

Department of Mechanical & Industrial Engineering  
University of Toronto

## **MIE498 Thesis Course Guidelines**

**2023 – 2024**

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## 1. Introduction

The purpose of MIE498 is two-fold: (1) to allow students to pursue a technical project of interest under the supervision of a member of the research faculty, and (2) to improve their communication skills, especially their scientific writing and oral presentation skills. It is particularly useful for students thinking about graduate school and who want to learn more about engineering research. Preparing a Progress Report and a Thesis gives student's experience in technical writing, and making oral presentations about their projects helps students improve their oral communication skills. MIE498 is an important course in the curriculum because an engineering graduate should be able to design and perform experiments, collect and analyze data, and present in an effective manner to clients, prospective employers, and the general public.

Most students choose to work on a project on their own, but some decide to work in groups. Either way, a student or group settles on a topic with an academic supervisor by the beginning of the term. Each student or group submits a proposal or plan for carrying out the project, developed in consultation with the supervisor. Before the Term examination period, each student or group submits a progress report describing their progress on the project. A final report – **the thesis** – is due 1-2 weeks before the last day of class.

Students are expected to arrange regular meetings with their supervisor. While the role of the supervisor is to provide guidance around the thesis project throughout the term, it is the student's responsibility to initiate contact and seek assistance as needed. Students must also provide supervisors with regular updates of their progress and advise them of any problems that arise.

The Department expects that the average student will spend about ten hours per week on this course, comparable with the hours spent on a regular course. Hence, for a full-year thesis, each student will spend about 130 hours on the project by the end of the first term, and 260 hours by the time the Thesis is due in April.

Since MIE498Y is a full-year course, no mark for this course appears on the student's Fall Grade Report. Instead, the fall mark appears on the Spring Grade Report, and counts for two courses in the calculation of the Spring Sessional Average. ***Please note that final grades for this course may be adjusted or normalized to meet Faculty norms.***

**NOTE:** Approval to register for the fourth-year thesis course (MIE498H1 or MIE498Y1) must be obtained from the Associate Chair - Undergraduate and is normally restricted to fourth year students with a cumulative grade point average of at least 2.7.

## 2. Contact Information

MIE498 is officially administered by the Undergraduate Office, and your official “course instructor” is Yanna Sventzouris. For inquiries regarding forms, signatures, approvals, deadlines, and submission of deliverables, please contact the Undergraduate Office – [undergrad@mie.utoronto.ca](mailto:undergrad@mie.utoronto.ca).

## 3. Deadlines and Grading for Course Deliverables (Suggested)

The following deadlines for course deliverables will be administered by the Undergraduate Office, unless an extension has been granted by your supervisor. There are penalties for late submissions (see **Section 4 – Deliverables**). A suggested grading scheme has been shown for each deliverable. The grading scheme should be confirmed with your supervisor at the time your Thesis Enrolment Form and Proposal is submitted. **Further deliverables are required, and are determined in discussion between the supervisor and the student. These evaluation components should be submitted for review within the one-page thesis proposal.**

### Half-Year Thesis (Fall or Winter Term)

Deliverable	Submit to	Deadline
Thesis Proposal & Enrolment Form	Supervisor for review and MIE Undergraduate Office for processing	5 business days before the last day to add
Thesis Report	Supervisor for review and MIE Undergraduate Office for reference	1-2 weeks before the last day of lectures

### Full-Year Thesis (Fall and Winter Term)

Deliverable	Submit to	Deadline
Thesis Proposal & Enrolment Form	Supervisor for review and MIE Undergraduate Office for processing	5 business days before the last day to add
Progress Report*	Supervisor for review and signature, and MIE Undergraduate Office for reference	Last day of lectures for the Fall term
Thesis Report	Supervisor for review and MIE Undergraduate Office for reference	1-2 weeks before the last day of lectures

\*The Progress Report is only required for students enrolled in full-year thesis.

Since MIE498Y is a full-year course, no mark for this course appears on the student’s transcript for the Fall term. Instead, the fall mark appears on your transcript for the Winter term and counts for two courses in the calculation of the Winter Sessional Average.

*Please note that final grades for this course may be adjusted or normalized to meet Faculty norms.*

### 3.1. Grading

The marking scheme of the thesis follows the Rubric attached in [Appendix A](#). A copy of the Grade Submission Form that is completed by your supervisor has also been attached in [Appendix A](#) for reference.

