Purdue School of Engineering and Technology

Indiana University-Purdue University Indianapolis (IUPUI)

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Master's of Science in Technology

Student Handbook

2008 – 2011

IUPUI

**SCHOOL OF ENGINEERING
AND TECHNOLOGY**

A PURDUE UNIVERSITY SCHOOL

Indianapolis

http://www.engr.iupui.edu/engtech/gradprogs

1. INTRODUCTION

Welcome to the Master's of Science in Technology (MST) degree program at IUPUI. This handbook describes the requirements, policies and regulations for the MST degree program offered by the Purdue School of Engineering and Technology at Indiana University-Purdue University, Indianapolis (IUPUI). The guidelines and procedures set forth in this handbook will help you in preparing your Plan of Study (see Section 5) and in meeting the necessary degree requirements for completing the program and graduation.

The School of Engineering and Technology offers graduate instruction leading to the Master of Science (M.S.) degree that enables students to concentrate on professional studies in technology in any of the disciplinary foci and/or areas of specialization (see below) offered by the school. Both thesis and non-thesis options are offered through the Master's program.

Disciplinary Foci

Computer and Information Technology
Construction Engineering Management Technology
Engineering Technology
Organizational Leadership and Supervision

Area of Specialization

Facilities Management
STEM Education

Your degree is granted by the Purdue University Graduate School upon successful completion of all degree requirements. The Purdue School of Engineering and Technology Graduate Programs Office (ET 215; http://www.engr.iupui.edu/gradprogs/) works closely with the Purdue University Graduate School (West Lafayette; http://www.gradschool.purdue.edu) and IUPUI Graduate Office (Union Building, UN 207; http://www.iupui.edu/~gradoff/) in a campus-wide coordination and administration of graduate engineering technology programs. Additionally, if you are an international student you will have contacts with the Office of International Affairs at IUPUI (Education/Social Work Building, ES 2126) regarding visas and immigration requirements. The Graduate Coordinator in the Graduate Programs Office (ET 215) can direct you to the appropriate office for specific issues.

After admission, the first major task for each student is to complete the Master's Plan of Study for approval. The Plan of Study is a document which defines the academic program leading to the degree. The guidelines and procedure set forth in this handbook will help you to create your plan of study. We invite you to visit the Director of the MST Program in the Department of Computer, Information & Leadership Technology (ET 309) and your program department with questions about requirements, plans of study, or any other academic matters.

NOTE: This document supersedes the IUPUI Graduate School Policies & Procedures Guide. Throughout this Graduate Handbook **XXX** refers to the departmental prefix code (e.g., **OLS 574**, **Tech 581**).

2. NEW STUDENT INFORMATION

Your IUPUI e-mail is the primary mode of communication used between the Graduate Programs office and all graduate students. Be sure that the Graduate Programs Office always has your current and active email address on file.

One of the first questions to address as a new student is how to register for classes after you have received a formal offer of admission from the Purdue University Graduate School.

Once you have been formally admitted, our Graduate Programs office will send an enrollment packet to you by US postal mail. You will find information regarding advising, registration, and various university and student services in the packet. If you have questions regarding advising and registration, you may contact the Graduate Programs Coordinator (ET 215).

Included in the enrollment packet you will receive from the Graduate Programs office are the following materials:

1. Your IUPUI university ID number, the name and contact information of your initial academic advisor. All students are assigned an advisor (who may be temporary) when they are admitted to the MST program.

2. A Technology Master's Program Handbook. The handbook provides detailed information about the degree programs, degree requirements, and program policies and procedures.

3. Information on university services such as parking and permits, current tuition and fees, and the "JagTag" student ID card.

To be prepared for registration you should have information about the program, its requirements, and the courses. Along with this Master's Program Handbook, you should also consult the following:

1. Schedule of Classes. The official *Course Offerings* for each semester is accessible on *OneStart* (https://onestart.iu.edu), the gateway to the university's web-based Student Information System (SIS). From here you can access the Schedule of Classes as well as the course registration system. You will need to activate your IUPUI username to register. If you need assistance with registration contact your advisor or their Administrative Assistant.

2. You should consult with your advisor to decide which courses you should take in your first semester.

When you have your class schedule prepared and are ready to register you can register directly via the web-based student information system *OneStart*.

Registration for subsequent semesters is covered in Section 10 of the handbook.

3. MASTER'S DEGREE REQUIREMENTS AND OPTIONS

The MST program requires a minimum of 33 credit hours. It is designed so that graduates holding a B.S. degree in a technology discipline or a related area can complete their degree

either as a full time or a part time student. The program can typically be completed in 4 semesters (2 academic years) and must be completed within five years.

The Master's degree is currently offered in only a Directed Project option. However, a thesis option may be available in the near future and therefore, information about the thesis option is included in this version of the MS in Technology handbook. The Directed Project option requires a minimum of 30 hours of coursework plus 3 credit hours of XXX 598 dedicated to the Directed Project. The Thesis Master's option will require a total of 27 hours of coursework plus 6 credit hours of XXX 698 Thesis Research.

The program requires a primary Technology area of 9 credit hours, a secondary area of study with 18-21 credit hours of coursework with TECH or departmental prefixes, and either a directed project of 3 credit hours or a thesis comprising 6 credit hours as follows.

Credit Hour Requirements	Directed Project Option	Thesis Option
Required Core Technology Courses • Measurement and Evaluation in Industry and Technology • Quality and Productivity in Industry and Technology • Analysis of Research in Industry and Technology	9	9
Related Area of Study (see note)	21	18
XXX 598 Directed Project	3	None
XXX 698 Thesis Research	None	6
Total Credits	33	33

Note: At least 6 of the credit hours in the related area of study must be graduate level courses from an approved course list offered by technology departments and the remaining credit hours can be graduate courses also chosen from an approved course list in either the technology departments or from engineering, science, or mathematics departments.

Examination Requirement

Each candidate must pass a final oral examination in order to graduate. The examination is considered public and is taken during the session in which candidacy is declared. The candidate's examining committee will conduct the examination and evaluate mastery of content related to the plan of study. A second purpose of this oral examination is for the student to defend the directed project or thesis. The final oral examination must be scheduled with your advisor no less than three weeks prior to the date of the examination. If the student's performance is not acceptable in one or more areas, the examining committee will specify what the student must do in order to eliminate the deficiency(ies).

Examining Committee

An examining committee will normally include the members of the student's advisory committee. Additional members may be appointed by the Dean for Graduate Studies. The advisory committee chairperson (the major professor) may recommend additional members for appointment.

Academic Requirements

Inactive Academic Status

Students who do not enroll in classes for three (3) consecutive academic sessions, including summer session, will be automatically placed in *inactive academic status*.

Students placed in inactive academic status are required to submit a new graduate application for re-admission to the program before they are permitted to enroll again. Completing and submitting a new application is a formal procedure to reactivate inactive academic status. All other supporting application materials are *not required* for re-admission.

Students should wait for their applications for re-admission to be officially approved by the Purdue University Graduate School before enrolling for classes. Registration activities that take place while in "inactive academic status" and before a new application for re-admission had been officially approved by the Graduate School are considered invalid registrations and will not count toward graduate credit.

Minimum Grade Requirements

The Technology graduate program maintains the following minimum standards to be in "good academic standing" in the Master's degree program.

