

Department of Engineering Physics

Academic Policies and Procedures For Graduate Work In Engineering Mechanics

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Introduction

This bulletin details the academic policies and procedures for students working toward the M.S. and Ph.D. degrees in **Engineering Mechanics**. The graduate program in **Engineering Mechanics** is administered by the **Department of Engineering Physics**. The time schedules refer to those for a full-time student. Reference should also be made to **Information for Graduate Students for Non-Academic Procedures**; this is available in the Department Office (153 ERB).

Students should become familiar with the pertinent material in this bulletin and with the requirements of the Graduate School as given in the **Graduate School Catalog** (<http://www.grad.wisc.edu/catalog/>). **It is the student's responsibility to make sure that all requirements are met.**

We welcome you to the University of Wisconsin-Madison and to the Department, and wish you a successful graduate career!

Admission to Graduate Study

For admission to graduate study in **Engineering Mechanics**, an applicant must have a bachelor's degree in engineering, mathematics, or physical science, and an undergraduate record that indicates an ability to successfully pursue graduate study. The Graduate School requires a minimum undergraduate grade point average of 3.0 on a 4.0 basis on the equivalent of the last 60 semester hours from the most recent bachelor's degree. In special cases, students with grade point averages lower than 3.0 who meet all the general requirements of the Graduate School may be considered for admission on probation.

It is desirable that the student have the following courses before entering the program:

Course and Semester Credits	Typical Courses
Advanced Mathematics, 3 cr	Math 319 or 321
Linear Algebra and Matrices, 3 cr	Math 340
Mechanics of Materials, 3 cr	EMA 303 or 304
Dynamics, 3 cr	EMA 202 or Phys 311

A student may enter without these courses, but all must be taken prior to receipt of a graduate degree, and none can be counted toward meeting M.S. or Ph.D. requirements. With the approval of the student's adviser, the student may be permitted to meet any of these requirements by independent study followed by an examination.

Provisions for admission on probation, on a Senior-Graduate basis, or as an applicant for more than one master's degree (e.g., simultaneous M.S. degrees in two departments) are given in the Graduate School Catalog.

Admission as a Special Student

The Graduate School will permit admission as a Special Student for students whose academic record is difficult to evaluate, but otherwise shows promise for graduate study. While graduate level work done as a Special Student does not earn Graduate School credit, it may still fulfill departmental course requirements. It can also be used to meet admission requirements and to correct weaknesses in the student's preparation for graduate study. After a satisfactory record as a Special Student, the student can then apply for admission as a regular graduate student. The student is advised to consult the Graduate School guidelines to determine the current policies and regulations.

Advising

Each graduate student will be appointed a major professor by the Department Chair upon entering the program. If the student is supported by a research assistantship, this will normally be the professor in charge of the research program. In other cases this will normally be a faculty member with expertise in the student's area of interest. Students desiring to change their major professor should consult with the Department Chair.

Students may have a major professor outside the department if it is appropriate for the student's research area and if the professor is willing to serve in that capacity. In this case, the Department Chair will also appoint a member of the departmental faculty to serve as the student's academic (non-research) advisor.

Limits on Credits per Term

Full-time student status requires the student enroll for a minimum of 8 credits of course work numbered 300 and above, including research credits, each semester until the student becomes a Ph.D. dissertator. Dissertators must enroll for at least three credits. The normal maximum number of credits is 12, although 13 credits can be taken in special situations with the approval of the Graduate School.

Holders of research assistantships, teaching assistantships, traineeships, or fellowships are required to maintain full-time status each semester. Research assistants are expected to register for at least two credits (3 credits for dissertators) during the summer session. Teaching assistants with summer appointments need not normally be registered during the summer. Fellowship holders should consult the terms for their fellowships. A full-time student is limited to 6 credits during the summer.

Graduate Student Seminar Requirement

In addition to regular attendance of the Engineering Physics Colloquium (held on Tuesdays at 4:00pm in 106 Engineering Research Building during the academic year), all Engineering Mechanics graduate students are expected to attend at least one additional research seminar or research group meeting where they may present their own research in a seminar format. First year graduate students are exempt from giving a presentation (although they may volunteer to give one), but all non-first year graduate students are expected to present on an annual basis.

