment		Continuous Assessment		
				Min. Marks	Min. Marks	Min. Marks	Min. Marks	Min. Marks	Max. Marks	Min. Marks	Max. Marks	
2	-	-	2	09	25	09	25	-	-	-	-	50

Course Contents:

Sr. No	Topic	Total Hours	Weightage (%)
1.	Basics of Design Thinking 1. Understand the concept of innovation and its significance in business 2. Understanding creative thinking process and problem-solving approaches 3. Know Design Thinking approach and its objective 4. Design Thinking and customer centricity – real world examples of customer challenges, use of Design Thinking to Enhance Customer Experience, Parameters of Product experience, Alignment of Customer Expectations with Product. 5. Discussion of a few global success stories like AirBnB, Apple, IDEO, Netflix etc. 6. Explain the four stages of Design Thinking Process – Empathize, Define, Ideate, Prototype, Implement	10	25
2.	Learning to Empathize and Define the Problem 1. Know the importance of empathy in innovation process – how can students develop empathy using design tools Model curriculum for UG Degree in BCA 92 2. Observing and assimilating information 3. Individual differences & Uniqueness Group Discussion and Activities to encourage the understanding, acceptance and appreciation of individual differences. 4. What are wicked problems 5. Identifying wicked problems around us and the potential impact of their solutions	12	25

3.	Ideate, Prototype and Implement 1. Know the various templates of ideation like brainstorming, systems thinking 2. Concept of brainstorming – how to reach consensus on wicked problems 3. Mapping customer experience for ideation 4. Know the methods of prototyping, purpose of rapid prototyping. 5. Implementation	14	25
4.	Feedback, Re-Design & Re-Create 1. Feedback loop, focus on User Experience, address ergonomic challenges, user focused design 2. Final concept testing, 3. Final Presentation – Solving Problems through innovative design concepts & creative solution	12	25

Course Learning Outcomes (CLO):

At the end of this course, the student would be able

1. **CLO1:** Understand the basic concepts of design thinking and innovation in real-life context.
2. **CLO2:** Identify and analyze problems using empathy and observation techniques.
3. **CLO3:** Apply simple ideation techniques to generate creative and practical solutions.
4. **CLO4:** Develop basic prototypes for selected problems using low-cost methods.
5. **CLO5:** Communicate and present innovative ideas effectively for real-world applications.

List of Text book:

1. E Balaguruswamy (2023), Developing Thinking Skills (The way to Success), Khanna Book Publishing Company.
2. Tim Brown, (2008), “Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation”, Harvard Business Review.
3. 8 steps to Innovation by R T Krishnan & V Dabholkar, Collins Publishing.

List of Reference book:

1. “Design Thinking: Understanding How Designers Think and Work” – Nigel Cross.
2. “Design Thinking: A Comprehensive Textbook” – Shalini Rahul Tiwari, Rohit R. Swarup.
3. “Design Thinking: Theory and Practice” – Dr. T.G. Vasista & Srinu Tatapudi.
4. “101 Design Methods” – Vijay Kumar

E-Resources/ Web Links:

1. NPTEL Video Lectures
2. YouTube (Hindi/Gujarati learning videos)
3. Startup India (basic awareness)

Mapping of CLO, PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CLO1	L	H	L	H	H	L			M	M	M	H	M	M	
CLO2		M		H	H	M	L		M	H	L	M		M	
CLO3		H	L	H	M	M	M		M	H		M		H	
CLO4	M	H		H	M	L	H	M		H	H		H	M	H
CLO5	M	H		H	M		H	H	M	H	H	M	H	M	H
CLO6	L	H	L	H	H	L			M	M	M	H	M	M	

H: High, M: Medium, L: Low