To be in good academic standing, a Master's graduate student must maintain a cumulative grade point index of at least 3.00 out of 4.00 over the courses on his/her Plan of Study. A graduate student who is not in good standing at the end of the semester is automatically placed on "academic checklist" and is provided with a "warning letter". Registration is restricted when students are placed on academic checklist. Students on academic checklist are required to meet with their advisors and complete the form "Request for Temporary Checklist Clearance" for the checklist to be temporarily released for registration that semester. Should the student's cumulative grade point index remain below 3.00 at the end of the succeeding semester or summer session, he/she will be placed on probation. A student in probation may not be permitted to register for further graduate courses, pending academic review and approval by the Technology Graduate Committee.

The cumulative grade point index is calculated using the courses that are on the Plan of Study. If a course is taken more than once while the student is enrolled as a graduate student, only the most recent grade received in the course will be used in computing the grade point index. Transfer courses are not included in the computation of the cumulative grade point average. No grade of "D' or "F" is allowed for a course that is on the approved Plan of Study. All Master's students must achieve a final cumulative grade point index of 3.00 or higher for courses that are on the Plan of Study. Any course on the Plan of Study that carries a grade of "D" or "F" must be repeated. In the event of a deficiency in the cumulative grade point index, a course may be repeated but only the most recent grade received will be used in computing the index.

English Language Proficiency Requirements for International Students

English as a Second Language (ESL) Requirements:

All graduate degree-seeking international students whose English is not their first language must take the English for Academic Purposes (EAP) Placement Test (an English language

proficiency examination) administered by the IUPUI English for Academic Purposes Program Office before they are permitted to enroll for classes after admission.

Students tested with English language deficiencies are required to take all of the remedial courses determined by the placement test and receive passing grades on those courses. There is one exception to the requirement: students placed into English G013 "Reading/Writing for Academic Purposes" may replace G013 with TCM 460 "Engineering Communication in Academic Context". Students must begin taking the first English language course in the first semester of enrolment and complete the requirements in sequence before graduation. Students with incomplete English requirements will not be approved for graduation.

There may be unusual circumstances that merit a student to retake the EAP placement test. The IUPUI EA policy allows one retake of the EAP test, to be taken preferably within the first semester. If the test scores show no significant improvement, the results of the previous test will stand and students will be required to take the assigned courses.

SPEAK Test for International Graduate Teaching Assistants

All non-native speakers of English must be tested for their oral English proficiency before they are assigned duties that involve direct student contact (teaching assistants, laboratory assistants, graders, and tutors). Students must take and passed the SPEAK Test, a nationally standardized test before the students are given an academic appointment. Students who failed to obtain the required minimum scores will need to take an ESL course, G020 "Communication Skills for International Teaching Assistants" (3 crds) and take the test again before they can accept their appointments.

4. MASTER'S ADVISORY COMMITTEE

Appointment of a Major Professor/Advisor

Each graduate degree plan of study is unique to the individual student and his/her background, experience, and degree objectives. To guide in the development of a degree plan, a major professor (advisor) must be selected to chair the student's advisory committee and assist the student through the program. The major professor will become the most important contact person, and the major professor/student relationship must be a mutually acceptable one. The major professor serves concurrently as advocate, mentor, and supervisor of the graduate student.

Each graduate student is assigned a temporary advisor upon admission. The initial advisor plays an important role in establishing a timely and effective initiation of a graduate student's program. Once you start your program and have taken a few classes, you will want to consult with at least three different professors in the School of Engineering and Technology to determine who you would like to serve as your major professor and academic advisor. Each graduate student is expected to choose a major professor before the end of their second semester.

Advisory Committee

The student and the major professor are responsible for the selection of an advisory committee. The duties of that committee are to assist the student in the preparation of the

plan of study and to offer advice during the period of graduate work. It is important that the initial advisor, whether or not she/he continues as the permanent advisor, initiate activities to assist students in becoming acquainted with potential faculty to serve on the advisory committee.

The student's advisory committee consists of three members of the graduate faculty. The major professor and one other member should be from the School of Engineering and Technology graduate faculty (refer to Appendix A), and an advisor for the related area (who must also be a member of the Purdue University graduate faculty). Members of the committee need not be faculty with whom the student has taken course work. A co-advisor may be designated when advantageous to the student and where it can build faculty experience. Students and major professors should note that if a student's plan of study and/or research project would be significantly improved by the expertise of a faculty member or a person outside of the university, they may request consideration for special certification for such service. Such requests require a rationale and description of the expertise and are routed to the Purdue Graduate School via the School of Engineering and Technology Graduate Programs Office (ET 215). The request for appointment of the advisory committee is made on the same form and at the same time as the request for approval of the student's plan of study.

Purdue University's Graduate School is responsible for the appointment of Graduate Faculty based on 1) credentials, 2) employment status, and 3) evidence of ability to mentor students. The Major Professor/Advisor must possess the appropriate level of graduate faculty appointment. The Graduate Programs Office (ET 215) maintains a current list of graduate faculty.

The advisory committee should be selected **preferably during the first enrollment semester, but not later than the second enrollment semester.** The committee will then be in place to help the student develop the plan of study and review/approve the student's directed project proposal, which must be approved before actual work on the project may begin. The student should discuss the plan of study with their preferred potential advisory committee members and secure their permission to list them on the plan of study **before** the plan is submitted for signature. All admission conditions, if any, must be met or are being met at the time the plan of study is filed. A Plan of study with unfulfilled condition/s must be accompanied by a written statement from the department chair or the head of the graduate program explaining why the condition/s have not been met and/or the resolution to the condition, if relevant.

After the Plan of Study is officially approved any changes to the plan would require a "Change to the Plan of Study" GS Form 13 be completed and submitted to the Graduate Programs Office (ET 215.)

5. PLAN OF STUDY REQUIREMENTS

The philosophy of the School of Engineering and Technology at IUPUI is that advanced study should be tailored to the individual and his/her professional and intellectual objectives. Thus, the plan of study is unique to each student's needs and desires. To facilitate such an individually tailored program, each Master's degree plan of study consists of a primary area and one or more related areas. Both the primary area and the related area(s) are based on the relationship of the course content and not on the departmental course prefix.

The development of the plan of study begins as part of the initial course registration. The major professor will discuss the student's background, interests, and degree objectives as part of the preparation for the first enrollment. The major professor will also recommend possible related areas and advisors. It is important that major professors maintain a reference list of potential IUPUI courses, and appropriate faculty contacts, relevant to their areas in order to assist graduate students in developing their plan of study.

In addition to course work requirements, each student must complete and successfully defend either a Directed Project (XXX 598) or Thesis (XXX 698). The plan of study should be developed to support this requirement.

The plan of study must list all courses the student will take to meet the degree requirements. These include the names for the primary and related areas of study; the course number, course title, and credits for each course; and the date when the course was or will be completed. The plan of study is signed by each member of the advisory committee and the student. After review, the plan is signed by the Dean for Graduate Studies. The plan is then submitted to the Graduate School for formal approval. It is important that the major professor access the approved plan of study and periodically review progress of its completion with the graduate student. After an approved Plan of Study is on file, committee and course changes can be made at any time by completing the appropriate forms.

Primary Area

All MST plans of study will have a Technology primary area. It will include 9 credit hours and should include the following core courses (or acceptable substitutes to be discussed with the major professor):

- TECH 507 Measurement and Evaluation in Industry and Technology
- TECH 508 Quality and Productivity in Industry and Technology
- TECH 646 Analysis of Research in Industry and Technology

Undergraduate courses may not be included in the primary area of the plan of study without special permission from the Graduate Technology Committee followed by the Associate Dean for Graduate Programs of the School of Engineering Technology.