## 4. Deliverables

### 4.1. Thesis Proposal and Enrolment Form

Each student must submit a completed Thesis Enrolment form and a one-page proposal by the deadlines noted above. The form must be signed by the student's supervisor. This is a **mandatory registration requirement for all students**. A copy of the Thesis Enrolment Form and one-page proposal template can be found in [Appendix B](#).

The purpose of the Thesis Proposal is to help a student develop a strategy for the project. The plan should:

- Include a title
- Define the objectives of the work
- Provide a description of activities
  - Outline the steps to be taken to accomplish the objectives, e.g. it identifies the experimental technique, describes the numerical simulations, or lists the software or equipment to be used
- Include an evaluation breakdown
- Provide a work schedule – what is to be done and when

The proposal is minimum one-page single spaced in length. Students are advised to have a clear understanding of the supervisor's expectations for the project.

**\*\* For Group Projects:** A group of students who intend to work together on a project must submit a collective Thesis Plan as described above. At the end of the Thesis Plan, students must state whether they will submit individual final theses or a collective document. This arrangement can be changed later only in consultation with the supervisor. In the event that a project group loses a member, the remaining group members should immediately meet with the supervisor to discuss the impact on the thesis, and make any necessary modification. The Undergraduate Office must also be notified immediately of these changes, with written approval from the supervisor.

### 4.2. Progress Report(s): Required for Full-Year Thesis

The Progress Report normally 10 pages double-spaced, although this should be confirmed with your supervisor and size 12 Times New Roman font.

Template located in [Appendix C](#). It should describe:

- (a) The motivation, background and objectives of the project, thereby laying the foundation for the Introduction and Literature Review sections of the Thesis.
- (b) The methodology used for the project and the work completed up to the point of the Report.
- (c) The work remaining to be carried out (under the section heading "Upcoming Work").

Evaluation of the Progress Report will be based on: organization, background review, statement of objectives, tasks accomplished, technical content, discussion of results obtained, and the quality of the writing. It is expected that each student will have spent approximately 130 productive hours of work per term on the thesis project by the time the Progress Report is submitted. **The penalty for submitting the Progress Report late is a deduction of 20% from the assigned mark for each day after the deadline. This penalty is applied to each day of any intervening weekends. The Progress Report must be signed and dated by your Supervisor.**

Requests for extensions based on equipment failures or busy schedules will not be granted. The student is expected to manage their time throughout their semester, just like they would do for any other course. In fact, MIE498 provides more flexibility than any other course in that regard. Extensions will only be granted in *exceptional* cases, such as hospitalization, or death of an immediate family member. In such cases, a written request for an extension must be submitted with supporting documentation (e.g. a U of T Medical Certificate) to the supervisor and the Undergraduate Office, at least one week before the deadline.

### 4.3. Thesis

The Thesis is the final report on the project. The following describes a typical Thesis, but the content and format of your Thesis should be confirmed with your supervisor.

**\*\* For Group Projects:** Students working as a group may submit individual theses or a collective document. A collective document must state the responsibilities of each group member. Furthermore, each member must identify the chapter(s) written, attaching his/her name to the chapter(s); e.g. Chapter 3 (John Doe).

**General Requirements:** By reading the document, a junior engineer should be able to understand the reasoning, procedures, methodology, results and conclusions. The document should be organized according to the department's policies and guidelines for graduate-level theses. Formatting guidelines are provided below. Above all, the document must be well written. Proficiency in English accounts for part of the mark. Like all technical documents, the Thesis should be written in the third person. Only one system of units should be used. While the metric system is recommended, the decision should be made in consultation with the supervisor.

Kindly be advised that students engaged in a thesis project bound by a Non-Disclosure Agreement (NDA) or intellectual property (IP) rights agreement are required to submit the necessary documents and reports for their respective thesis projects to the MIE Undergraduate Office. All thesis materials that are under NDA or IP agreements will be treated with the utmost confidentiality. Students are encouraged to discuss the confidentiality of their work with their supervisors and reach a mutual agreement regarding what should or should not be included in documents and reports submitted to the MIE Undergraduate Office. However, the existence or potential pursuit of NDAs and similar agreements will not be accepted as a reason for being exempt from submitting the required documents and reports.

**Thesis Length:** A student working on his or her own submits an individual Thesis. The typical Thesis is about 40 to 50 pages double-spaced in length, including figures and tables. Guidelines for the format of the document are given below. Once again, the format of these should be confirmed with your supervisor.

**Submission:** Students must submit an electronic copy by the deadline to the supervisor in PDF or Word document form (at the supervisor's discretion) for grading, and cc the Undergraduate Office with the same electronic copy.

