



# Industrial and Systems --- Engineering

**GRADUATE STUDENT HANDBOOK**

**2016-2017**

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## **I. INTRODUCTION**

The purpose of this handbook is to present the rules and policies of the Industrial and Systems Engineering (ISE) Graduate Studies Program. The ISE Graduate Student Handbook is a supplement to The Ohio State University Graduate School Handbook. For complete understanding of the rules pertaining to graduate education in ISE at OSU, both Handbooks are essential references. The web link to the Graduate School Handbook is:

<http://www.gradsch.ohio-state.edu/graduate-school-handbook1.html>

## **II. PROGRAM OBJECTIVES**

The goals of M.S. and Ph.D. programs are as follows:

At the time of MS degree completion, our students:

1. Are familiar with the current state of knowledge in their chosen field of study.
2. Can competently apply what they have learned in the program towards the solution of current Industrial & Systems engineering problems.
3. Can effectively communicate orally and in writing.

At the time of Ph.D. degree completion, our students...

1. Have demonstrated their ability to review and synthesize prior research in their chosen field of study.
2. Have demonstrated an ability to effectively conduct research that has contributed to the theoretical basis of their field of study.
3. Can effectively communicate and disseminate research findings orally and in writing.

## **III. GRADUATE STUDIES COMMITTEE (GSC)**

FOR GENERAL GUIDELINES SEE THE GRADUATE SCHOOL HANDBOOK

- A. The ISE Graduate Studies Committee (GSC) consists of a minimum of three ISE Graduate Faculty members. All members are appointed by the ISE Department chairperson.
- B. The responsibilities of the GSC are enumerated in the Graduate School Handbook.
- C. In the event that special circumstances warrant an exception to any of the guidelines set forth in the ISE Graduate Student Handbook, the student affected may petition the ISE GSC in writing for a waiver of the appropriate guideline. The decision of the ISE GSC will be binding.

#### **IV. FACULTY ADVISORS**

##### **A. Assignments of Students to ISE Faculty Advisors**

1. The initial assignment of students to ISE faculty advisors is the responsibility of the Graduate Studies Committee Chairman. Criteria for the assignments include:
  - a. Stated student preference for advisor, if any.
  - b. Stated student intellectual interests or career goals.
  - c. Faculty interest.
  - d. Faculty category; e.g., a Ph.D. student cannot be assigned to a Category “M” faculty member.
  - e. Faculty availability.
2. Every graduate faculty member is presumed competent to serve as a temporary advisor to incoming MS students regardless of the stated field of preference of those students.
3. Graduate faculty members are expected to encourage advisor/advisee pairings which are in the best interest of the student before a student reaches the research phase of their program. A change of advisors in no way reflects on the abilities of either the student or advisor, but is expected when the student’s interests change or develop in ways better served by another faculty member. A graduate student may change advisors after obtaining permission from the new prospective advisor and gaining the approval of the Graduate Studies Committee. The Change of Advisor form is for making a faculty advisor change, and is available from the ISE Graduate Coordinator in 210 Baker Systems Engineering Building, or via the ISE website.

##### **B. Advisor Responsibilities**

1. All ISE graduate faculty members having graduate advisees are expected to participate in the annual evaluation of graduate students.
2. Every graduate faculty member is expected to serve on Master’s Examination, Candidacy Examination, and Dissertation Committees when asked and qualified.
3. Every graduate faculty member is expected to carry a fair share of advisees as appropriate to their rank and research interests.
4. Graduate faculty members are expected to maintain files for their own advisees that contain Plan of Study forms and quarterly OSU Advising Reports as each student progresses toward their academic objective. Graduate faculty members are expected to inform their graduate student advisees to communicate directly with the ISE Graduate Studies Coordinator, to make certain that their permanent graduate student file in the ISE office contains all current forms and information.
5. Graduate faculty members are expected to maintain reasonable office hours for purposes of student advising. Faculty contact information is available on the ISE website.