Related Area

Each plan of study must include a related area of 18 - 21 semester hours from another area. In some cases, there may be two related areas if such a plan will enhance the student's professional goals. Common related areas on plans of study include Facilities Engineering, Curriculum and Instruction, Adult Education, or one of the disciplines within the School of Engineering and Technology (e.g., ECET, MET, CGT, CIT, OLS, etc.) It is encouraged that each related area should have a faculty representative on the student's advisory committee.

Undergraduate Credit in Related Area

A related area may include undergraduate courses (300 or 400 level) **only when followed by appropriate 500- and 600-level courses.** Undergraduate courses are subject to the approval of the student's advisory committee and the Dean for Graduate Programs. Undergraduate courses listed in the related area must be in excess of the baccalaureate degree requirements. Graduate School policy stipulates that 100- and 200-level courses may not appear on a plan of study and that no more than 6 semester hours of 300- and

400-level courses may be applied to graduate plan of study and a grade of "B" or better is required.

Credit Limitations

The combination of undergraduate excess credit, transfer credit, post-baccalaureate registrant credit, and independent study credit included in a Master's Degree plan of study MUST NOT EXCEED 15 SEMESTER HOURS. These credit categories are defined as follows.

Undergraduate Excess Credit

Undergraduate students attending IUPUI who have time available to take courses in excess of their undergraduate degree course requirements may earn a maximum of 12 semester hours of credit in 500-level courses which were taken and declared as graduate work on Registrar's Form 350 at the time that grades were filed for that semester. Undergraduate excess credit will be certified by the Registrar only if the student (1) took the course during the senior year; (2) received a grade of at least "B" in the course; (3) the course was designated as a graduate course; and (4) the student's work in the course was performed at the level required for graduate students in the course.

Transfer Credit

A maximum of half the required course credit hours (15) at another accredited institution may be included in the Master's Degree plan of study. Graduate School policy states that all courses transferred must be acceptable for graduate credit at the school at which they were taken, must not have been used to meet the requirements for another degree, and must have been completed with a grade of "B" or better. A catalog description of the course and an official transcript showing completion of the course and the grade received must be submitted with the plan of study. Grades from transfer courses will not be included in computation of the graduate point index.

WITHOUT EXCEPTION, ALL EXCESS UNDERGRADUATE AND TRANSFER CREDITS TO BE USED ON THE MASTER'S PLAN OF STUDY MUST BE APPROVED BY THE STUDENT'S ADVISORY COMMITTEE.

Post-Baccalaureate Registrant Credit

The Graduate School has created an enrollment category known as graduate non-degree to enable those who have a bachelor's degree to enroll in courses that are considered appropriate to the registrant's personal objectives. A limited amount of credit earned in this category is available for inclusion on a plan of study at the discretion of the advisory committee, the recommendation of the Assistant Dean for Graduate Studies, and the approval of the Graduate School.

A maximum of 12 semester hours of graduate credit earned as a post-baccalaureate registrant may be included in a plan of study; no post-baccalaureate course in which a grade of less than "B" was earned will be permitted on the plan of study.

NOTE: THE SUM OF CREDITS EARNED AS UNDERGRADUATE EXCESS CREDIT AND IN POST-BACCALAUREATE REGISTRANT STATUS THAT MAY BE USED ON A PLAN OF STUDY IS LIMITED TO 12 SEMESTER HOURS.

Independent Study Credit

A maximum of 6 semester hours of independent study credit (e.g., OLS 590, CGT 590 etc.) may be included in a plan of study.

Preparation and Filing of Master's Plans of Study (GS Form 6)

Contact your Advisor for assistance in preparing the Master's plan of study. Once you have completed a draft, it should be reviewed by the Graduate Programs Coordinator. You may obtain the "Master's Plan of Study" GS Form 6, and all other Graduate School forms from the web at http://www.engr.iupui.edu/gradprogs/gradForms.shtml.

The following are steps to preparing and submitting a plan of study for approval:

1. Review the preceding portions of this Handbook to determine the requirements for the option you wish to pursue. Select courses that meet the degree requirements, and are appropriate for your area and interest. If possible, check that the courses you need will be offered at a time when you wish to take them.
2. Prepare a draft of your plan of study.
   a. Indicate courses in your primary area with a "P" in the left-most column labeled "Area". List primary area courses together as a group.
   b. Related area courses should be indicated with an "R" in the "Area" column. List related area courses together as a group.
3. Select a faculty member as your major professor and to be the chair of your advisory committee. Confer with him/her for advice on the plan and ultimately his/her informal agreement to the plan.
4. In consultation with your major professor, select two additional faculty members to serve on your graduate advisory committee.
5. Prepare a computer-generated or typed version of your plan of study and submit it to your department. The department will provide the necessary department, degree and professor codes and will check for any admission conditions.
6. Once the department has checked your Plan of Study for accuracy and thoroughness, sign it, and carry it to the members of your advisory committee for their signatures.
7. Submit the original copy with all necessary signatures to the School's Graduate Programs Office (ET 215). Your plan of study will be reviewed again by the Graduate Coordinator to ensure that the plan meets all format and program requirements, after which it will be submitted to the Purdue Graduate School for final approval.

6. THESIS/DIRECTED PROJECT COMPARISON

All MST Plans of Study contain a capstone/synthesis requirement that is either a Directed Project or a Thesis. A comparison of these two requirements is presented in the following listing. Each requirement is then detailed explicitly in subsequent sections.

To pursue either the Directed Project or development of a thesis, students must first develop a proposal and secure its approval by their advisory committee. A formal meeting of the student's graduate committee is required to evaluate the proposal and the School's Graduate Studies Office is to be provided a copy of the approved proposal carrying the signatures of each committee member. Proposals are developed pursuant to student enrollment in TECH 646 Analysis of Research in Industry & Technology or 1-3 hours of XXX

698. Subsequent enrollment in XXX 698 for the additional required credits is contingent upon filing of the approved proposal. Students may not receive more than three credits for a Directed Project and six credits for XXX 698 for thesis research.

Both Directed Project reports and Theses must follow the *Purdue Graduate School Thesis Guidelines* as supplemented and detailed by this Handbook.

The Directed Project

The directed project is defined as an applied research project that is more extensive and sophisticated than a graduate-level independent study and less formal than a master's thesis. The overall objective of the requirement is to engage each graduate student in a study, typically industry, business or education focused, which is sufficiently involved as to require more than one semester to conceive, conduct, and report. The focus is to be placed on a topic with practical implications rather than original research.

Directed Project Characteristics

- Written for business, industry or other organizations
- Results in a tangible product of value to business and industry, or education for business and industry
- Usually involves a technical problem solving activity
- Is documented to permit replication
- Usually involves some form of validation
- Generally requires application of a synthesis of coursework
- Can be published (recommended but not required)

Directed Project Objectives

By successfully completing a Directed Project, a student demonstrates his/her ability to:

- Identify a business or industry relevant solution to a technology related problem
- Define and/or validate a business or industry relevant problem
- Address a technological problem in a systematic and replicable manner
- Effectively use technical/professional research and/or development procedures
- Identify criteria for success/solution of the problem
- Gather information appropriate to the problem by employing business research procedures
- Document the research and development activity in a manner that permits replication and assessment of key decisions and alternatives
- Write effectively in a form customary to business and industry, using APA format
- Prepare and deliver a presentation in a form customary to business and industry

Effective Directed Project Practices

- Directed projects should require students to select and employ an effective Research & Development procedure(s) to address the problem.

- A directed project generates a new solution, product or procedure. It may involve "proof of concept" and it must be of direct value to business or industry or to the education for business or industry.

