

## MS ENGINEERING DEGREE OPTIONS

The MS Engineering (MSE) program provides four different degree options: (1) graduate thesis, (2) graduate project, (3) graduate R&D and (4) coursework-only option. Fig. 1 provides a flowchart outlining the path and requirements for each degree option. Students enrolled in the MSE program must select one of these options and fulfill the corresponding requirements.

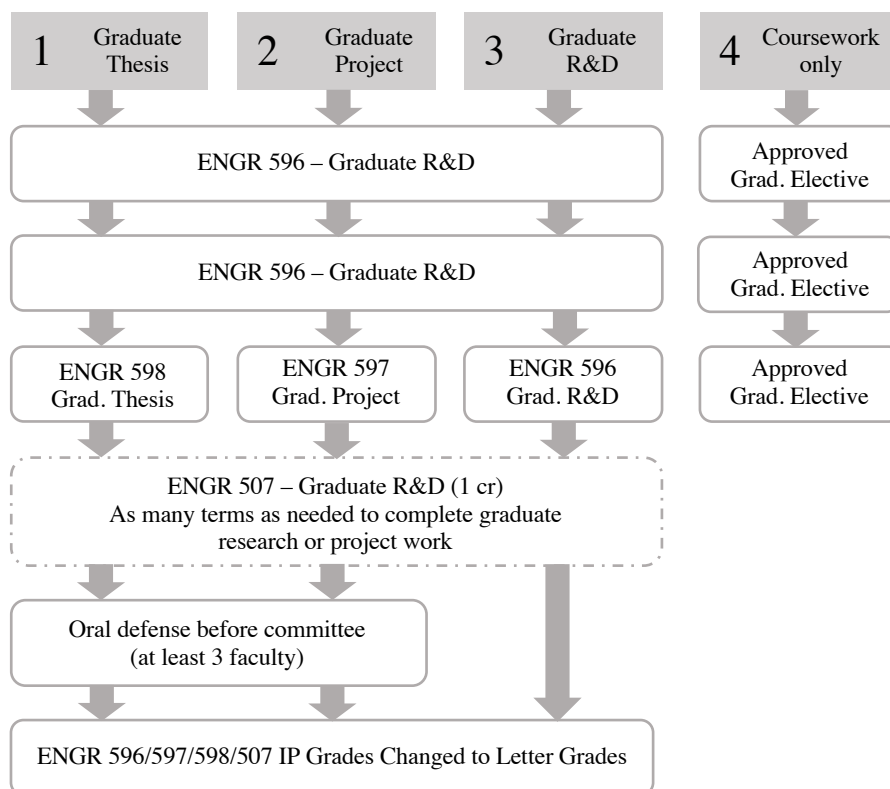


Fig. 1 Flowchart of MS Engineering Degree Options.

Below is a more detailed description of the type of work and requirements associated with each of the four degree options:

### 1) Graduate Thesis (ENGR 598)

The Graduate Thesis option involves working on original research under the supervision of a faculty member who acts as the thesis advisor. The student selects a topic, conducts an extensive literature review, develops research questions, and works on finding answers to those research questions. This work typically requires design of experiments, collection of data, and testing of hypotheses, among other things. This option requires the student to write a formal MS Thesis summarizing all aspects of their endeavour, followed by an oral defense before a committee of at least 3 faculty members, one of which must be the thesis advisor. This process is not straightforward, it is time-consuming in nature, and may require several iterations. Because of this, students intending to go this route are encouraged to start thinking about potential thesis topics early in their study program (second term). Students should select a faculty committee around the time they register for the last term of Graduate Thesis (ENGR 598).

### 2) Graduate Project (ENGR 597)

This option entails solving a problem or issue of significance in the chosen field by means of a project involving some original design and development. The student selects a topic, conducts a state-of-the-art review, develops a specification which may consist of improving an existing design or taking a new

approach to solving the problem at hand. Depending on the nature of the project, it may require the development of a prototype or similar deliverable demonstrating that the proposed design solves the problem and meets the specifications. The graduate project option requires the student to write a formal Graduate Project report summarizing all aspects of their work, followed by an oral defense before a committee of at least 3 faculty members, one of which must be the graduate project advisor. The design process is iterative and time-consuming in nature. To avoid unnecessary delays, students are encouraged to start thinking about project definition early in their program of study (second term). Students should select a faculty committee around the time they register for the last term of graduate project (ENGR 597).

### **3) Graduate Research & Development (ENGR 596)**

This option involves conducting research and/or developing a project in a chosen topic. The scope of the research or project must meet the standards for graduate work, similar to the graduate thesis and graduate project options. In the case of students following the accelerated BS/MSE path who have not completed an undergraduate capstone project, the scope of the project must also meet the requirements for the undergraduate capstone project. However, the requirements of review for this option are lower. Under this option, an oral defense before a faculty committee is not required. The work is graded exclusively by the faculty advisor supervising the work, who will also determine the particular deliverables appropriate to the nature of the work performed by the student (e.g., project report, oral presentation, live demonstration, etc.).

### **4) Coursework-only MSE**

In this option, the student completes an additional set of graduate course (9 credits) in lieu of a graduate thesis or project. Students should get approval for the courses from their academic advisor or MSE Program Director ahead of registering.

Students should consider the following items when selecting an option:

**(a) Eligibility:** Students in the accelerated BS/MSE track who have not completed an undergraduate capstone project are only allowed to complete options 2 or 3, in order to satisfy their undergraduate capstone project requirements.

**(b) Approval:** Students interested in options 1 or 2 must complete two terms of ENGR 596. Based on their progress thereof, they can request approval from their faculty thesis/project advisor to register for ENGR 597 or ENGR 598 in their third term of the graduate thesis. Students interested in option 4 should get approval from their advisor or MSE Program Director for the courses to satisfy this option ahead of registering.

**(c) Continuous Enrollment:** Students who do not complete the requirements for the graduate thesis/project/R&D courses in three terms, but who will continue to use faculty and university resources for work related to graduate thesis/project/R&D must continue to register for at least 1 credit per term in an independent study course ENGR 507 – Graduate R&D.

**(d) Grading:** Grading for thesis, project, or graduate R&D courses will be IP (in progress) every term, until the student has completed the work. At that time, the faculty member will replace the IP grade with a letter grade (A-D). If not cleared within 5 years of issuance, IP grades will automatically revert to a F.

**(e) Paperwork:** Students pursuing the coursework-only option must submit a course substitution form approving the courses selected to replace the Graduate R&D sequence. Students completing the graduate thesis or Graduate Project options must submit a Final Approval Form after successful completion of the oral defense. These forms can be downloaded from the Registrar's Office website ([www.oit.edu/registrar](http://www.oit.edu/registrar)).