## V. **ADMISSION**

FOR GENERAL GUIDELINES SEE GRADUATE SCHOOL HANDBOOK

### A. Criteria for Admission

1. Preference is given to applicants who are graduates of accredited colleges and universities in the U.S. with undergraduate degrees in engineering, mathematics, statistics or natural sciences with a GPA of 3.2 or greater.
2. Applicants who are engineering graduates of non-U.S. institutions and are clearly outstanding may be accepted as resources and faculty loads permit.
3. GRE General Test is required of all applicants.
4. TOEFL test is required for any international students from countries on the OSU Admissions Office list (typically where the primary language is not English), unless a bachelor's degree was earned in an English speaking country.
5. The above requirements apply to all students who apply to transfer from another graduate program at OSU to ISE. Requests for transfer to ISE are reviewed and decided upon by the ISE GSC; they are not automatically granted.
6. Graduate non-degree admission is generally not granted, but may be granted to qualified students under special circumstances. If a non-degree seeking student later decides to seek regular graduate student status, they must re-apply through the standard admissions procedure. Credit taken in the non-degree program is not automatically accepted for the regular graduate programs. Any credits sought must be petitioned to the ISE GSC on a course-by-course basis up to a maximum of 7 semester hours.

### B. Reasons for Denial of Admission

Within the guidelines above, applicants may be denied admission for any of the following reasons:

1. Undergraduate point hour ratios less than 3.2 on a 4.0 scale.
2. Previous graduate point hour ratio less than 3.4 on a 4.0 scale.
3. Undergraduate mathematics and statistics grades less than 3.0.
4. Lack of preparation in mathematics equivalent to an OSU undergraduate engineering program.
5. Letter of recommendation which expresses reservations about the student's ability to perform graduate work at the level sought.
6. Undergraduate degree from a program which in the view of the committee lacks sufficient rigor to adequately prepare the student for academic work in the ISE graduate program.
7. GRE Quantitative score less than 166, Verbal score less than 153, or Analytical Writing score less than 4.5.

8. For those applicants required to submit the results of the TOEFL; a score below 550 on the paper-based (213 on the computer-based) Test of English as a Foreign Language (TOEFL), 82 on the Michigan English Language Assessment Battery (MELAB), 7 on the International English Language Testing System (IELTS) exam, or 79 on the Internet Based TOEFL Test.
9. Inadequate ISE departmental resources and/or excessive faculty loads.

**C. Deadlines**

Autumn semester is the primary semester of admission. The ISE graduate program deadlines for completed applications are shown in Table 1. Applicants seeking admission for semesters other than Autumn will be considered, but only applicants with exceptionally strong credentials are likely to be admitted. Financial aid is generally not available for non-autumn semester applicants.

**Table 1. ISE Application Deadlines**

<b>Applicant</b>	<b>Domestic</b>	<b>International</b>
Spring Semester (General Admission)	October 1	October 1
Summer Semester (General Admission)	February 1	February 1
Autumn Semester (Funding Consideration)	December 15	November 30
Autumn Semester (General Admission)	March 1	March 1

**D. Conditional Admissions**

Conditional and special student admissions to the ISE graduate program are generally not encouraged. Rules relating to these and other categories are listed in the Graduate School Handbook.

**VI. REGISTRATION, SCHEDULING, AND PLANNING**

FOR GENERAL GUIDELINES SEE GRADUATE SCHOOL HANDBOOK

Course registration and scheduling is done by students via the OSU online registration system. Students are strongly encouraged to communicate with their faculty advisor about their plans for course registration and scheduling prior to each academic semester. The student's Plan of Study form must be approved by the GSC prior to registration for the second semester of study.

International students, and students with 50% GAA, GTA and GRA appointments, must be registered for a minimum of 8 graduate credit hours during Autumn and Spring

semesters; 4 graduate credit hours during Summer semester. Fellowship students must be enrolled in a minimum of 12 graduate credit hours during Autumn and Spring semesters; 6 graduate credit hours during Summer semester. The exception to these minimums are post-candidacy doctoral students. The Graduate School considers 3 semester credit hours as “full-time” status post-candidacy. However, enrollment for more than 3 credit hours post-candidacy is also highly discouraged.

## **VII. COURSE CREDIT, MARKS AND POINT-HOUR RATIO (PHR)**

FOR GENERAL GUIDELINES SEE GRADUATE SCHOOL HANDBOOK

### **A. Transfer Credit (from another institution)**

Transfer credit from another institution for work related to the ISE degree may be granted under the following conditions:

1. No more than 6 semester hours of credit may be transferred for the MS degree.
2. No more than 12 semester hours of credit (in addition to the 30 hours normally credited for the MS degree) may be transferred for the Ph.D. degree.
3. The ISE GSC must approve all transfer credits on a course-by course basis. Course syllabi may be required for the GSC to make informed decisions about course transferability.
4. Credit will be granted only for graduate courses taken with grades of B or better while in good standing in an accredited degree program.