- A possible component (although not a requirement) of the directed project might be an Implementation Plan (i.e., recommendations for deploying the developed solution). This plan should include the suggested near and mid term steps.

- Industry partners are encouraged for validation or other involvement.

- Teams of students working on larger projects are permissible as long as each has a unique and significant contribution and that there is a high degree of independence so that one student's success is not predicated on another's.

- Employ either a) business or industry style manuals such as the *Chicago Manual of Style*, b) other relevant business/industry writing style manual, or c) the APA manual when required by the advisor.

The Master's Thesis

As of August 2008, a thesis option is not available for students accepted to the MS in Technology Degree program. However, a thesis option may be available soon and information about the thesis option is included in this handbook.

A master's thesis in technology is a significant piece of original work, typically involving research, a formal written description of that research, and an oral defense of the research. Typically, the thesis contributes new knowledge to the discipline; against the backdrop of what others have contributed to the topic as well (via the literature review).The tone should be scholarly, with a primary audience of other researchers. The thesis is more than a term paper but less than a doctoral dissertation. For example, a synthesis and description of others' research and writings alone may be appropriate as a term paper. Such a comprehensive "review of the literature" must be included as a section of the thesis but is not sufficient by itself. On the other hand, a doctoral dissertation might use an experimental or survey methodology involving large numbers of subjects on a national or international level. A master's thesis may be narrower in scope, being restricted to a local problem, a smaller number of subjects, or a conceptual model. A thesis should not just be an expression of your opinions; conclusions and opinions must be based on research results and analysis.

Key Points About the Thesis

- A thesis typically addresses a theory or knowledge gap. Often it does so by testing or evaluating or by developing and validating a concept or methodology.

- Theses require documentation of the significance of the problem or gap in knowledge they address, i.e., they make a contribution to the discipline.

- All theses result in a clearly identifiable new knowledge of significance (requires documentation of originality).

- Theses generally theses involve the use of one or more of the accepted research paradigms and established research techniques. They may be quantitative or qualitative in nature. They may involve historical or philosophical, scientific or technological perspectives. They may be experimental, descriptive or developmental in methodology. Other forms/paradigms of research scholarship may also be employed if approved by the committee.

- Theses demonstrate a high level of reasoning, effective written communication, and are documented in a form that permits replication.

- Theses employ the APA formats.

- Theses are necessarily filed in Purdue's library. Theses containing intellectual property are marked as confidential and not made publicly available.

7. DIRECTED PROJECT AND THESIS PROCEDURES

Directed Project XXX 598 Enrollment

Prior to enrollment in XXX 598 Directed Project, a student should complete TECH 646 Analysis of Research in Industry and Technology in which they will develop a project proposal. If scheduling does not permit completion of this course prior to enrollment in XXX 598 Directed Project, a student may complete at least two consecutive enrollments in XXX 598. **The first enrollment is for 1 semester hour of credit in the next-to-last academic term** *(but earlier enrollment is permitted if appropriate)*. During this academic session, a proposal is developed and approved by the advisory committee. Subsequent registration in XXX 598 is not permitted until the approved and signed proposal has been filed in the Graduate Studies Office. **The second XXX 598 enrollment is for 2 semester hours of credit**, in which the study is conducted, the final report written, and the study defended in an oral examination.

Should the student not complete the project in the two enrollment periods describe above, s/he is required to enroll for 1 semester hour of credit each term until the project has been completed. The candidate must be enrolled in XXX 598 for at least 1 semester hour of credit in the academic session in which the degree is awarded.

Grades for XXX 598 Directed Project Research

Performance in any XXX 598 Directed Project course is graded using the following scale:

- Pass – used where the student has met or exceeded requirements
- No Pass – used where the student has not met requirements and has not invested appropriate amounts of effort
- Incomplete – used where the student has invested appropriate amounts of satisfactory effort but the project is not yet finished

Thesis XXX 698 Enrollment

Prior to enrollment in XXX 698, a student should complete TECH 646 Analysis of Research in Industry and Technology in which they will develop a thesis proposal. If scheduling does not permit completion of this course prior to enrollment in XXX 698, the student must complete at least two consecutive enrollments in XXX 698. Typically, **the first enrollment is for 1-3 semester hour of credit in the next-to-last academic term** (but earlier enrollment is permitted if appropriate). During this academic session, a proposal is developed and approved by the advisory committee. Subsequent registration in XXX 698 is not permitted until the approved and signed proposal has been filed in the Graduate Studies Office. **The second XXX 698 enrollment is for 3-5 semester hours of credit**, in which

the study is conducted, the final report written, and the study defended in an oral examination.

Should the student not complete the project in the two enrollment periods describe above, s/he is required to enroll for 1 semester hour of credit each term until the project has been completed. The candidate must be enrolled in XXX 698 for at least 1 semester hour of credit in the academic session in which the degree is awarded.

Grades for XXX 698 Thesis Research

Performance in any XXX 698 Directed Project course is graded using the following scale:

- Satisfactory – used where the student has met or exceeded requirements for satisfactory progress
- Unsatisfactory – used where the student has not met requirements and has not invested appropriate amounts of effort
- Incomplete – used where the student has invested appropriate amounts of satisfactory effort but the project is not yet finished

8. PREPARING DIRECTED PROJECT AND THESIS PROPOSALS

There are no absolutes in the preparation of a directed project/thesis proposal. Every individual and every proposed project is unique. The exact approach that the student takes is ultimately at the discretion of the major professor (advisor) and the student's graduate committee.

It does not matter whether a proposal is being prepared for a graduate advisory committee or for an employer. Proposals must be succinct and direct. Clear, jargon-free prose that establishes the need for the study and a proposed method of solution are required--nothing more (or less). While School of ET faculty have not established specific proposal length requirements, a proposal should be sufficiently detailed to enable the graduate committee to render effective judgment and share appropriate advice on how to proceed. Typically, thesis proposals are 20-30 pages (including figures, tables, and references but not counting appendices) to communicate essential detail. Directed project proposals are generally shorter.

Beyond content, there are two important factors in the writing of any professional paper, be it a proposal or a final report. One factor is format; the other is style. Format is the physical layout of a paper. Rules for indention, type face, line length, etc., are considered format issues. Style requirements are created to facilitate clear communication. Globally, style indicates the manner of expression and the sequence in which material is organized. At a micro level, style concerns formality, person, tense, spelling, and abbreviation standards. Both are important, and both have their place. Most publication manuals include both style and format guidelines.

Proposals are always written in future tense. Thus, statements that refer to procedures should be stated as, "This proposed study will collect data using . . ." or "Results of this study will be used to . . . ." Similarly, School of Engineering and Technology standards recommend that the proposal be written in third person. It is seldom necessary to refer to oneself in a formal paper. A writing style that does not include either personal identification with a personal pronoun (I, we) or a given name (Jane Doe) should be used. If such a strategy is not possible, an appropriate third person term such as "this developer" or "this

researcher" should be chosen. This practice should be used only as a last resort, as it is considered ambiguous in most cases.

Directed Project and Thesis Proposal Contents

Cover Page

The cover page must follow the format on the sample in Appendix C. This format includes spaces for each advisor to sign and date the proposal. The original signed proposal must be submitted to the Office of Graduate Studies as soon as it has been signed by all committee members. This original document then becomes the contract for the directed project.

NOTE: *The same format is used for the Directed Project's final report cover. Cover pages are available from the Graduate Studies web site at*
http://www.tech.purdue.edu/academics/graduate/forms_documents.cfm

Committee member information should be entered using the first name, middle initial, and last name. Do not use academic or degree titles such as Professor, Dr., etc., before the name. List the major professor (committee chairperson) first and then each related area advisor. The committee member's relationship to the plan of study should be listed below his/her name. Thus, if the primary area on the plan of study is listed as "Technology", the committee chairperson (major professor) would be listed as follows.