The goals of the presentation requirement include:

- Provide professional development opportunities for graduate students.
- Improve the oral presentation skills of graduate students.
- Improve the ability of graduate students to "think on their feet."
- Provide an opportunity for graduate students to further understand and explain the context of their research.
- Provide a forum in which conference presentations can be practiced in front of a large technical audience.
- Improve information exchange between research groups.
- Enhance the sense of community among students in the graduate programs within the Department of Engineering Physics.

Graduate Policy-Related Web Sites

The Graduate School web site (<http://www.grad.wisc.edu>) has extensive information concerning policies and procedures for graduate students. You are responsible for consulting it and abiding by it.

Other useful web sites are:

Engineering Physics Department	http://www.engr.wisc.edu/ep/
College of Engineering	http://www.engr.wisc.edu

Master of Science Degree

Requirements for the Master of Science in Engineering Mechanics

1. The student should arrange with his or her advisor a coherent program of study as follows:

The program of study must include a minimum of 24 credits of graduate level technical course work such that at least 12 credits are in 500 level or above EMA courses with at least 6 of these 12 credits being in 700 level or above EMA courses. In addition, the combined EMA course content of the student's undergraduate and graduate program of study must include at least 24 credits of 500 level or above mechanics course work.

EMA 601 Special Topics courses may only be counted as 700-level if designated as such by the instructor. The following courses are excluded from the 500 and 700 level or above requirements: EMA 690, 599, 790, 890, 990, or 999. Departmental approval is required for the use of more than 6 credits of Independent Study.

A course that is to count toward the M.S. degree must be passed with a grade of A, AB, or B. Note that the Graduate School requires a GPA of 3.0 for all courses taken at the 300 level or above, even if they are not used to count towards the M.S. degree.

2. Satisfy all Graduate School requirements, including grade point average requirements.

Transfer of Credits

Students may transfer up to 6 credits of graduate work taken at another institution if they meet departmental M.S. requirements.

Master's Thesis

A thesis is not required for a Master's degree in Engineering Mechanics. If a Master's thesis is submitted, a maximum of 8 credits of EMA 790 may be granted for the thesis. Credit for Master's research (EMA 790) will be granted toward meeting the M.S. requirements only when a formal M.S. thesis is submitted.

EMA 690, Master's Research, is available for graduate students to receive credit for Master's level research not expected to lead to a Master's thesis. A maximum of 8 credits of EMA 690 may be counted toward meeting the M.S. requirements. See page 6 for descriptions of Ph.D. level research credits.

Criteria for Satisfactory Progress

Students with a Bachelor of Science in Engineering Mechanics or equivalent are typically expected to complete the Master of Science in 3 semesters. Students with non-EM backgrounds will typically be permitted 4 semesters to complete their Master's if more than 27 credits are required.

Application Procedures for the Master's Degree

Below is a summary of some of the Graduate School requirements. This is not a complete list. Please review the Graduate School Catalog and Handbook for a complete list, or contact the Graduate School office.

To receive a master's degree, contact your program office at the beginning of the semester in which you intend to graduate. Your program office will check that you have met department requirements and will request a warrant on your behalf from the Graduate School. You need to be enrolled for a minimum of two graduate-level credits (300 or above) for a grade (audits and pass/fail do not satisfy this requirement) during the semester in which you intend to graduate. For more information and for deadlines see *Expecting your Master's Degree? Procedures to Help*, found at the website <http://grad.wisc.edu/education/completedegree/mdegree.html>.

If you have a prior Master's degree from this University, or are expecting to complete two separate degrees during the same semester, you must submit along with your degree application a letter from each department that includes an official (signed by advisor or Department Chair) list of courses used for each degree. Your warrant application is not complete until the two lists are received.

You must have a graduate GPA of at least 3.0/4.0 and no incomplete or progress grades on your record. (Progress grades in EMA 890 are allowed.)

