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DEPARTMENT OF INDUSTRIAL AND SYSTEMS ENGINEERING, UW-MADISON

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Subject:	Departmental Policies Governing the PhD Degree in Industrial and Systems Engineering and PhD Minor Requirements for Non-IE Majors
Date Issued:	5/6/2022
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Written by:	ISyE Academic Affairs Cluster
Approved by:	ISyE faculty members at May 6, 2022 department meeting
Review/Approved Date:	May 6, 2022

1. Purpose:

The purpose of the following document is to define the five steps to becoming a PhD: Completing a Minor, satisfying breadth requirements, passing the Qualifying Examination Requirement, passing the Preliminary Examination, and passing the Final Oral Examination.

2. Scope:

This procedure applies to both full-time and part-time Industrial and Systems Engineering (ISyE) graduate students and faculty, and addresses the departmental policies, which apply in addition to the regulations of the Graduate School, with which all graduate students should be thoroughly familiar. The applicable Graduate School regulations may be found in the Graduate School Academic Guidelines, which are available from the Graduate School, or at <http://grad.wisc.edu/acadpolicy/>. The departmental area committees may also have particular rules for their students.

3. Related Procedures and Other Documentation:

<u>Procedure No.</u>	<u>Description of Procedure</u>
ISyE P 08.1	Department Policy for Qualifying Examination Requirements in Industrial and Systems Engineering
ISyE P 11.1	Criteria for Satisfactory Academic Progress as a Graduate Student in Industrial and Systems Engineering

Other Documents

Graduate School Academic Guidelines: <http://grad.wisc.edu/acadpolicy/>

4. Procedure:

- 4.1 To get admitted and stay in the PhD program, the student must secure a PhD advisor (or co-advisors). The advisor(s) play a critical role in the student's academic progress. The student needs to work with the advisor(s) closely during the whole period of his/her PhD

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program.

MINOR

- 4.2 Every student seeking a PhD degree must choose between an Option A minor and an Option B minor.

NOTE 1: Refer to <https://grad.wisc.edu/documents/minors/> for additional details on minor degrees.

- 4.2.1 A student choosing the Option A minor must select a department other than ISyE for this minor and must satisfy the requirements of the department offering the minor.
- 4.2.2 A student choosing the Option B minor must complete a minimum of nine credits of courses from one or more than one department. An ISyE course may not be used for the Option B minor, except that a course cross-listed with ISyE may be used if the home department for such course is not ISyE. In addition, the student's advisor must approve the set of courses being used to satisfy the Option B minor.

4.3 PhD Minor Requirements for Non-ISyE PhD Students

A PhD candidate from another department taking an Option A minor in ISyE must complete a minimum of nine credits of ISyE courses numbered 300 or above. A minimum GPA of 3.20 is required for this set of courses. A course with a grade of C or lower cannot be used to satisfy the minor requirement. Students may transfer up to three credits from another university to satisfy the minor requirement, subject to the approval of the Industrial and Systems Engineering Academic Affairs (AA) Cluster.

BREADTH REQUIREMENT

- 4.4 The purpose of the breadth requirement is to ensure PhD students achieve minimum competence in multiple areas of industrial and systems engineering. It consists of taking at least two ISyE courses (six credits) in methodology and two ISyE courses (six credits) in application.

- The courses used to meet this requirement must be at 300 level or higher.
- It is allowed to use courses within a student's research area to meet this requirement.
- A student must receive a grade of B or higher to use a course for this requirement.
- As of the time of this policy revision, methodology courses include courses in the *Human Factors and Ergonomics* and *Operations Research, Optimization and Analytics* areas, and application courses include courses in the *Health Systems Engineering* and *Advanced Manufacturing and Industrial AI* areas.

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- This list of methodology and application courses will be posted and updated in the ISyE PhD program graduate Guide page.
- Transfer courses and courses taken by a student as an undergraduate can be used to meet this requirement if they are determined to qualify as an ISyE methodology or application course. This determination is made by the associate chair for graduate affairs in consultation with the student's faculty advisor and faculty in the associated area.

PhD Coursework and Experience Expectations

- 4.5 PhD training results from a series of academic experiences, included but not limited to classroom courses, independent study, guided research, teaching training, and independent research. All students must complete the minimum number of credits required by the Graduate School; at least 50% of these must be at the graduate level. ISyE students must attend a research colloquium series for at least two semesters. Expectations for publication, teaching experience, proposal development, and industry practicums should be communicated to the student by their faculty advisor.
- 4.6 Recognizing the importance of instructional training to our PhD students, each student in the PhD program is required to serve as a teaching assistant for at least one semester during their program. Requests for a partial or full waiver of this requirement should be submitted in writing to the Associate Chair for Graduate Studies and will be reviewed by the Academic Affairs Cluster.

EXAMINATIONS

- NOTE 2:** There are three major examinations in a PhD program: qualifying, preliminary, and final. In addition, there may be one or more examinations to be passed as part of the minor program.
- NOTE 3:** A student is considered to be a PhD candidate (a dissertator) only after finishing their regular course work minor, passing their Qualifying Exam Requirement, completing the breadth requirement, and passing their preliminary exam.

Qualifying Examination Requirement

- 4.7 Each student wishing to be a PhD student in the ISyE Department must satisfy the Department's Qualifying Examination Requirement as defined in **ISyE P 08.1 (Department Policy for Qualifying Examination Requirement in Industrial and Systems Engineering)**

Preliminary Examination

- 4.8 The preliminary examination is designed to test whether the student has attained the appropriate depth and breadth of knowledge in the student's field of study. Before taking the preliminary examination, the student must satisfy the qualifying exam requirement

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and the breadth requirement. The scope and content of this examination are determined by the student's preliminary examination committee. The student should work with his/her advisor(s) to form the examination committee. Including the advisor(s), the committee should have at least four faculty members among whom at least two should have tenure home in ISyE. Exceptions to this requirement must be requested to the Academic Affairs Cluster at least two months before the exam. In most cases, the preliminary exam committee will also be a subset of the dissertation committee that will supervise the student's PhD program until finishing. The examination may be combined with the presentation of the student's preliminary proposal for the dissertation. The preliminary exam must be completed within 4 years of joining the ISyE graduate program, and within 3 years of passing the qualifying exam. Exceptions could be granted by the Academic Affairs Cluster through a petition process.

Final Oral Examination

- 4.9 The final oral examination consists of the presentation and defense of the PhD dissertation to the dissertation committee. The dissertation committee must consist of at least 4 members and meet the requirements set forth by the Graduate School, including for example, that the committee must have members from at least two UW-Madison graduate programs. In addition, the committee must include at least two faculty members with tenure home in ISyE. Exceptions to this requirement must be requested to the Academic Affairs Cluster at least two months before the defense. The defense is conducted under the Graduate School rules. *This must be completed either within two years after passing the Preliminary Examination or by the end of the 6th year in the graduate program, whichever is later. Exceptions to this limit may be granted by appeal to the Academic Affairs cluster.*

NOTE 4: See **ISyE P 11.1** regarding the Criteria for Satisfactory Academic Progress as a Graduate Student in ISyE.

FOREIGN LANGUAGE

- 4.10 The ISyE Department has no foreign language requirement for the PhD degree.

AREA OF SPECIALIZATION REQUIREMENTS

- 4.11 A student pursuing a PhD should contact the chairperson for their intended area groups for any additional PhD requirements.

End of Procedure