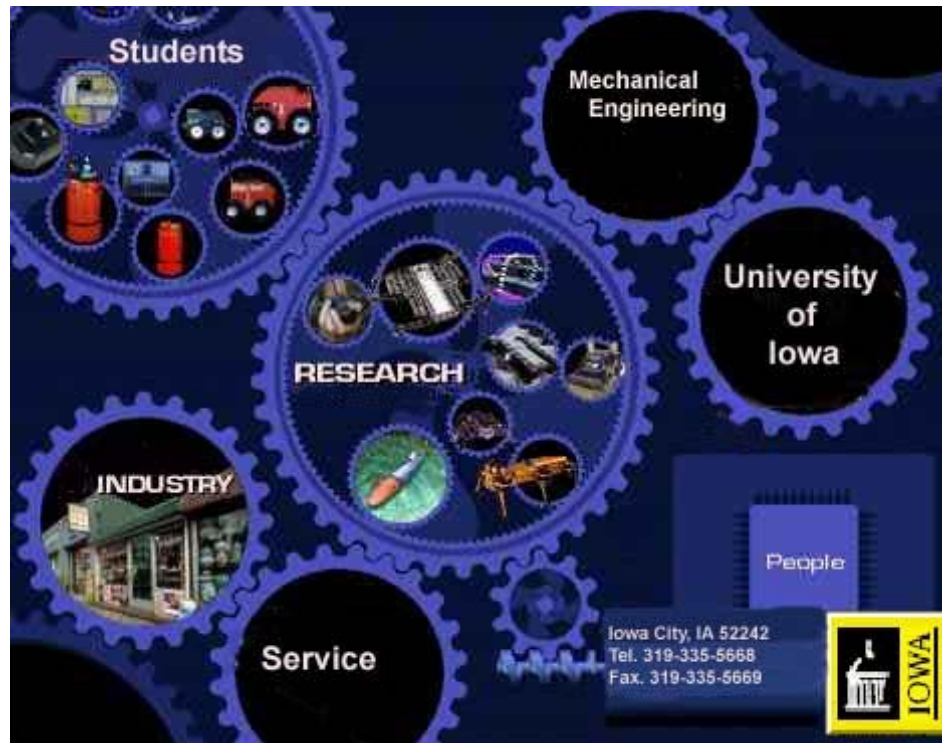


MECHANICAL ENGINEERING PROGRAM

GRADUATE STUDENT HANDBOOK



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MECHANICAL ENGINEERING PROGRAM GRADUATE STUDENT HANDBOOK

DEPARTMENT OF MECHANICAL AND INDUSTRIAL ENGINEERING

The University of Iowa

I. INTRODUCTION

This Handbook describes the Mechanical Engineering Graduate Program offered in the Department of Mechanical & Industrial Engineering at The University of Iowa. The various plans of study, policies, regulations, and procedures applicable to the student pursuing a Master of Science or Doctor of Philosophy degree are contained herein. Reference should be made to the Manual of Rules and Regulations of the Graduate College for additional details. Course descriptions may be found in the College of Engineering Catalog, which can be found at <http://www.registrar.uiowa.edu/registrar/catalog/CollegeofEngineering/index.html>. Information about faculty and current research projects can be found at the department website <http://www.mie.engineering.uiowa.edu/>.

II. GRADUATE PROGRAM AND DEGREES

The goal of the Mechanical Engineering Graduate Program in the Department of Mechanical & Industrial Engineering at both the M.S. and Ph.D. levels is to educate students in the disciplines of Mechanical Engineering, in more depth and breadth than is possible at the B.S. level. This preparation will allow the graduate to utilize contemporary methods at an advanced level during a professional career in engineering design, development, teaching, and research. Each student's plan of study is based on her/his background and career objectives as well as on sound academic practice. The Mechanical Engineering Program faculty members have teaching and research expertise in areas related to fluids engineering, thermal sciences, solid mechanics, and mechanical systems.