### **B. Pass/Fail**

Credit hours generated via graduate level courses graded S/U are counted toward graduate program credit hour requirements.

## **VIII. ACADEMIC STANDARDS**

FOR GENERAL GUIDELINES SEE GRADUATE SCHOOL HANDBOOK

A student may be denied further registration in the ISE Graduate program for any of the following reasons:

1. At any time after 10 accumulated semester hours of graduate credit at OSU the student’s cumulative record falls below a 3.0 average for two consecutive semesters.
2. The student admits guilt or is determined to be guilty of academic misconduct by the University Committee on Academic Misconduct.
3. The student fails the non-thesis option master’s exam twice.
4. The student fails the thesis option master’s oral examination twice.
5. The student fails an ISE Ph.D. Preliminary examination.
6. The student fails the Ph.D. Candidacy examination twice.

7. The student refuses to follow the educational plan filed by the student and his/her Advisor/Advisory Committee and approved by the ISE GSC.
8. The student completes the MS degree in ISE and is not admitted to the Ph.D. program by the GSC at the time of completing the MS degree.
9. The student fails to meet the minimum grade standards or time limits established under the rules of the Graduate School.
10. The MS student has accumulated at least 40 semester hours of graduate credit, and it is the judgment of the GSC in its annual evaluation of graduate students that the student is not making reasonable progress.
11. The Ph.D. student has accumulated at least 100 semester hours of graduate credit and has not taken their Candidacy Examination, or 170 semester hours of graduate credit and has not completed their Final Oral Examination, and it is the judgment of the GSC in its annual evaluation of graduate students that the student is not making reasonable progress.

## **IX. MASTER OF SCIENCE DEGREE PROGRAMS**

FOR GENERAL GUIDELINES SEE GRADUATE SCHOOL HANDBOOK

### **A. Admission Requirements**

1. An applicant that has completed a series of Calculus courses through Differential Equations, Linear Algebra, a Probability course, and a Statistics course, may be considered for admission to the MS program.
2. The Graduate Record Examination (GRE) is required of all applicants.

### **B. Program Requirements**

#### **1. Programs:**

Students may select the thesis option, or non-thesis option program of study. Students should design a plan of study in consultation with his/her advisor, considering such factors as time to degree, intellectual and professional objectives, educational background, and other factors. The program of study is established via signature approval of the Plan of Study form by the student's faculty advisor and the ISE GSC Chairperson.

#### **2. Thesis Option Program Requirements:**

The ISE MS thesis program requires a minimum of 30 total graduate-level credit hours (a minimum of 24 hours must be taken at OSU). A minimum of 22 semester hours of coursework, and a minimum of 4 semester hours of thesis research credit hours are required. The coursework consists of:

- A minimum of 6 semester credit hours of ISE graduate level courses in one selected sub-discipline within ISE (Operations Research, Manufacturing, or Human Factors),
- A minimum of 3 semester credit hours of graduate level coursework from a second sub-discipline within ISE ,
- A minimum of 3 semester credit hours of graduate level coursework focused on mathematical, statistical, or numerical methodologies,
- A minimum of 2 semester credit hours of ISE Graduate Research Seminar, and
- Elective coursework.

MS ISE students electing the thesis option must also fulfill the Graduate School thesis examination and thesis document approval requirements.

### 3. Non-thesis Option Program Requirements:

The ISE MS non-thesis program requires a minimum of 30 total graduate-level credit hours (a minimum of 24 hours must be taken at OSU). The course work consists of:

- A minimum of 6 semester credit hours of ISE graduate level courses in one selected sub-discipline within ISE (Operations Research, Manufacturing, or Human Factors),
- A minimum of 3 semester credit hours of graduate level coursework from a second sub-discipline within ISE ,
- A minimum of 3 semester credit hours of graduate level coursework focused on mathematical, statistical, or numerical methodologies,
- A minimum of 2 semester credit hours of ISE Graduate Research Seminar, and
- Elective coursework.

