Course Plan

A. Course Handout

Institute/School Name	Chitkara University Institute of Engineering and Technology		
Department Name	Department of Computer Science & Engineering		
Program Name	Bachelor of Engineering (B.E.), Computer Science & Engineering		
Course Name	Open Elective 1- Design - I	Session	2024-2025
Course Code	23OE003	Semester/Batch	3rd /2023
L-T-P (Per Week)	2-0-0	Course Credits	2
Course Coordinator	Dr. Gagan Singla		

1. Objectives of the Course

The objectives of this course on "Design Thinking"are:

- To provide a comprehensive understanding of the essences of Design thinking.
- To develop a deep understanding of key concepts to navigate the design thinking process to tackle a human-centered problem.
- To craft out an effective research plan.
- To provide the insights into the using a variety of important design thinking tools to generate ideas.
- To generate solutions and turn ideas into key concepts and to move from ideation to experimentation.
- To learn and practice all of the most important tools from the field of human-centered design to connect with the customers on a human level.
- To emphasize the importance of In-depth journey through six key phases of the design thinking process, from immersion to learning-in-action, and exploring the shifts in mindsets and skillsets that accompany them.
- To develop a Personal Development Plan (PDP) to chart your progress

2. Course Learning Outcomes

Student should be able to:

	Course Outcome	POs	CL	KC
CLO01	Understanding of Insights to Inspiration	PO4, PO8, PO9,PO11	2	Factual Conceptual Procedural
CLO02	Development of understanding of Ideas to Action	PO4, PO8, PO9, PO10, PO12	3	Factual Conceptual Procedural
CLO03	Application of Discovery Tools to connect with the customers on a human level	PO4, PO5, PO9, PO10, PO12	5	Factual Conceptual Procedural
CLO04	To dive into indepth Design Thinking Practices to explore the shifts in mindsets	PO6, PO8, PO9, PO10, PO12	3	Factual Conceptual Procedural

Revised Bloom's Taxonomy Terminology

*Cognitive Level =CL

*Knowledge Categories = KC

Course Learning Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12

CLO1				H				M	L		L	
CLO2				H				H	M	H		L
CLO3				H	M				M	H		H
CLO4						H		M	M	L		L

H=High, M=Medium, L=Low

3. ERISE Grid Mapping

Feature Enablement	Level(1-5, 5 being highest)
Entrepreneurship	1
Research	3
Innovation	3
Skills	4
Employability	4

4. Recommended Books:

B01: Christian Müller-Roterberg, "Design Thinking For Dummies", 1st Edition, Wiley

B02: Michael J Metts (Author), Andy Welfle (Author), Nick Madden (Illustrator), "Writing is Designing: Words and the User Experience", 1st Edition, Rosenfeld Media

B03: Michael Lewrick (Author), Patrick Link (Author), Larry Leifer (Author), "The Design Thinking Toolbox: A Guide to Mastering the Most Popular and Valuable Innovation Methods", 1st Edition, Wiley

B04: Alyssa Gallagher (Author), Kami Thordarson (Contributor), "Design Thinking in Play: An Action Guide for Educators", Association for Supervision & Curriculum Development

5. Other readings and relevant websites:

S.No.	Link of Journals, Magazines, Websites, and Research Papers
1.	https://www.coursera.org/learn/uva-darden-design-thinking-insights-to-inspiration
2.	https://www.coursera.org/lecture/uva-darden-design-thinking-ideas-to-action
3.	https://www.coursera.org/lecture/uva-darden-design-thinking-discovery-tools/intro-to-discovery-tools-BS15F
4	https://www.coursera.org/lecture/uva-darden-experiencing-design/introduction-to-the-innovators-journey-2o6Fv
5	https://www.coursera.org/lecture/uva-darden-experiencing-design/learning-in-action-how-mindsets-shift-ZaSWl

6. Course Plan:

Lecture Number	Topics	Recommended Books/ Weblinks
1	Insights into Design Thinking: Introduction to Design Thinking Specialization, The Four Questions of Design Thinking,	B01 & Weblink 1