A signed Warrant is a document needed to graduate. The Warrant is issued by the Graduate School for one semester only. The Warrant is signed by your academic advisor and the Department Chair indicating that all degree requirements have been met. Warrants can be issued after all other incomplete and progress grades are cleared.

If the Department has signed and returned your Warrant to the Graduate School, and you subsequently receive an incomplete or progress grade, you will graduate during the semester in which your grade is cleared.

Doctor of Philosophy Degree

The Ph.D. program requires a minimum of 72 credits beyond the B.S. degree. Normally, 18 - 24 of these are thesis credits (EMA 890 and EMA 990). The major emphasis of the student's Ph.D. program is the Ph.D. thesis.

Major Field of Study

The major field of study is to be arranged with the major professor. In addition to completion of the M.S. requirements, Ph.D. students are required to successfully complete at least 2 EMA courses numbered 600 or above and 4 courses numbered 700 level or above. The 700 level or above courses must include at least 1 EMA course, while the remainder may be from EMA or the list of selected courses provided below (others courses may be allowed with departmental approval).

Selected 700 level courses:

- CEE 730 Engineering Properties of Soils
- CEE 735 Soil Dynamics
- CEE 740 Matrix Methods of Structural Analysis
- CS 712 Finite Difference Methods
- CS 713 Numerical Analysis of Differential Equations
- ECE 717 Linear Systems
- ECE 719 Optimal Systems
- ECE 720 Discrete Time Stochastic Systems
- ECE 732 Advanced Digital Signal Processing
- ECE 733 Computational Methods for Large Sparse Systems
- ECE 777 Nonlinear Dynamics, Bifurcations and Chaos
- Math 703 Methods of Applied Mathematics 1
- Math 704 Methods of Applied Mathematics 2
- Math 705 Mathematical Fluid Dynamics
- MS&E 705/GLE 705 Advanced Rock Mechanics
- MS&E 748 Structural Analysis of Materials
- MS&E 750 Imperfections and Mechanical Properties
- MS&E 770 Methods of Surface and Interface Characterization
- ME 758 Solid Modeling
- Phys 711 Theoretical Physics - Dynamics
- Phys 715 Statistical Mechanics
- Phys 721 Theoretical Physics - Electrodynamics
- Phys 722 Advanced Classical Theory
- Phys 731 Quantum Mechanics I
- Phys 732 Quantum Mechanics II
- Phys 751 Advanced Solid State Physics
- Phys 801 Nanostructures in Science & Technology

EMA 601 Special Topics courses may only be counted as 700-level if designated as such by the instructor. The following courses are excluded from the 600 and 700 level or above requirements: EMA 690, 699, 790, 890, 990, or 999.

EMA 790 is for research that is expected to lead to a M.S. thesis, EMA 890 is for research where the student has not yet become a dissertator and the research will not be used for a M.S. thesis, and EMA 990 is for Ph.D. dissertation research where the student is a dissertator.

Students entering with a M.S. degree and transferring graduate level courses must complete at least three 700 level EMA courses beyond any courses transferred.

Minor Field of Study

The minor field of study must be chosen in consultation with the major professor. **The *Ph.D. Minor Agreement Form* must be on file with the Department of Engineering Physics halfway through the minor program.** Forms are available in the Student Services Office, room 144 ERB.

There are two minor options available:

Minor Option A

Students minor in a single department and satisfy the minor requirements of that department.

Minor Option B (Distributed Minor)

This option requires a minimum of 10 credits in two or more departments outside the major, in related courses selected for their relevance to a particular area of concentration. The following rules apply:

1. Courses typically included on or within the scope of the EMA Qualifying Exam shall not be considered acceptable for the Ph.D. Minor Option B.
2. At least 6 credits must be taken in courses listed in the Graduate School Catalog in which the enrollment is typically composed of a majority of graduate students.

Ph.D. Qualifying Examination

When should the qualifying exam be taken?

The exam should be first taken no later than completion of the M.S. requirements, or the beginning of the fourth semester of graduate study, whichever comes first. Students entering the program with a Master's degree in EM or NEEP from another institution, and taking the qualifying exam in that same major, must take the exam by the beginning of their third semester.