MS ISE students electing the non-thesis option must also fulfill the Graduate School 4-hour written exit examination requirement via the following options:

- Under the supervision of a Category M or P faculty advisor in ISE, the student conducts an independent inquiry into a topic of personal intellectual interest in ISE (typically a topic not currently available in existing courses), and writing a summary (literature review) on that topic. The written document must have required at least 4 hours in its creation. Based on the discretion of the faculty advisor and MS committee member, the student may be required to give an oral presentation of the topic.
- Under the supervision of a Category M or P faculty advisor in ISE, the student conducts an independent project of personal intellectual interest in ISE, and then summarizes the project in writing. The written document must have required at least 4 hours in its creation.. Often the project involves the student doing some laboratory work to design and/or construct hardware devices or computer models. Based on the discretion of the faculty advisor and MS committee member, the student may be required to give an oral presentation of the project activity. This option is often chosen by students in the Manufacturing Processes or Ergonomics sub-disciplines of ISE.
- The student enrolls in, and passes with a B or better, an “upper level” project-based course that is available to graduate students only, and is taught by a Category M or P faculty member in ISE. The project course must involve the application or integration of materials from lower level ISE graduate courses to an ISE engineering problem. Also, a final written summary report of the project is

required, along with an oral presentation. This option is often chosen by students in the Operations Research sub-discipline in ISE.

- Alternately, Operations Research students who did not receive a B or higher in a 7000-level OR course with a project requirement may instead take the M.S. Exit Examination. The M.S. Exit Examination is administered annually during the week after Spring final complete. Any ISE graduate student who achieves an overall GPA (including all courses taken at OSU) of 3.00 is eligible to take the exam. Those students who are planning to graduate in Autumn semester should take the exam in the preceding Spring semester. The process to sign-up for the exam will be announced during Spring semester. Students intending to take the exam must sign-up before the announced deadline, so there is sufficient time to check that the grade eligibility requirement is satisfied.

#### 4. Additional Constraints:

A student with a BS degree from OSU may not double count undergraduate courses, that is, no course which was part of his/her undergraduate program may appear in his/her MS program. The only exception to this constraint would be students enrolled in the combined BS/MS program (see section X of this handbook).

#### C. Other Considerations

Only the Graduate Studies Committee can grant exceptions to any of the above rules.

All decisions and revisions regarding a plan of study are to be made in consultation with the student's faculty advisor.

A large portion of graduate education occurs outside of the classroom, in informal discussion with faculty members and other graduate students, in attendance at seminars, in research and teaching assignments, and so forth. All graduate students are expected to pursue such opportunities. These factors are considered by the Graduate Faculty and GSC when evaluating a student's progress and development.

#### D. MS Examination Committee

The MS Examination Committee consists of the student's advisor plus at least one additional graduate faculty member. A faculty member must have at least ISE Category M status in the graduate school to serve as the chair of an MS examination committee. A faculty member must have at least Category M status (any program) in the graduate school to serve as a member of a MS examination committee.

For thesis students, this committee is the thesis reading committee and it administers a one-hour oral examination. The oral is not restricted to the thesis topic and may cover any aspect of the student's program of study. It is the final validation of performance for that degree.

For non-thesis students, the committee oversees the Graduate School 4 hour written examination requirement, or equivalent evaluation of the student's knowledge of their field of study. It is the final validation of performance for that degree.

**E. Time Limit and Registration**

1. No time limit for the completion of the Master's Degree program is imposed.
2. A student must be registered for at least three graduate credit hours the semester of graduation.
3. Students who complete the MS program in ISE must apply for the Ph.D. program, and be accepted, before they can continue as regular Ph.D. graduate students. Application forms are available from the ISE Graduate Coordinator or the ISE website.

