

## 19ES1352 –DESIGN THINKING LAB

<b>Offering Branches</b>	Civil, CSE, EEE, ECE, IT, MECH		
<b>Course Category</b>	ES	<b>Credits</b>	1
<b>Course Type</b>	Laboratory	<b>Lecture-Tutorial-Practical</b>	0-0-2
<b>Prerequisites</b>	-NIL-	<b>Continuous 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 be able to			
<b>CO1</b>	Develop a mind maps for design thinking process		L3
<b>CO2</b>	Prepare empathy maps and journey maps for problems.		L3
<b>CO3</b>	Construct mock-up models through ideation and innovation techniques		L5
<b>CO4</b>	Use software for design thinking problems		L4
<b>Course Content</b>			
<b>1</b>	Design a mind map of design thinking		CO1
<b>2</b>	Thirty circle Exercise ---ideation		CO3
<b>3</b>	Prepare a toothpick bridge (mock-up model)		CO1,CO3
<b>4</b>	Prepare a marble maze (mock up model)		CO1,CO3
<b>5</b>	Build a wind power car (mock up model)		CO1,CO3
<b>6</b>	Make a hydraulic elevator (mock up models)		CO1,CO3
<b>7</b>	Construct empathy maps for a given case study-1		CO2
<b>8</b>	Develop customer journey map for a given case-1		CO2
<b>9</b>	Construct empathy maps for a given case study-2		CO2
<b>10</b>	Develop customer journey map for a given case -2		CO2
<b>11</b>	Make a paper prototype for user testing (mock-up model)		CO2
<b>12</b>	Design and development of cell phone wallet (mock-up model)		CO1,CO2,CO3
<b>13</b>	Design thinking-1 using sprint base software		CO4
<b>14</b>	Design thinking-1 using sprint base software		CO4
<b>Learning Resources</b>			
Text Books	<ol style="list-style-type: none"> <li>Change by design, Tim Brown, 2009, Harper Collins</li> <li>Engineering design, George E Dieter, 4th Revised edition, 2009 McGraw Hill.</li> </ol>		
Reference Books	<ol style="list-style-type: none"> <li>Design Thinking for Strategic Innovation, Idris Mootee, 2013, John Wiley &amp; Sons</li> <li>Design Thinking-The Guidebook – Facilitated by the Royal Civil service Commission, Bhutan</li> <li>Design Methods: A Structured Approach for Driving Innovation in Your Organization, Vijay Kumar, First Edition, 2012, Wiley</li> <li>Human-Centered Design Toolkit: An Open-Source Toolkit to Inspire New Solutions in the Developing World, IDEO, Second Edition, 2011, IDEO</li> </ol>		

e-Resources & other digital material	<ol style="list-style-type: none"><li>1. <a href="https://www.interaction-design.org/literature/topics/design-thinking">https://www.interaction-design.org/literature/topics/design-thinking</a></li><li>2. <a href="https://www.interaction-design.org/literature/article/how-to-develop-an-empathy-approach-in-design-thinking">https://www.interaction-design.org/literature/article/how-to-develop-an-empathy-approach-in-design-thinking</a></li></ol>	
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*Course Coordinator*

HOD

Code No: **19ES1302**

**PVP SIDDHARTHA INSTITUTE OF TECHNOLOGY**  
**(Autonomous)**  
**II B.Tech – I Semester Regular Examinations, May-2020**  
**DESIGN THINKING**

**Duration: 3 Hours**

**Max. Marks: 70**

- Note:
1. This question paper contains two Parts A and B.
  2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
  3. Part B consists of 5 units. Answer any one full question from each unit. Each question carries 12 marks and may have a, b, c as sub questions.
  4. All parts of Question paper must be answered in one place

**PART – A**

5 x 2 = 10 marks

		Blooms Level	CO
1. a)	Define the term Design Thinking?	L1	CO1
1. b)	State any two tools of Empathy?	L1	CO2
1. c)	Differentiate ideation and prototype?	L2	CO3
1. d)	Define a product and classify them?	L2	CO4
1. e)	Name any two business challenges	L1	CO5

**PART –B**

5 x 12 = 60 marks

			Blooms Level	CO	Max. Marks
<b>UNIT-I</b>					
2	(a)	Differentiate design, Engineering design and Design thinking	2	CO1	4
	(b)	Describe the 5 stage Stanford process model and explain them	2	CO1	8
<b>OR</b>					
3	(a)	Explain the Venn diagram of design thinking	2	CO1	6
	(b)	Name the applications of design thinking and explain any two	2	CO1	6
<b>UNIT-II</b>					
4	(a)	Define Empathy in design thinking and discuss any two tools of empathy	2	CO2	6
	(b)	Discuss the guidelines in framing the problem statement in Define phase of design thinking.	2	CO2	6
<b>OR</b>					
5	(a)	What is meant by human centered design and elaborate with any two examples	2	CO2	6
	(b)	Define Empathy map and its use in design thinking? Discuss the process of empathy map	2	CO2	6
<b>UNIT-III</b>					
6	(a)	Define Brainstorming? what are its principles and rules.	2	CO3	6

	(b)	What is meant by prototype in design thinking? Differentiate low-fidelity and high-fidelity prototypes.	2	CO3	6
<b>OR</b>					
7	(a)	Name any four ideation methods? Explain any two methods	2	CO3	6
	(b)	Explain the testing in design thinking? what is its purpose and importance	2	CO3	6
<b>UNIT-IV</b>					
8	(a)	Define Innovation? What are its types and characteristics	2	CO4	6
	(b)	What is the nature of innovation and what are the levels of innovation	2	CO4	6
<b>OR</b>					
9	(a)	Differentiate product innovation and process innovation	2	CO4	4
	(b)	Illustrate the case study of design intervention for Livelihood and hygiene for street vending of food items (panipuri)	3	CO4	8
<b>UNIT-V</b>					
10	(a)	What are business challenges? Explain any two with design thinking solutions?	2	CO5	6
	(b)	Illustrate how design thinking principles that redefines business Management	3	CO5	6
<b>OR</b>					
11	(a)	Distinguish Business model and Business Strategy	2	CO5	6
	(b)	Explain How design thinking meets corporate strategies	2	CO5	6