# MASTERS OF SCIENCE
## THESIS
# PROGRAM GUIDE

**PURDUE UNIVERSITY**

School of Industrial Engineering

The Master of Science in Industrial Engineering (MSIE) - Thesis program is designed to educate technical experts and leading researchers in industrial engineering (IE), as well as leaders across a variety of industries and a breadth of domains. The thesis program provides an opportunity for independent research in a given area of Industrial Engineering. Pursuing the thesis option allows a student to extensively probe a topic of interest under the supervision of a faculty supervisor (referred to as "Faculty Advisor" or "Major Professor" in this document). Generally, pursuing a thesis allows for the development of skills in independent research not available through coursework. The thesis option is generally only available for on-campus students. Students who intend to earn the doctoral degree must pursue this option. The material presented in this guide is intended to serve as supplemental information to the document, titled "Policies and Procedures for Administering Graduate Student Programs (henceforth referred to as Graduate School Policy)."[1]

## CURRICULUM DETAILS

Courses are offered in the following topic areas:

- Human Factors
- Manufacturing
- Operational Research
- Production Systems

The IE Master's Program offers a wide range of flexibility in course options. After you begin your studies at Purdue, a faculty advisor (major professor) will help you create a Plan of Study (POS) to best fit your educational needs and career goals. Every POS varies based on student interest, time, and course load.

## 1. DEGREE REQUIREMENTS

### 1.1 GENERAL UNIVERSITY REQUIREMENTS

To receive a Master's degree, students are required to:
- Have an approved plan of study filed with the Graduate School (see Graduate School Policy).
- Have at least 30 total graduate credit hours on the plan of study (see Graduate School Policy).
- Obtain a graduation index (cumulative GPA) for 500- & 600-level courses (with exception of foreign languages AND any 300- & 400-level courses that appear on a Plan of Study with a B- or better grade) of 3.0 or better.

#### 1.1.1 SATISFACTORY ACADEMIC PROGRESS

After two consecutive "U" grades are received in IE 69800 – MS Thesis Research, the registrar will notify the IE Graduate office of the student's status. The student is then required to meet with the graduate office to prepare a plan for future success in the program. . Traditionally, the student will be allowed to continue on in the program with strict departmental conditions, but it is also possible that the student will be dismissed.

The Purdue University Graduate School's *Policies and Procedures for Administering Graduate Student Programs* (Section VI.) addresses the receipt of two consecutive "U" grades in research as such:

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[1] The most recent version of this document can be found at https://catalog.purdue.edu/ using the search function for "Policies and Procedures for Administering Graduate Student Programs".

> "A graduate student also is expected to earn S grades for research registration. Two consecutive sessions of U grades for research registration mandate that the department take formal action and inform the student, in writing, and the Graduate School with regard to discontinuation or conditions for continuation of the student's graduate study. In any event, the student's progress should be reviewed each session by the student's department. The student's progress also may be reviewed by the Graduate School. Should the student fail to perform in either coursework or research on a level acceptable to the advisory committee, the departmental graduate committee, or the dean of the Graduate School, he or she may be asked to discontinue graduate study at Purdue."

Second, additional language in Section VI of the policy manual addresses graduate students who have received an "U" grade in research this past semester (but not two consecutive "U" grades):

> "If a student is assigned U grade, prior to the start of classes the next session, the departmental/program representative must develop and communicate to the student a plan for satisfactory continuation. The student is responsible for meeting with the departmental/program representative to discuss this plan. Both the student and the departmental/program representative must acknowledge the corrective plan."

## 1.2    MSIE Thesis Degree Requirements

### 1.2.1    Curricular Requirements

Courses selected for the thesis option are intended to provide depth of study in a particular area of interest. The prerequisites to the program assure a minimal amount of knowledge in the general field of industrial engineering. The curriculum is designed such that the student has broad selectivity over their coursework. Selection of courses should be conducted with the faculty member supervising the research project to ensure courses taken supplement the research project. Coursework selected beyond these requirements will vary from student to student, and should be selected to support overall development as a scholar of industrial engineering and their research.

- If conditionally admitted, complete prerequisites equivalent to;
    - Mathematics through multivariate calculus, differential equations, and linear algebra (MA 26100, MA 26500, & MA 26600)
    - Applied probability and engineering statistics (IE 23000 & IE 33000 or STAT 51100)
    - Basic techniques of operations research (IE 33500 & IE 33600)
    - Proficiency in computer programming (CS 15800 or CS 15900)

    *If students were missing any of the course requirements for admission, then the student may be admitted on the condition that they take these courses during the first semester. The student can meet this requirement by taking the prerequisites as Pass-Fail.*
- Obtain a C or better in every course listed on the plan of study.
- Obtain a 3.0 or better graduation index (cumulative GPA).
- Have at least 30 total graduate credit hours, which must include:

- 21 credit hours of coursework; at least 12 credit hours must come from industrial engineering (i.e., IE 5XXXX or IE 6XXXX); and,
- At least 9 credit hours of additional graduate-level coursework from either industrial engineering or a related discipline. Please see section 1.3 for additional information on related areas.
- 9 credit hours of master's thesis research credits (IE 69800).

## 1.2.2  ADDITIONAL REQUIREMENTS

- Development of a thesis document meeting all requirements of the faculty and Graduate School; and,
- Successfully defend in an oral examination of the thesis representing evidence of independent research to a committee of faculty members.
- Be registered for at least 1 credit hour of IE69800 thesis research during the session in which the degree is conferred, unless approved for CAND 99200 or CAND 99300 registration (international students may require a Reduced Course Load (RCL) initiated through ISS if registering for less than full time hours in their final term. See Section 4.4).

## 1.3  PLAN OF STUDY

A plan of study (POS) is a summary of the coursework plan that defines each student's academic program and serves as a contract between the student, student's research advisor (major professor), student's graduate program, and Purdue University's Graduate School. The coursework must be selected to form a unified program of study.

The POS should be worked out under the supervision of the major professor and members of the Advisory Committee.It is recommended the formal Plan of Study should be submitted to the Graduate School by the second term or as early as possible and always at least two weeks prior to the start of the final term. See Appendix B for a step-by-step guide to creating a Plan of Study.
- Minimum of 21 credit hours of coursework
  - A grade of C or better on every course listed in the plan of study and an overall GPA of 3.0 or better on all courses listed in the plan of study
  - At least 12 credit hours of IE courses
  - At least 9 credit hours of additional graduate level coursework are recommended from either Industrial Engineering or a related area. Pre-approved areas include:
    - other engineering disciplines
    - mathematics, statistics, computer sciences, biology
    - psychology, sociology
    - economics, management
  - Pre-approval is required for non-IE 1-credit courses and courses from areas not in the pre-approved list.
    - All courses must be  500 or 600 level graduate courses with the exception of up to one 400-level course from pre-approved areas.
    - Please obtain a syllabus from the course and send it to the grad office to request approval.
- Courses NOT allowed on the Plan of Study
  - Professional Master's (PMP) Industry Capstone Project courses; or
  - P/NP or S grade courses[2]; or