2-5	Project Planning: Framing the Business case, Make Your People Plan, Make Your Research Plan, Do Your Research, The Pain Curve	B01 & Weblink 1
6-10	The Innovation Mindset: Finding Opportunities to Innovate, The Physics of Growth, Why is Innovation So Hard to Do in Organizations?, Overcoming a Growth Gridlock, What Does a Prepared Mind Look Like? Meet George and Geoff, Understanding Differences in Mindset, The Importance of Repertoire and Empathy, How Do We Help George Succeed ?, Assessing Your Mindset and Repertoire	B01 & Weblink 1
11-15	Brainstorming: Creating a Successful Brainstorming Environment Creating a Successful Brainstorming Session for Action Develop Concepts: Taking Action and Creating Concepts,	B01 & Weblink 1
16-20	Create Some Napkin Pitches What Napkin Pitches Can Help Us Do IBM: Introduction to a Process of Experimentation IBM: The Problem and Approach IBM: What Is? and What If? IBM: What Wows? and What Works? Surface Key Assumptions Using Four Tests to Define Key Assumptions Setting Appropriate Test Strategies The Importance of Thought Experiments Characteristics of a Good Hypothesis Prioritizing Ideas Using Existing Data to Test Assumptions	B02 & Weblink 1
21	Project Activity - Napkin Pitch	B02 & Weblink 2
22-25	Make Prototypes: Guidelines for Making Prototypes A Continuum of Prototyping Case Study: Eaton Next Generation Meter Case Study: Vision Screening Kiosk Get Feedback from Stakeholders Introduction to the Co-Creation Tool Examples of Co-Creation, Using a Poster Examples of Co-Creation Using Card Sorts and Sticky Notes, Examples of Co-Creation Using a Storyboard	B02 & Weblink 2
26-30	Run Your Learning LaunchesDesigning a Successful Learning LaunchGetting Started on Your Learning LaunchIn-Market ExperimentsLearning Plan TimelineThought ExperimentsExamples of 2D and 4D In-Market ExperimentsLife Reimagined Project: A 4D In-Market ExperimentThe Movement in the Design Thinking JourneyDelivering Validated Learning Against Your Key AssumptionsGiving and Receiving Feedback	B02 & Weblink 2
31-37	Importance/Difficulty MatrixMeasuring ImpactStaying in the QuestionSearching for Higher GroundHelping Us CurateRemoving Barriers and Increasing Speed of LearningComfort with Emptiness and Leaving Space	B02 & Weblink 2
38-43	Intro to Discovery ToolsBecoming CreativeStakeholder Mapping OverviewStakeholder Mapping ExampleTool Workshop Stakeholder Mapping	B03 & Weblink 3
44-48	Reframing using Job to be DoneJob to be Done Two ComponentsEthnographic InterviewingTools in Use- Framing at the Mayo ClinicTools in Use- Framing in Hospital SettingsTools in Use- The Job to be	B04 & Weblink 3

	Done at PfizerKINGWOOD OverviewKINGWOOD Defining the ProblemKINGWOOD Adapting Research ToolsKINGWOOD Involving Key StakeholdersKINGWOOD Using VisualizationKINGWOOD Developing Empathy	
49-52	Journey Maps and Unmet Customer NeedsFour Things to Know About Journey MapsJourney Map Example- The Whole AquariumMore Journey Map ExamplesJourney Map How To, 6 StepsA Closer Look- Journey Maps for RetirementTools in Use Journey Mapping for the A ha Moment	B04 &Weblink 3
53-55	Persona Snack Food ExamplePersonas and the Two by TwoCombining Personas and Journey Maps, Value Chain Background and Steps,	B04 &Weblink 4
56-59	Introduction to the Innovator's Journey Personal Transformation Through Design Thinking The Five Core Practices of DT, Sensemaking: How Mindsets Shift The Science Behind Sensemaking What Makes Sensemaking So Hard? Why Sensemaking Matters, Emergence: How Mindsets ShiftThe Science Behind EmergenceWhat Makes Emergence So Hard?Why Emergence Matters, Learning in Action: How Mindsets ShiftThe Science Behind Learning in Action	B04 &Weblink 5

7. Action plan for different types of learners

Slow Learners	Average Learners	Fast Learners
(Not required)	(Not required)	(Not required)