Academic programs emphasizing fluid mechanics, hydrodynamics, heat transfer, combustion, materials processing, solid mechanics, and mechanical systems may be developed from courses offered by the Mechanical Engineering Program faculty. Students desiring a more general program may combine these emphases, while those wishing a degree of specialization in computational mechanics, bio-fluid dynamics, environmental fluid mechanics, atmospheric

processes and climate change, materials engineering, chemically reactive flows, computer-aided design, bio-mechanics, manufacturing, or automatic control may combine departmental courses with appropriate courses from other departments of the College of Engineering and the University.

Master of Science (M.S.) Degree

The M.S. program requires a minimum of 30 semester hours of course work and research. Students may choose either a thesis or non-thesis program. Normally six and no more than nine semester hours of credit for M.S. thesis research shall be counted in satisfying the 30-semester hour minimum requirement. A Plan of Study for each student is determined through consultation with the advisor, and is then submitted to the Department Chair for approval.

To earn the M.S. degree, the student is required to attain a minimum grade point average (GPA) of 3.00 on a 4.00 scale on the graduate work used to satisfy the degree requirements and be successful in the Final Examination, administered by the student's Committee (see Appendix I).

The requirements for the M.S. degree are such that they may be completed within a calendar year. However, students with assistantship duties and/or other constraints may take up to two calendar years to complete the degree.

Combined B.S./M.S. Degree Program

A special combined Bachelor of Science/Master of Science degree program for qualified Mechanical Engineering undergraduate students is available to enable a student to complete a Master of Science degree in two or three semesters after completion of the Bachelor of Science degree. Students in the joint degree program are allowed to take up to 12 semester hours of 100- or 200-level courses toward the M.S. degree and attend one of the Mechanical Engineering Program's graduate seminars in place of the undergraduate seminar before the conferral of the Bachelor of Science degree. Of these courses, 6 semester hours may be counted towards both the B.S. and M.S. degrees. The requirements for admission to the program are (a) completion of at least 80 semester hours of credits, (b) a cumulative grade point average (GPA) of 3.25 or

higher, and (c) a letter of application submitted to the Department of Mechanical & Industrial Engineering Chairperson. A student in the combined program receives a B.S. degree when all requirements for that degree have been completed, and then becomes a regular M.S. level graduate student in the department. Students in the program may begin working with a faculty member on a M.S. thesis project during the senior year of undergraduate study.

Doctor of Philosophy (Ph.D.) Degree

The Ph.D. program in Mechanical Engineering requires a minimum of 72 semester hours of credit, including research for the dissertation, beyond the B.S. degree. Out of the required 72 hours of credit, a minimum of 54 semester hours must be from courses (except thesis research) taken beyond the B.S. degree and a minimum of 12 semester hours must be from Ph.D. thesis research. Students, in consultation with their advisor and thesis committee, often enroll in additional courses beyond the 54-semester hour minimum. In addition, the Graduate College's Residence Requirement (Section XII.C of the Graduate College Manual of Rules and Regulations) must be met. There is no foreign language requirement. To be admitted formally to the Ph.D. program, the student must pass the Qualifying Examination (see Appendix I). Having satisfactorily completed the Comprehensive Examination, the student normally has only to complete and defend the dissertation at the Final Examination (Appendix I). Requirements for the Ph.D. degree can generally be completed in about three years beyond the M.S. degree.

III. ADMISSION

Students who have earned a B.S. or a M.S. degree in an engineering curriculum or a curriculum in the mathematical or physical sciences are eligible to be considered for admission to the graduate program in Mechanical Engineering. In order to be considered for regular admission, the student must have a minimum GPA of 3.00 on a 4.00 scale on all previous college-level work and minimum Graduate Record Examination (GRE) scores of 500 Verbal, 750 Quantitative, and 4.5 Analytical Writing. A minimum Test of English as a Foreign Language

(TOEFL) score of 550 (*equivalent to 213 in on-line version*) may be substituted for the GRE Verbal requirement for students whose native language is not English.

