

<b>Programme:</b> All Programmes	<b>Course Title:</b> Innovation & Design Thinking			<b>Course Code:</b>
<b>Type of Course:</b> Open Elective	<b>Prerequisites:</b> Not Applicable			<b>Total Contact Hours:</b> 40
<b>Year/Semester:</b> 3 <sup>rd</sup> Year - Even	<b>Lecture Hrs/Week:</b> 3	<b>Tutorial Hrs/Week:</b> 0	<b>Practical Hrs/Week:</b> 0	<b>Credits:</b> 3

### Course Content & Overview

This course is an immersive experience of Design Thinking - an empathy-based, human-centred, and rapid prototype-driven methodology for innovation. Design Thinking helps tackle challenges such as creating new products, technological innovation, services, business models, experiences, processes and systems. The course's primary aim is to empower students to ideate, launch, run, and complete innovation projects that significantly impact pioneering organisations and industries. The course encompasses intensive sessions on need finding, empathy, observation, immersion, ethnographic research, brain-/body-storming, ideation, and rapid prototyping - all in tackling cutting-edge technological challenges and addressing strategic industry objectives.

### Course Outcomes (COs):

<b>On completion of this course, the students will have the ability to:</b>		<b>Bloom's Level</b>
CO-1	Approach problems with a new mindset that integrates creative problem-solving and management.	2
CO-2	Develop an innovation toolkit, and determine when to apply design thinking frameworks, tools, and exercises to your own strategic initiatives.	3
CO-3	Practice empathy and apply human-centred design through techniques such as ideation, prototyping, user journey mapping.	3
CO-4	Assess group dynamics and maximize your team's potential for developing and iterating prototypes and managing the implementation of new designs.	6
CO-5	Understand how leaders can create the optimal environment and team dynamics to guide innovation and collaboration.	2

### Course Topics

Course Topics	Lecture Hours	
<b>UNIT - I Understanding the Design Thinking &amp; Innovation</b>		
1.1 Introduction to Design Thinking & Innovation	02	CO1
1.2 Design Thinking Approach	01	
1.3 Design Thinking Process	01	
<b>UNIT - II Engineering Fundamentals</b>		
2.1 People / Place	01	CO2
2.2 Materials for Design	01	
2.3 One Problems – Many Solutions	01	
<b>UNIT- III Inspiration Phase</b>		
3.1 Build your Design Challenge	02	CO2
3.2 Team Knowledge & Key Assumptions	01	
3.3 Design & Conduct your Research	02	
<b>UNIT – IV Problem Discovery</b>		
4.1 People Centered Approach	02	CO 3
4.3 Empathy Interviews	02	
<b>UNIT – V Problem Pitch</b>		
Project – Apply Module 4 tool to an innovative problem scenario	03	CO 2
<b>UNIT -VI Ideation</b>		
6.1 Tools for Generating Ideas	02	CO 2
6.2 User Values & Behaviour	02	
<b>UNIT - VII MVP</b>		
Project – Apply Tools from Module VI to your innovation problem scenario	03	CO 3,4
<b>UNIT – VIII Develop an Experimentation Mindset</b>		
8.1 Prototype	02	CO 4
<b>UNIT – IX Implement, Communication &amp; Structure</b>		
9.1 POC Demonstration	01	CO 4,5
9.2 User Test	01	
9.3 Storytelling	01	
<b>UNIT – X Design Project</b>		

Project – Design Week – Project Completion Design Presentations & Pitch	<b>02</b> <b>06</b>	<b>CO 5</b>
<b>Total Hours</b>		
		<b>40</b>

### Session Content

Module	Module Overview	Content	Reading Reference
Module I	<p><b>Understanding the Design Thinking Approach</b></p> <ol style="list-style-type: none"> <li>1. Jump Into Design</li> <li>2. Introduction to Human-Centered Design</li> <li>3. The Designed World – Business Use</li> <li>4. Design Thinking Mindset</li> </ol> <p><b>Design Thinking Approach</b>                      Fundamental Concepts</p> <ol style="list-style-type: none"> <li>1. Empathy</li> <li>2. Ethnography</li> <li>3. Divergent Thinking</li> <li>4. Convergent Thinking</li> <li>5. Visual Thinking</li> <li>6. Assumption Testing</li> <li>7. Prototyping</li> </ol> <p><b>Design Thinking Processes</b></p> <ol style="list-style-type: none"> <li>1. 5 Stage d. School Process</li> <li>2. Double Diamond Process</li> <li>3. Role of Project Management</li> </ol>	<p>Rethink and re-engineer everyday objects</p> <p>Apply DT to people – product – experience systems</p> <p>Analyze existing objects for improvement and solve with design and engineering</p> <p>Icebreaker &amp; Mini Design Challenge</p>	<p>Article HBR; Why Design Thinking Works</p> <p>Article: design Thinking by Tim Brown</p>