When is the qualifying exam offered?

The examination will usually be given each fall and spring semester within the first week of classes. All eligible students will receive notice each time the exam is given. It is the student's responsibility to consult with their advisor to determine whether to take the exam at that time and the specific exams to be taken.

What is required to pass the qualifying exam?

Students are given two chances to pass the set of qualifying exams. All exams are to be graded on a pass/fail basis. If an individual exam is failed, it may be taken a second time. An exam that is passed does not have to be repeated, independent of student performance on the other exams.

What are the details of the qualifying exams offered?

The student with their advisor's approval will sign up to take 3 two-hour closed book written exams from a possible list of 7 exams plus an oral exam.

These 7 written exams are planned to be in the following topic areas (resources detailed on pages 8 & 9):

- Mathematics (Math 319, 321 and 340 or similar topics in EMA/NE 547)
- Classical Physics (Physics 311 and 322)
- Modern Physics (Physics 241 and NE 305)
- Elementary Mechanics and Materials (EMA 202, 303 and MS&E 350)
- Engineering Mechanics (EMA 506, 542, 545)
- Momentum and Heat Transfer (ChE 320 or similar topics in ME 363, 364)
- Reactor Analysis and Radiation Protection (NE 405, 408, 427)

Can there be special extenuating circumstances?

In a few cases it may be unreasonable to retake the exam the next time it is given; in this case the student should petition the Department for permission to defer the reexamination. Such a petition should be by letter and must be received by the Department Chair within one month after learning the outcome of the first examination.

On rare occasion, a set of circumstances may arise where a candidate fails the qualifying examination twice, yet the Department faculty believes the performance is not representative of the candidate. When the Department faculty believes that a candidate has outstanding and highly unusual ability, it will retain the prerogative of granting a third opportunity to take the exam in whatever form the faculty deems appropriate.

What is the structure of the oral exam?

An oral exam will also be required by all students taking the qualifying exam and will be graded on a pass/fail basis. The oral exams will be scheduled immediately after the written exams. Each student will be given a set of three questions prior to the oral exam that will be used in the oral exam as a beginning point for the impromptu oral questions. The subject matter of the questions will be based on the written exams chosen by the student and on their specialty area (i.e., engineering mechanics, plasma physics or nuclear engineering).

The oral exam committee will consist of 3 faculty including the student's advisor, one additional member from the student's same research area, and one member from a different research area. The oral exam will last approximately one hour.

Description of Qualifying Examination Written Exams

Listed below are topics, courses and texts representative of material to be covered on the respective examinations. Prior exams (without solutions) are available in the Department office.

A. Engineering Mathematics (2 hours, typically 4 out of 6 questions):

- Ordinary Differential Equations (Math 319)
Boyce & DiPrima, *Elementary Differential Equations & Boundary Value Problems*
- Applied Mathematical Analysis (Math 321)
Greenberg, *Advanced Engineering Mathematics*
Hildebrand, *Advanced Calculus for Applications*
- Linear Algebra (Math 340)
Lay, *Linear Algebra and Its Applications*

B. Classical Physics (2 hours, typically 4 out of 6 questions):

- Mechanics (Physics 311)
Marion and Thornton, *Classical Dynamics of Particles & Systems*
- Intermediate Electricity and Magnetism (Physics 322)
Griffiths, *Introduction to Electrodynamics*
Lorrain & Corson, *Electromagnetic Fields and Waves*

C. Modern Physics (2 hours, typically 4 out of 6 questions):

- Fundamentals of Modern Physics (Physics 241)
Tipler, *Elementary Modern Physics*
- Atomic and Nuclear Physics (NEEP 305)
Krane, *Introductory Nuclear Physics*