8. Evaluation Scheme & Components:

Evaluation Component	Type of Component	No. of Assessments	Weightage of Component	Mode of Assessment
Component 1	Self Learn Mode And Certificate Submission	1	100%	Online

9. Syllabus of the Course:

Subject: Design Thinking	

S.No.	Topic (s)	Weightage %
1	Insights into Design Thinking: Introduction to Design Thinking Specialization, The Four Questions of Design Thinking, Project Planning: Framing the Business case, Make Your People Plan, Make Your Research Plan, Do Your Research, The Pain Curve The Innovation Mindset: Finding Opportunities to Innovate, The Physics of Growth, Why is Innovation So Hard to Do in Organizations?, Overcoming a Growth Gridlock, What Does a Prepared Mind Look Like? Meet George and Geoff, Understanding Differences in Mindset, The Importance of Repertoire and Empathy, How Do We Help George Succeed ?, Assessing Your Mindset and Repertoire.	**25%**
2	Brainstorming: Creating a Successful Brainstorming Environment Creating a Successful Brainstorming Session for Action Develop Concepts: Taking Action and Creating Concepts, Create Some Napkin Pitches, What Napkin Pitches Can Help Us Do	**25%**

	IBM: Introduction to a Process of Experimentation, IBM: The Problem and Approach IBM: What Is? and What If? IBM: What Wows? and What Works? Surface Key Assumptions Using Four Tests to Define Key Assumptions Setting Appropriate Test Strategies The Importance of Thought Experiments Characteristics of a Good Hypothesis Prioritizing Ideas Using Existing Data to Test Assumption Project Activity - Napkin Pitch	
3	Make Prototypes: Guidelines for Making Prototypes A Continuum of Prototyping Case Study: Eaton Next Generation Meter Case Study: Vision Screening Kiosk Get Feedback from Stakeholders Introduction to the Co-Creation Tool Examples of Co-Creation, Using a Poster Examples of Co-Creation Using Card Sorts and Sticky Notes, Examples of Co-Creation Using a Storyboard Run Your Learning Launches Designing a Successful Learning Launch Getting Started on Your Learning Launch In-Market Experiments Learning Plan Timeline Thought Experiments Examples of 2D and 4D In-Market Experiments Life Reimagined Project: A 4D In-Market Experiment The Movement in the Design Thinking Journey Delivering Validated Learning Against Your Key Assumptions Giving and Receiving Feedback, Importance/Difficulty Matrix Measuring Impact Staying in the Question Searching for Higher Ground Helping Us Curate Removing Barriers and Increasing Speed of Learning Comfort with Emptiness and Leaving Space, Intro to Discovery Tools Becoming Creative Stakeholder Mapping Overview Stakeholder Mapping Example Tool Workshop Stakeholder Mapping, Reframing using Job to be Done Job to be Done Two Components Ethnographic Interviewing Tools in Use- Framing at the Mayo Clinic Tools in Use- Framing in Hospital Settings Tools in Use- The Job to be Done at Pfizer KINGWOOD Overview KINGWOOD Defining the Problem KINGWOOD Adapting Research Tools KINGWOOD Involving Key Stakeholders KINGWOOD Using Visualization KINGWOOD Developing Empathy,	**25%**
4	Journey Maps and Unmet Customer Needs Four Things to Know About Journey Maps Journey Map Example- The Whole Aquarium More Journey Map Examples Journey Map How To, 6 Steps A Closer Look- Journey Maps for Retirement Tools in Use Journey Mapping for the A ha Moment Introduction to the Innovator's Journey Personal Transformation Through Design Thinking The Five Core Practices of DT, Sense making: How Mindsets Shift The Science Behind Sense making What Makes Sense making So Hard? Why Sense making Matters, Emergence: How Mindsets Shift The Science Behind Emergence What Makes Emergence So Hard? Why Emergence Matters, Learning in Action: How Mindsets Shift The Science Behind Learning in Action	**25%**

This Document is approved by:

Designation	**Name**	**Signature**
Course Coordinator	Dr. Gagan Singla	
Head-Academic Delivery	Dr. Mrinal Paliwal	
Dean	Dr. Rishu Chhabra	
Dean Academics	Dr. Monit Kapoor	
Date (DD/MM/YYYY)	26.06.2024	