Students may, under exceptional circumstances, be considered for conditional admission with lesser GPA and/or GRE or TOEFL scores. The student with conditional status must achieve regular status within one semester (excluding summer sessions) after admission. To satisfy this requirement, the conditionally admitted student must attain a GPA of at least 3.00 on an initial registration of nine semester hours at The University of Iowa. Students who have not submitted their GRE and/or TOEFL scores by the end of the first regular semester after admission will have their registration for the subsequent semester canceled by the Graduate College.

Students with a B.S. or M.S. degree in Physics, Chemistry, or Mathematics are encouraged to pursue the graduate program in Mechanical Engineering. These students will work with their advisors to develop a program of study to satisfy the ME degree requirements.

IV. FINANCIAL SUPPORT

Financial support is available to M.S. and Ph.D. students, primarily through teaching and/or research assistantships from the Department of Mechanical & Industrial Engineering, or through research assistantships from the Center for Computer-Aided Design, the National Advanced Driving Simulator, the Iowa Institute of Hydraulic Research and the Iowa Spine Research Center in the College of Engineering, as well as from university research centers such as the Center for Global and Regional Environmental Research and the Center for Health Effects on Environmental Contamination. These awards may be made on a semester, academic year, or calendar year basis. Awards and reappointments are competitive and are based upon the student's potential contribution to the teaching and research goals of the department, centers, and institutes. Students who fulfill their assistantship responsibilities and continue to make satisfactory progress toward their degree objective will receive preference in the awarding of new assistantships. Advanced Ph.D. students may also qualify for higher-stipend instructor positions. All applications for financial support should be submitted directly to the Department Chair.

Graduate students with a 1/4-time or more appointment are required to register for a minimum of nine semester hours during Fall and Spring semesters, until they have completed 30 semester hours of course and research work for the masters program and completed 72 semester hours of course and research work for the doctoral program beyond the B.S. degree. Following this, they must register for a Graduate Seminar each semester until successful completion of their final examination or thesis defense. However, in consultation with their advisor and thesis committee, students often enroll in additional courses beyond the 54-semester hour minimum. In any case, all registrations should reflect accurately the amount and type of work undertaken, the use of University facilities, and the amount of consultation with the faculty.

V. ACADEMIC STANDING, PROBATION, DISMISSAL, AND REVIEW PROCEDURES

A final cumulative GPA of higher than 3.0 is needed to obtain the M.S. degree and higher than 3.25 is needed to obtain the Ph.D. degree. Students in the M.S. program shall be placed on academic probation if, after completing nine semester hours of graduate work, their cumulative GPA on graduate work done at The University of Iowa falls below 3.00. The corresponding minimum requirements on cumulative course work taken in the Ph.D. program are 3.00 after the first 12 hours and 3.25 after 24 hours have been completed. Students who have not been removed from probation after one semester may be denied permission to reregister. Students in either the M.S. or Ph.D. program who have not completed their program requirements within five years after admission to the program may also be denied re-registration. Each year the advisor shall certify that each student is making satisfactory progress towards degree objectives. If progress is deemed unsatisfactory the student shall be notified in writing by the department. The notification shall specify in what way(s) the student is failing to make satisfactory progress towards degree objectives. The student shall be provided a reasonable amount of time to resolve the unsatisfactory performance before departmental dismissal. If conditions such as conditional admission or probation are imposed, the department shall give, at the time of its imposition, a written explanation of this status and its time limits. A student who is denied re-

registration shall be notified of this fact in writing with reasons for the action provided. The procedure for academic dismissal is described in Appendix II.

Students may also be denied re-registration or be dismissed from the program for less than fully professional conduct. Appendix III contains the department's policy on graduate student academic misconduct. Students are also subject to the more general provisions of the University's current "Policies and Regulations Affecting Students" document, a copy of which is provided to students at registration. Should a dismissed student feel that the dismissal process was unfair, the student may seek department faculty review of the dismissal.