Susan P. Jones, Chair
Technology

If the plan of study included two related areas titled "Communications" and "Applied Computing", the committee members would be listed as follows.

Alexander G. Bell
Communications

A. Paul McIntosh
Applied Computing

Abstract

The student must prepare a one (maximum) page abstract that succinctly describes the proposed problem addressed, purpose for the study, the significance of the proposed study, an overview of the proposed methods to be employed and of the anticipated deliverables.

Introduction

The form of the introduction will vary with the nature of the proposed project. Typically they range are 1-3 pages in length. It is important to remember that this is the sole chance to establish a frame of reference in the reader's mind. Appropriate introductions are brief and designed to establish the context and need for a study. There is no "right way" to write an introduction. There are, however, several possible ways to craft an introduction that will accomplish its intended goal. One common method is to identify the problem in global (vis-à-vis specific) terms. This approach creates an overall frame of reference that makes it much easier for the reader to focus on the more detailed portions of the proposal.

Another method is to identify a plausible alternative to established methods of addressing the problem at hand. For example, sometimes when employing conventional methods, an

unexpected outcome (anomaly) occurs. Given this, the proposal could be focused on ascertaining if the outcome was due to chance whether other factors exist that would make the unexpected a more likely future occurrence. Given the pace of development, often wholly new techniques or procedures may offer an alternative to current methodologies. The beginnings of these new approaches are placed in the introduction to set the stage for the proposed project.

Problem Statement

There is no section of a proposal that gives beginning proposal writers more challenges than the "Statement of the Problem" section. Too often their early drafts present either a restatement of the introduction, a detailed description of the methods to be used, or a suggested solution. None of these are appropriate statements of the problem. A problem is something that is wrong. Therefore, the statement of the problem is merely a brief description of what is wrong, written in specific enough terms that the reader can see the problem and not simply a problem space. One test of the quality of a problem statement is always, "Could the problem be recognized if the statement were being read for the first time?"

Significance

Once the problem has been stated, the significance of the problem must be established. The significance section should be drafted in a manner that removes any question of the importance of the proposed study. In the context of a directed project or thesis, this is the part of the proposal in which the proposed project is tied to the student's overall plan of study and career goals. Generally, this section should "sell" the project as being worthy of doing in the business/industry and/or academic/disciplinary context. One of the effective methods of strengthening this section is to highlight key citations from credible sources that indicate that the problem is real and that things would be better if it were solved.

Literature Review

The review of literature serves several important functions. First, it is a method to indicate that the problem is more universal than the specific proposal. Second, it serves as a justification for the proposed study in that others have addressed related problems. Third, it positions the work in the field giving context to what has and has not been done and where this project/thesis is positioned therein. Fourth, it identifies possible methods for the conduct of the study by identifying possible data collection strategies, statistical procedures, or sources of other procedural information. Finally, the review of literature should document justification for the proposed study.

There are three principle justifications for additional investigation of a problem. One justification is that there are plausible alternative hypotheses to conclusions reported in existing studies. That is, there may be another possible variable that is influencing the results of existing studies. The second reason for proposing a new study is to determine if the reported study can be duplicated (replicated) in a new environment. A third reason for conducting a study accounts for the introduction of new data or procedures that have become available. In this case, the review of literature serves to demonstrate that no examples of the use of new techniques could be found.

Typically literature review sections include some appropriate description of the following:

- A description of the methodology and terms employed to conduct the review of the literature itself

- A description of the literature pertinent to choices of data collection and analysis

- A thematically organized summary of the review of the literature

For the purposes of a proposal, the review of literature should focus on the key studies. These cannot be determined without extensive review of the literature prior to the preparation of the proposal. The review must be sufficiently extensive to insure that all sides of an issue have been researched and that a balanced evaluation of the problem area has been accomplished. Because a proposal is limited by space constraints, only the most germane studies should be included.

Purpose

Once the problem and its significance have been stated, the specific purpose of the project must be described. **Here is where the student indicates what they propose to do about the problem, i.e., what part of it they wish to address and what the deliverables of their work will be. There are essentially three ways to state the purpose of a study, as shown in the following examples:**

1. **Research Purpose:** The purpose of this study was to determine to what extent the duration and frequency of physical therapy influence health care costs following traumatic injury.
2. **Research Question:** Does the duration and frequency of physical therapy influence health care costs following traumatic injury?
3. **Research Hypothesis:** The health care costs of patients who participate in physical therapy over an 8-week period following traumatic injury were significantly less than the costs of patients provided only 4 weeks of therapy.

Definitions

Definitions must be included in a directed project proposal whenever it is necessary to inform the reader of the unique way in which the terms are to be used in the proposed research. For example, if learning is to be defined as "a change in behavior", both the entering and terminal behaviors must be defined. But, when terms are used in standard ways, it is not necessary to include the definitions. Be sure to spell out all acronyms.

Assumptions

Every study requires some assumptions; they will vary with the type of problem. For example, one assumption could be that all members of the group being studied know Windows-based operating systems. Another assumption may be that employees will be willing to participate in the training exercise being proposed. Assumptions, of course, must be established as part of the proposal writing stage and they must be approved by the major professor and committee.

Scope or Delimitations

This section describes the scope or delimitations of a project, i.e., statements about things that you will NOT address. There are always constraining factors in a study. This is particularly true of directed projects in which time, money, and other resources are limited to those that the individual student can bring to the study.

A delimitation is a factor that will narrow the scope of the study being proposed. This is a factor that is known about before the study is performed. For example, one delimitation may be that time does not allow a follow-up after the initial treatment or evaluation. Will the study be limited to a single facility of Corporation X, or will it be conducted at multiple sites? Clearly, a multiple-site study is more generalizable than a study at a single location. The signed proposal is the contract for the study. If the proposal were ambiguous about its limits, the student could be in the position of having to gather further information.

Note that delimitations are distinctly different from limitations. A limitation is a weakness or restriction on inference. An example would be a survey having a response rate low enough to produce unreliable and invalid information.

Methodology (or Procedures)

All procedures to be used in the proposed study should be defined. For empirical studies, be sure to define the population, sampling frame and sampling method. Whenever possible, the proposed procedure should be justified by reference to other published studies that were used and recommend the steps defined. This will insure that the advisory committee understands the steps the student wishes to take and establishes those steps as appropriate in other published studies.

Time Action Plan

A time action plan establishes the time frame in which the conduct of the proposed study will occur. This section is vital when there are strict time constraints on data collection or other factors affecting the conduct of the study. This plan also helps communicate the student's proposed time allocation for each major component of the project. Many proposed studies will demand a time action plan.

Limitations

Limitations are descriptions of weaknesses of a study. If the student knows about these at the time of generating the proposal they are advised to reveal them explicitly in advance. Often, however, in addition to any weaknesses known in advance of conducting a project, some invariably arise during the course of project execution. When this occurs, these new limitations are to be added to the limitations section of the final project report and they must be taken into account when discussing the project conclusions.

References

The reference list should include only the publications cited in the body of the proposal. All reference citations within the body of the proposal and the reference list must comply with the standards of the most recent edition of the Publication Manual of the American Psychological Association.

Note on Use of Acronyms

The paragraph below demonstrates the inappropriate and excessive use of acronyms. If acronyms are used to reduce volume/repetition in a proposal, convention requires the term to be spelled out in full the first time it is used and then followed by the acronym in parentheses. Thereafter, the acronym may be used in lieu of the full term.