D. Elementary Mechanics and Materials (2 hours, typically 4 out of 6 questions):

Elementary Dynamics (EMA 202)
 Hibbeler, *Engineering Mechanics-Dynamics*
 Mechanics of Materials (EMA 303)
 Gere, *Mechanics of Materials*
 Fundamentals of Materials Science (MSAE 350 or 351)
 Van Vlack, *Elements of Materials Science and Engineering*
 Callister, *Materials Science and Engineering, An Introduction*

E. Engineering Mechanics (2 hours, typically 4 out of 6 questions):

Advanced Mechanics of Materials (EMA 506)
 Cook & Young, *Advanced Mechanics of Materials*
 Advanced Dynamics (EMA 542)
 Ginsberg, *Advanced Engineering Dynamics*
 Mechanical Vibrations (EMA 545)
 Inman, *Engineering Vibration*
 Thomson, *Theory of Vibrations with Applications*

F. Momentum and Heat Transfer (2 hours, typically 4 out of 6 questions):

Transport Phenomena (ChE 320)
 Bird, Stewart and Lightfoot, *Transport Phenomena* ***OR***
 Elementary Fluid Dynamics (ME 363)
 Fox & McDonald, *Introduction to Fluid Mechanics*
 Heat Transfer (ME 364)
 Incropera & DeWitt, *Fundamentals of Heat Transfer*

G. Reactor Analysis and Radiation Protection (2 hours, typically 4 out of 6 questions):

Nuclear Reactor Theory (NE 405)
 Duderstadt and Hamilton, *Nuclear Reactor Analysis*
 Ionizing Radiation (NE 408)
 Lamarsh, *Introduction to Nuclear Engineering*
 Nuclear Instrumentation (NE 427)
 Knoll, *Radiation Detection and Measurement*

Doctoral Plan of Study

The Department will formally accept the student as a candidate for the Ph.D. after the passage of the Qualifying Examination and upon approval of a doctoral plan of study showing the intended courses of study. The format to be used for this application is given in Appendix A. The Department staff will review the student's entire academic history. It will act on the application based on its collective knowledge of the student's performance in and out of formal coursework. Factors which will be considered include: (a) whether the student would likely profit from further, formal academic study, and (b) whether the student meets the high academic standards and the standards of intellectual integrity expected of a Ph.D. holder from the University of Wisconsin. This is a decision of the Department as a whole, and, while the advice of the student's major professor is solicited, the major professor does not make the decision alone. The student is expected to discuss the doctoral plan in detail with and receive approval of their major professor in order to develop a coherent academic plan of doctoral study.

Approval of the student's proposed course of study will automatically indicate acceptance by the Department as a Ph.D. candidate, and the student will be advised in writing. Attention is called to the fact that formal acceptance as a candidate, rather than passage of the Qualifying Examination, ordinarily constitutes the major step in progress towards the Ph.D.

To assure that a coherent program is planned, the student must submit the Doctoral Plan of Study one month before the end of the semester following the one in which the Qualifying Exam is passed.

If a distributed Technical Minor is proposed, acceptance as a Ph.D. candidate constitutes Departmental approval of that Technical Minor.

If it becomes necessary to modify the student's proposed course of study after it has been approved, it is the student's responsibility to bring the matter to the attention of the faculty in writing.

Note: The Graduate School considers an applicant formally admitted to candidacy for the Ph.D. degree when the student has:

- (a) passed the comprehensive Preliminary Examination in the major field,
- (b) obtained approval of the proposed technical minor requirement, and
- (c) presented the title or special field of the proposed thesis, approved by the major professor.

English Competency for International Students

It is essential that all students be fluent in spoken and written English, the main international language of science and technology. Students are therefore required to attain a level of competence in English as defined below before the Preliminary Examination can be taken.