VI. ADVISING AND PROGRAM PLANNING

Selection of Academic Advisors and Committees

Each new student shall meet with the Department Chair at the beginning of the first semester of enrollment, and shall subsequently contact faculty members participating in the student's stated specialty field to discuss the student's degree objectives. In most instances, this will result in the mutual selection of an academic advisor. The faculty member and the student shall report this agreement to the Department Chair. A graduate student in the Mechanical Engineering Program must have an academic adviser who holds a primary or a secondary appointment in the Department of Mechanical & Industrial Engineering and is affiliated with the Mechanical Engineering Program (see Appendix V). Students appointed on specific grants and contracts are expected to work under the supervision of the faculty member responsible for the grant or contract and to consult with that faculty member and their faculty advisor on their Plan of Study. If an advisor has not been agreed upon, the Department Chair shall either serve in that capacity or designate a faculty member to act as the student's temporary advisor until such time as a permanent advisor is selected. Either the student or the advisor may, at any time, place a request with the Department Chair that a new advisor be appointed. The Department Chair will serve as advisor until the appointment of a new advisor is made.

After a student passes the Ph.D. Qualifying Examination and is formally admitted to the Ph.D. program, a Ph.D. Committee shall be appointed by the Department Chair in consultation with the student and the advisor, and subject to the potential Committee member's willingness to serve (see Appendix I).

Plan of Study

All graduate students shall complete a Plan of Study in consultation with their faculty advisor. A formal Plan of Study Summary must be completed by the student, approved by the advisor and the Department Chair, and filed with the Graduate College prior to taking the M.S. Final or Ph.D. Comprehensive Examination.

Thesis/Dissertation

The student shall consult the Graduate College Thesis Manual and the faculty advisor on matters pertaining to thesis/dissertation format. All Committee members have the right to examine corrected drafts to assure that recommended changes have been made before the final manuscript of the thesis/dissertation is submitted to the Graduate College. One copy of the thesis/dissertation, complete and in final examination form, must be presented at the Office of the Graduate College before the Final Examination, and not later than four weeks before the graduation date on which the degree is to be conferred. Two copies of the approved thesis/dissertation must be deposited with the Graduate College at least ten days prior to the graduation date. The final deposit can be no later than the end of the semester (summers excluded) following the session in which the Final Examination is passed. Failure to meet this deadline will require re-examination of the student.

Details on the various examinations required by the M.S. and Ph.D. programs are contained in Appendix I. The student shall consult her/his advisor to determine the form, time, and place for each examination.

Special Requirements for Foreign Students

Prior to consideration for admission, foreign student applicants whose native language is not English must attain a score of at least 550 (equivalent to 213 in on-line version) on the Test of

English as a Foreign Language (TOEFL). Upon arrival on campus, foreign students with a score of less than 600 (equivalent to 250 in on-line version) on the TOFEL are normally asked to take the English proficiency tests administered by the Department of Linguistics to determine whether remedial English courses would assist the student in pursuing studies in the Department.

Foreign students must maintain full-time registration (excluding summers) at the University in order to comply with regulations of the U.S. Immigration and Naturalization Service. It is recommended that all foreign students consult the University's Office of International Education and Services for information concerning rules and regulations that may affect their status.

Students who are offered teaching assistantships should be aware that such an appointment is contingent upon demonstration of a command of English that is adequate for the assigned duties. Foreign students with English as a second language are required to undergo special testing and training prior to assuming their teaching assistant duties. The specific duties assigned will be determined, at least in part, by demonstrated English language communication skills.

Seminars

All graduate students are required to register for Graduate Seminar in Mechanical Engineering (58:191) until successful completion of their Final Examination or thesis defense. These seminars include presentations by graduate students, faculty members, and visiting speakers.

VII. ROUTINE WORK PROCEDURES

Upon entering the Department and selecting an academic advisor, each graduate student should become familiar with certain procedures to ensure smooth progress through her/his academic studies and to maintain good working relations with other members of the Department.