What would happen if the president of the BBB requested the assistance of the FTC in order to convince the DOC that it should investigate the effect of WSJ interference with NAFTA signatories regarding concerns about the impact of UL standards on GATT? Hopefully, that need will never arise.

Preparing the Final Directed Project Report

General Information

The directed project final report uses the project proposal as its foundation. During the proposal development process, a procedure was evolved that should have been followed to conduct the project. The final report now modifies the Methodology section to describe what exactly was done, and adds new sections to discuss what the findings and conclusions are. Any deviations from the proposal must also be noted and justified.

The tense found in the proposal draft is changed from future (what is planned) to past (what was done) when converting the proposal document into the final report.

Final Report Contents

The final report will typically retain the following sections of the proposal.

- Cover page
- Abstract
- Introduction
- Problem Statement
- Significance
- Literature Review
- Purpose
- Definitions
- Assumptions
- Scope
- Limitations
- Methodology
- References

NOTE: The Time Action Plan of the proposal is not included in the final report.

The following sections are added to the original proposal items.

Results (or Findings)

In this section, the results of the project are reported and discussed. When reporting findings, simply report factual information. This might be test scores, changes observed in lab performance, etc. These findings can be followed by discussion which interprets or explains the significance of the findings.

Students are reminded that the directed project is the capstone of the master's degree program. Regardless of the data analysis outcomes of the project, it is a success. Often there is a preconceived notion of what the results should be. What is important is what the results really are. Important information can be obtained from any project, even if the results are not what were expected.

Conclusion, Discussion, and Recommendations

Based on the findings obtained, conclusions can be drawn. Such conclusions must always be interpreted and considered within the context established by the study's delimitations and limitations. Additionally, it is often useful to link the conclusions to key findings from the literature review. The conclusions form the basis for the final evaluation of the project. Once the conclusions are drawn and the effect of the study determined, final recommendations for further work and or research may be made.

For example, assume that a new laboratory activity is developed. This activity was implemented in one laboratory section. During post-testing, the laboratory scores were higher in the section that utilized the activity. However, the activity required twice as much laboratory, compared to the normal activities. It might be concluded that the instruction was effective, as evidenced by the test scores. A recommendation might be that the instruction should take less time. A second recommendation might be to track students who received this instruction and note if improvement in related areas was found, compared to students who did not receive the special instruction.

The final directed project/thesis report is structured as follows.

- Cover page
- Abstract
- Introduction
- Problem Statement
- Significance
- Literature Review
- Purpose
- Definitions
- Assumptions
- Scope
- Methodology
- Results
- Limitations
- Conclusion
- References
- Appendices (as needed)

9. FINAL ORAL EXAMINATION PROCEDURES

Appointment of the Examining Committee & Scheduling the Final Oral Examination

The examining committee will usually be identical to the student's advisory committee. The major professor and student are jointly responsible for finding a common date, time, and period when all advisory committee members can meet for the examination and this must occur within the deadlines established by the Graduate School. The major professor is expected to take initiative in assisting the student with this procedure. The date, time, period, facilities, and equipment needs for the meeting are to be transmitted to the School of Engineering and Technology Graduate Programs Office by the major professor. This notice may be transmitted electronically; HOWEVER, major professors should not assume the notice has been received until they have written confirmation from the school graduate office.

Following the notice of final examination date, the department will schedule an appropriate meeting room (equipment other than standard equipment offered is the responsibility of the student to arrange), and prepare the necessary forms.

The school graduate office will then distribute copies of approved forms to the student and all advisory committee members. This activity must be completed **NO LESS THAN THREE WEEKS PRIOR TO THE EXAMINATION DATE.**

The day prior to the final examination date, the department will forward a file of relevant student records, including "Report of the Examining Committee" GS Form 7 to the major professor.

If, however, the examining committee is to be different from the advisory committee (for example, when a committee member is unable to serve), a replacement member must be appointed, a Request for Appointment of Examining Committee form completed and submitted to the Graduate Programs Office to be forwarded to the Purdue University Graduate School NO LESS THAN THREE WEEKS PRIOR TO THE EXAMINATION DATE. Students seeking the thesis masters degree are required to complete the Form 8 no less than three weeks prior to the examination date.

It is the major professor's responsibility to obtain all required committee member signatures and return the signed form to the school graduate office in advance of the established deadlines.

Completing the XXX 598 Requirement

At the conclusion of the final oral examination, the major professor and each member of the examining committee will sign the Report of the Examining Committee GS Form 7; the major professor will forward the form to the Graduate Programs Office for processing.

NOTE: The Graduate School permits NO EXCEPTIONS to the deadline. If all degree requirements are not met in the semester in which candidacy is declared, the student must register for 1 semester hour of XXX 598 each subsequent semester until all requirements are met.

If any problems or deficiencies in the report are indicated by the examining committee, these must be corrected before the project or report will be approved by each committee member. In order for graduate to occur during any semester, completion of all required edits/corrections must occur and be approved before the established deadlines.

The last step involves submitting a copy of the approved project report to each of the following.

    A. The Dean for Graduate Studies

    B. The major professor

    C. Each member of the examining committee requesting a copy

10. OVERALL MASTER'S DEGREE PROCEDURAL CHECKLIST

To help students progress through their degree requirements, the following checklist will help them map a path through the School of Engineering and Technology's Master of Science program. This checklist of when program requirements should be completed is intended to communicate a general picture of the process. Specific and official deadlines are announced each semester, will be emailed to all MS in Technology Graduate Students, and are also available from the Graduate Office (ET 215).

First Semester

1. Be aware of admission condition/s, if any, that must be satisfied.

2. If the transcripts submitted with the application for admission were not complete, arrange to have two (2) copies of the final transcript showing award of the baccalaureate (bachelor's) degree sent to the Graduate Programs Coordinator, School of Engineering and Technology – ET 215, 799 W. Michigan St., Indiana University Purdue University Indianapolis, Indianapolis, Indiana 46202.

With the help of the major professor:

3. Discuss your career and educational objectives and, within the framework of the School of Engineering and Technology Master's Degree, draft a preliminary plan of study. Review the optional Disciplinary Foci and Areas of Specialization as you work.

4. Register for classes.

Succeeding Semesters

1. Select a Master's committee consisting of your major professor and at least two graduate faculty members. At least two of your committee members must be regular, School of Engineering and Technology graduate faculty. You may select one or more additional faculty to serve on your Master's Committee and in some cases this is clearly advantageous.

2. Discuss the preliminary plan of study with each of the members of the advisory committee.

3. Using the Plan of Study (GS Form 6), submit a draft plan of study to your committee members.

4. Refine the plan of study, if needed, based on the committee's suggestions.

5. Have the department secretary check through the Plan of Study for thoroughness and accuracy.

6. If you have admission condition/s, ensure that the condition/s are met.

7. Submit your final plan of study to your committee members and the Graduate Programs Office (ET 215).

8. Identify a tentative directed project problem area.

9. Register for TECH 646 prior to starting your Directed Project to begin planning for your directed project or thesis. If this is not possible, register for 1 semester hour of XXX 598 and begin work on the directed project proposal.

10. After the directed project proposal is approved, begin work on the directed project (2-3 semester hours of XXX 598 to complete the actual directed project).

11. Register for classes for the next semester.

12. Apply for graduation before the start of your last semester. Watch for the deadline.

Final Semester

1. Register for at least 1 semester hour (or the remaining number of hours to bring your total to a minimum of 3 semester hours) of XXX 598 and complete work on the directed project.

