Department of Mechanical and Industrial Engineering
Faculty of Engineering and Architectural Science

Ph.D. Candidacy Examination Procedural Guide

Department of Mechanical and Industrial Engineering

Every Ph.D. student must take a pass/fail Candidacy Examination no later than two years after registration in the Ph.D. program and completion of all required courses. Students must satisfy the examining committee that they have adequate knowledge of the discipline and of the subject matter relevant to the thesis; and that they are able to continue and complete original research at an advanced level.

The Candidacy Examination is made up of two components, a written component (which is carried out first) and an oral component (which is carried out about two weeks later, if the written component is passed), and is usually scheduled between 17 and 22 months after registration. It is the responsibility of the supervisor (co-supervisors) to arrange all aspects of the student's examination. **At least one month prior to the desired date of the Candidacy Examination's oral component**, the following documents should be submitted to the Program Administrator:

1. Ph.D. Supervisory Committee Approval Form: The members of the Supervisory Committee are selected by the student's supervisor (or co-supervisors) and shall consist of the student's supervisor (or co-supervisors) and at least two faculty members from the program. Additional non-program members may be included, if necessary.

2. Candidacy Examination Scheduling Request Form: The members of the Candidacy Examination Committee shall consist of the Program Director (or Designate), who serves as the Chair of this committee, and the members of the Supervisory Committee.

3. Ph.D. research proposal: Copies must be submitted to members of the Candidacy Examination Committee. A digital copy is also required at this time.

Proposal

The Ph.D. research proposal must be reviewed and approved by the student's supervisor (or co-supervisors). The proposal will typically include the following sections:

- Introduction
- A critical literature review
- Objectives of the proposed research
- Expected contributions
- Methodology

- Progress to date
- Timeline
- References

The written proposal should be 20 to 40 pages in length using font size 12 and 1.5 line spacing.

Subsequent to the submission of the proposal, each committee member must submit to the Program Director a question based on the research proposal. Each question may consist of parts (a, b, c, etc.), it may be partly quantitative (i.e., involve analysis and/or calculations and/or diagrams) and partly qualitative (i.e., involve a written explanation) or completely qualitative (but not completely quantitative) in nature, and it should be answerable in a time of 150 to 180 minutes (i.e. 2.5 to 3 hours) divided by the number of committee members. For example, if there are three committee members, each question should be answerable in 50 to 60 minutes. The intent of this component of the examination is to determine both the scope of the candidate's technical knowledge of their area of specialization and their ability to communicate this knowledge in writing. The Program Director will ascertain if the questions are appropriate (through discussion with the student's supervisor or co-supervisors, if necessary) and will invigilate or arrange for invigilation of the examination on the scheduled date. The student's answers will be delivered to the committee members, who must decide within one week if the answers are satisfactory. If all committee members are satisfied, the oral component of the Candidacy Examination will proceed as scheduled. If two (or more) committee members are not satisfied, the oral component of the examination will not proceed and the student will be notified they have failed the written component of the examination, which will be rescheduled (with possibly different questions).

The following items are relevant to the oral component of the Ph.D. Candidacy Examination:

I. The candidate will be asked to present their research proposal within a period of about 20 minutes, and will then be questioned by each member of the examination committee.
II. The questions posed by the committee members must be related (directly or indirectly) to the research proposal and may be extensions of those asked in the written component of the examination. With respect to the pass/fail evaluation at the conclusion of the oral component of the examination, the committee Chair will vote only if (a) they have agreed to serve as an official examiner or (b) in the case of a tie.
III. The Chair, whether or not they are an official examiner, may question the candidate.
IV. There is no specified time limit for the oral component of the examination; however, its duration should be between 2 hours and 2.5 hours.

Once the student has passed the Candidacy Examination, they must carry out the proposed research with the aim of completing it within the following two years (on average). Prior to the (final) Ph.D. oral examination, the student will be required to give research seminars.