1. In all cases the Department will decide whether a student has attained the level of competence in English. A student who satisfies the Department requirement of competence in English should be able, without assistance, to write a Ph.D. thesis in simple, correct and unambiguous English.
2. Unless otherwise excused in writing by the Department Chair, all international Ph.D. graduate students (including M.S. students intending to pursue the Ph.D.) are required during their first semester of graduate study to either
 - a. take the Ph.D. English Language Proficiency Examination (ELPE) conducted by the Department of English under the auspices of the Program in English as a Second Language (PESL), or
 - b. register for instruction in English for international students (PESL) and subsequently take the ELPE.
3. A student who passes the ELPE with the grade of Competence or Advanced Competence will be deemed by the Department to have satisfied the language requirement.
4. **The language requirement must be satisfied prior to taking the Preliminary Examination.**

The ELPE comprises a 75 minute test of grammar, vocabulary and reading comprehension, and a 45 minute essay on a topic assigned from a standard introductory textbook in the student's major field brought to the examination by the student; the student should ask the Department Office for a list of acceptable textbooks.

The PESL offers courses, tutorial assistance, writing and listening laboratories, and placement examinations.

Ph.D. Preliminary Examination

After acceptance of the student's Doctoral Plan of Study, the student must take an oral preliminary examination. **Students are expected to pass the Ph.D. Preliminary Examination no later than the end of the third year of graduate studies, or by the end of the second regular semester following the one in which the Ph.D. Qualifying Examination was passed, whichever is later.**

In preparation for this examination, the student shall submit a written thesis proposal containing a discussion of the thesis problem, a survey of pertinent literature, an evaluation of the importance of the problem, an outline of the proposed method of solving the problem, drawings of any equipment to be constructed, a cost estimate, and any preliminary results obtained. The student will then defend the thesis proposal in an oral Preliminary Examination. The Examination Committee will normally be the same as selected for the Final Oral Examination. It will include at least one member from outside the departmental faculty (EP), and it will be chosen to make a critical evaluation of the proposed thesis. The candidate must apply for a warrant from the Graduate School through the Department office at least three weeks prior to the exam.

Should the candidate not pass the preliminary examination, the student is granted a second opportunity to be held within six months of the first examination.

Dissertator Status

All Ph.D. candidates who passed their Preliminary Examinations and completed the major as well as the minor requirements can be designated **dissertators**. Dissertators may register for as few as three credits. (The dissertator fee is substantially lower than the usual cost of the 8-credit load.) Dissertators normally enroll in thesis and research courses (EMA 990), but with the approval of their advisors are permitted to substitute three credits of any other graduate level courses; additional credits are permitted at the same dissertator rate per-credit. Dissertators should register **each** semester until the Ph.D. thesis is filed. **If the student fails to do so, a Ph.D. Dissertation and Degree Completion Fee equal to 12 times the current dissertator per-credit rate is required.**

Final Oral Examination

An Oral Examination on the findings of the Ph.D. research is required at the end of the thesis work. This thesis defense is made before a committee of five current faculty members, who have had access to a copy of the thesis for 10 days prior to the Oral Examination. It is advisable to choose this committee as close to that of the Preliminary Examination Committee as practical. The candidate must apply for a warrant from the Graduate School through the Department office at least three weeks prior to the exam.

This examination shall be publicly announced at least one week prior to the examination date. Faculty and students are invited to attend.

Thesis

The thesis must be the candidate's own work; it reports on the original research carried out by the student for the Ph.D. degree. It may be the result of research enterprises in which others have collaborated, but in such cases the candidate is required to present a substantial portion which represents the candidate's own contribution.

The total cost and preparation of the thesis is the responsibility of the student. Detailed instructions for thesis preparation are available from the Graduate School Office in Bascom Hall, and on the Graduate School webpage: <http://www.grad.wisc.edu>.

Library Copy: must meet the specifications of the Graduate School. Guidelines are available from the Graduate School in Bascom Hall.

Department and Major Professor Copies: should be bound in durable black Buckram binding (see Grimm Book Bindery at www.grimmbindery.com) with hard cover. The student's name, degree and year of graduation should be printed in bold gold letters on the book spine. The front and back covers should remain blank.

Industrial/Research Sponsor Copy: the major professor will determine if additional copies are needed. He/she will also advise the student as to the specifications of the copy.