## **X. DOCTORAL DEGREE PROGRAMS**

FOR GENERAL GUIDELINES SEE GRADUATE SCHOOL HANDBOOK

### **A. Admission Requirements**

1. Identical to the MS admission requirements; see Section VIII, A, parts 1 and 2 of this Handbook.
2. Entrance preference is given to engineering, math and science graduates with a minimum undergraduate point hour ratio of 3.4 and MS with a minimum graduate point hour ratio of 3.5.
3. Students who complete the MS program in ISE must apply for the Ph.D. program and be accepted before they can continue as regular Ph.D. graduate students. Application forms are available from the ISE Graduate Coordinator or the ISE website.
4. In general, no transfer credits earned prior to the granting of a master's degree, except for the 30 credit hours granted by Graduate School rules for a master's degree pertinent to the area of Ph.D. work, will be accepted as part of a student's doctoral program. However, a student's program committee may approve transfer of up to a maximum of 12 additional semester hours of course work. The relationship of these hours to the primary and secondary areas of concentration in the ISE Ph.D. program of study is a matter for the advisory committee to determine. The intent of this rule is to promote timely completion of master's research, and actively discourage attempts to "retrofit" courses into ISE Ph.D. programs of study.

### **B. Program Requirements**

1. Minimum of 80 graduate semester credit hours beyond the baccalaureate degree is required. 30 semester hours credit will be granted for an appropriate earned Master's degree.
2. Minimum of 30 semester credit hours of graduate level courses beyond the Master's degree. The course work requirement consists of one primary area of concentration, two secondary areas of concentration, and Graduate Research Seminar. To achieve the remaining 20 hours (minimum) of graduate credit hours required for the PhD degree (30 for MS + 30 ISE Ph.D. courses + 20 remaining = 80 total), students may enroll for any combination of research credit hours or additional graduate level course hours.
3. The primary area of concentration consists of at least 15 semester credit hours of graduate level course work. The primary area of concentration is a coherent theme of inquiry and study in support of the student's area of dissertation research.
4. Each secondary area of concentration consists of at least 6 semester credit hours of graduate level course work. A secondary area is also a coherent theme of inquiry and study. At least one secondary area of concentration must consist

of courses taken outside of ISE; however, both secondary areas of concentration may be outside of ISE.

5. 3 semester credit hours of ISE Graduate Research Seminar (minimum).
6. Based on the student's major area of study, a Preliminary Examination may be required.
7. Students entering the PhD program directly from the BS degree typically (although not necessarily) fulfill the requirements for, and acquire, an ISE MS degree while engaged in accumulating the 30 hours of course work to complete the Ph.D. course requirements. The Doctoral Candidacy Examination is normally administered at the completion of the Ph.D. course work and prior to the beginning of formal dissertation work.
8. Public presentation of the dissertation research proposal and work completed to-date. This is also commonly called the ISE Dissertation Proposal Colloquium.
9. Dissertation and Final Oral Examination.

C. Advisory Committee:

Upon arrival, each student is assigned to a temporary advisor. The student and the advisor examine the student's interests, background and goals in order to determine a primary area of concentration, and possible secondary areas of concentration. This effort will determine course work for the first semester. As soon as possible after arrival, the student should identify a faculty member whose teaching and research philosophy and interests coincide with those of the student. That faculty member will become the student's program advisor. The student and the advisor will identify other potential faculty to serve on the student's Advisory Committee. As a minimum, the Advisory Committee should include the advisor (Committee Chair), one additional faculty member representing the student's primary area of concentration, and one faculty member representing each secondary area of concentration. A minimum of **four** graduate faculty members are required for the Advisory committee. A faculty member must have ISE Category P status in the graduate school to serve as the Advisory Committee Chair. A faculty member must have at least Category M status (any program) in the graduate school to serve as a member of any doctoral committee. The responsibilities of this Advisory Committee are as follows:

1. Make recommendations about courses to be taken and assure sufficient depth in the primary and secondary areas of concentration.
2. Assist the faculty advisor in evaluating the student's progress and make recommendations that result from that assessment. (Course work plans may be altered or the program terminated.)
3. It is recommended that all the course work be completed no later than the semester in which the doctoral candidacy exam is taken.

**D. Program Plan**

The student and his/her Advisory Committee will meet during the student's first semester. In this meeting the student and the committee chairperson will present a proposed program of course work to the committee for their advice and approval. (Prior to that meeting it is advisable for the student to seek the advice of the secondary concentration faculty representatives.) All program plans and Advisory Committees must be approved by the Graduate Studies Committee via completion of the ISE Doctoral Plan of Study form prior to registration for the second semester of study.