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[2] P/NP and S courses within Industrial Engineering will be allowed only if that is the only grade mode offered for the

- o   Audited courses; or
- o   Zero credit courses; or
- o   Research credit hours (IE 69800); or
- o   Individual Study (these are listed as "variable title courses" in the registration assistant)[3]
- o   STAT 50100, 50200, 50300, 51100, 51300 ; or
- o   Polytechnic courses (AVTH, CNIT, CGT, BCM, ECET, ENGT, MET, TLI, TECH, etc.)[4] ; or
- o   Courses irrelevant to the degree

### 1.3.1   PROCESS FOR REQUESTING TRANSFERRED COURSE CONSIDERATION

Subject to the restrictions stated below, credits earned for graduate study at either Purdue or another university (both domestic and international) may be applied toward the degree:
- Transfer courses must be regular status, graduate-level engineering courses taken for graduate credit at an accredited institution of higher learning.
- A maximum of 12 credit hours as transfer will be considered.
- Coursework must have a grade of "B-" (2.7/4.0) or higher.
- Credit must have been earned within the last five years.
- Credit hours must not have been previously used towards a degree.
- Must fit into a cohesive plan of study and approved by members of the Advisory Committee.
- Transfer of excess undergraduate credits from Purdue can be completed using a form 350.

To have a transfer course reviewed, provide the following to the IE Graduate Office:
- Official Transcript
- Complete Graduate Transfer Credit Request Form
- Detailed Course Description/direct URL from school catalog
- Course Syllabi
- Major Professor/Faculty Advisor name and email

Completed requests should be submitted to IE Graduate Office at iego@purdue.edu. The information will be verified and forwarded to the Assistant Department Head for review. If approved for use on the degree, the course will also need to be approved for use on a student's plan of study by the major professor and the Purdue Graduate School. The student will be notified of the outcome.

### 1.3.2   FILING CHANGE TO PLAN OF STUDY

The official POS may be changed at a later date to make minor updates such as courses, concentration, and advisory committee by  filing a Change to Plan of Study (CPOS). Please note that  each iteration requires the approval of the Advisory Committee, the IE Graduate Programs Office, and the Graduate School. CPOSs are not subject to the Plan of Study Deadline, but must be submitted and approved before the end of the semester of expected graduation.The graduate program office requests students update their POS in their second to last semester using a CPOS form as necessary. See Appendix C for a step-by-step guide.

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course; if a graded mode is offered then it must be taken.

[3] While independent study courses cannot be used on a plan of study, students may participate in them if they wish. Please contact the graduate office to initiate the process.

[4] While Polytechnic courses are not traditionally allowed on a plan of study, see appendix B section 11 for information on waiving that policy.

## 2.  ADVISORY COMMITTEE

### 2.1     MAJOR PROFESSOR/FACULTY ADVISOR

All MSIE with thesis students are admitted with an initial major professor. The major professor is the primary mentor to the student throughout their graduate program, supervisor of thesis research, as well as the Chairperson of the Advisory Committee. As such, the relationship between major professor and student must be mutually acceptable in order to ensure a meaningful and productive graduate experience.

To facilitate the selection of an Advisory Committee, students should discuss their educational objectives with their major professor and other members of the faculty. The major professor will likely recommend prospective members of the faculty for the Advisory Committee. Students should similarly discuss their educational objectives with the recommended faculty, as well as others. Thesis MSIE students are required to identify an Advisory Committee by the middle of the first semester of study (9 to 15 credit-hours of regular graduate coursework).

### 2.2     THE ADVISORY COMMITTEE

- The advisory committee must consist of three members, two of whom must be members of the regular graduate faculty.[5]
- The committee chair must be from the School of Industrial Engineering.
- The committee can include one major professor or two co-major professors, who is/are the chair or co-chairs of the advisory committee.
- Include at least one member other than the major professor from the School of Industrial Engineering.
- Note: When more than one Co-Chair is selected, ensure that both Chairs are listed as Co-Chairs on the plan of study.

External Committee members are allowed with review and approval. After speaking with your major professor, initiate a special Graduate Faculty Appointment request with the IE Graduate Office by providing the proposed members full name, highest degree obtained, field of study, name of institution that granted the highest degree obtained, and date degree granted.

## 3.  REGISTRATION

### 3.1     STUDENTS' RESPONSIBILITIES

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[5] Members of Purdue's regular graduate faculty are tenure-track faculty members at Purdue University who have been nominated by the head of a specific graduate program and an academic dean for appointment to the regular graduate faculty. They are permitted to teach graduate-level courses, to serve on graduate student advisory committees, and to chair or co-chair master's and Ph.D. committees. Faculty or industry experts from outside of Purdue University can hold special appointments to Purdue's graduate faculty. (See Graduate School Policy, Section E for more details.)

- Students are expected to take proactive action to ensure successful completion of their graduate degree by registering for courses satisfying their degree requirements and making satisfactory progress toward degree completion.
- Review and get approval of major professor for all course registrations, including research credit hours.
- Register for the necessary prerequisite courses in the first year if admitted conditionally(See Section 1.2 & 1.3)
- Complete registration each semester, and if applicable, summer term, with the IE Graduate Programs Office by following the school registration process. (See Fig. 1 & Appendix D) Exact dates can be found under "Graduate Registration Time Ticket Groups" on the registrar's website.
  - The registration period for *Fall* terms opens in mid-March.
  - The registration period for *Spring* opens in mid-October.
  - The registration period for *Summer* opens in mid-January.
- Comply with registration requirements established by the Graduate School, Bursar, and Registrar, including maintaining appropriate registration status (full or part time). See Section 3.3  International students must also comply with requirements from the Office of International Students and Scholars (ISS). See table 1 for detailed information on full and part time student status.
- Discuss with major professor and acknowledge a written set of minimum expectations (for example: data set, draft of chapter, sampling plan, Institutional Review Board (IRB), lit review, manuscript, objectives of proposal) before the end of the 2$^{nd}$ week of each session of registration for IE69800. A document is included in appendix E to assist in this process.

## 3.2    MAJOR PROFESSORS' RESPONSIBILITIES

- Establish and communicate clear expectations regarding student commitment and effort dedicated to the student's graduate program.
- Guide the students' research experience and to understand and constructively critique the students' research accomplishments.
- Review students' course registration requests, including research credit hours. The registration of a graduate student should reflect the nature and amount of the student's study and research activities as accurately as possible.
- Discuss with student and submit to myPurdue a written set of minimum expectations (for example: data set, draft of chapter, sampling plan, Institutional Review Board (IRB), lit review, manuscript, objectives of proposal) before the end of the 2nd week of each session of registration for IE 69800.
  - The expectations and deliverables should be proportional to the number of registered credits (greater expectations = more credits).
  - IE 69800/69900 Research Form (Appendix D) is strongly recommended to document Agreement on Deliverables for Research Credits.