The following are some of the procedures that the student should be familiar with:

- a. Assignments of desk and office space are made by the Department Chair. Top priority is given to Teaching Assistants and Research Assistants. Although the University is not obligated to provide such space, the Department attempts to

accommodate as many students as possible, taking into consideration any special need as identified by the student's advisor.

- b. Keys to offices and laboratories are obtained through the Department Office. The deposit charged for each key is returned when the key is returned. Keys must be returned to the Department Office when possession of the key is no longer necessary.
- c. Mailboxes for messages, memoranda, etc., are provided for graduate students and appointees in the Department Office. These mailboxes should be checked frequently; students holding appointments should check at least once a day.
- d. Computer time - Application forms for a computer account within the College of Engineering can be made in the College Computer Systems and Support Office.
- e. Shop Facilities - The College of Engineering maintains both an Electronics Shop and a Design and Prototyping Center to assist in construction of apparatuses needed for instruction and research. For information on the services offered by these shops please talk directly with the appropriate shop personnel.
- f. Purchases - University requisitions can, with proper approval, be used to purchase material outside the University. Requisitions also may be used inside the University. Since budgets are limited, planning should be done with the academic advisor to assure that procurement will be possible. The forms are available in the Department Office.
- g. Secretarial Assistance and Office Supplies - Secretarial services and office supplies are limited to those needed to discharge responsibilities of an assistantship or other appointment. Typing related to academic work and the thesis/dissertation is the student's own responsibility. Students also are expected to provide for their own class needs (pens, paper, notebooks, etc.)
- h. Academic - Some of the procedures of the Graduate College are initiated by the student. Forms for these are available in the Department Office. The forms are:
 - 1. Doctoral Plan of Study Summary Sheet
 - 2. Request for Ph.D. Comprehensive Examination
 - 3. M.S. Plan of Study Summary Sheet
 - 4. Request for Final Examination
 - 5. Application for Change of Status
 - 6. Change in Plan of Study, Ph.D.Due dates for these are posted each term and the student should note the dates and consult with her/his advisor if a submission is anticipated.
- i. Financial Aid - Current students desiring to be considered for a research or teaching assistantship should talk directly with their advisor or with the Department Chair.

VIII. AREAS OF SPECIALIZATION AND RESEARCH TOPICS

Appendix IV describes the general thrust of the Mechanical Engineering Program in two general areas of study:

Fluid Mechanics and Heat Transfer
Mechanical Systems

and typical course sequences suggested for students pursuing the M.S. and Ph.D. degrees in these areas. However, each student's Plan of Study is considered individually and there is sufficient flexibility so that course curricula may vary from student to student depending on individual interests and course availability. Substitutions and additions in the suggested sequences of courses may be made in consultation with the student's advisor and Committee.

APPENDIX I

EXAMINATIONS

M.S. Program

- A. Final Examination (three member committee)
Thesis option - An oral examination primarily concerned with the defense of the student's thesis.
Non-thesis option - An oral examination that is comprehensive up through courses taken in the student's M.S. program.

The Final Examination Committee shall consist of at least three faculty members, including at least one with a primary appointment in the Department of Mechanical Engineering & Industrial Engineering and affiliated with the Mechanical Engineering Program.

The examination is scheduled in consultation with the advisor and the members of the student's Final Examination Committee.

See the Manual of Rules and Regulations of the Graduate College for further details.

Ph.D. Program

- A. Qualifying Examination
All students who wish to enter the Ph.D. program are required to pass the Qualifying Examination. This examination is administered by the Graduate Committee and consists of a written exam during the first three weeks of courses of the spring semester. Students entering the Ph.D. program upon receiving the M.S. degree in Mechanical Engineering from The University of Iowa must take the Qualifying Examination at its first offering following receipt of that degree. Students entering with a M.S. degree from another institution must take this examination within three semesters (excluding summer session).

