6.910A/2.723A/16.662A

SYLLABUS

FALL 2025

Written for students of Introduction to Design-Thinking
and Innovation in Engineering
(Fall 2025, A)

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COURSE INFORMATION

INTRODUCTION TO DESIGN-THINKING AND INNOVATION IN ENGINEERING (D-TILE)

Intro to D-TILE is a seminar that teaches user-centric design thinking. Lectures focus on a tested, iterative design process, as well as techniques to sharpen creative analysis. The course's interactive lectures, design challenges, and guest lectures allow students to practice design thinking and become more effective problem solvers in any domain. This course develops students' ability to understand, contextualize, and create innovative designs and systems.

LEARNING OBJECTIVES

By the end of this course students will be able to:

- Recognize and solve user needs
- Critique designs effectively
- Improve team dynamics and structure
- Apply techniques used to be an effective entrepreneur
- See that design is everywhere

ATTENDANCE POLICY

Since we only have a few classes, attendance and promptness is valuable. If you are sick, unable to come to class for another valid reason, or will be late to class, please email dtile@mit.edu before class. You are allowed one unexcused absence.

ASSIGNMENT POLICY

Assignments turned in on time and meeting all requirements will receive full credit. Unexcused late assignments will not receive credit. If you need an extension, please email dtile@mit.edu to arrange a new deadline. If you have any questions regarding the assignments, feel free to reach out to a CA at any time.

CLASS STRUCTURE

LECTURES

Intro to D-TILE offers highly interactive lectures that we expect you to participate in. Lectures include class discussions that provide the opportunity to ask clarifying questions and engage in design challenges covering a range of topics.

Lecture times:

- Section 1: Monday, 3pm-5pm
- Section 2: Monday, 7pm-9pm

DESIGN BLOCKS ("RECITATIONS")

Design Blocks are opportunities for you to reinforce the learning objectives, apply design concepts, and engage in more in-depth conversation with your peers and members of the teaching staff. Recitation times will be finalized after the first class based on student availability, and the Canvas will be updated accordingly.

FINAL EXAM

The Final Exam is an opportunity to practice all that you have learned from lectures and the skills you have developed in the Design Blocks. The exam will be based on information from lectures, readings, and homework assignments and can include anything discussed or presented throughout the semester. First years will take the final exam during a Design Block and are allowed to collaborate, while upperclassmen will individually complete the exam during the last lecture.

CANVAS

We will be using Canvas to post assignments, readings, announcements and additional materials. Completed assignments should be submitted on Canvas, and grades and feedback will be released in a timely manner. If you have any questions regarding grades or feedback you have received, please reach out to the teaching staff.

READINGS

There will be readings that you will need to complete before a particular class in order to gain value and properly engage throughout that day's lecture. In addition, there may be optional readings, videos, and academic papers that we will recommend to those interested in further understanding more about the topics.

EXCUSED ABSENCES

For excused absences, email dtile@mit.edu to coordinate a time to make up the lecture and recitation materials with a CA. You are also encouraged to get notes from your classmates and reach out if there are any questions. This should be done before the next lecture.

ASSIGNMENTS

HOMEWORK ASSIGNMENTS

Here are important notes about homework assignments:

- They are intended to practice and dive into concepts covered during lecture, which will in turn prepare you for the final exam.
- Collaboration on homework assignments is permitted, but students should submit their own work.
- Assignments will be graded based on completion.
- Assignment grades will be posted on Canvas, along with feedback from the CAs. You are encouraged to discuss feedback with CAs during recitation.
- Assignments are due the Monday after they are assigned, by 12pm. Late and unexcused assignments will receive a 0. Please reach out to the teaching staff at least 12 hours before the assignment is due if you need an extension to complete the assignment well.
- We allow usage of ChatGPT on homework assignments, only if you abide by the following 3-column citation format:
    1. Your original text and prompt
    2. ChatGPT's raw output
    3. Your edited version of ChatGPT's output.
- Any uncited usage of ChatGPT may result in disciplinary action. If you are unclear on this policy, please reach out to the teaching staff.