## 3.3    FULL TIME AND PART TIME ENROLLMENT

**Table 1: Full versus Part-Time Enrollment**

| To maintain full-time (enrollment) status… |
| --- |

| | 1. I have a/an… | Assistantship | | No Funding//Self-funded | |
|---|---|---|---|---|---|
| | 2. I *need\** to register for… | Fall/Spring | Summer | Fall/Spring | Summer |
| 3. I am a(n)… | Domestic Student | 3 | 3 | 8 | 0 |
| | Int'l Student | 6 | 3 | 8 | 0** |

*Need signifies that the status of having an assistantship/ that will be *used* in the term specified requires some form of registration.

**Note: international students may need additional registration if using Curricular Practical Training (CPT).
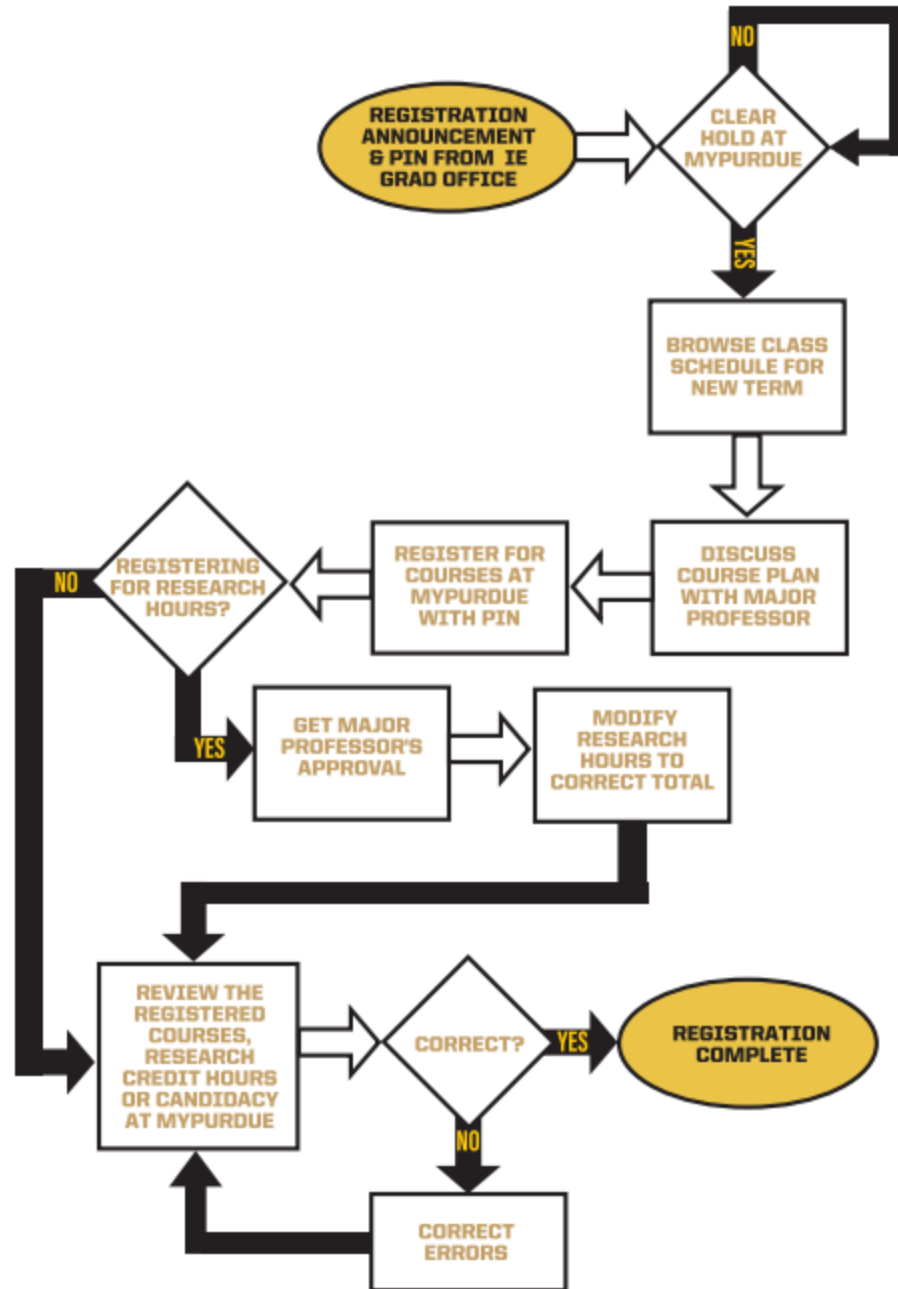
# GRADUATE REGISTRATION STEPS

## INDUSTRIAL ENGINEERING

REGISTRATION ANNOUNCEMENT & PIN FROM IE GRAD OFFICE

CLEAR HOLD AT MYPURDUE — NO / YES

BROWSE CLASS SCHEDULE FOR NEW TERM

DISCUSS COURSE PLAN WITH MAJOR PROFESSOR

REGISTER FOR COURSES AT MYPURDUE WITH PIN

REGISTERING FOR RESEARCH HOURS? — NO / YES

GET MAJOR PROFESSOR'S APPROVAL

MODIFY RESEARCH HOURS TO CORRECT TOTAL

REVIEW THE REGISTERED COURSES, RESEARCH CREDIT HOURS OR CANDIDACY AT MYPURDUE

CORRECT? — YES / NO

REGISTRATION COMPLETE

CORRECT ERRORS

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EA/EOU

Figure 1

## 3.4     Registration for Candidacy

Candidacy registration is required for students planning to graduate in the term they intend to graduate. These are not courses, but are registration placeholders used by university offices to plan for commencement and degree rewarding processes. See detailed steps on How to Apply to Graduate.

Options for graduation candidates include the following:
- **CAND 99100**
  - Students with an assistantship must register for a minimum number of credit hours (See Section 4.3, Table 1).
  - Students without an assistantship must register for at least one credit of research in the session in which they defend and/or the thesis or dissertation unless they are approved for CAND 99200 or 99300 registration.  (international students may require a Reduced Course Load (RCL) initiated through ISS if registering for less than full time hours in their final term.)
- **CAND 99200 - Degree Only**
  - Student MUST have completed final examination to register for CAND 99200
  - Must have earned 30 credit hours
  - May not register for additional credits
  - May only use this code once during your degree program
- **CAND 99300 - Examination Only**
  - Must have earned 30 credit hours
  - May not register for additional credits
  - May only use this code once during your degree program

After registering for candidacy, a student will receive notice from the registrar when the Commencement tab opens in their final term. Further action required of candidates includes:
- Complete Purdue's Center for Career Opportunities survey or contact CCO at askcco@purdue.edu or in Young 132.
- Ensure they have applied to graduate with any certificates or dual degree programs as necessary.
- Should the intention to graduate change for any reason, a student must notify both the  IE Graduate Office and commencement@purdue.edu.
- Ensure all holds are cleared that may prevent an application to graduate.
- Complete the graduate school exit survey in the candidate's Plan of Study portal during the semester in which they intend to graduate.**Master's candidates** need to complete the Graduate School Exit Questionnaire before their defense (see Section 4.2.2 and 4.4.1).
- If candidates do not fulfill their degree requirements, it may be necessary to register for a subsequent semester in order to complete degree requirements. Please contact  the IE Graduate Office for further information.