**The penalty for submitting the Thesis late is a deduction of 20% marks from the assigned mark for each day after the deadline. This penalty is applied to each day of any intervening weekends.**

Requests for extensions based on equipment failures or busy schedules will not be granted. The student is expected to manage their time throughout their semester, just like they would do for any other course. In fact, MIE498 provides more flexibility than any other course in that regard. Extensions will only be granted in **exceptional** cases, such as hospitalization, or death of an immediate family member. In such cases, a written request for an extension must be submitted with supporting documentation (e.g. a U of T Medical Certificate) to the supervisor and the Undergraduate Office, at least one week before the deadline.

**Formatting:** The official thesis format is based on the policies and guidelines outlined for graduate-level theses in MIE. MIE498 uses strict formatting guidelines to ensure consistency of all theses. Furthermore, we view MIE498 as an introduction to graduate-level research, and following the formatting guidelines for graduate theses prepares students for the rigorous requirements of a graduate degree.

The thesis should have the following formatting:

- Page size must be A4.
- Margins should not exceed 2.5 cm on all edges.
- The main text should be double-spaced.
- Quotations, footnotes, and references may be single spaced.
- A consistent numbering system for headings must be used throughout the document.
- A Table of Contents must be included.
- Times New Roman font with font size 12 pts should be used.

**Sections:** The following is a list of Sections that should be included in the thesis. Template provided in [Appendix D](#):

1. *TITLE PAGE*  
The title page is on the same paper as the body of the report.
2. *ABSTRACT*  
The abstract is generally 100 to 200 words, single-spaced in block form, placed in the centre of a separate page.
3. *ACKNOWLEDGEMENTS*  
Acknowledgements (to persons and/or supporting agencies).

4. *TABLE OF CONTENTS*  
Begin the Table of Contents on a separate page. Show page numbers for each item. The Abstract does not need to be paginated, and therefore does not need to be listed in the Table of Contents. Chapters are numbered 1, 2, 3, etc. Appendices are numbered A, B, C, etc.
5. *LIST OF SYMBOLS (with their definitions)*
6. *LIST OF FIGURES (and captions)*
7. *LIST OF TABLES (and titles)*  
Begin each list on a separate page. Figures, tables, equations, etc. should be numbered in a consistent system. Items 4 to 8 inclusive should be paginated sequentially in Roman numerals: i, ii, iii, iv, etc. All page numbers should be located consistently 1 inch from the top edge of the page, in the centre.
8. *MAIN THESIS*  
The text portion should not exceed 50 pages, but student should consult their supervisors for guidance. It is best to begin each chapter on a separate page. Figures and tables are to be presented in individual 'collection' at the end of the text. The body of the Thesis should answer the following questions: What did you do? Why did you do the work (justification)? How did you do it (method of approach)? What did you find (results and conclusions)?
9. *REFERENCES*  
The list of references constitutes a separate section. The references should be complete and easy to find.
10. *APPENDICES (as required)*  
Begin each appendix on a separate page and label each as Appendix A, Appendix B, etc.

Previous student examples can be found [HERE](#). Note, that these do not follow the specific format mentioned above, and therefore should only be referenced for content purposes.

## 5. Additional Information

### 5.1. Safety

As professional engineers in training, you have a duty of responsibility to ensure that safety is duly considered at all times. To this end, you are expected to behave with your personal safety and the safety of others in mind. In order to be allowed access to any undergraduate labs, including computer labs, it is *mandatory* that you complete the MIE online health and safety training course. Instructions for the completion of safety training requirements have been sent in an e-mail to all students. Safety training can also be accessed at: <https://www.mie.utoronto.ca/faculty-staff/health-safety/>

### 5.2. Academic Integrity

Students are expected to conduct themselves in accordance with the highest ethical standards of the Profession of Engineering and evince academic integrity in all their pursuits and activities at the university. As such, in accordance with the General Academic Regulations on Academic Integrity, students are reminded that plagiarism or any other form of cheating in examinations, term tests, assignments, projects, or laboratory reports is subject to serious academic penalty (e.g. suspension or expulsion from the faculty or university). A student found guilty of contributing to cheating by another student is also subject to serious academic penalty.

Academic integrity is fundamental to learning and scholarship at the University of Toronto. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the U of T degree that you earn will be valued as a true indication of your individual academic achievement, and will continue to receive the respect and recognition it deserves.