The Qualifying Examination comprises mathematics and the following components: dynamics, fluid mechanics, mechanics of deformable bodies, thermodynamics and heat transfer, and a special topic (see later discussion on the Special Component Examination). Students are required to pass the mathematics component and two other component tests, chosen in consultation with their advisor. Each component test, including mathematics, allows for some freedom in choosing problems to solve and is graded independently, with a score of 70% or higher required for an unconditional pass. Students scoring below 70% will have their performance reviewed by the Graduate Committee. The Graduate Committee will determine whether a subsequent oral examination is needed, or if additional coursework is appropriate, or if the test has been failed and must be retaken. The review will take into consideration the overall results of the Qualifying Examination, the student's academic record, and comments from the component examiners and the student's advisor.

Failure of any component test constitutes failure of the Qualifying Examination. A student who fails any of the component tests will be required to retake and pass those failed component tests at the next offering. Students failing the Qualifying Examination will be allowed to retake the exam only one time. A student who fails the Qualifying Examination in the first attempt may, when retaking the exam, select different components over which to be examined, after approval by the adviser or the MIE Chair. Students who exercise this option thus have only one chance to pass the newly selected component tests that comprise their Qualifying Examination.

Procedures for the Special Component Examination

The objective of the Special Component of the Qualifying Examination is to test the capabilities of a student who has taken substantial coursework and plans to do research within an area of mechanical engineering that is not covered by the current five discipline components or who is participating in an interdisciplinary graduate degree program involving another department. Administration of the Special Component Examination is subject to the same guidelines and regulations as those established for the other six components. If the Special Component Examination is selected, the student is required to take the mathematics component plus one of the other five discipline components.

Admission to the Special Component Examination requires the student, in consultation with the faculty advisor, to submit an acceptable petition to the Graduate Committee. The petition must include the student and advisor signatures, the objective of the student's Ph.D. program and research including a brief description of the focus area, the need for the Special Component Examination, a listing of previous courses associated with the Special Component area, and the names of on-campus faculty who are qualified and willing to provide written questions, evaluate the student's performance including grading of questions and, if necessary, give an oral examination. The petition should be submitted to the Graduate Committee at least eight weeks prior to the administration of the Qualifying Examination. The Graduate Committee will review the petition and notify the student and advisor of its decision. If a student takes and fails the Special Component Examination, a resubmission of the petition is not necessary provided the subject matter of the Special Component Examination remains the same.

B. Ph.D. Comprehensive Examination (five member committee)

The Comprehensive Examination is intended to establish the appropriateness of the student's proposed dissertation research and the adequacy of the student's background to undertake the research. The exam is an oral exam that focuses on the dissertation prospectus and related areas. Copies of the prospectus shall be submitted to the Comprehensive Examination Committee not later than two weeks before the date of the examination.

The Comprehensive Examination is taken after the student has passed the Qualifying Examination and when the course work specified in the Plan of Study (see Section VI) is nearly completed but in any case, no later than 28 months after the first registration in the Ph.D. program. To be admitted to the Comprehensive Examination, the student must be in good academic standing (see Section V), and must be recommended by her/his advisor. Admission to Ph.D. degree candidacy is recognized upon successful completion of the Comprehensive Examination.

The dissertation proposal should clearly state the research objectives and the approach to be used in the project. The proposal is expected to provide a complete review of related literature and to use this review to motivate the need for the proposed research. The proposal should provide sufficient information, in the form of preliminary research or reference to previously published research, to convince the Comprehensive Examination Committee that the proposed research is achievable in a reasonable amount of time and that the student is knowledgeable about the methods to be used in the project. It is intended that the Comprehensive Examination be taken near the beginning stages of the dissertation research, so that the Committee can provide input before too much work has been invested in the proposed project.

The Comprehensive Examination Committee shall consist of at least five faculty members, including at least two who have primary appointments in the Department of Mechanical Engineering & Industrial Engineering and are affiliated with the Mechanical Engineering Program, and at least one from outside the Department. The appointment of the Ph.D.

committee becomes formal after approval of the Dean of the Graduate College. In most situations, the same faculty members serve on the Comprehensive and Final Examination Committees.