## 4.    Thesis and Final Exam

Thesis research must be a significant, unique contribution to the field of industrial engineering, and should provide an important creative experience for the student. The subject matter of the thesis would ideally lead to one or more peer-reviewed journal publications. In addition, the MSIE thesis must meet all the requirements of the Graduate School (see Graduate School Policy, Section VII. C).

## 4.1     To Request Final Examination

Before requesting the Final Examination, the following conditions must first be fulfilled:

- If needed, a Change to Plan of Study must be completed and fully approved at least one week prior to the start of the term in which the final exam will be taken;
- Student must be registered for the term in which the final exam will be taken;
- Student must declare graduation candidacy unless the thesis won't be deposited until the following semester (see section 3.4);
- The Examining Committee must be established prior to requesting the final exam with at least 51% of the committee members having regular graduate faculty certification.
- The student must submit a formal thesis document to each member of the Final Examination Committee at least three weeks prior to the scheduled oral final examination.
  - The thesis document must conform with the regulations outlined in "A Manual for the Preparation of Graduate Theses," which can be found at https://www.purdue.edu/gradschool/research/thesis/index.html

## 4.2 SCHEDULING THE FINAL EXAMINATION

A student must contact  the IE Graduate Office **at least three weeks prior** to the proposed date of their exam to complete scheduling.

### 4.2.1 COMPLETING FORM 8: REQUEST FOR APPOINTMENT OF EXAMINING COMMITTEE

Form 8  initiates requests for upcoming examinations. Approval of the Form 8 will generate the requested exam form (Form 7: Report of Master's Examining Committee) for the examining committee to use in recording the results of the examination.

The IE Graduate Office will  initiate and submit the form 8 through  the Graduate School Database) after they are notified by the student of the scheduling information. A fully approved form with all departmental signatures **is required** at least 2 weeks in advance of the exam.

**Figure 2**

### 4.2.2 STUDENT RESPONSIBILITIES

- Send a scheduling request via email to the IE Graduate Office including:
  - Examination date and time
  - Documentation of the committee's agreement on examination date and time (e.g., email copy or Doodle screenshot)
  - Thesis title for the examination
  - Copy of thesis draft in PDF
- If opting to use Zoom, the student will provide the Zoom link to the IE Graduate Office; the student will be the host and facilitator. Proper virtual meeting etiquette is expected.
- To view deadlines administered by the Graduate School, see the Graduate School Deadline Calendar.
- Note: IE graduate students must take the final examination at least TWO WEEKS BEFORE the Graduate School's deadline in order to obtain signatures by the deadline.
- Complete the Graduate School Exit Questionnaire before the final exam.
- Contact the IE Graduate Office directly if you need the Head's signature. DO NOT contact the IE Head.

### 4.2.3 IE GRADUATE OFFICE RESPONSIBILITIES

- The IE Graduate Office will reserve a room for the exam.
- The IE Graduate Office will initiate the form 8 in the Graduate School Plan of Study Generator on behalf of the student once the student provides the necessary details listed above.
- The IE Graduate Office will remind committee members about upcoming examinations.
- The IE Graduate Office will follow up with the IE Head if their signature is needed on any forms.

### 4.3 COMPLETING FORM 7: REPORT OF MASTER'S EXAMINING COMMITTEE

The advisory committee will report the exam results after the scheduled final exam using the electronic Report of the Final Examination (Graduate School Form 7); approval of the Form 8 generates this form.

**Advisory Committee approvals are needed on Form 7s for all graduating master's candidates <u>on or before the Final Exam Deadline</u> in the session of anticipated graduation.**



**Figure 3**

## 4.4    THE DEPOSIT PROCESS

All thesis-option graduate students at Purdue must deposit the final products of their research with the Purdue University Graduate School Thesis & Dissertation Office. The Thesis & Dissertation Office will help ensure that all prerequisites for deposit have been fulfilled and that your thesis or dissertation meets the quality standards established by the Graduate Council Standing Committee on Theses and Dissertations.

### 4.4.1    COMPLETING THE ELECTRONIC THESIS ACCEPTANCE FORM (ETAF) OR FORM 9

The student will initiate the Electronic Thesis Acceptance Form (ETAF) required by The Graduate School Thesis and Dissertation Office after their final defense. This form will be available through the Plan of Study portal.

1. Upon completion of the ETAF, students will not be able to make any edits. If selections need editing, contact the Thesis & Dissertation Office at thesishelp@purdue.edu .
2. Please allow at least 2 business days for the ETAF to be signed by all committee members and to receive departmental approval.
3. The Processor of the ETAF will process the form once completing step 2 of the deposit process and required surveys.
   a. A helpful guide to initiating your ETAF is available here: Student Instructions for Initiating the Thesis Acceptance Form (PDF).
4. All surveys will become available to complete on the candidate's Plan of Study portal during the semester in

which they register as a candidate for graduation. Master's candidates need to complete the Graduate School Exit Questionnaire before their defense (See Section 4.4.1).

