

Overview

Students majoring in Course 3 Materials Science and Engineering are required to complete either the internship program (3.930 and 3.931) or the thesis program (3.ThU). The thesis is a 9-12 unit individual research project conducted under the supervision of a DMSE faculty member. If the thesis advisor is not appointed in DMSE, students identify a faculty thesis reader from DMSE who is familiar with the field of research. The project culminates in a public presentation of findings and a written thesis submitted to the department and deposited in the MIT Libraries.

Considerations for Laboratory Access, Virtual Projects, and COVID-19

Laboratory access in the Academic Year 2020-2021 will be heavily restricted, due to the continued effects of COVID-19. This results in two major constraints: physical distancing protocols in laboratories and restricted access to campus based on class level. **Only seniors living on-campus in Fall 2020 are eligible to pursue [in-person thesis research](#). This research occurs within an abbreviated window of in-person access opening on September 8, 2020 and closing on November 21, 2020. Therefore, it is highly encouraged to develop a virtual-first project that is adaptable to a range of research scenarios.** Although past theses have been primarily experimental, the department continues to accept theoretical, literature review, design-based, and computational theses. When available, laboratory experiments may enrich the thesis, but should not be depended upon for completion of the thesis. All students should thoroughly discuss with their thesis advisor various pathways for thesis completion with consideration of the uncertainties associated with this academic year.

Choosing a Thesis Advisor

Students are encouraged to contact a number of potential faculty advisors to set up individual meetings. Prior to contacting a faculty member, students are encouraged to read up on the faculty's research area (e.g. their website and recent publications). When contacting a faculty member, a student should include a short curriculum vitae (about two pages), a brief description of relevant expertise, and a description of the student's research interests that is specific to the particular faculty member being contacted.

Thesis Advisors who are not DMSE Faculty

If the thesis advisor is not a regular faculty member in DMSE, a departmental thesis reader must be identified at the time the thesis proposal is submitted. The thesis reader must be a regular faculty member in DMSE. The thesis reader is charged with the responsibility to assure that satisfactory progress is being made and that the thesis is ultimately appropriate as a materials science and engineering thesis.

Questions to ask a potential Thesis Advisor

Apart from discussing possible research topics, additional questions to consider when meeting with a potential thesis advisor include:

- Will you be expected to formulate the thesis topic?
- What would you be expected to do on a daily/weekly basis (e.g. experiments, chemistry, computational analysis, animal experiments, etc.)?
- How much direction will the advisor give? How often does the thesis advisor meet with their current student(s)?

- Will you be expected to attend/participate in research group meetings? How often do they meet?
- How many students are currently in the group and what are their thesis projects? Obtain the contact information of current group students with whom you can discuss further.
- Does the thesis advisor impose deadlines or expect written progress reports?
- Will a graduate student or postdoc be supervising you?

Credit and Semesters

Students preparing a thesis should enroll in 3.THU Undergraduate Thesis in the semester(s) they are working on their thesis. This is commonly the fall, IAP, and/or spring of the senior year. 3.THU carries 9-12 credits, depending upon arrangement with the student's advisor and expectations of the size and time commitment of the project. The thesis may be completed over one semester or distributed over multiple semesters.

UROP and Thesis

If you a student has already carried out a UROP with an advisor, the thesis can be in the same area of research, but should represent a distinct individual research effort and not the rewriting of a UROP report. Students cannot simultaneously register for 3.THU and a UROP project on the same topic.

Content and Style of the Thesis

The thesis is a written report of your research project. Your thesis advisor will provide you with guidance concerning the specific style and organization appropriate for your thesis. In general, the style should follow that appropriate for a full journal article in your particular area of research. The thesis should be double spaced and contain 30-50 pages of main text (including figures and tables), with total pages (including appendices and bibliography) not exceeding 100 pages. It should begin with a title page, followed by a one page abstract, and a table of contents.

The thesis must conform to the [MIT Specifications for Thesis Preparation](#) and students should refer to the [MIT Thesis Frequently Asked Questions](#).

Submission of the Thesis

Refer to the Academic Year 2020-2021 timeline for specific submission deadlines for different graduation timeframes. After defined dates for submission and review by advisors, the thesis is submitted to the DMSE Academic Office. For February 2021 degree candidates, the submission will be entirely virtual. For Spring 2021 degree candidates, we will follow up with submission process details when available. The DMSE Academic Office coordinates approval of the thesis by the Chair of the Undergraduate Committee, Prof. Juejun Hu. The thesis is then submitted by the DMSE Academic Office to the MIT Libraries.