Module 2	<b>Engineering Fundamentals</b> <ul style="list-style-type: none"> <li>• People / Place</li> <li>• Materials for Design</li> <li>• One Problem, Many Solutions</li> <li>• Organization Fit</li> </ul>	Identifying different applications of material while understanding cost and environmental impact  Wake up student observation skills by analyzing products	The Food Truck Challenge - Simulation
Module 3	<b>Inspiration Phase</b>  Build your Design Challenge Team Knowledge & Key Assumptions Design your Research Conduct your Research	Exposure to students to the design problems around, choosing one for themselves and get into real time action	Why Design Thinking in Business Needs a Rethink – HBR
Module 4	<b>Problem Discovery</b> <ul style="list-style-type: none"> <li>• Need to be people centered</li> <li>• People centered methodology</li> <li>• Empathy &amp; Understanding</li> <li>• Empathy Interviews</li> </ul>	Define user’s explicit pain points and latent needs  Reframe the innovation context to identify the most game changing part of the problem	Problem Statements & Real Life Case Studies
Module 5	<b>Project - Apply Module 4 tool to an innovative problem / scenario</b>		Project Handout
Module 6	<b>Ideation</b> <ul style="list-style-type: none"> <li>• Tools for Generating Ideas</li> <li>• User Values &amp; Behaviour</li> </ul>	Develop the design principles that will help you create user-focused ideas  Experiment with ideation tools for breaking cognitive fixedness and generating ideas  Explore structured but open ended approaches to ideation such as alternate worlds and brainstorming	Article : Energizing Innovation through Design Thinking  Case Study : IBM Design Thinking

		<p>Refine innovation ideas using design heuristics</p> <p>Apply research-based personas and behavior models to make innovations easier to adopt</p>	
Module 7	<b>Project - Apply tools from Module VI to your innovation problem / scenario</b>		Project Handout
Module 8	<p><b>Develop an Experimentation Mindset</b></p> <p>Prototype</p>	<p>Combine ideas into complex innovation concepts</p> <p>Critique and strengthen concepts using evaluation tools</p> <p>Guide prototyping by creating critical questions related to a concept's desirability, feasibility, and viability</p>	Coin Redesign Challenge / Design a Wallet Handout
Module 9	<p><b>Implement , Communication &amp; Structure</b></p> <ul style="list-style-type: none"> <li>• POC Demonstration</li> <li>• User Test</li> <li>• Storytelling</li> </ul>	<p>Assess developer and user perspectives for bias that may affect implementation</p> <p>Apply frameworks to strengthen communications about an innovation's value</p> <p>Reflect on management skills for sustaining a culture of innovation</p>	Article Developing Design Sensibilities

		Build your Design Story	
Module 10	<b>Project - Design Week - Product Completion</b>		Project Handout
	<b>Design Presentations &amp; Pitch</b>		Pitch Guideline Intel

**Textbook/References:**

**Text Book**

Lewrick M., Link P., Leifer L. (2018) The Design Thinking Playbook , Wiley ,I/e, New Jersey

**References**

Soni P., (2020) Design your Thinking: Mindset, Skillset and Toolset for Problem Solving, Penguin Random House, India

**Internet Resources**

- An Introduction to Design Thinking Process Guide by Stanford d School - <https://web.stanford.edu/~mshanks/MichaelShanks/files/509554.pdf>
- Design Thinking Models – Stanford dSchool. - <https://empathizeit.com/design-thinking-models-stanford-d-school/>
- Why Design Thinking Works – HBR Article - <https://hbr.org/2018/09/why-design-thinking-works>

**Additional Resources:** Will be shared.

**Evaluation Method**

<b>Assessment Component</b>	<b>Description</b>	<b>Weightage</b>	<b>COs</b>
DT Interview & Problem Statement	Group Interview (Groups of 5-6 Students)	20	3
Case Study Analysis	Case Study Assignment	10	1,2
Class Participation	Involvement in various class discussions	10	1
Design Project Presentations	Experiential Learning Design Pitch	30	4,5