5. Contact the IE Graduate Office directly if you need the Head's signature on the ETAF form. DO NOT contact the IE Head.
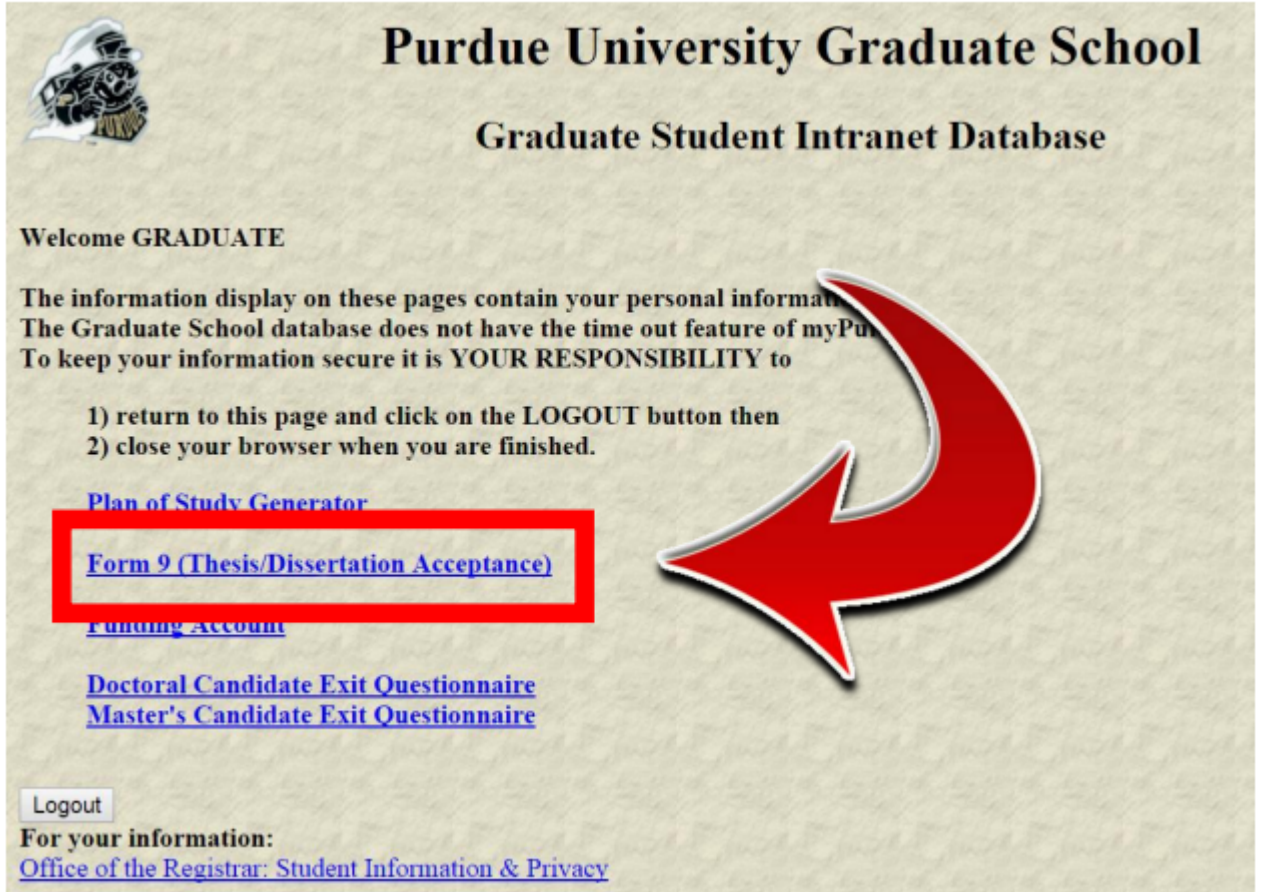
6. Submit the Electronic Thesis Deposit (ETD) to Hammer Research Repository (HammerRR)
    a. Once the ETAF has been approved through the Thesis Form Head, the student will receive an email containing a notification that they may proceed with the deposit process. At this point, the student will be able to log-in to their Plan of Study portal and find the link to submit your thesis to HammerRR.
    b. After the student has created a profile and has uploaded their ETD, a staff member of the Thesis & Dissertation Office will review the submission for any formatting errors and will contact the student regarding necessary changes. This process will continue until satisfactory formatting is met, after which, the student will receive an email regarding the acceptance of their ETD to the Graduate School.
    c. Upload the thesis to HammerRR at least 24 hours in advance of the Deposit Deadline to allow the Thesis and Dissertation staff adequate time to review the submission. ETAF must be approved by the 5pm deposit deadline.

7. Pay the Deposit Fee
    a. Master's Thesis Fee $90.00

b.  West Lafayette candidates will pay the deposit fee through their myPurdue accounts. The thesis fee will appear in a candidate's student account 2-3 days after their successful deposit.

8.  Submit Dissertation to the IE Graduate Office
    a.  The student must also submit a **handbound, printed copy** of your dissertation to the School of Industrial Engineering Graduate Office.
    b.  For printing and binding information, contact  Purdue Print and Digital Services by emailing purdueprintdigital@xerox.com or calling 765-494-2006.

For more information on ETAF and thesis dissertation deposit, see Thesis and Dissertation Office.

## 4.5   COMMENCEMENT

In order to be eligible to receive a degree at the end of the current academic session, you should have a candidate course (CAND) in your registration. Check with your major professor or Graduate Registration Contact in your department if you are not registered in a CAND course in the semester you plan to graduate (See Section 3.4).

- If candidates do not fulfill their degree requirements, it may be necessary to register for a subsequent semester in order to complete degree requirements. Please contact  the IE Graduate Office for further information.
- Candidates for degree should expect to receive numerous communications from the Commencement team in the Office of the Registrar.
- When the Commencement tab is open in myPurdue during your final term, complete the Commencement Task List.
- Navigate to the Commencement page during your final graduation term for specific Key Dates and Commencement Schedule.

More information pertaining to commencement, please visit the Commencement website.

### 4.5.1   DIPLOMAS

If requirements are complete, the diploma will be released by mail four-six weeks following the end of term.  Please provide a diploma address through the commencement task list  by the posted date. If a diploma address is not  provided, diplomas are mailed to the permanent address on file. Typical time to receive a diploma is 2-3 weeks after order submission and approval, with international address shipment taking longer if opting out of expedited shipping.

For more information on adding a diploma address in myPurdue, diplomas being held for mailing address, certified electronic diplomas and duplicate/resissued diplomas, or other diploma information, see the Diploma Information on the commencement website.

After ample time has passed, if a student has not received their diploma, they may email commencement@purdue.edu with their PUID to start an investigation.

### 4.5.2   OBTAINING TRANSCRIPTS

Alumni and former students from West Lafayette may use the online Transcript Request System. Alumni and former students will need to register a new account to access the online transcript request system. Current students may submit their request directly on myPurdue under the Academic tab.

For questions, contact the Office of the Registrar.

## 5. COMPLETION PROCESS FOR MASTER'S WITH THESIS

This Completion Process information is merely designed as a guide to provide general information. Please consult with your major professor(s) for current guidance on how to satisfy your degree requirement.

**Table 2: Schedule of Events for Completion of the MSIE Degree Item Deadline**

| | Task | Timeline | Semester |
|---|---|---|---|
| | Use annual review worksheet (appendix E) to facilitate annual review of progress | every semester | all |
| | Meet with major professor and decide coursework/research hours | every semester | all |
| | Select a major professor and appoint study advisory committee | within 6 weeks of 1st semester | 1 |
| | Familiarize yourself with MSIE Thesis Degree Requirements | Semester 1 | 1 |
| | Complete RCR training | within 60 days of 1st semester | 1 |
| | Draft Plan of Study | by end of first semester | 1/2 |
| | Submit Plan of Study as Final | by end of year 1 | 3 |
| | Declare Candidacy | Semester before expected graduation | 4+ (see Graduate School Deadline) |
| | Complete Graduate School Exit Survey | Semester before expected graduation | 4+ |
| | Schedule & Pass Master's Thesis Final Exam | Expected Graduation Semester | Final Semester (see Graduate School Deadline) |

| | | | |
|---|---|---|---|
| Deposit the dissertation with the thesis deposit office | Expected Graduation Semester | Final Semester (see Graduate School Deadline) |
| Deliver a copy of the thesis to the School of Industrial Engineering | Expected Graduation Semester | End of Final Semester |
| Complete Commencement Tasks | Expected Graduation Semester | End of Final Semester |

## APPENDIX A: GRADUATE STUDENT RESPONSIBLE CONDUCT OF RESEARCH (RCR)

### A.1 WHAT IS THE REQUIRED RCR TRAINING?

Purdue University requires **all degree-seeking graduate students** to complete training in Responsible Conduct of Research. This training provides important guidance to all graduate students who will benefit from an understanding of how research is conducted. Students on certain research grants (NSF, NIH, etc.) may have additional requirements or earlier deadlines; check with your Major Professor. Please also see resources at the end of this handout.