**E. Interview Evaluation**

At the completion of two semesters of study, the student and the Advisory Committee will meet to evaluate and assess the student's progress and future in the program. At this meeting the student and advisor will submit to the committee such evidence as they, and/or the committee deems indicative of the student's progress. After the progress report is made, the committee will discuss the progress and recommend whether or not the student's prognosis for success is good. The committee's recommendation will be noted in the student's file and communicated to the student by the advisor. If the student is not making reasonable progress, they may be denied further registration by the ISE GSC as a result of its annual evaluation of graduate students.

**F. Monitoring of Progress**

As the student progresses, the advisor will provide periodic evaluation and, if necessary, make small program adjustments. Significant changes (e.g., change of a secondary concentration) would require Advisory Committee action. The entire Advisory Committee should meet with the student at least annually. A Ph.D. student may be denied further registration if they have accumulated at least 100 semester hours of graduate credit and has not taken their Candidacy Examination, or 170 semester hours of graduate credit and has not completed their Final Oral Examination, and it is the judgment of the GSC in its annual evaluation of graduate students that the student is not making reasonable progress.

**G. Candidacy Examination**

Formal admission to Ph.D. candidacy is achieved through the successful completion of the Candidacy Examination, which is administered by the student's Advisory Committee, under the rules of the Graduate School. If at all possible, the Candidacy Examination will not be administered until the student has fulfilled the University's residency requirements. When a student is ready to take their Candidacy Examination, they should obtain a Notification of Doctoral Candidacy Examination form from the ISE Graduate Coordinator, along with their Plan of Study form. The student should complete the Notification of Doctoral Candidacy Examination form,

and the Plan of Study form, and obtain required signatures on both forms prior to commencing their Candidacy Examination.

A faculty member must have ISE Category P status in the graduate school to serve as the Advisory Examination Committee Chair. A faculty member must have at least Category M status (any program) in the graduate school to serve as a member of the committee. Upon successful completion of the Candidacy Examination, the student's Advisory Committee is dissolved.

With reference to the Graduate School Handbook regarding Master's Degree on the Basis of Candidacy Examination, ISE doctoral students not having a Master's degree in ISE are not automatically granted a Master's degree in ISE upon completion of the Candidacy Examination.

Upon completion of the Candidacy Examination, the student should provide a copy of their Candidacy Examination Report form to the ISE Graduate Coordinator, so that it can be retained in the student's graduate file. The original Candidacy Examination Report form should be submitted by the student to the Graduate School.

#### **H. Dissertation Committee**

A Dissertation Committee will be suggested by the advisor and forwarded to the Graduate Studies Committee by the end of the semester following the semester in which the Candidacy Examination is passed. It will consist of at least three members, at least two of whom must be faculty in the ISE Graduate Program. They are responsible for guiding the preparation of a research proposal, guiding the progress of the dissertation research and conducting the final oral defense of the research. The committee must be approved by the Graduate Studies Committee. These actions are accomplished via Part "A" of the Dissertation Committee Approval/Research Proposal Colloquium form. If at any time a change in dissertation committee membership occurs, including a new advisor, approval of the new dissertation committee needs to be obtained from the Graduate Studies Committee via re-submission of Part "A" of the Dissertation Committee Approval/Research Proposal Colloquium form.

#### **I. Research Proposal Colloquium**

The student and the advisor should utilize the other committee members as resources while the student develops the dissertation research proposal. The student will prepare a written proposal and present the proposed research in a public forum. This should occur within the first two semesters following admission to candidacy. This colloquium serves multiple purposes:

- (1) It provides an opportunity for the student to get feedback on their dissertation plans early in research the process.
- (2) It informs the ISE department and other interested individuals about the research being conducted within the department.

(3) It communicates to future Ph.D. candidates the scope of dissertation research projects conducted within ISE.

(4) It provides an opportunity for students to demonstrate their ability to present and discuss research concepts (consistent with program objective number 3).

This colloquium **must** occur at least one full semester, preferably two semesters before the final defense. If it does not, a letter requesting an exemption must be submitted and approved by the Graduate Studies Committee.

At least two weeks prior to the scheduled presentation of a proposal, the student must electronically submit a 2-page abstract to the graduate studies committee chair and a hardcopy of the Dissertation Committee Approval/Research Proposal Colloquium form, signed by all members of the student's Dissertation Committee certifying that the proposal is acceptable for presentation (Part "B" of the form). The abstract will be reviewed by the Graduate Studies Committee and modified as necessary to obtain approval. Once the Graduate Studies Committee approves the submitted abstract, a 150-word version of the abstract shall be submitted to the graduate studies coordinator for promotional purposes.