2. Register for any remaining courses on the plan of study.

3. Register for *Candidacy (CAND) 991* to declare your status as a "candidate for degree". CAND 991 is a "no credit, no cost" registration.

4. Insure that any changes in your plan of study have been approved using the Change to the Plan of Study (GS Form 13).

5. Arrange the scheduling of the final oral examination at least three weeks prior to the exam date.

6. Thesis students must submit a "Request for Examining Committee" (GS Form 8) no less than three weeks prior to the exam date.

7. Satisfy the final oral examination requirement and make any revisions to the thesis or directed project that are required by your committee.

8. Submit a final signed copy of your thesis or directed project to the School of Engineering and Technology Graduate Studies Office prior to the deadline established by Purdue's Graduate School.

Checklist of Steps in Completing a Directed Project or Thesis

1. Explore a topic as part of plan of study development.

2. Prepare a brief preliminary proposal describing the problem, rationale, related literature, and procedures.

3. Discuss the preliminary proposal with the major professor.

4. Expand and refine the proposal, if needed, based on the major professor's suggestions.

5. Circulate the tentative proposal for advisory committee comments and revisions.

6. Secure approval signatures from all members of the advisory committee on the cover page of the final version of the proposal.

7. Distribute a copy of the approved proposal to each advisory committee member and file the original in the Graduate Programs Office (ET 215).

8. Carry out the proposed investigation.

9. Prepare an appropriate report following the format described in Section 8, including, but not limited to, a description of the problem, rationale, related literature, procedures, results and/or recommendations, and a discussion of the results/recommendations.

10. Confer with all members of the advisory committee to establish a date and time for the final oral examination. (For Thesis option, complete the Form 1 and submit to the Office of Graduate Studies.) This must be done a minimum of three weeks prior to the exam

date. A conference room will be arranged and confirmation sent to all committee members.

11. Thesis students must submit a Request for Examining Committee (GS Form 8) no less than three weeks prior to the exam date.

12. Meet with the major professor to edit the report into a final draft.

13. Only after receiving permission from your major professor, deliver a copy of the final report to each examining committee member at least two weeks prior to the final oral examination.

14. Defend the investigation to the examining committee and other interested faculty and students during the final oral examination.

15. Correct any identified deficiencies.

16. Secure approval signatures from each member of the examining committee on the completed report.

17. Submit the original signed final project report to the School of Engineering and Technology Office of Graduate Studies, a copy to the major professor, and a copy to each examining committee member requesting a copy.

APPENDIX A

SCHOOL OF ENGINEERING AND TECHNOLOGY GRADUATE FACULTY

General Structure

The duties of administering the School of Engineering and Technology master's degree program are locally assigned to the Associate Dean for Graduate Programs in the Purdue School of Engineering and Technology, IUPUI. The Office of Graduate Programs headed by the Associate Dean reports to Purdue University Graduate School for matters related to curriculum and course and student admissions. The Associate Dean coordinates all graduate program efforts within the school and serves as ex-officio on the Graduate Education Committee of the school, which is a standing Faculty Senate committee as outlined in the school bylaws.

Graduate Education Committee

The school Graduate Education Committee is comprised of one faculty member, who is also a member of the graduate faculty, from each department. The committee chair is elected by the faculty Senate each year. The Graduate Education Committee establishes program policy, criteria, and directions.

Graduate Faculty Members

The offering of graduate courses and the detailed supervision of graduate students is the province of the graduate faculty. Members of the university faculty are not automatically members of the graduate faculty. Authority to teach graduate-level courses and to supervise graduate students is granted by the Dean of the Graduate School at Purdue University West Lafayette upon recommendation by the head of the graduate program.

The Graduate School recognizes two types of appointment to the graduate faculty; regular and special. Faculty with a regular appointment are considered Purdue employees. Prior to being eligible to be considered to the graduate faculty, faculty members are expected to attend a mentoring workshop. Special appointments are for non faculty Purdue employees and non Purdue employees. Upon appointment to the graduate faculty, the faculty member and their department head will receive notification of graduate faculty appointment.

Policy for Serving on Graduate Student Committees for Regular Graduate Faculty

This document establishes policies for regular graduate faculty serving on graduate student committees in the Purdue School of Engineering and Technology. It builds on the broad policy adopted by the Graduate School in Fall of 2005 which is covered in the *Policies & Procedures for Administering Graduate Student Programs* published by the Graduate School at Purdue University. That document is located on the web at http://www.gradschool.purdue.edu/faculty/publications.cfm.

In that document under Section I. E. 1. it states: "Appointments to the Graduate Faculty will enable the faculty member to teach graduate-level courses, to serve on graduate student committees, and to co-chair graduate student committees. It is the responsibility of the head of the graduate program to approve the level of participation of a Graduate Faculty member on a student's committee."

The School policy for Graduate Faculty serving on graduate student committees is as follows:

Faculty with an earned doctorate can serve on and chair MS committees. They can also serve on and chair MS directed project and thesis committees.

Faculty with an earned masters degree can serve on and co-chair MS directed project or thesis committees. After co-chairing their first MS committee they can then serve as a chair for MS directed project committees.

Policy for Review of Regular Graduate Faculty in the School of Engineering and Technology

This document establishes policies for regular graduate faculty to maintain graduate faculty status in the School of Engineering and Technology. It builds on the broad policy adopted by the Graduate School in Fall of 2005 which is covered in the *Policies & Procedures for Administering Graduate Student Programs* published by the Graduate School at Purdue University. That document is located on the web at http://www.gradschool.purdue.edu/faculty/publications.cfm. In that document under Section I. E. 2. it states: "At five-year intervals, heads of graduate programs will be asked to evaluate the performance of graduate faculty in their programs and to recommend either continuance of graduate faculty status for another term of five years or a review of graduate faculty status by the program and the Graduate School. Heads of graduate programs may initiate reviews at any time. If a review is called for, it will be conducted by the program head, in consultation with other program Graduate Faculty, and the dean of the Graduate School."

The School of Engineering and Technology's policy for reviewing graduate faculty is as follows:

1. At intervals identified by the graduate school, faculty members must summarize their graduate program activity over the previous five years. The documentation should include scholarly publications, grants awarded, activity on graduate student committees, graduate courses taught, and any other service to the Schoolgraduate program.

2. The documentation will be reviewed by the program head and the chair of the program's graduate committee. As specified by the graduate school, the review will consider two criteria: continued productivity as a graduate faculty member and effectiveness as a graduate faculty mentor.

3. Upon completion of a successful review, graduate faculty status will be renewed for another five year term.

Graduate Faculty Responsibilities

Students may request a specific major professor; these requests are honored insofar as possible, considering an equitable distribution of students to major professors. The major professor/student relationship must be a mutually acceptable one. Students may request a change in advisor, but such changes should be made early in the program of study.

Faculty Advisory Committee

Each graduate student will have a faculty advisory committee consisting of at least three graduate faculty members: the major professor, who serves as advisor; a second faculty member, whose area of expertise relates to the student's primary area; and the third member, whose area of expertise relates to the student's related area.

It is the responsibility of the students' major professor and committee members to maintain current knowledge of the various schedule and deadlines published by the Graduate School and the School of Engineering and Technology Graduate Studies Office. These deadlines are published on the School graduate web page for convenience of both faculty and students.

Major Professor

As the primary contact and guide for the graduate student, the major professor's tasks include the following.