**All Graduate Students: Complete the CITI online course on Responsible Conduct of Research Training – Faculty, Postdoctoral, and Graduate Course (CITI-RCR) within 60 days of starting your graduate study.** The CITI-RCR online course includes 910 required modules. Each module takes approximately 30-60 minutes to complete and ends with a short multiple-choice quiz. Students can enter, leave, and re-enter the course and each module as many times as they would like prior to taking the quiz. Students must achieve an average score of at least 80% on all quizzes in the required modules. When students have completed all the quizzes, they can print out a certificate of completion.

**In addition**, *mandatory for on-campus* graduate students and *optional for fully online students*: Attend a follow-up seminar or workshop within the first year. The seminar or workshop may be given by the graduate program or the Graduate School either in-person or online. The seminar should be at least 60-90 minutes in length and allow students to ask questions and discuss RCR-related issues with the speaker.

### A.2 HOW DO STUDENTS COMPLETE THE CITI ONLINE TRAINING REQUIREMENT?

Once you have your **BoilerKey/Career Account login and password**, you can use the following steps as a guide to complete the online training:

- o   Visit www.citiprogram.org and select "Log In" and then "Log In Through My Institution."
- o   Click on Purdue University. Log in with your BoilerKey and complete the registration process.
- o   Once logged in, click to add courses and select the **Responsible Conduct of Research (RCR) Training – Basic Course – For Faculty, Postdoctoral, and Graduate Students.**

- Complete all modules (810 models/1 session of online CITI and 1 session with Purdue). This will meet the CoE online training requirement.
- Your School or research project may require additional courses. If unsure, check with your Major Professor. IE students should also complete the CITI Human Subjects Research Basic Course, which is required if students will conduct research involving human participants as part of the IRB process (https://www.irb.purdue.edu/).

At the completion of the CITI course, a certificate of completion will be displayed. Please email a copy of this completion certificate to your graduate program office.

## A.3    DOES THE CITI-RCR TRAINING EVER EXPIRE?

Graduate students working on active grants from certain federal agencies must recertify every 4 years. See the EVPRP RCR website linked at the end of this handout for details. Other graduate students need to complete the certification only once. Schools should update GradDB when students recertify.

## A.4    DO STUDENTS WHO HAVE TAKEN THE CITI ONLINE TRAINING AT A PREVIOUS INSTITUTION NEED TO TAKE IT AGAIN?

Students may be able to transfer the online training credits and should follow the instructions at the bottom of the quick reference card here: https://www.purdue.edu/research/docs/pdf/RCR%20Quick%20Reference%20Card.pdf.

Transferred credits for training completed at other Institutions may or may not match the required credits/modules for Purdue RCR training requirements. You may need to complete additional modules to get full credit for the training required by Purdue. Even if the online training credits are transferred, on-campus students will still need to attend the follow-up workshop.

## A.5    RESOURCES

*Please note that any changes in university guidelines will supersede information presented in this handout.*

For more information on CITI or Researcher Training, visit https://www.purdue.edu/research/regulatory-affairs . Questions on the College of Engineering requirements may be directed to Janet Beagle, Ph.D., Senior Director of Graduate Programs, jbeagle@purdue.edu .

## APPENDIX B:    HOW TO CREATE A NEW PLAN OF STUDY (POS)

## B.1    PLAN OF STUDY LOG-IN

- Log in to your myPurdue.
- Click "Graduate School Plan of Study" under the "Graduate Students" bar (see supplemental Figure 1.)
- When prompted, log-in again with your Purdue account at the POS website.
- Click "Plan of Study Generator" (see supplemental Figure 2.)

**Supplemental Figure 1**
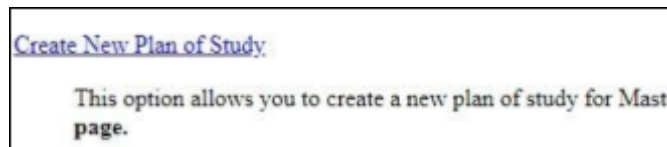


**Supplemental Figure 2**

- Click on "Plan of Study Generator".

**Supplemental Figure 3**

## B.2    GRADUATE PLAN OF STUDY GENERATOR PAGE

- Click "Create New Plan of Study".



**Supplemental Figure 4**

- Use only a Purdue email for the e-mail address.
- To save, click "Process and Continue" before you leave the page.



**Supplemental Figure 5**

## B.3    REQUIRED SECTIONS

- The following three sections are mandatory:

- o Student and Degree Information,
- o Research Area and Concentration,
- o Coursework, and
- o Advisory Committee
● When each section is complete, a checkmark will appear in the box.



**Supplemental Figure 6**

## B.4     STUDENT AND DEGREE INFORMATION

● **Degree Title** - Select the degree, (MSIE) MASTER OF SCIENCE IN INDUSTRIAL ENGINEERING.
● **Non-Thesis or Thesis Option** – Select the THESIS option.
● **Date Degree Expected** - enter your graduation term using the drop-down box.



**Supplemental Figure 7**

## B.5     RESEARCH AREA AND CONCENTRATION

● Enter your research title in "Research Area"
● Leave the remaining fields blank.
● The concentration field should **not** be filled

- o ***Unless you are in the*** *Computational Science & Engineering (CS&E) program.* Select "CMEN" for the first concentration.
- o Everyone else: Leave the concentration blank.

***Selecting incorrect information in the concentration may create incorrect charges to your tuition bill.***



For detailed instructions click on the Help button at the bottom of the page.

Research Area: (* required for Ph.D., optional for Master's)
- Indicate a short title of the research area chosen.

Concentration: (* optional)
- Select the concentration to include on your plan of study.
- If the concentration you intend to select is not listed in the drop down menu, please contact your Plan of Study Coordinator.
NOTE: If a concentration ends in -IGP, it should only be selected if you are officially registered in the associated Interdisciplinary Graduate Program curriculum.

First Concentration
Second Concentration

Language Requirement:
- Designate specific language requirements and the method to be used to satisfy the requirements.
- This information is required by some departments. Refer to your department's Guidelines and Requirements link.
LANGUAGE Requirement          METHOD to be used to meet requirement

"Process and Continue" will process this page and display any errors. If no errors are detected then the next page of the plan of study generator will be displayed.

Help   Process and Continue

**Supplemental Figure 8**

## B.6     COURSEWORK

● Enter your courses using the four course entry links below (see Figure 9) and review the POS curriculum requirements in the MSIE policy manual, Section 1, or on the IE website.



Indicate the courses to be used on your plan of study using the following links. Click on the Process and C
For more detailed instructions, click on the Help button at the bottom of the page.

Courses currently being taken or those previously completed at Purdue University (as a gradu

Transfer courses and courses taken as excess undergraduate credit.

Courses to be taken in the future at Purdue.