Familiarize yourself with the University of Toronto's *Code of Behaviour on Academic Matters* (<https://undergrad.engineering.utoronto.ca/academics-registration/policies-guidelines/code-of-behaviour-on-academic-matters/>). It is the rule book for academic behaviour at the U of T, and you are expected to know the rules.

### 5.3. Mental Health and Wellness

As a university student, you may experience a range of health and/or mental health challenges that could result in significant barriers to achieving your personal and academic goals. The University of Toronto and the Faculty of Applied Science & Engineering offer a wide range of free and confidential services that could assist you during these times.

As a U of T Engineering student, you have a Departmental [Undergraduate Advisor](#) or a Departmental [Graduate Administrator](#) who can support you by advising on personal matters that impact your academics. Other resources that you may find helpful are listed on the [U of T Engineering Mental Health & Wellness webpage](#), and a small selection are also included here:

- [U of T Engineering's Mental Health Programs Officer](#)
- [Accessibility Services](#) & the [On-Location Advisor](#)
- [Health & Wellness](#) and the [On-Location Health & Wellness Engineering Counsellor](#)

- [Graduate Engineering Council of Students' Mental Wellness Commission](#)
- [SKULE Mental Wellness](#)
- [U of T Engineering's Learning Strategist](#) and [Academic Success](#)
- [Registrar's Office](#) and [Scholarships & Financial Aid Office & Advisor](#)

We encourage you to access these resources as soon as you feel you need support; no issue is too small.

If you find yourself feeling distressed and in need of more immediate support, consider reaching out to the counsellors at [U of T Telus Health Student Support](#) or visiting U of T Engineering's [Urgent Support – Talk to Someone Right Now](#)

#### **5.4. Student Accommodations**

The University of Toronto supports accommodations for students with diverse learning needs, which may be associated with mental health conditions, learning disabilities, autism spectrum, ADHD, mobility impairments, functional/fine motor impairments, concussion or head injury, visual impairments, chronic health conditions, addictions, D/deaf, deafened or hard of hearing, communication disorders and/or temporary disabilities, such as fractures and severe sprains, or recovery from an operation.

If you have a learning need requiring an accommodation the University of Toronto recommends that students [register with Accessibility Services](#) as soon as possible.

We know that many students may be hesitant to reach out to Accessibility Services for accommodations. The purpose of academic accommodations is to support students in accessing their academics by helping to remove unfair disadvantages. We can assess your situation, develop an accommodation plan with you, and support you in requesting accommodation for your course work. The process of accommodation is private; we will not share details of your needs or condition with any instructor.

If you feel hesitant to register with us, we encourage you to reach out for further information and resources on how we can support. It may feel difficult to ask for help, but it can make all the difference during your time here.

Phone: 416-978-8060

Email: [accessibility.services@utoronto.ca](mailto:accessibility.services@utoronto.ca)

#### **5.5. Quercus**

There is a Quercus page where the handbook and other relevant materials will be posted.

## 5.6. Communication, Writing and Team Dynamics

Since the quality of the written reports and the final thesis comprises a significant fraction of the grade, students will find it helpful to have an appointment with the staff in the Engineering Communication Program (ECP) office. Appointments can be booked online at <https://ecp.engineering.utoronto.ca/ecp-tutoring-centre/book-appointments/>. Each student can take his or her one-page proposal, Progress Report or Thesis to the appointment to learn how to improve their writing skills and how to incorporate materials from the Progress Report into the Thesis.

For information or assistance on managing group dynamics, please contact the Troost Institute for Leadership Education in Engineering (ILead), to book an appointment or speak to one of the advisors: <https://ilead.engineering.utoronto.ca/about-ilead/contact-us/>

## 5.7. Equity, Diversity and Inclusivity

**Looking for community? Feeling isolated? Not being understood or heard?**

**You are not alone.** You can talk to anyone in the Faculty that you feel comfortable approaching – professors, instructors, teaching assistants, [first-year](#) or [upper-years](#) academic advisors, student leaders or the [Assistant Dean of Diversity, Inclusion and Professionalism](#).

**You belong here.** In this class, the participation and perspectives of everyone is invited and encouraged. The broad range of identities and the intersections of those identities are valued and create an inclusive team environment that will help you achieve academic success. You can read the evidence for this approach [here](#).

**You have rights.** The [University Code of Student Conduct](#) and the [Ontario Human Rights Code](#) protect you against all forms of harassment or discrimination, including but not limited to acts of racism, sexism, Islamophobia, antisemitism, homophobia, transphobia, ableism, classism and ageism. Engineering denounces unprofessionalism or intolerance in language, actions or interactions, in person or online, on- or off-campus. Engineering takes these concerns extremely seriously and you can confidentially disclose directly to the Assistant Dean for help [here](#).