On the basis of the proposal and any comments or concerns raised during the public presentation, the Dissertation Committee **shall**: a) approve the proposal, b) recommend revision or additional proposal work, or c) reject the proposal.

The student's Dissertation Committee will notify the Graduate Studies Committee of their decision via completing Part "C" of the Dissertation Committee Approval/Research Proposal Colloquium form.

In the event that a proposal is not approved, the revised proposal will also be presented publicly. There is no formal limit to the number of proposals and presentations a student will be allowed in order to secure approval of a research proposal.

#### **J. Final Defense**

Upon completion of the research and submission of the final draft of the dissertation to the Dissertation Committee, the student will defend his/her dissertation according to the rules of the Graduate School.

#### **K. Time Limits**

- 1.** No time limit for the initiation of the Candidacy Examination is imposed, but it is recommended that it take place within one semester of the completion of program course work. Admission to candidacy for the doctoral degree occurs at the end of the semester in which the Candidacy Examination is satisfactorily completed.
- 2.** Ph.D. degree requirements must be completed within five years after being admitted to candidacy.

## L. Examination Procedures

1. **Candidacy Examination:** Attendance at the oral portion of the Candidacy Examination is limited to the student and members of the Candidacy Examination Committee.

The voting procedure for the oral portion of the Candidacy Examination is described in subparagraph IX, N, 3 below. Satisfactory completion occurs only when the final decision of the Candidacy Examination Committee is unanimously affirmative.

2. **Final Oral Exam:** The Final Oral Exam is open to graduate students and faculty of this University. The student's advisor is expected to post the dissertation topic and the date and time of the exam at least one week prior to the exam. Any such persons in attendance, who are not members of the Final Oral Exam Committee, function as observers only. Observer participation is at the discretion of the advisor.

The voting procedure for the Final Oral Exam is described in subparagraph IX, M, 3. The student is considered to have successfully completed the Final Oral Examination when there is no vote of unsatisfactory on the second ballot by the Final Oral Examination Committee members, including the Graduate School Representative.

3. **Voting Procedures:** the Examination Committee takes one or two secret ballot votes. The first ballot is a straw vote conducted immediately after the student leaves the room and before any discussion of his/her performance takes place. If the decision is not unanimous pass, a second and final ballot is taken after the student's performance has been discussed.

## M. Graduation Semester Requirements

A student must be registered for three graduate credit hours during the semester of graduation.

## XI. **BS/MS PROGRAM**

FOR GENERAL GUIDELINES SEE GRADUATE SCHOOL HANDBOOK

### A. General Description

The ISE BS/MS Program is available to undergraduate students in ISE with outstanding academic records. The combined BS/MS program allows undergraduate students to work toward an MS degree while concurrently completing their BS degree. The goal of the program is to encourage high-performing ISE students to obtain an advanced degree, thus furthering their education and academic preparation. If accepted into the program, the student is classified as a graduate student and may enroll in courses that can be simultaneously applied for credit toward both the BS and MS degrees.

**B. Minimum Requirements**

1. All current graduate admission requirements must be met.
2. All ABET requirements for a BS degree must be met upon graduation.
3. A student must have a 3.5 or higher cumulative GPA to enter the program.
4. A student must have completed a minimum of 90 undergraduate semester hours toward a BS degree prior to starting the program.
5. A student must have completed all GEC's prior to starting the program.

**C. Timing**

In most cases, the student enters the program at the start of their senior year. Application for the program is made by submitting a regular application to the Graduate School during the year prior, usually the Junior year. This requires that a graduate school application form be submitted with supporting documentation as detailed in the application instructions. Although applications can be accepted anytime, it is recommended that materials be submitted no later than the end of May.

**D. Advantages**

Technical elective courses (available for graduate credit) taken for the BS degree after admission to the BS/MS program can be applied simultaneously as credit for the MS degree in ISE. The combined BS/MS program allows as many as 10 semester hours of BS technical elective credit to be applied to the course credits required for the MS degree. *Retroactive credit for technical electives cannot be given.* Upon completion of the BS degree participating students should inform the ISE Graduate Studies Chair regarding the technical elective credits they intend to apply to their MS program of study.