Purdue Combined Degree Courses (THIS SECTION IS ONLY FOR STUDENTS IN APPRO

Open a new browser window containing the Graduate School's Policies and Procedures Manual, Secti

"Process and Continue" will process this page and display any errors. If no errors are detected then the nex

Help   Process and Continue

**Supplemental Figure 9**

### B.6.1 Courses Currently Enrolled or Completed in Purdue Graduate Program

- Enrolled or completed courses are displayed.
- Check the "Use" box to select the courses that you want to add.
- In the "Area" column, identify the course as **"Primary"** for all IE courses and **"Related"** for non-IE courses.
- For column, "B or Better Required", click the box for all the core courses and leave it blank for the rest of the courses.
- The system may not let you enter current courses due to delayed server updates. If you experience this problem, enter your current courses at "Courses to be taken in the future at Purdue."

Note: The Graduate School Plan of Study Generator is not the official repository for grades; if a grade is missing, contact the Graduate School at gradinfo@purdue.edu

### B.6.2 Transfer Courses and Courses Taken as Excess Undergraduate Credit

- Leave the page blank unless you have a course to transfer.
- For more information, contact the IE Graduate Programs Office.

### B.6.3 Future Course Enrollment Plan

- Enter all courses with a proper subject, course title, and five-digit course number (e.g., IE 53000).
  Do not enter the CRN#.
- Enter the future courses to the best of your knowledge. If your future courses are outdated, you will have an opportunity to update it later.
- Ensure the course timeline matches your degree completion timeline.
- Enter the correct academic year and term for the course. (e.g., A spring course offered in January 2024 falls under the academic year of 2023-2024.)

### B.6.4 Purdue Combined Degree Courses

- Applies to a dual degree student only and may be skipped if it does not apply to you.
- Pursuing multiple degrees/certificates is not considered a Purdue combined degree.
- If you are struggling with this section, please contact the IE Graduate Office for more information.

### B.7 Advisory Committee

- Please find the "Faculty Identifier" by searching your major professor's name.
- Choose "Chair" or "Co-Chair" and enter the code# "IE" and [faculty identifier #]. Do not enter "+".
- Enter the rest of the committee members.

**B.8    COMMENTS AND SUPPLEMENTAL NOTES**

Leave the "Comments" and "Supplemental Notes" sections blank unless instructed by the IE Graduate Office.

**B.9    PREVIEW AND CHECKLIST BEFORE SUBMITTING THE DRAFT**

When you complete the five sections, click "Preview Plan of Study" and review your entries. See the important checklist below before submitting it as a draft.

- Mark all IE courses as **"Primary"** and all non-IE courses as **"Related"**.
- All courses for your degree completion must have a grade of C or better to be listed on the Plan of Study.
- Students must obtain a graduation index (500- & 600-level courses with exception of foreign languages AND any 300- & 400-level courses that appear on a Plan of Study with a B- or better grade) of 3.0 or better.

**B.10    OTHER INFORMATION**

- There are three types of Plan of Study submission:
  - *Saved* is for your own draft, which triggers no alert to the administrator.
  - *Draft* submission sends an email notification to department administrators for the review. You can easily correct errors on your own.
  - *Submit as Final* is the only status that counts as official submission.
- Status of Plan of Study (POS)
  - "Outstanding" POS means your POS has been filed officially, and it is under review.
  - POS status updates to "Approved" when the Graduate School approves your Outstanding POS.
- You can log-in back to the POS and check the status.

**B.11    NOTE REGARDING PURDUE POLYTECHNIC COURSES ON THE PLAN OF STUDY**

Graduate student course credit requirements are minimums and not maximums, and so nothing in this policy should be interpreted as precluding students from taking courses offered by Purdue's Polytechnic Institute (PPI). However, courses offered by Purdue's Polytechnic Institute cannot count toward the required course credits for graduate students.

Requests for waivers to this policy should be directed to an IE Graduate Program Administrator. Requests for such waivers must be accompanied by the following:
- the course syllabus;
- the full draft plan of study;
- the expected date of graduation; and
- A statement on the reason why courses other than Polytechnic courses could not be taken. *Please note this  is not a reason why the Polytechnic Institute course <u>should </u>count toward the minimum graduate course requirement, since any such courses can be taken over and above the minimum course requirements. Rather, this is a reason why the student cannot populate the plan of study with minimum course credits in non-Polytechnic Institute courses and therefore <u>must </u>use Polytechnic Institute courses toward the minimums.*

Requests without this information will be rejected.

The IE Graduate Program Administrator will forward the student's information with a recommendation to either the Chair of the IE Graduate Committee or the Assistant Head for consideration. The Chair of the IE Graduate Committee and the Assistant Head are both authorized to provide a waiver. If a waiver is granted, the Chair of the IE Graduate Committee or the Assistant Head will make an appropriate annotation in the student's electronic plan of study.

## APPENDIX C:        HOW TO FILE CHANGE TO PLAN OF STUDY (CPOS)

### C.1        LOG-IN AND UPDATE

- Return to the same "Plan of Study" general page.
- Click "Change to Plan of Study".
- To update the course, use "Replace" or "Add/Delete".
  - When you update your courses, your course term must match the timeline of your graduation term.



**Supplemental Figure 12**

### C.2        PREVIEW AND CHECKLIST

- Before submitting your CPOS, click "Preview Change to Plan of Study" and review your entries.
- Submit the CPOS as a draft.
- File only one CPOS at a time. You can file another CPOS when the previous CPOS is approved.
- You can log-in back to CPOS and check the status.
- The "Change to Plan of Study" link will not appear until your initial POS is approved.
- If you don't see this link, you must wait until your POS is approved.

## APPENDIX D. REGISTRATION PROCESS GUIDE

- Take note of registration dates for the semester on the registrar calendar.
- Remove any holds listed on myPurdue. For specific information, contact the office that placed the hold.
- Meet with your major professor and determine your courses and/or research hours. All courses are accessed

within myPurdue by clicking on "View the schedule of classes" or "Lookup Classes" (after the schedule is posted for the term). Take note of the Course Reference Number (CRN) for use in self-registration.

- Some courses are offered in multiple modalities, please ensure you have the correct CRN for your program type (e.g. online vs in person).
- At the graduate level, it is the student's responsibility to ensure they are properly prepared to be successful for a course. To do this, we recommend the following:
  - Click on the course name for detailed course information such as registration availability, restrictions, and recommended prerequisite courses (please note, if you have taken a similar course to the prerequisite at another institution, this should suffice).
  - View the catalog entry in the Schedule of Classes for a course description.
  - View course materials for textbook information.
  - If you are uncertain about your preparedness for a course, we recommend reaching out to the instructor.
- Register for courses in myPurdue using the Scheduling Assistant with your PIN provided by your registration advisor. In the scheduling assistant, you can look up the course using the CRN you noted above.
- Register in the IE Seminar - IE69700 in all terms except your final term.
- Register in Research Hours, *if applicable*. Note: This is a two-step process.
  - How to register and modify your research hours (video): https://www.youtube.com/watch?v=hYvXSCEVXx8.
    i. Request enrollment through the scheduling assistant after you have met with your major professor. A prompt for additional approvals will be required to submit. This will be reviewed by the IE Graduate Office.
    ii. After approval is given for the enrollment, the default credits added to your schedule will be 1 credit hour.
    iii. To change the credit limit, log back into the scheduling assistant for the term you are requesting IE 69900.
    iv. On the top right of the screen you will see a gray box with "Grade Modes & Credits." Click this.
    v. You will be given the option to select the credits you intend to register. The option to include any comments will be provided.
    vi. Submit the approvals again through scheduling assistant for the credit change, to be reviewed and approved by the IE Graduate Office the following day
    vii. Once this is approved, you can log back into the scheduling assistant to ensure the credits have been updated appropriately.

