Course Code	21DCS201P	Course Name	DESIGN THINKING AND METHODOLOGY	Course Category	S	ENGINEERING SCIENCES	L	T	P	C
							1	0	4	3

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	SRM Innovation and Design Centre	Data Book / Codes / Standards		Nil	

Course Learning Rationale (CLR):	The purpose of learning this course is to:	Program Outcomes (PO)													Program Specific outcomes		
CLR-1 :	Designed to explores mindset, skill set and toolset associated with design	1	2	3	4	5	6	7	8	9	10	11	12			
CLR-2 :	Designed to work with guided applications to framing and solving problems from the perspectives of both business and engineering writing															
CLR-3 :	Exposing students diverging to generate solutions and converging to select among them															
CLR-4 :	Design methods to create concept generation methods, concept selection methods, imagining alternative futures															

Course Outcomes (CO):	At the end of this course, learners will be able to:	Engineering Knowledge	Problem Analysis	Design/ development of solutions	Conduct investigations of complex problems	Modern Tool Usage	The engineer and society	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt.& Finance	Life Long Learning	PSO-1	PSO-2	PSO-3
CO-1:	learn and understand technology design concepts	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
CO-2:	learning mindset, skillset and toolset associated with design	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-
CO-3:	identify the best solutions and converging to select among them.	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
CO-4:	understand concept generation methods, concept selection methods, imagining alternative futures	-	-	3	2	-	-	-	-	-	-	-	-	-	-	-

Unit-1 - Introduction to Design Methodology	15 Hour

Design Frameworks - Engineering Design Problem Solving - Developing Design Solutions - Making Design Solutions - Evaluating Design Solutions - Project Introduction and Team formation -Stakeholder Map - Brainstorming

Unit-2 - Prototyping	15 Hour

Prototyping Planning - Concept Refinement and Storyboard - Envisioning Future - Conceptual design - Creative Matrix, Morphological Synthesis, Concept Poster - Basic Presentation - Project Discussion with Teaching Team

– Usability Test Demo		
Unit-3 - User Assessment		**15 Hour**
Usability Test - Understanding Users - Learning about Customer - Clustering & Abstract Laddering - User Testing - Project Discussion with Teaching Team		
Unit-4 - Value Proposition Design		**15 Hour**
Value Proposition Design and Mapping, - Prototyping & Competitor Study - Competitors / Complementor's Map - Design Methodologies - Capital Budgeting: Risk Analysis with Scenarios - Project Discussion with Teaching Team - Project Mini-showcase - Project Discussion with Teaching Team		
Unit-5 - Business Model		**15 Hour**
Business Model Canvas - Business pitch - Pitching strategies - IP and Partnerships - Forecasting Financial Statements - Project Discussion with Teaching Team - Final Project Presentation - Design Showcase		

Learning Resources	Dr. R. Thomas Wright, Dr. Greg J. Strimel, and Dr.Michael E. Grubbs Foundations of Engineering & Technology, 7th Edition *Ikhlaqsidhu , Innovation Engineering; a practical guide to creating anything new*	

Learning Assessment

	Bloom's Level of Thinking	Continuous Learning Assessment (CLA)						Final Examination (0% weightage)	
		Formative CLA-1 Average of unit test (20%)		Project Based Learning CLA-2 (60%)		Report and Viva Voce (20%)			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember	10%	-	-	10%	-	10%	-	-
Level 2	Understand	20%	-	-	20%	-	20%	-	-
Level 3	Apply	20%	-	-	20%	-	20%	-	-
Level 4	Analyze	20%	-	-	20%	-	20%	-	-
Level 5	Evaluate	20%	-	-	20%	-	20%	-	-
Level 6	Create	10%	-	-	10%	-	10%	-	-
Total		100 %		100 %		100%		-	

Course Designers

Experts from Industry	Experts from Higher Technical Institutions	Internal Experts
1. Dr.Ramakrishnan R,CDOO,Intellect Design Arena, Chennai	1.	1. Dr Shantanu Patil, SRMIST.
2. Mr Ramakrishnan, CDOO,Intellect Design Arena, Chennai	2.	2. Dr. Ananth Kumar R, SRMIST
3. Mr Anirban Chowdhury, Co-Founder & Director, Frugal Labs,Bengaluru	3.	3. Dr.M.B Mukesh Krishnan, SRMIST