End Term Exam	Hall exam	30	1,2,3
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**Rubrics for Assessment Tasks**

**Rubric for Interview & Case Analysis Assignment**

Criteria	Level 1 (Below 30%)	Level 2 (30%-60%)	Level 3 (60%-80%)	Level 4 (80% or above)
<b>Group Write ups</b>	Weak understanding of elements of human organization w.r.t. selected topic	Display a casual approach to identification of selected topic elements confusing between real and hypothetical	Provide some identification of elements involved in organization of human effort w.r.t. referred topics	Provide clear evidence of elements involved in organization of human effort w.r.t. referred topics

**Rubric for Class Participation**

Criteria	Level 1 (Below 30%)	Level 2 (30%-60%)	Level 3 (60%-80%)	Level 4 (80% or above)
Class Participation	Merely a follower	Somewhat involved but looks for someone to take lead	Participates but does not prepare well for class	Enthusiastic, prepares well for class and takes lead

**Rubrics for Presentations**

Criteria	Level 1 (Below 30%)	Level 2 (30%-60%)	Level 3 (60%-80%)	Level 4 (80% or above)
<b>Presentation Content (40 %)</b>	Provided a very weak overview of the selected Topic. Very limited linking of the topic to current management practices. Made very little to no linkage to management practices and	Provided a limited overview of the selected Topic. Limited linking of the topic to current management practices. Made limited linkage to management practices and content in the book	Provided a clear overview of the selected Topic. Successfully made some linked the topic to current management practices. Made some linkage to management practices and	Provided a very clear overview of the selected Topic. Clearly linked the topic to current management practices. Described the management practices and how

	content in the book and article.	and article.	content in the book and article.	those were related to the content in the book and article.
<b>Visuals</b> <b>(15 %)</b>	No use of visuals.	Limited use of visuals loosely related to the material	Use of visuals related to the material	Visuals augmented and extended comprehension of the issues in unique ways
<b>Delivery and Enthusiasm</b> <b>(15 %)</b>	Hard to follow the flow of ideas. Lack of enthusiasm and interest.	Most ideas flow but focus is lost at times Limited evidence of interest in and engagement with the topic	Clear flow of ideas Demonstrates interest in topic and engagement with the class.	Very clear and concise flow of ideas. Demonstrates passionate interest in the topic and engagement with the class.
<b>Involvement of the class:</b> <b>-Questions</b> <b>-Generating discussion</b> <b>-Activities</b> <b>(15 %)</b>	Little or no attempt to engage the class in learning	Questions and discussion addressed surface features of the topic Limited use of activities to clarify understanding	Questions and discussion addressed important information that developed understanding Appropriate activities used to clarify understanding	Excellent and salient discussion points that elucidated material to develop deep understanding Appropriate and imaginative activities used to extend understanding in a creative manner
<b>Response to Class Queries</b> <b>(15 %)</b>	Limited response to questions and discussion with no reference to theory/research	Satisfactory response to class questions and discussion with limited reference to theory and research	Good response to class questions and discussion with some connection made to theory/research	Excellent response to student comments and discussion with appropriate content supported by theory/research

**RUBRICS for End Term Exam.**

<b>Criteria</b>	<b>Poor</b> <b>up to 30%</b>	<b>Fair</b> <b>30-60%</b>	<b>Good</b> <b>60-80%</b>	<b>Excellent</b> <b>80% or More</b>
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	<b>UNSATISFACTORY</b>	<b>MINIMAL</b>	<b>PROFICIENT</b>	<b>EXEMPLARY</b>
Clarity of concepts and ability to apply them	Only up to 30% answers are correct. Most of the concepts are not clear and student is unable to understand the same.	Between 30 – 60% answers are correct. Many of the concepts are clear and understood by student and able to solve the problems given	Between 60 – 80% answers are correct. Majority of concepts are clear and understood by student and also provide the answers in business language.	80% or more answers are correct. Most of concepts are clear and understood by the student, provide answers in business language and may also be able to indicate the additional information required for better decision making

**CO and PO Correlation Matrix**

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	POI 0	POI 1	POI 2
CO 1	-	1	1	-	-	2	2	3	3	2	3	3
CO 2	-	1	-	-	-	2	2	3	3	3	3	3
CO 3	-	2	-	-	-	2	3	3	3	3	3	3

Last Updated On: November 30, 2023

Updated by: Sheenu Jain

**Approved by:**