Resource List:

- [Engineering Equity, Diversity & Inclusion Groups, Initiatives & Student Resources](#)
- [Engineering Positive Space Resources](#)
- Request a religious-based accommodation [here](#)
- Email Marisa Sterling, P.Eng, the Assistant Dean, Diversity, Inclusion & Professionalism [here](#)
- Make a confidential disclosure of harassment, discrimination or unprofessionalism [here](#) or email [engineering@utoronto.ca](mailto:engineering@utoronto.ca) or call 416.946.3986
- Email the Engineering Society Equity & Inclusivity Director [here](#)
- [U of T Equity Offices & First Nations House Resources](#)

## **5.8. Land Acknowledgement Statement**

I wish to acknowledge this land on which the University of Toronto operates. For thousands of years, it has been the traditional land of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit. Today, this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land.

### **Indigenous Students Supports**

Join the Discord channel for Indigenous U of T Engineering Students by emailing [Professor Bazylak](#) or [Darlee Gerrard](#).

First Nations House (FNH) Indigenous Student Services offers culturally relevant programs and services for Indigenous students at U of T. Indigenous students who want more information on how to apply for Indigenous specific funding opportunities, cultural programs, traditional medicines, academic support, monthly social events or receive the weekly newsletter can go to the FNH [website](#), [email](#) or follow FNH on social media: [Facebook](#), [Instagram](#), or [TikTok](#). A full event calendar is on the CLNX platform. Check CLNX often to see what new events are added!

## **5.9. Fourth-Year Thesis Awards**

When supervisors submit a Grade Submission Form, they have the ability to nominate students for the below awards. The nominated students' thesis papers are then reviewed by a committee.

### **Mechanical and Industrial Engineering Students**

#### **Centennial Senior Project Award**

The Centennial Thesis Awards were established in 1972-1973 in honour of the Faculty's centennial. To recognize excellence in a fourth-year thesis or capstone design project, one award is made annually to a student or team of students in each of the Faculty's nine degree programs. The decision is based on departmental recommendations. The award is in the form of a \$500 prize and an accompanying certificate. Original funding was provided through the Office of the Dean and is continued through the generosity of the University of Toronto Engineering Alumni Association.

Awarded for outstanding IV year thesis or capstone design project in each program. Successful student or team of students must be registered in the Faculty. One per program on the recommendation of the Department Chair for outstanding work on the fourth year thesis and/or capstone design project.

#### **Frank Chik & Lai Nar Man Award**

Awarded to a student or team of students with the most meritorious thesis and/or capstone design project related to integrated circuits, semi-conductors, electronics, or similar field.

## **Mechanical Engineering Students**

### **Dr. Arthur Herrmann Memorial Award**

The family of Dr. Arthur Alexander Herrmann has established a memorial fund in memory of the 100th anniversary of his birth (July 4, 1891). The award is derived from the income of the fund and will be granted to a fourth-year student in Mechanical Engineering whose major interest and thesis topic reflect concern for the protection of the environment. Dr. Herrmann won international recognition as an expert on plywood and its applications; he invented a machine for the manufacture of plywood pipes or tubes, and was a well-known researcher, lecturer and author.

### **A. B. Platt Award, Toronto Section of the Society of Tribologists and Lubrication Engineers**

Funded in perpetuity by a capital donation from the Toronto Section of the Society of Tribologists and Lubrication Engineers (STLE), this prize is awarded annually to the student in the fourth year of either Mechanical, Chemical or Materials Engineering program whose work in tribology (friction, wear, lubrication, wear resistant coatings) is considered to be of suitable quality and the most satisfactory. The award has a value of \$100, of which \$75 is presented to the student and the remaining \$25 is given to the department for the purchase of publications on tribology

## **Industrial Engineering Students**

Ref above

## **Appendix A – Rubric and Final Grade Submission Form**

[Rubric](#)

[Final Grade Submission Form](#)

## **Appendix B – Thesis Enrolment Form and One-Page Proposal Template (.docx)**

[Thesis Enrolment Form](#)

[One-Page Proposal Template \(.docx\)](#)

## **Appendix C – Progress Report Template (.docx)**

*This is only for students enrolled in the full-year thesis.*

[Progress Report](#) (.docx)

## Appendix D – Thesis Template (.docx)

[Thesis Template](#) (.docx)