Designing the First Year at MIT

SYLLABUS

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Subject Units: 12 (3-0-9)
        HASS-E and Design Minor elective credit

Course Numbers: 2.S991 (Undergrad)   2.S990 (Graduate)
                      CMS.S63 (Undergrad) CMS.S99 (Graduate)

Rooms   Lectures: 54-100
                 Workshops: 32-044

*Lead Instructors and TA

Designing the First Year Experience at MIT

This subject will explore the process of design while working on a specific challenge: the potential to significantly improve and innovate on the MIT undergraduate first year. This course seeks to engage the community and explore options for improvement of the first year experience within and beyond the classroom.

Using methods from across MIT Schools, students will learn about the design process, ranging from the identification of needs and goals to developing concepts and modes of validation. Stakeholder needs identification will involve reaching out directly to the MIT community. Students will be responsible for project deliverables including a stakeholder needs assessment, analysis of integrated curricular and co-curricular changes in a tradespace of options, and final report and presentation.

Subject work will be team-based and project-focused, offering students an opportunity to present audacious and incremental options developed to senior MIT stakeholders. Students will also be exposed to principles of curriculum design and pedagogy, as they develop a holistic perspective to the design of the MIT First Year.

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MIT

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77 Massachusetts Avenue
Cambridge, Massachusetts 02139

Subject Learning Strategy

- Students will develop and lead a design challenge focused on the First Year Experience at MIT as a system using design thinking and methods.
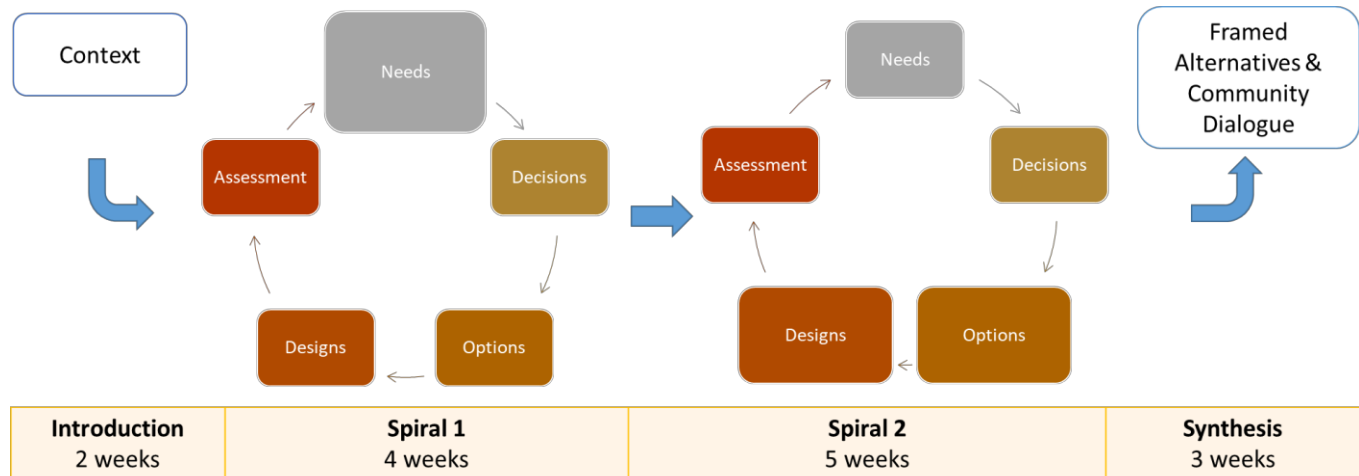
Subject Learning Objectives

1. **Identify & engage stakeholders** from across the MIT Community to understand needs of the First Year Experience

2. **Model the first year at MIT as a system** that spans multiple domains including curriculum, GIRs, residence and others, as a platform for dialogue

3. **Articulate principles of design** process.

4. **Generate design concepts** and options in a tradespace. Facilitate community exploration and feedback

5. Investigate how potential designs **align with research on learning** and related fields

6. **Synthesize** feasible designs and craft compelling presentations for constructive community dialog & policy recommendations

7. Discover **motivation for continued engagement** in the improvement of the FYE after the course

Course Architecture

This subject centers on the development of a system model of the first year leading to robust exploration of the Institute's potential key decisions and options. Weekly lectures provide background on ways of thinking, framing, and solving. Students work in teams on exercises during weekly workshops and also in engaging the community in the field. Two design spirals across the 14 weeks provide opportunities for students to experience the design process and pilot ideas through observation, framing, design, and validation.

- **Introduction** - Ways of Thinking, Engaging, Designing, and Organizing for Change (2wks)

- **Spiral 1** - Gathering stakeholder needs, formulating goals, developing concepts, identifying decisions, stakeholder evaluations (4wks)

- **Spiral 2** - Student team led refinement of boundaries, community engagement, development of new concepts, and tradespace analyses (5wks)

- **Synthesis**: Integration, Communicating Insights to Stakeholders, Response to Feedback and Establishing Viable Next Steps (3wks)

An introductory two weeks covers an overview of the course, introduces key thinking and methods, and prompts reflection on the role of the first year experience. A first design spiral (4 weeks) is used to introduce the design and system approach and pilot these methods on a reduced set of decisions about the First Year Experience. In a second spiral (5 weeks) parallel student teams address a larger set of decisions and options, guided by feasibility of alternatives and concept assessment with respect to needs of stakeholders. The course concludes with these teams synthesizing and presenting a robust set of alternatives evaluated for feasibility and desirability and linked to feedback from the community.