Criteria for Satisfactory Progress

It is important that graduate students make satisfactory progress in their program of study. One way of measuring the student's progress is his or her schedule for completing various requirements for the Ph.D. degree. The relevant deadlines are listed below. **Students not meeting these deadlines are considered to not be making satisfactory progress and may become ineligible for financial support and/or be dropped from the program.**

1. The Qualifying Examination should be first taken no later than completion of the MS requirements, or the beginning of the fourth semester of graduate study, whichever comes first. Students entering the program with a Master's degree in EM or NEEP, and taking the qualifying exam in that same major, must take the exam by the beginning of their third semester.
2. Students are expected to submit the Doctoral Plan of Study one month before the end of the semester following the one in which the Qualifying Exam is passed.
3. International students are required to have demonstrated competency in English prior to taking the Preliminary Exam.
4. Students are expected to schedule and pass the Ph.D. Preliminary Examination no later than the end of the third year of graduate studies, or by the end of the second regular semester following the one in which the Ph.D. Qualifying Examination was passed, whichever is later.
5. A candidate who fails to take the Final Oral Examination and deposit the dissertation in the Memorial Library within 5 years after passing the Preliminary Examination must take another Preliminary Examination.

Minor in Engineering Mechanics

For students in other departments seeking a minor in Engineering Mechanics, the following requirements apply:

1. A student who has earned an M.S. degree in Engineering Mechanics will be considered to have fulfilled the minor requirements.
2. A minimum of 10 credits in EMA courses, including 6 credits in 700 level or above courses. In addition,
 - a. All courses used for the minor must be 300 level or above and taken after the bachelor's degree.
 - b. Ordinarily only one course (maximum of 3 credits) of independent study is allowed (599, 690, 799, 999).
 - c. Research and thesis courses may not be used for the minor.
 - d. No more than 5 credits completed 5 or more years prior to admission to the Ph.D. major may be used.
 - e. Courses taken 10 or more years ago may not be used.
 - f. Courses taken pass/fail or for audit may not be used.
 - g. Courses with grades of "S" given in courses graded on a credit/no credit basis are acceptable.
3. A GPA of 3.0 must be maintained for the minor.
4. A maximum of 6 credits may be transferred from other institutions to satisfy the minor requirements.
5. The minor program must be approved by the department chair.

Departmental Office Staff

Name	Title	Office	Phone	E-mail address
Michael Corradini	Chair	151 ERB	263-1648	corradini@engr.wisc.edu
Dianne Francis	Chair's Assistant	153 ERB	263-1646	dfrancis@engr.wisc.edu
Betsy Wood	Student Records	144 ERB	263-7038	bwood@engr.wisc.edu
Mark Swandby	Administrator	146 ERB	263-1647	swandby@engr.wisc.edu
Nancy Griego	Human Resources	145 ERB	263-5966	griego@engr.wisc.edu
Jennifer Haukohl	Financial Records	103 ERB	262-5723	haukohl@engr.wisc.edu
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John Murphy	Researcher	147 ERB	265-4186	jmurphy@engr.wisc.edu

Reactor Lab Staff

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Michelle Blanchard	Reactor Supervisor	141 ME	262-3392	mblanchard@engr.wisc.edu
Kevin Austin	Reactor Research Mgr.	101 ME	262-3392	kaustin@engr.wisc.edu
Corey Edwards	Reactor Inst Tech	5 ME	890-1924	csedwards@engr.wisc.edu

Engineering Physics Faculty

The Engineering Physics department has a faculty of 23 professors, and several lecturers, adjunct and emeritus professors. Some are primarily associated with the Engineering Mechanics Program and some with the Nuclear Engineering and Engineering Physics Program.

