

# PH.D. IN INDUSTRIAL ENGINEERING

## Policies and Important Details

1. The Department offers a Ph.D. in Industrial Engineering for students with a background in engineering.
2. To maintain status as a graduate student, registration in each fall and spring semester is required. Otherwise, admission lapses and permission to re-enter must be granted.
3. Once a student has completed all course and required research credit hours, he or she must enroll in "Research in Residence" status until the degree has been granted. "Research in Residence" status is considered full time enrollment. Time restrictions on obtaining degrees will be strictly enforced and can be waived only by the Dean of the Graduate School.
4. Upon completing the course requirements, passing the qualifying exams, and successfully defending the Ph.D. proposal, the student is eligible for admission to the Ph.D. candidacy.
5. Upon passing the qualifying exams, the student in consultation with his/her selected Ph.D. Dissertation committee chair will decide on the dissertation committee members. The Dissertation committee will consist of not less than four members, three from the Department's graduate faculty, one from outside the Department. The chairman has to be a member of the graduate faculty. The duties of the Dissertation Committee are:
  - a. To consult with and to advise students on their research.
  - b. To meet, at intervals, to review progress and expected results.
  - c. To read and comment upon the draft dissertation.
  - d. To meet, when the dissertation is completed, to conduct the final oral examination and to satisfy itself that the dissertation is a contribution to knowledge and that it is written in lucid and correct English and submitted in approved form.
  - e. The candidate is well advised to have a final acceptable typescript of the dissertation in the hands of each member of his/her committee at a time reasonably in advance of the final defense of the work.
6. There are no foreign language requirements for the Ph.D. degree.

Course work requirements depend on the student's background and are established by the Graduate Advisor and the Department Chairman.

## Admission Requirements

Each application is assessed holistically. It is expected that an applicant receive a minimum of a 3.50 GPA in their most recently earned academic degree. Other requirements are identical to the College of Engineering requirements. The transfer policy complies with the rules of the graduate school.

## Curriculum Requirements

### For Students Entering without a M.S. Degree

Code	Title	Credit Hours
<b>ISE and Other Approved Electives</b>		<b>27-33</b>
At least 50% of Courses at 700 level of ISE courses		
<b>Seminar Series</b>		<b>6</b>
ISE 703	Graduate Research Seminar	
<b>Teaching Requirement</b>		<b>3</b>
ISE 704	Graduate Teaching	
<b>Dissertation</b>		<b>30-36</b>
ISE 830	Pre-Candidacy Doctoral Dissertation	
ISE 840	Post-Candidacy Doctoral Dissertation	
ISE 850	Research in Residence	
<b>Required Exams</b>		
Written Qualifying Exam <sup>1</sup>		
<b>Total Credit Hours</b>		<b>72</b>

<sup>1</sup> A written qualifying examination is to be taken by each doctoral degree candidate during the first year of graduate work. The department may specify that the student must take an oral examination as well. In those cases, normally, the student shall pass the written examination before the oral examination is conducted. Upon completion of the examination process, the Graduate Program Director notifies the Department Chairman that the student has passed or failed the examination. A student who fails the examination may be permitted to retake it, with the permission of the Graduate Program Director and the Chairman. Qualifying examinations normally will not be given during the summer months. The applicant must hold a 3.0 average on all credit hours attempted with no single grade below "C" at the University of Miami while a graduate student.

<sup>2</sup> 1 - 4 courses outside of ISE may be substituted in lieu of ISE courses with Graduate Program Director's approval.

<sup>3</sup> Additional courses up to 12 credits may be required for students who do not have any previous Industrial Engineering degree.

## Curriculum Requirements

### For Students Entering with a M.S. Degree\*

\*Assuming 12 graduate credit hours are approved to count toward the doctoral program

Code	Title	Credit Hours
<b>IEN or Other Approved Electives</b>		<b>15-21</b>
At least 50% of Courses at 700 level of IEN courses		
<b>Seminar Series</b>		<b>6</b>
ISE 703	Graduate Research Seminar	
<b>Teaching Requirement</b>		<b>3</b>
ISE 704	Graduate Teaching	
<b>Dissertation</b>		<b>30-36</b>
ISE 830	Pre-Candidacy Doctoral Dissertation	
ISE 840	Post-Candidacy Doctoral Dissertation	
ISE 850	Research in Residence	
<b>Required Exams</b>		
Written Qualifying Exam <sup>1</sup>		
<b>Total Credit Hours</b>		<b>60</b>

<sup>1</sup> A written qualifying examination is to be taken by each doctoral degree candidate during the first year of graduate work. The department may specify that the student must take an oral examination as well. In those cases, normally, the student shall pass the written examination before the oral examination is conducted. Upon completion of the examination process, the Graduate Program Director notifies the Department Chairman that the student has passed or failed the examination. A student who fails the examination may be permitted to retake it, with the permission of the Graduate Program Director and the Chairman. Qualifying examinations normally will not be given during the summer months. The applicant must hold a 3.0 average on all credit hours attempted with no single grade below "C" at the University of Miami while a graduate student.