Introduction	Spiral 1	Spiral 2	Synthesis
2 weeks	4 weeks	5 weeks	3 weeks

Weekly Schedule

Each week includes a 90-minute lecture and a 90-minute workshop. Lectures are on Mondays from 9:30 – 11:00 (with exceptions on 2/7 Wed and 2/22 Tue) in room 54-100. Starting the second week, 2/14, workshops are on Wednesdays from 9:30-11:00 in room 32-022. Participation is required for the full period of the lectures and workshops, with prior notice required to instructors or TAs for any absence.

Instructors will assign readings aligned with lecture topics and supportive of the workshops exercises and assignments. These readings will be posted to LMOD at least 1 week in advanced. Two spirals will expose the students to a full cycle of observation, framing, concept generation, design, and validation.

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Intro	1	2/7/2018	Wed	Overview of Course. Intro. to Systems Thinking and Design
	2	2/12/2018	Mon	Education at MIT - History and Current State; What is Learning?
Spiral 1	3	2/20/2018	Tue	What is Design? Product Architecture, Concepts, Decisions, Tradespace
	4	2/26/2018	Mon	Clientele Groups and Assessing Their Needs / Wants
	5	3/5/2018	Mon	Curricular and Co-Curricular Experiences
	6	3/12/2018	Mon	Concept Generation
Spiral 2	7	3/19/2018	Mon	Concept Selection; Refining Boundaries; Organizing Teams of Teams
	8	*3/26/2018*	*Mon*	*Spring Break*
	9	4/2/2018	Mon	Outcomes and Learning Dynamics in the First Year
	10	4/9/2018	Mon	Design for X: MIT as Concept and Culture Panel Session
	11	*4/16/2018*	*Mon*	*Patriots Day*
	12	4/23/2018	Mon	Concept/ Product Testing. Verification and Validation
Synthesis & Review	13	4/30/2018	Mon	Integration and Synthesis
	14	5/7/2018	Mon	Leadership, Communication, and Preparing for Change
	15	5/14/2018	Mon	Final Presentations

Weekly Recitation-based Workshops

- The Teaching Assistant team, composed of graduate students from SDM, IDM and HASTS, leads the weekly team based workshops.

- The workshops are primarily working sessions – rather than supplemental lectures. Workshops begin with structured activities in the first 15 minutes, with the remaining time dedicated to decentralized working sessions for each team.

- An emphasis of the workshops is to support effective teamwork, including a cadence of team breakouts and briefing across teams.

- Several faculty and staff have volunteered to acts as mentors (briefing, coaching, and feedback) – to the student teams. These mentors maybe available during some of the wrokshops but also otherwise based on their calendars.

Resources

Given the complexity of the first year experience, a team of faculty, student, and administration has been gathering a number of resources so that the students in the FYE course have full access and a strong starting point for their exploration of needs and designs.

- **Course website** - LMOD primary site to find lectures, readings, assignments, calendar, and forum. https://learning-modules.mit.edu/class/index.html?uuid=/course/2/sp18/2.S991

- **FYE Briefing Book** – a collection of historical documents, studies, and papers. The briefing book is available in the course site at LMOD.

- **FYE Data Book** – Data about student pathways through MIT, including enrollment, courses, communities, and departments across demographics https://tableau.mit.edu/#/site/IR/views/FirstYearExperienceDataBookStudentversion/FirstYear StudentCharacteristics

- **FYE Research Resources** – site was put together by MIT's Teaching and Learning Lab summarizing latest research and findings that may be useful to student teams, including purposes of colleges, learning, teaching practices, and an environmental scan of the first year at other universities. https://sites.google.com/view/mitfyebb

- **FYE Mentors** - The teams will be in discovery mode for much of the class and encouraged to explore, so we are also asking FYE Mentors to be available to students outside the workshop for 30-60 minutes a week, either in person or virtually, to share their perspective, coach the teams as needed, and provide feedback on the team's deliverables.

- **FYE Prep Team** – an extended team of individuals and organizations across MIT who prepared with experience and expertise in topics the student teams may choose to leverage.

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Assignments

Assignments will be introduced during the lecture of the week they are released and further discussed as needed in the weekly workshop. Assignments will be due prior to the start of lecture of the week they are due, by uploading the individual or team results to the LMOD website for the course.

Title	Week Released	Week Due	Individual or Team
1. Reflections on University	1	3	Individual
2. Survey & Interviews Method Proposal	3	4	Team
3. Needs Assessment	3	6	Team
4. Concept Generation	5	7	Individual
5. Re-Framing Solution: Decisions & Options	9	11	Team
6. Synthesis & Assessment	11	13	Team
7. Final Report & Presentation	7	15	Team of Teams
8. Reflections on Design	14	15	Individual

Evaluation

As a project-based course, the evaluation for this course will largely emphasize the quality of engagement and team-based outcomes across the two spirals and final design synthesis and delivery. The evaluation of team engagment will include participation in weekly workshops and peer-review.

Individual Assignments: 30%

Interim Team Deliverables: 24%

Team Engagement: 20%

Final Presentation/ Executive Summary: 26%

Teams

Students will participate in teams throughout the semester, working on a variety of dimensions of the problem. In Spiral 1, teams will not compete on alternative designs, but will rather be broken out to tackle different elements of the stakeholders and needs. From Spiral 2, at least three "teams of teams" will be organized for development of concepts in parallel, as selected by these teams in competition. Along the way consistent sharing and briefing will occur in the workshops to stimulate learning and innovation across teams. Faculty mentors will be asked to work with these student teams as they explore, generate concepts, and engage external and internal stakeholders.

In the first spiral, teams will be divided by stakeholder groups around MIT. In the second spiral, two or three large superteams will work in parallel on possible sets of alternatives, with working teams within each superteam tackling dimensions of the problem.