SCHEDULE

Date	Lecture	Homework
Sep 8	Introduction to D-TILE	Intro Survey Weekly Reading (TBA)
Sep 15	Design Research Techniques: Needs, Stakeholders, Boundaries, Hazards	Exploring Needs & Directions Weekly Reading (TBA)
Sep 22	Developing Outcomes, Concepts & Articulating Design	Fork Redesign & Concepting Weekly Reading (TBA)
Sep 29	Identifying & Reducing Uncertainty	Identifying & Reducing Uncertainty Weekly Reading (TBA)
Oct 6	Problem Statement Development, Launch/Interate/Stop Phase Gate	K-Scripts and Conversation Flows Weekly Reading (TBA)
Oct 13	No Class - Indigenous People's Day	Study for Final Exam Weekly Reading (TBA)
Oct 20	Final Exam	None

GRADING

GRADE BREAKDOWN

Your grade is based on class participation, homework assignments, and final exam score.

ATTENDANCE AND PARTICIPATION (20%)

- Attendance will be tracked during lecture. Design Block attendance will be recorded in the same manner. If you need to miss lecture please notify either Blade or the Teaching Staff beforehand to request an excused absence. You are allowed one unexcused absence.
- Participation will be based on class discussions and engagement, and will have a large impact on your overall Attendance and Participation grade. Completing required readings before class will strongly contribute to your ability to successfully participate in lecture.

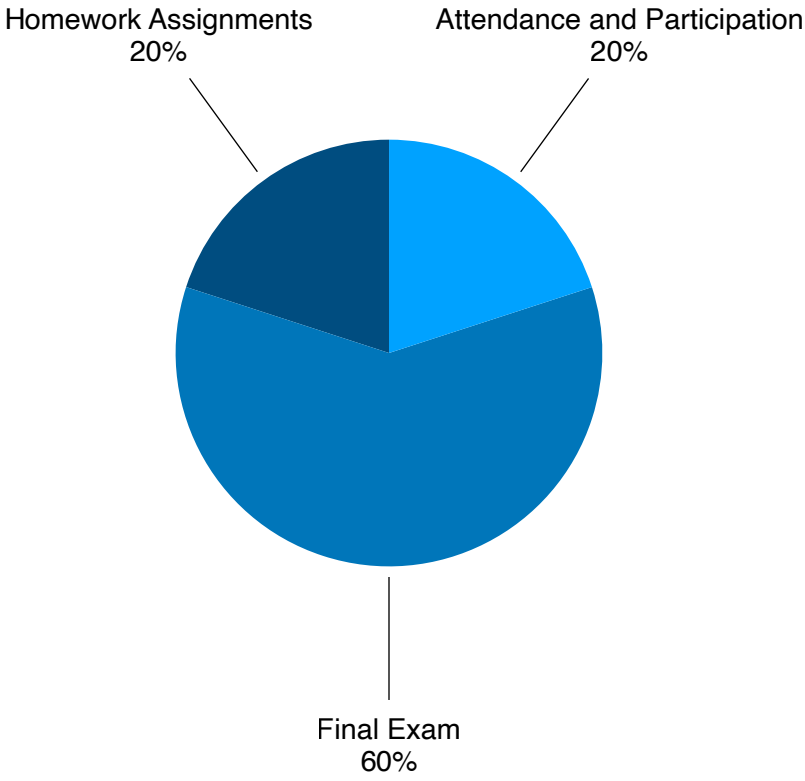
FINAL EXAM (60%)

The Final Exam is an opportunity to practice the design-thinking and innovation skills that you have developed during the course. Refer to Pg. 3 for logistics of the exam.

HOMEWORK (20%)

Students will complete several assignments over the course of the semester to gain practice with the course material and Design-Thinking. These assignments will be graded for on-time completion.

A VISUAL BREAKDOWN OF THE GRADE



GRADUATE STUDENT REQUIREMENTS

Graduate students who are enrolled in the class will be asked to write a paper for the H1/H3 class (6.910A) synthesizing academic material with the material taught in the class, with an expectation of 8-10 pages in length and topic details will be discussed and agreed upon with the instructor. For the H2/H4 class (6.910B), graduate students will complete an individual project (rather than working in a group like the undergraduates).