1. Advising the student

2. Assisting with the development of the plan of study

3. Assisting with the development of the directed project or thesis proposal

4. Supervision of the performance of the directed project or thesis

5. Conducting the final oral examination

The major professor has the leading role in the development and guidance of the student. As an advisor, the major professor assists the student in determining goals and the methods of meeting those goals through course work and the directed project or thesis, in the development of the plan of study and advisory committee, and in course registration each semester. The directed project or thesis, while developed and conducted with input from all advisory committee members, is primarily under the guidance of the major professor. The final examination is also conducted by the major professor in cooperation with the other committee members.

Advising the Student

Advising the student occurs at several levels. First, when working with a new student, the major professor will need to help that student determine personal goals and objectives, and how obtaining this degree can help to meet those goals. In some situations, the advisor may need to assist the student in finding another advisor more suited to the student's academic interests. This is not uncommon as students are discovering their interests and how to craft a plan of study that addresses those interests.

Secondly, the major professor works with the student to develop a plan of study. The courses selected for the plan of study should be related to attainment of the previously determined goals. Third, the major professor works closely with the student to develop the directed project or thesis proposal and in the subsequent performance of the project.

Finally, the major professor assists the student in registering for courses each semester. In short, the major professor becomes the main contact person for all phases of student activity.

Course Registration

Graduate faculty serving as major professors (advisors) to technology graduate students assist them with their course registration each semester. A listing of anticipated TECH and departmental graduate course offerings will be to assist in development of the plan of study.

Development of the Plan of Study

The plan of study is a contractual agreement among the student, the advisory committee, and the Graduate School, listing the courses to be taken, when the courses will be completed, and the advisory committee members. The major professor (advisor) is listed as committee chair. The second committee member must be a member of the School graduate faculty, approved to serve on master's degree committees. The third member's expertise must be in support of the student's related area; this committee member may be from any school department and is often an instructor in one of the student's related area courses, but is not required to be. The faculty member representing the related area must also be a member of the graduate faculty. All committee members serve in an advisory capacity on the plan of study and the directed project or thesis, as well as participate in the final oral examination.

Courses selected for the primary area should meet the criteria described in Section 3 of this document.

XXX 598 and 698 are not listed as part of the regular coursework on the plan of study. On the Master's Degree Electronic Plan of Study form, the XXX 598 or 698 requirements is stated in the "Supplemental notes" space in the upper section of the form.

The plan of study not only identifies the courses to be taken, but also when those courses are to be completed. The student may need to contact the specific departments to find out when certain courses will be offered. Interfacing with the second and third committee members should occur during development of the plan of study. Once the courses are selected, dates are identified, and committee consensus is obtained, a plan of study is submitted electronically and automatically forwarded to the Office of Graduate Studies for approval. The student is responsible for monitoring the progress of the electronic plan as it progresses through the approval process.

A normal course load for full-time graduate students is 8 or more credit hours per semester if they do not have a graduate appointment. For Graduate Assistants (either teaching or research) 6 or more credit hours per semester is considered a full load. If international graduate students wish to take fewer than these hours per semester, they must first obtain approval from the Office of International Affairs by completing the Exception to Full-Time Enrollment Form.

Supervision of the Directed Project and Thesis

The student works closely with the major professor during the writing process. As drafts are completed, students should secure their major professor's permission before there are provided to the other advisory committee members for review and comment. The student and major professor review all suggestions and comments, and revisions are made as indicated. **It is the major professor's responsibility to resolve any inherently incompatible suggestions advanced by committee members.**

It is the responsibility of the major professor to determine that the student is ready for the examination and completion of the degree program. **Poorly prepared students or those with an unfinished directed project should not be scheduled for the examination.** The major professor should brief the student on what can be expected during the examination.

The directed project or thesis is completed when all stated work has been performed and a final report, approved (signed) by all advisory committee members, is filed in the Graduate Studies office.

Conducting the Final Oral Examination

The final examination (oral presentation of the directed project or thesis) is held during the final semester of the student's degree program. It is School of Engineering and Technology graduate policy that the presentation portion of all final examinations be open to the university faculty and student communities. If a member of these communities wishes to raise a question, they must submit it in writing to the major professor who, in concert with the committee, decide whether and how to raise the question with the degree candidate.

In addition to the preceding, all Thesis-option students are required to submit a completed Form 8 Request for Appointment of an Examining Committee *no less than three weeks prior to the examination date.* The day before the examination date, the Major professor will be provided the student's oral examination file, including "Report of the Master's Examining Committee" GS Form 7 which can be found at http://www.engr.iupui.edu/gradprogs/gradForms.shtml

The major professor chairs the actual examination process, with input from the remaining advisory committee members. A typical examination proceeds as follows:

- The advisory committee reviews the student's plan of study and the directed project report, during which the student waits outside the examination room. Committee members can determine the exact procedure to be followed and/or questions they wish to ask.

- The student and any observing faculty, students, and guests are invited into the room.

- The committee members may ask questions about course work, the student's objectives, etc.

- The student is requested to give a presentation concerning the directed project. The student will typically review all sections of the project. After the presentation, the committee may ask questions concerning the project, indicate changes or corrections in the report, etc. If a non-committee member of the faculty wishes to raise a question, they must submit it in writing to the major professor who, in concert with the committee, decides whether and how to raise the question with the degree candidate.

- Once all questioning is complete, the student is requested to wait outside the examination room. All other observers are also to be excused from the room. The committee then determines the outcome of the examination: pass the directed project as is, pass with conditions (such as report revision), or not pass.

- The student is invited back into the room and informed of the outcome.

- If the committee members agree that the student should be awarded the degree, all committee members sign the Graduate School Form 7, Report of the Examining Committee, adding their graduate faculty identifier number, and marking either "yes" or "no" under the Ph.D. recommendation space. The major professor also signs both copies of the candidate audit form, then returns the entire file to the Office of Graduate Studies for processing.

The preceding procedure is not intended to be a rigid structure. It may be appropriately adapted by concurrence of the committee conducting the examination. The purpose of the oral examination is to review the directed project or thesis and ascertain if the student has accomplished the goals of the project and the plan of study, so the format should be flexible to accommodate individual faculty preferences.

NOTE: If all degree requirements are not met in the semester in which candidacy is declared, or if all requirements are not completed by the Graduate School deadlines, the student must register for 1 credit hour of XXX 598 or XXX 698 in each subsequent semester until all requirements are met. An "Exam or Degree Only" registration may also be feasible.

Participation in Commencement Ceremonies

Occasionally students will contact their major professor to inquire if they may participate in a particular commencement ceremony as they near graduation. It is Graduate School and Registrar's Office policy that students are to be allowed to participate in commencement exercises only if they are eligible to receive their degree upon successful completion of all course work on their plan of study and the final oral examination within one semester of the request. As Indiana University-Purdue University Indianapolis has only one commencement exercise per year (in May) the Major Professor will decide if criteria have been met for the student request.

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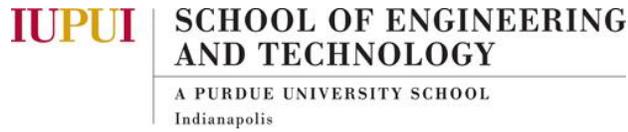
TITLE

A Thesis/Directed Project Proposal

Submitted to the Faculty

of

Purdue School of Engineering and Technology
Indianapolis

by

Your Name

In partial fulfillment of the requirements for the

Degree of Master of Science in Technology

Committee Member	**Approval Signature**	**Date**
Professor Name, Chair Related Area	_____	_____
Professor Name Related Area	_____	_____
Professor Name Related Area	_____	_____