Name	Title	Office	Phone	E-mail
Matthew S. Allen	Assistant Professor	535 ERB	890-1619	msallen@engr.wisc.edu
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James P. Blanchard	Professor	143 ERB	263-0391	blanchard@engr.wisc.edu
Riccardo Bonazza	Professor	537 ERB	265-2337	bonazza@engr.wisc.edu
Michael Corradini	Professor (also ME/IES)	151 ERB	263-1648	corradini@engr.wisc.edu
Wendy Crone	Associate Professor	543 ERB	262-8384	crone@engr.wisc.edu
Walter J. Drugan	Professor	527 ERB	262-4572	drugan@engr.wisc.edu
Raymond J. Fonck	Professor	341 ERB	263-7799	fonck@engr.wisc.edu
Chris C. Hegna	Professor	521 ERB	263-0810	heгна@engr.wisc.edu
Douglass Henderson	Professor	411 ERB	263-0808	henderson@engr.wisc.edu
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Daniel C. Kammer	Professor	539 ERB	262-5724	kammer@engr.wisc.edu
Gerald L. Kulcinski	Professor (Assoc Dean)	2630b EH	263-0601	kulcinski@engr.wisc.edu
Roderick S. Lakes	Professor	541 ERB	265-8697	lakes@engr.wisc.edu
Gregory A. Moses	Professor	407 ERB	265-6567	moses@engr.wisc.edu
John M. Pfothenauer	Professor (also ME)	1329 ERB	263-4082	pfot@engr.wisc.edu
Michael E. Plesha	Professor	525 ERB	262-5741	plesha@engr.wisc.edu
Leslie Smith	Professor (also Math)	505 VV	263-3057	lsmith@math.wisc.edu
Carl R. Sovinec	Associate Professor	519 ERB	263-5525	sovinec@engr.wisc.edu
Francesco Volpe	Assistant Professor	331 ERB	262-4854	fvolpe@wisc.edu
Fabian Waleffe	Professor (also Math)	819 VV	262-3269	waleffe@math.wisc.edu
Paul Wilson	Associate Professor	419 ERB	263-0807	wilsonp@engr.wisc.edu
Robert J. Witt	Associate Professor	531 ERB	263-2760	witt@engr.wisc.edu

APPENDIX A: SAMPLE FORMAT**STATEMENT OF DOCTORAL PLAN**

Date _____

To: M. L. Corradini, Department Chair
 From: (Name)
 Subject: EM Doctoral Plan

I request approval of the following doctoral plan and formal acceptance as a Ph.D. candidate in the EM Ph.D. program.

A. COURSES IN MAJOR FIELD OF STUDY (already taken or to be taken)

<u>Course #</u>	<u>Course Title</u>	<u>Credits</u>	<u>Date</u>	<u>Grade</u>	<u>Part of MS?</u>
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Total Credits _____

B. TECHNICAL MINOR

<u>Course #</u>	<u>Course Title</u>	<u>Credits</u>	<u>Date</u>	<u>Grade</u>	<u>Part of MS?</u>
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I chose minor option A (or B - delete one); see courses listed above. Prof. _____ of the _____ Department has approved this minor on ____ (date) ____.

C. PROPOSED AREA OF THESIS RESEARCH

I propose to do my thesis research on _____.
 Professor _____ will be my thesis advisor.

D. EXAMINING COMMITTEES

My advisor, _____ recommends the following five staff people constitute my Preliminary Examination Committee and, if practical, my Final Oral Committee:

I have obtained the consent of each of the faculty members listed to serve on these committees. At least one of these members is from outside the EP Department.

E. MASTER'S THESIS

I (did) (did not) perform a Master's thesis. (If applicable, give title, major professor, institution.)

F. Ph.D. QUALIFYING EXAM

I passed the EMA Ph.D. qualifying exam on _____.

G. ENGLISH LANGUAGE PROFICIENCY EXAM

(Applicable only to International Students)

I have passed the English Language Proficiency Exam on (date) with a grade of _____.

H. DEGREES HELD

I have previously received the following degree(s):

I. PERTINENT UNDERGRADUATE COURSES

I have taken the following undergraduate courses at _____ which are particularly significant in my present plans:

<u>Course No. and Title</u>	<u>Credits</u>	<u>Date</u>	<u>Grade</u>
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The following courses were taken as a graduate student at UW to satisfy admission requirements:

<u>Course No. and Title</u>	<u>Credits</u>	<u>Date</u>	<u>Grade</u>
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Respectfully submitted:

(Name)

I have checked and approve this statement.

Approved by the Department

(Major Professor)

(signature of department chair) (date)