

Prasad.V.Potluri Siddhartha Institute of Technology, Kanuru, Vijayawada

DESIGN THINKING

(Common to all)

Course code	19ES1302	Year	II	Semester	I
Course category	ES	Branch	IT	Course Type	Theory
Credits	2	L-T-P	2-0-0	Prerequisites	---
Continuous Internal evaluation	30	Semester End Evaluation	70	Total marks	100

Course Outcomes		Blooms Taxonomy Level
Upon successful completion of the course, the student will be able to		
CO1	Explain the principles of design thinking and its approaches.	L2
CO2	Identify the empathy, define phases in human centered design problems.	L3
CO3	Develop an idea, build a prototype and test in design thinking context.	L3
CO4	Apply design thinking techniques for product innovation.	L3
CO5	Implement design thinking in business process models.	L3

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1			3									1	2	2
CO2			3	2		2			2	2		1	2	2
CO3			3	2		2			3	2		1	2	2
CO4			3	2		2			2	2		1	2	2
CO5			3	2		2			2	2	1	1	2	2

Syllabus		
Unit No.	Contents	Mapped CO
I	INTRODUCTION TO DESIGN THINKING: An insight into Design, origin of Design thinking, Design thinking Vs Engineering thinking, importance of Design thinking, Design Vs Design thinking, understanding Design thinking and its process models, application of Design thinking	CO1
II	EMPATHIZE IN DESIGN THINKING: Human-Centered Design (HCD) process - Empathize, Define, Ideate, Prototype and Test and Iterate. Role of Empathy in design thinking, methods and tools of empathy, understanding empathy tools. Explore define phase state users' needs and problems using empathy methods	CO2
III	IDEATION, PROTOTYPING AND TESTING : Ideation methods, brain storming, advantages of brain storming, methods and tools of ideations, prototyping and methods of prototyping, user testing methods, Advantages and disadvantages of user Testing/ Validation	CO3
IV	PRODUCT INNOVATION: Design thinking for strategic innovation , Definition of innovation, art of innovation, teams for innovation, materials and innovation in materials, definition of product and its classification. Innovation towards product design Case studies	CO4
V	DESIGN THINKING IN BUSINESS PROCESSES: Design Thinking applied in Business & Strategic Innovation, Design Thinking principles that redefine business – Business challenges: Growth, Predictability, Change, Maintaining Relevance, Extreme competition, Standardization. Design thinking to meet corporate needs.	CO5

Learning Resources
Text Books:
<ol style="list-style-type: none"> 1. Change by design, Tim Brown, 2009, Harper Collins. 2. Engineering design, George E Dieter, 4th Revised edition, 2009 McGraw Hill.
Reference Books
<ol style="list-style-type: none"> 1. Design Thinking for Strategic Innovation, Idris Mootee, 2013, John Wiley & Sons. 2. Design Thinking-The Guide Book – Facilitated by the Royal Civil service Commission, Bhutan 3. Design Methods: A Structured Approach for Driving Innovation in Your Organization, Vijay Kumar, First Edition, 2012, Wiley. 4. Human-Centered Design Toolkit: An Open-Source Toolkit to Inspire New Solutions in the Developing World, IDEO, Second Edition, 2011, IDEO.
e-Resources & other digital material
<ol style="list-style-type: none"> 1. https://www.interaction-design.org/literature/topics/design-thinking 2. https://www.interaction-design.org/literature/article/how-to-approach-in-design-thinking