Extensions

Requests for extensions must be submitted in writing to the Academic Office via email (dmse-ugoffice@mit.edu). The Academic Office will review your request and will consult with the Chair of the Undergraduate Committee as necessary.

Symposium and Awards

A Senior Thesis Symposium will be held in the winter and in late spring. Students will present a 10 minute summary of their work, with 5 minutes for audience questions. An Outstanding Senior Thesis award is presented to a senior during the departmental commencement reception, as nominated by the thesis advisor and awarded by the Undergraduate Committee.

Course 3 Thesis Program Timeline

Academic Year 2020-2021



Date	Day of Week	Event
August 31, 2020	Monday	Registration Day, Fall Term (register for Fall 2020 3.THU units if applicable)
September 1, 2020	Tuesday	First day of classes
September 8, 2020	Tuesday	In-person laboratory access begins
September 15, 2020	Tuesday	Thesis Proposal Due (for students registering for Fall 2020 3.THU units)
October 2, 2020	Friday	Add Date
November 18, 2020	Wednesday	Thesis Proposal Due (for students registering for IAP 2021 or Spring 2021 3.THU units)
November 18, 2020	Wednesday	Drop Date
November 21, 2020	Saturday	In-person laboratory access ends
December 9, 2020	Wednesday	Last day of Classes
December 14, 2020	Monday	Final Exam Period Begins
December 18, 2020	Friday	Final Exam Period Ends
December 18, 2020	Friday	Thesis due to Thesis Advisor (February 2021 Degree Candidates)
January 4, 2021	Monday	Final Thesis due to DMSE Academic Office (February 2021 Degree Candidates)
January 4, 2021	Monday	First Day of IAP (register for IAP 2021 3.THU units if applicable)
January 8, 2021	Friday	Thesis Symposium (February 2021 Degree Candidates)
January 15, 2021	Friday	Last day to go off the February 2021 degree list
January 29, 2021	Friday	Registration Day, Spring Term (register for Spring 2021 3.THU units if applicable)
April 30, 2020	Friday	Thesis due to Thesis Advisor (Spring 2021 Degree Candidates)
May 7, 2021	Friday	Final Thesis due to DMSE Academic Office (Spring 2021 Degree Candidates)
May 11-14, 2021	TBD	Thesis Symposium - Date/Time TBD
May 14, 2021	Friday	Last day to go off Spring 2021 degree list

Course 3 Thesis Program Timeline

Academic Year 2020-2021



Proposal Deadlines - Further Explanation

If the student is beginning thesis research in Fall 2020, the thesis proposal is due **September 15, 2020**.

If the student is beginning thesis research in IAP 2021 or Spring 2021, the thesis proposal is due **November 18, 2020**.

A student who begins thesis research in Fall 2020 and continues thesis research through IAP 2021 and/or Spring 2021 submits the thesis proposal in September. Only one thesis proposal is submitted, therefore the student in this scenario does not submit a thesis proposal in November.

If, after submission and approval of a thesis proposal, changes to unit distribution need to be made, then a new thesis proposal is submitted.

Course 3 Thesis Proposal

Academic Year 2020-2021



Student Information

Name	
Email	
Planned Graduation Date	

Tentative Thesis Title

A tentative description of your thesis project

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Description of Thesis

Attach a 2-3 page description of the problem you will be addressing, the approach you will take (include experimental or computational methods) and the analysis methods you will take.

Distribution of Work

Please indicate below the distribution of your thesis work over the following terms. Please note that this is an estimated unit breakdown. You/your advisor may change this over the academic year. In the event of change, a new proposal must be submitted. A sum of 9 units minimum is required; students may register for a sum of 12 units maximum.

Academic Term	Units
Fall 2020	
IAP 2021	
Spring 2021	

Thesis Supervision

Thesis Advisor	
Thesis Advisor's Department	DMSE Other (Please Specify)
Thesis Reader (if applicable)	

Student Signature

Thesis Advisor Signature

Thesis Reader Signature (if applicable)

Decision

Approved

Not Approved

Undergraduate Officer Signature