

## DESIGN THINKING & PRODUCT INNOVATION LAB

(Common to all Branches)

<b>Course code</b>	19ES1352	<b>Year</b>	II	<b>semester</b>	I
<b>Course category</b>	Engineering science	<b>Branch</b>	ECE	<b>Course Type</b>	Lab
<b>credits</b>	1	<b>L-T-P</b>	0-0-2	<b>prerequisites</b>	nil
<b>Continuous Internal Evaluation</b>	25	<b>Semester End Evaluation</b>	50	<b>Total marks</b>	75

<b>Course outcomes</b>	
Upon successful completion of the course the student will able to	
CO1	Develop a mind maps for design thinking process
CO2	Prepare empathy maps and journey maps for problems.
CO3	Construct mock-up models through ideation and innovation techniques
CO4	Use software for design thinking problems

<b>Contribution of Course Outcomes towards achievement of Program Outcomes &amp; Strength of correlations (3-High, 2: Medium, 1:Low)</b>														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
<b>CO1</b>			2	2					3					2
<b>CO2</b>			2	2					3					2
<b>CO3</b>			2	2					3					2
<b>CO4</b>			2	2					3					2

Any 12 of the following

<b>Syllabus</b>		
<b>Exp NO</b>	<b>List of Experiments</b>	<b>Mapped CO</b>
1	Design a mind map of design thinking	CO1
2	Thirty circle Exercise ---ideation	CO3
3	Prepared a toothpick bridge (mock-up model)	CO1,CO3
4	Prepared a marble maze (mock up model)	CO1,CO3
5	Build a wind power car (mock up model)	CO1,CO3
6	Make a hydraulic elevator (mock up models)	CO1,CO3
7	Construct empathy maps for a given case study-1	CO2
8	Develop customer journey map for a given case	CO2
9	Construct empathy maps for a given case study-2	CO2
10	Develop customer journey map for a given case -2	CO2
11	Make a paper prototype for user testing (mock-up model)	CO2
12	Design and development of cell phone wallet (mock-up model)	C01,C02,C03
13	Design thinking using sprint base software	CO4
14	Design thinking using sprint base software	CO4

## Learning Resources

### Text Books

1. IdrisMootee, "Design Thinking for Strategic Innovation", John Wiley & Sons (2013).
2. "Change by design", Tim Brown, Harper Collins, 2009
3. "Design Thinking- The Guide Book" – Facilitated by the Royal Civil service Commission, Bhutan
4. Engineering design by George E Dieter

### REFERENCE BOOKS

1. 101 Design Methods: A Structured Approach for Driving Innovation in Your Organization by Vijay Kumar
2. Human-Centered Design Toolkit: An Open-Source Toolkit To Inspire New Solutions in the Developing World by IDEO

### ADDITIONAL LEARNING RESOURCES

<https://www.interaction-design.org/literature/topics/design-thinking>

<https://www.interaction-design.org/literature/article/how-to-develop-an-empathic-approach-in-design-thinking>