**E. Funding**

A potential disadvantage of the BS/MS program is that graduate school tuition is higher than undergraduate tuition. This may be a factor if the student is not successful in obtaining a graduate fellowship or graduate associate position which covers tuition and fees. Inquire with the ISE Undergraduate Coordinator about the availability of scholarship support to make up the difference between graduate and undergraduate tuition costs. Students in the combined BS/MS program are eligible to compete for Ohio State University Fellowships, research, teaching, or administrative associate positions. Graduate fellowships and associate positions typically pay tuition and fees as well as a monthly stipend. Interested students are encouraged to confer with ISE faculty members during the application process and the pursuit of a graduate associate position. After the completion of the senior year and all undergraduate requirements,

the student may leave the program with the BS degree or continue on to complete the MS degree.

## APPENDIX A: COMMON FORMS FOR MS STUDENTS

Checklists concerning degree procedures and graduation requirements are listed in the Graduate School Handbook. Please note that forms related to graduation and final examinations should be accessed electronically at [GRADFORMS.OSU.EDU](http://GRADFORMS.OSU.EDU).

1. ISE MS Plan of Study Form – A Plan of Study is a paper form that must be filed with the ISE Graduate Program Coordinator prior to registration for the student's second semester of study. The completed Final Plan of Study (same form) must also be submitted concurrently with the student's Application to Graduate form. Available on ISE website.
2. Application to Graduate (Master's Degree) –Application is valid for one semester only. Go to [GRADFORMS.OSU.EDU](http://GRADFORMS.OSU.EDU).
3. Master's Examination Report – Go to [GRADFORMS.OSU.EDU](http://GRADFORMS.OSU.EDU).
4. Thesis Approval Form – Go to [GRADFORMS.OSU.EDU](http://GRADFORMS.OSU.EDU).
5. Application for Admission to the Ph.D. Program – Paper form that must be filed with the ISE Graduate Program Coordinator at the same time as the Master's Examination Report for those who wish to continue enrollment toward the Ph.D. degree. Available on ISE website.

## **APPENDIX B: COMMON FORMS FOR PH.D. STUDENTS**

Checklists concerning degree procedures and graduation requirements are listed in the Graduate School Handbook.

1. ISE Ph.D. Plan of Study Form - A Plan of Study is a paper form that must be filed with the ISE Graduate Program Coordinator prior to registration for the student's second semester of study. The completed Plan of Study (same form) must also be submitted concurrently with the student's Notice of Candidacy Examination form. Available on ISE website.
2. Notification of Candidacy Examination – Go to [GRADFORMS.OSU.EDU](http://GRADFORMS.OSU.EDU).
3. Candidacy Examination Report – Go to [GRADFORMS.OSU.EDU](http://GRADFORMS.OSU.EDU).
4. Dissertation Committee Approval/Research Proposal Colloquium – This is a paper form that should be submitted to the ISE Graduate Program Coordinator by the end of the semester following the semester in which the Candidacy Examination is passed. Available on ISE website.
5. Application to Graduate (Doctoral Degree) – Go to [GRADFORMS.OSU.EDU](http://GRADFORMS.OSU.EDU).
6. Draft Approval/Notification of Final Oral Examination – Go to [GRADFORMS.OSU.EDU](http://GRADFORMS.OSU.EDU).
7. Final Oral Examination Report – Go to [GRADFORMS.OSU.EDU](http://GRADFORMS.OSU.EDU).
8. Final Approval –Ph.D. Dissertation – Go to [GRADFORMS.OSU.EDU](http://GRADFORMS.OSU.EDU).

## APPENDIX C: MISCELLANEOUS FORMS

1. Senior Petition – Used by undergraduate students who wish to earn graduate credit for courses taken before receipt of a baccalaureate degree.  
<https://gradsch.osu.edu/sites/default/files/resources/pdfs/SeniorPetitionFORM.pdf>
2. Request for Transfer of Academic Unit – Used to change department in which a student is registered. <https://gradsch.osu.edu/handbook/2-9-admission-transfer-graduate-program>
3. Student Advisor Form – ISE Graduate Program paper form used to assign or change advisors. Must be submitted to the ISE Graduate Program Coordinator. Available on ISE website.