GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Bachelor of Computer Applications
Level: UG
Course / Subject Code: BC03001071
Course / Subject Name : Design Thinking and Innovation

w. e. f. Academic Year:	2025-26
Semester:	3
Category of the Course:	Value Added Courses

Prerequisite:	Basic understanding of problem-solving and creativity in software development.
Rationale:	This course introduces the principles and practices of Design Thinking as a human-centered, iterative approach to innovation. It empowers students to develop empathy with users, reframe problems, ideate innovative solutions, and create prototypes for testing. The course prepares future technologists to solve complex and ill-defined problems with creativity, empathy, and feasibility.

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes	RBT Level
01	Explain the foundational principles of Design Thinking	UN
02	Understand the significance of empathy and user research	UN
03	Identify and define problems for innovative solution development.	AP
04	Apply methods for idea generation and creativity	AP
05	Discuss the role of prototyping and iterative design.	UN

**Revised Bloom's Taxonomy (RBT)*

Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
				Theory		Tutorial / Practical		
L	T	PR	C	ESE (E)	PA / CA (M)	PA/CA (I)	ESE (V)	
2	0	0	2	70	30	0	0	100

Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1	**Introduction to Design Thinking:** Origins, Attributes of design thinking, Principles of design thinking, Models of design thinking	5	20
2	**Empathy and User Research:** Know your user, Interviews, Observation, Persona creation, Role playing	6	20
3	**Defining Problems:** Know your problem, Insights, Point-of-view, HMW questions	5	15
4	**Ideation Techniques:** Know your solutions, Brainstorming, Mind mapping, Lateral thinking, The six thinking hats	7	20

5	**Prototyping and Testing:** Know your failures and product, Concept sketching, User feedback, Case study	7	25
	Total	**30**	**100**

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks (in %)					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
10	50	40	-	-	-

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

References/Suggested Learning Resources:

(a) Books:

1. E Balagurusamy, Bindu Vijaykumar- Design Thinking: A Beginners Perspective
2. Jeanne Liedtka, Tim Ogilvie – Designing for Growth: A Design Thinking Toolkit for Managers
3. Hasso Plattner, Christoph Meinel, Larry Leifer – Design Thinking: Understand – Improve – Apply
4. Tom Kelley, David Kelley – Creative Confidence
5. Tim Brown – Change by Design
6. Rolf Faste – Ambidextrous Thinking: A Guide to Design Thinking

Suggested Activities for Students, if any:

- Empathy mapping using interviews, observation, persona creation, and role playing
- Idea generation using different Ideation techniques

CO- PO Mapping:

Semester 3	**Course Name : Design Thinking and Innovation**										
	POs										
Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1	-	-	-	-	-	-	-	-	-
CO2	2	3	1		2	-	-	-	-	-	2
CO3	1	3	1	2	2	-	-	-	-	-	2
CO4	1	-	3	1	2	-	-	-	-	-	2
CO5	1	1	3	2	1	-	-	1	-	-	2

*Legend: '**3**' for high, '**2**' for medium, '**1**' for low and '**-**' for no correlation of each CO with PO.*

Note: The CO-PO mapping is indicative; the institute/faculty member can change as required.

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