The Comprehensive Examination may be repeated only once and then in accordance with requirements established by the Committee.

See the Manual of Rules and Regulations of the Graduate College for further details.

C. Final Examination (five member Committee)

This is an examination to be taken upon completion of the dissertation. This examination is an oral defense of the dissertation and related subjects as determined by the members of the student's Examination Committee.

See the Manual of Rules and Regulation of the Graduate College for further details.

APPENDIX II

REVIEW PROCEDURES OF ACADEMIC DISMISSAL

This policy pertains to the review procedures, which are to be followed in the event that a student dismissed from a graduate program for academic reasons other than academic misconduct requests a formal review of her/his dismissal. The procedure outlined below is in accordance with Section IV [paragraph D] of the Manual of Rules and Regulations of the Graduate College, [1983].

The procedure for academic dismissal review in all circumstances other than those resulting from academic misconduct is as follows:

1. Prior to the formal initiation of the academic dismissal review process a student should discuss her/his grievances with the Department Chair in an attempt to resolve such grievances informally.
2. If the student continues to feel her/his dismissal is unwarranted and cannot be resolved through the discussion provided for in 1 above, the student shall forward a written request for review of her/his dismissal to the Department Chair. The letter should outline the grievances in reasonable detail. In addition, the student should choose two graduate faculty members and one graduate student (from those eligible to serve on such committees; see item 3 below), to form a review committee.
3. Any faculty member in the Department of Mechanical & Industrial Engineering and is affiliated with the Mechanical Engineering Program, or any Mechanical Engineering graduate student with at least 15 semester hours graduate credit earned at The University of Iowa may be requested to serve as a member of an academic dismissal review committee.
4. The Department Chair shall designate a chair of the review committee from those committee members identified by the student.
5. The review committee chair shall convene the committee as soon as possible. Normally it is expected that the review process will be completed within two weeks of its formal initiation by the student.
6. The student requesting the review shall have the opportunity to discuss the grievances directly with the committee and provide any supporting material relevant to the review.
7. The review committee shall then determine what additional information or consultation is necessary to complete their review.
8. Upon review of relevant information, the review committee shall communicate their findings and recommendations in writing to the student and the Department Chair. The committee's report should include the major considerations leading to the decision.
9. Final decision will be made by the Department Chair, after giving due consideration to the Committee's report.
10. If the student is dissatisfied with the decision by the Department Chair, he or she may elect to pursue further action through the Graduate College in accordance with the procedures of the Graduate College.

APPENDIX III

POLICY ON GRADUATE STUDENT ACADEMIC MISCONDUCT

The Department of Mechanical Engineering & Industrial endorses the rights of all students as published in the "Policies and Regulations Affecting Students" at The University of Iowa. Under Section I of the "Code of Student Life" which appears in that document, academic misconduct is defined as:

"Academic dishonesty, including the acquisition of honors, awards, certification or professional endorsement, degrees, academic credits, or grades by means of cheating, plagiarism, or falsification with respect to any examination, paper, project, application, recommendation, transcript, or test, or by any other dishonest means whatsoever, or aiding or abetting another student to do so."

Mechanical Engineering graduate students routinely incur a wide range of academic responsibilities during their normal classroom, library, office and research laboratory activities, and failure to discharge these responsibilities in an ethical and professional manner may lead to charges of academic misconduct. Such charges may include, but are not limited to, allegations of fraud, plagiarism, cheating and abuses of confidentiality.

Fraud usually involves the fabrication or falsification of data. Plagiarism is the use of another person's words, ideas, or data without proper attribution. Cheating may involve the dishonest use of another person's words, ideas or data in violation of established rules of conduct, or participating in such activities. Abuses of confidentiality may occur, for example, when confidential information (e.g., unpublished data, manuscripts or grants proposals) is disclosed or used without proper authorization.