**International Students Only:**

- Ensure you comply with all International Student Services (ISS) Office rules and policies relevant to your visa.
- Maintain legal status by:
  - Registering for 8 credit hours per semester (an exception can be granted for your final semester with an approved Reduced Course Load (RCL) form).
  - Summer registration is not required to maintain full-time status
  - Auditing courses does not count toward full-time student status
  - No internships are allowed in the first or final term
- For all other questions, including information on reduced course load (RCL), program extension, change of education level (COEL), curricular practical training (CPT), and optional practical training (OPT) please contact ISS.

## APPENDIX E. FORMS AND WORKSHEETS

# MS TIMELINE WORKSHEET

## INDUSTRIAL ENGINEERING

FOR: _____  PUID: _____  ADVISOR: _____  DATE: _____

### Final Examination & Thesis Deposit Countdown

**GRADUATION:** _____

**HARDBOUND DELIVERY:** _____
Order a hardbound copy of your thesis online at Boiler Copy Center in PMU and request campus delivery service to GRIS 189.

**ETAF COMPLETION**

**I-AUTHENTICATE BY MAJOR PROF**

**ETAF INITIATION**

*Complete electronic Thesis Deposit through the Thesis Office:*
*https://www.purdue.edu/gradschool/research/thesis/index.html*

**FINAL EXAM DECISION:** _____

**SCHEDULE FINAL EXAM:** _____

**MEET WITH COMMITTEE MEMBERS:** _____
Review a thesis draft and discuss plans for final exam and thesis deposit.

**POS COMPLETION:** _____
Complete CITI_RCR before filing Plan of Study (POS).

### Important Links

Graduate School Deadline Calendar
https://www.purdue.edu/gradschool/about/calendar/deadlines.html

IE MS Exam
https://engineering.purdue.edu/IE/academics/academics/graduate/masters/thesis/final-exam-masters-thesis

STUDENT: _____  ADVISOR: _____  IE GRAD OFFICE: _____

**SCHOOL OF INDUSTRIAL ENGINEERING**

**IE698/699 Research MSIE/PhD Thesis**

Student Name: _____ Degree: choose _____

Term: choose _____ choose _____ Graduate Research Credit Hours: _____

Advisor Name: _____

Requirements for IE698/699 research credits. (You may consider following criteria for student's research credit(s) completion: research progress report, conference participation, journal, presentation, POS, preliminary exam, final exam, other documentations, etc.)
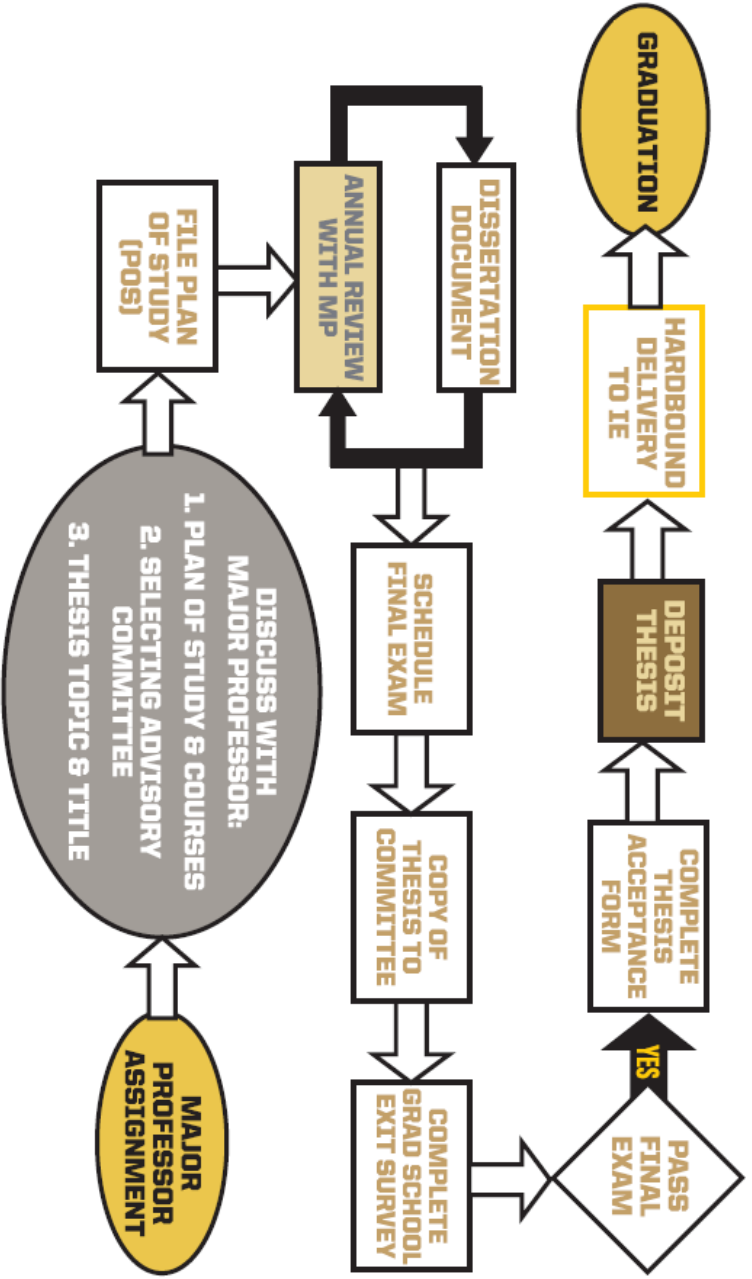
Student Signature_____ Date_____

Advisor Signature_____ Date_____

# MS DEGREE COMPLETION MILESTONES

## INDUSTRIAL ENGINEERING

FOR: _____ PUID: _____ ADVISOR: _____ DATE: _____

STUDENT: _____ ADVISOR: _____ IE GRAD OFFICE: _____

**PURDUE UNIVERSITY®**
School of Industrial Engineering

**MAJOR PROFESSOR ASSIGNMENT**

**DISCUSS WITH MAJOR PROFESSOR:**
1. PLAN OF STUDY & COURSES
2. SELECTING ADVISORY COMMITTEE
3. THESIS TOPIC & TITLE

**FILE PLAN OF STUDY (POS)**

**ANNUAL REVIEW WITH MP**

**DISSERTATION DOCUMENT**

**SCHEDULE FINAL EXAM**

**COPY OF THESIS TO COMMITTEE**

**COMPLETE GRAD SCHOOL EXIT SURVEY**

**PASS FINAL EXAM** — YES

**COMPLETE THESIS ACCEPTANCE FORM**

**DEPOSIT THESIS**

**HARDBOUND DELIVERY TO IE**

**GRADUATION**