<sup>2</sup> 1 - 2 courses outside of ISE may be substituted in lieu of ISE courses with Graduate Advisor approval.

## Sample Plan of Study

### For Students Entering without a M.S. Degree

<b>Year One</b>		
<b>Fall</b>		<b>Credit Hours</b>
ISE or Other Approved Elective		3
ISE or Other Approved Elective		3
ISE or Other Approved Elective		3
ISE 703	Graduate Research Seminar	1
ISE 830	Pre-Candidacy Doctoral Dissertation	1
<b>Credit Hours</b>		<b>11</b>
<b>Spring</b>		
ISE or Other Approved Elective		3
ISE or Other Approved Elective		3
ISE or Other Approved Elective		3
ISE 703	Graduate Research Seminar	1
ISE 830	Pre-Candidacy Doctoral Dissertation	1
<b>Credit Hours</b>		<b>11</b>
<b>Year Two</b>		
<b>Fall</b>		
ISE or Other Approved Elective		3
ISE or Other Approved Elective		3
ISE or Other Approved Elective		3
ISE 703	Graduate Research Seminar	1
ISE 704	Graduate Teaching	2

ISE 830	Pre-Candidacy Doctoral Dissertation	1
<b>Credit Hours</b>		<b>13</b>
<b>Spring</b>		
ISE 703	Graduate Research Seminar	1
ISE 704	Graduate Teaching	1
ISE 840	Post-Candidacy Doctoral Dissertation	1
<b>Credit Hours</b>		<b>3</b>
<b>Year Three</b>		
<b>Fall</b>		
ISE 703	Graduate Research Seminar	1
ISE 840	Post-Candidacy Doctoral Dissertation	8
<b>Credit Hours</b>		<b>9</b>
<b>Spring</b>		
ISE 703	Graduate Research Seminar	1
ISE 840	Post-Candidacy Doctoral Dissertation	8
<b>Credit Hours</b>		<b>9</b>
<b>Year Four</b>		
<b>Fall</b>		
ISE 840	Post-Candidacy Doctoral Dissertation	8
<b>Credit Hours</b>		<b>8</b>
<b>Spring</b>		
ISE 840	Post-Candidacy Doctoral Dissertation	8
<b>Credit Hours</b>		<b>8</b>
<b>Total Credit Hours</b>		<b>72</b>

## Sample Plan of Study

### For Students Entering with a M.S. Degree

<b>Year One</b>		
<b>Fall</b>		<b>Credit Hours</b>
ISE or Other Approved Elective		3
ISE or Other Approved Elective		3
ISE or Other Approved Elective		3
ISE 703	Graduate Research Seminar	1
ISE 830	Pre-Candidacy Doctoral Dissertation	1
<b>Credit Hours</b>		<b>11</b>
<b>Spring</b>		
ISE or Other Approved Elective		3
ISE or Other Approved Elective		3
ISE 730		1
ISE 830	Pre-Candidacy Doctoral Dissertation	1
<b>Credit Hours</b>		<b>8</b>
<b>Year Two</b>		
<b>Fall</b>		
ISE 703	Graduate Research Seminar	1
ISE 704	Graduate Teaching	2
ISE 830	Pre-Candidacy Doctoral Dissertation	1
<b>Credit Hours</b>		<b>4</b>
<b>Spring</b>		
ISE 703	Graduate Research Seminar	1
ISE 704	Graduate Teaching	1
ISE 840	Post-Candidacy Doctoral Dissertation	1
<b>Credit Hours</b>		<b>3</b>

<b>Year Three</b>		
<b>Fall</b>		
ISE 703	Graduate Research Seminar	1
ISE 840	Post-Candidacy Doctoral Dissertation	8
<b>Credit Hours</b>		<b>9</b>
<b>Spring</b>		
ISE 703	Graduate Research Seminar	1
ISE 840	Post-Candidacy Doctoral Dissertation	8
<b>Credit Hours</b>		<b>9</b>
<b>Year Four</b>		
<b>Fall</b>		
ISE 840	Post-Candidacy Doctoral Dissertation	8
<b>Credit Hours</b>		<b>8</b>
<b>Spring</b>		
ISE 840	Post-Candidacy Doctoral Dissertation	8
<b>Credit Hours</b>		<b>8</b>
<b>Total Credit Hours</b>		<b>60</b>

## Mission

The Department of Industrial and System Engineering's mission is to provide contemporary and relevant industrial and systems engineering education and research; impart knowledge and skills necessary to design and improve a variety of manufacturing and service processes; promote life-long learning; and contribute to emerging societal needs.

## Goals

The educational objectives of the Ph.D. program are to produce graduates who have:

- built advanced technical knowledge in at least one specialty area of industrial engineering;
- gained advanced capability to apply advanced knowledge to engineering problems; and
- made significant contributions in at least one specialty area of industrial engineering.

## Student Learning Outcomes

- Graduates will identify advanced engineering problems, search all possible methods for solution and implement the most appropriate one.
- Graduates will demonstrate an ability to write effectively about advanced engineering topics.
- Graduates will have the ability to present their findings effectively about advanced engineering topics.