



303105152 - Design Thinking

Course	Bachelor of Technology (BTech)	Semester - 2
Type of Course	-	
Prerequisite	Open mindedness, curiosity, empathy, collaboration, iteration, creative thinking	
Course Objective	Design thinking is a human-centered approach to problem-solving that emphasizes empathy, experimentation, and creativity. It is a framework for innovation and problem-solving that was originally developed in the context of product design but has since been applied to a wide range of fields and industries.	

Teaching Scheme (Contact Hours)				Examination Scheme				
Lecture	Tutorial	Lab	Credit	Theory Marks		Practical Marks		Total Marks
				External Marks	Internal Marks	External Marks	Internal Marks	
2	-	2	3.00	60	20	30	20	150

SEE - Semester End Examination, CIA - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)

Course Content		T - Teaching Hours W - Weightage	
Sr.	Topics	T	W
1	Overview of Design Thinking: Define Design Thinking, Differentiate Design Thinking from Design, Get an Overview of the Design Thinking Process. Empathize and Understand: Explain how empathy influences the outcomes of Design Thinking, List Different Empathy Research Techniques, Define the Guidelines for an Empathetic Research.	2	20
2	Defining Needs, Ideation for solutions, Prototyping: Defining Needs: Explain how PoV can be used in defining the design problem, Use a structured approach to arrive at a PoV. Ideation for Solutions: List the best practices for conducting a successful ideating session, Describe the techniques for evaluating and prioritizing ideas, Prototyping: Define prototyping, Explain how prototyping aids in communicating ideas effectively, List various tools for prototyping	2	20
3	Testing the Solution, Problem Solving Mindset: Testing the Solution: Define the steps of a successful testing approach, Demonstrate the process of gathering and responding to user feedback. Problem Solving Mindset: Understanding Problem Statements, Recapping Design Principles, Design Thinking Toolsets, Formulating approaches to Solutions, Applications of Design Thinking: Case Study.	8	20
4	Human Centered Design, Design for the Environment: Human Centered Design : Services Development process and lifecycle, Product Vs Services, Innovation in Services, Service Experience Lifecycle, Human Computer Interaction, Usability Engineering - Heuristic Evaluation. Design for the Environment : Design Considerations, Environmental Issues, Sustainable Development, Green Design – Design for Process, Design for Product, Qualitative and Quantitative Methods for DFE, Design for Disassembly, Design for Recyclability, Design for Energy Efficiency. The relevance of 4Rs - reduction, reuse, recycling and recovery in Environmental friendly design. Sustainable Development.	8	20



Course Content		T - Teaching Hours W - Weightage	
Sr.	Topics	T	W
5	Design Thinking and Innovation Management Culture: Design Thinking and Innovation Management Culture: Project Management - Project Planning, Business Plan, Planning the resources, Effective Communication, Team Management, Benchmarking the Development, Cost Estimation, Interpreting the Feedback and Troubleshooting, Pitching the idea, Revenue Model.	8	20
Total		28	100

Reference Books	
1.	The Design Thinking Playbook: Mindful Digital Transformation of Teams, Products, Services, Businesses and Ecosystems (TextBook)

List of Practical	
1.	Introduction to design thinking: Introduce the concept of design thinking, its benefits, and the overall process.
2.	Empathy mapping exercise: Have participants conduct interviews with potential users and create empathy maps to gain a deeper understanding of their needs, wants, and pain points.
3.	Define the problem statement: Based on the empathy mapping exercise, have participants synthesize their findings and define a problem statement.
4.	Ideation session: Have participants generate as many ideas as possible to solve the problem statement. Encourage wild, unconventional, and innovative ideas.
5.	Prototyping session: Have participants select one or more ideas and create a low-fidelity prototype to test their assumptions and validate their ideas.
6.	Testing and feedback session: Have participants test their prototypes with potential users and gather feedback on what works, what doesn't, and what could be improved.
7.	Refine and iterate on prototype: Based on the feedback, have participants refine and iterate on their prototype to improve its usability, functionality, and appeal.
8.	Presentation of final prototype: Have participants present their final prototype to the rest of the group, explaining their design decisions, insights, and learnings.