

DESIGN THINKING FOR INNOVATION

Course Overview

Now more than ever, we are confronting complex challenges that transcend borders. From the escalating climate change crisis to the lasting impacts of the COVID-19 pandemic, we have witnessed how rapidly the world can change and how significantly our decisions can impact everything from our day-to-day lives to the global economy. These unprecedented challenges underscore the importance of developing products, solutions, services, and experiences that have been designed using a human-centered approach – a Design Thinking approach. Design Thinking teaches mindsets and processes that, at their core, recognize the importance of understanding the human experience, and incorporating diverse perspectives and disciplines into the design and solution process.

The objective of this course is to provide students with an introduction to the concepts of **Design Thinking: empathy-based, human-centered innovation and problem-solving**. We will employ methodologies from engineering and design, while incorporating ideas from the arts, social sciences, and business world to achieve a holistic problem-solving approach. Design Thinking has been employed in numerous industries to help drive innovation, and students from any discipline can benefit from this course. Notable examples of the value of design thinking are described by the [Harvard Business Review](#), [McKinsey](#), [Forbes](#), and [more](#).

Learning Objectives and Outcomes:

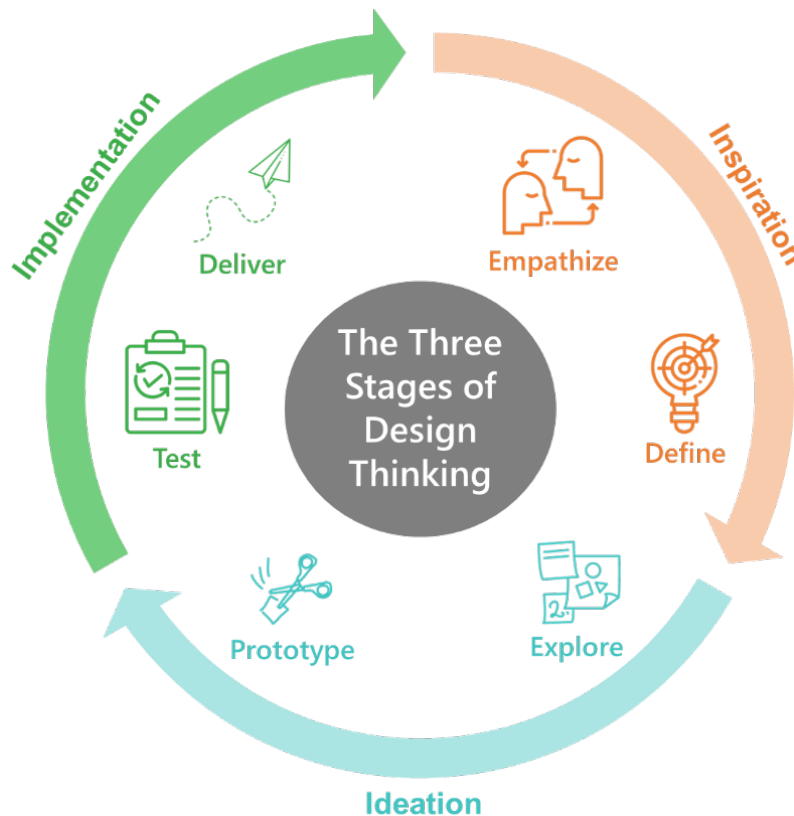
In this course, students will learn and apply Design Thinking (DT) methodologies to generate ideas, identify opportunities for innovation, engage with end-users, and reframe problems at the human-level in order to create innovative solutions to meaningful problems, and achieve true impact.

Through active engagement in hands-on activities, students will develop skills in the following areas:

- **Design Thinking and Innovation:** Students will be able to articulate the role of design thinking in the context of innovation, and will recognize how to leverage DT processes and mindsets to achieve innovation in a variety of contexts.
- **Communication, Observation, and Empathy:** As we consider human-centered problem-solving, students will learn how to:
 - identify and engage with end-users (*who are the customers or stakeholders that are impacted by this problem? what matters to them?*)
 - broaden and deepen their understanding of a problem and its impacts (*why, how, and when does this problem occur? what is wrong with current solutions?*)

Empathy will be emphasized, and students will practice a variety of methods to understand a problem using empathy.

- **Problem-Framing and Synthesis**: Students will acquire the skills to synthesize information that they acquire to organize and interpret their data and observations in order to more comprehensively describe and reframe a problem.
- **Experimentation and Learning from Failure**: At its core, prototyping – the process of creating a concrete representation of an idea – is all about experimenting and learning from failure. Throughout the course, students will learn to utilize creative “prototyping” tools – sketches, wireframes, “ugly” prototypes, minimum viable products, mock advertisements, and more. We will understand when, how, and why we prototype, and practice learning from (and iterating upon) our early prototypes as we refine our ideas.
- **Creativity**: The course will foster creativity as a fundamental aspect of generating novel ideas and potential innovations. Students will be equipped to describe, elucidate, and employ idea creation techniques to facilitate idea development.
- **Teamwork**: By working in interdisciplinary teams and learning appropriate collaboration strategies, students will develop the ability to recognize and enhance team dynamics, as well as understand their individual roles within a team.
- **Reflection**: Students will grasp the importance of reflection in the innovation process. They will practice reflection by maintaining a design journal and engaging in brief reflection sessions.



Class Schedule

This course will introduce design thinking as a way of achieving innovation in a variety of contexts and disciplines. We know from experience that the best way to learn design thinking is by doing it. While the course includes lectures on design thinking mindsets and methods, much of the learning will occur through design challenges where students learn design thinking by experiencing it. During the course, students will have opportunities to work individually, in teams, and as a class to apply DT methods to problems and challenges that are important to them.

| Week | Class | Topic |
|------|-------|--|
| 1 | 1 | Introduction to Design Thinking - Rapid Design Challenge |
| | 2 | Introduction to Design Thinking - Rapid Design Challenge |
| | 3 | Design Thinking Mindsets; Sustainable Development Goals |
| | 4 | Team Formation & Team Challenge |
| | 5 | Empathize: Interviewing Techniques |
| | 6 | Empathize: How/Why Ladders |
| 2 | 7 | Empathize: Empathy Maps |
| | 8 | Empathize: What How Why |
| | 9 | Define: Synthesize |
| | 10 | Define: Assumption Storming |
| | 11 | Define: How Might We? |
| | 12 | Define: Customer Personas |
| 3 | 13 | Team Progress Updates |
| | 14 | Explore: Brainstorming |
| | 15 | Explore: How Might We? Revisited |
| | 16 | Explore: Synthesize and Prioritize |
| | 17 | Prototype: Prototype with Purpose |
| | 18 | Prototype: Examples and Planning |
| 4 | 19 | Test: Prototype for Feedback |
| | 20 | Test: Learn from Feedback |
| | 21 | Iterative Design: Embracing and Learning from Failure |
| | 22 | Test & Deliver: When and Why We Pitch |
| | 23 | Test & Deliver: How to Pitch |
| | 24 | Test & Deliver: Pitch |