The following procedure applies to all cases where Mechanical Engineering graduate students are alleged to have committed an act of academic misconduct at The University of Iowa.

1. Allegation of Academic Misconduct

An allegation of graduate student academic misconduct may apply to any academic situation, and may be made by any person with knowledge of such misconduct. The person making the allegation shall submit a timely written report to the Mechanical and Industrial Engineering (MIE) Chair that summarizes all pertinent information and includes any supporting evidence.

2. Initial Review and Response

The MIE Chair shall review the written allegation and any supporting evidence, and subsequently discuss the case with both the person making the allegation and with the accused graduate student. Based on the results of this preliminary fact-finding investigation, the MIE Chair shall make a judgment as to the existence of a reasonable basis to believe that the alleged academic misconduct occurred. If the MIE Chair decides that there is no such reasonable basis, the allegation is dismissed and the matter is closed. If the MIE Chair decides that there is such a reasonable basis, the allegation shall be forwarded, with supporting evidence, to the ME Graduate Committee for formal review and judgment.

3. Formal Review and Judgment

The Chair of the ME Graduate Committee, upon receipt of the written allegation and any supporting evidence together with notification that a formal review and judgment are required, shall provide the accused graduate student with a copy of the written allegation and any supporting evidence, and shall appoint in consultation with the accused graduate student, two graduate students to serve on the ME Graduate Committee during the Committee's consideration of the case.

During their consideration of the case, the augmented ME Graduate Committee shall review the written allegation and any supporting evidence, interview the accused graduate student, and confer with any other persons they deem it appropriate to consult.

Following their investigation, the augmented ME Graduate Committee shall prepare a timely written report that summarizes its findings, renders its judgment as to what administrative action is appropriate, and notifies the accused graduate student of the right to appeal that action. This report shall be submitted to the MIE Chair, with copies sent to the accused graduate student and to the Dean of the Graduate College.

Due to the serious nature of academic misconduct, appropriate action may include, but is not limited to, such sanctions as a grade of F on an assignment or in a course, termination of a teaching assistant or research assistant appointment, dismissal from the ME graduate program, dismissal from the Graduate College of The University of Iowa, or some combination thereof.

4. Appeal and Final Decision

The accused student may appeal the findings and/or judgment of the augmented ME Graduate Committee. Such an appeal must be timely, and must include a written statement submitted to the Dean of the Graduate College, upon receipt of this formal written appeal, shall notify the MIE Chair that a formal appeal has been made and describe the nature of that appeal. In consultation with appropriate constituencies (e.g., an ad hoc appeals committee), the Dean of the Graduate College shall consider and act on the appeal in a fair and timely manner, and notify both the accused student and the MIE Chair of the final disposition of the case.

If the judgment of the augmented ME Graduate Committee is not appealed, that judgment shall constitute the official administrative response to the allegation of academic misconduct. If the judgment of the augmented ME Graduate Committee is appealed, the decision made by the Dean of the Graduate College shall constitute the official administrative response to the allegation of academic misconduct.

Every effort should be made to resolve allegations of graduate student academic misconduct expeditiously, fairly, and with due regard for confidentiality. Full consideration of any given case, from the time of submission of the initial written report by the person making the allegation, to the time when the matter is finally resolved, normally should be completed within six weeks.

If the allegation of academic misconduct is substantiated, a copy of all written documentation and associated evidence shall be kept in the graduate student's personal file in the MIE Department Office where access is protected by the Family Educational Rights and Privacy Act (Buckley Amendment). If a substantiated allegation of academic misconduct requires subsequent notification of persons or agencies other than those directly involved in the case, such notification shall be the responsibility of the graduate student. If adequate and timely notification is not provided by the graduate student, such notification will be provided by the Dean of the Graduate College in consultation with the MIE Chair.

If the allegation of graduate student academic misconduct is not substantiated, every effort should be made to restore fully the reputation of the graduate student. In addition, appropriate action should be taken against any person whose involvement in an unsubstantiated allegation of academic misconduct was demonstrated to have been malicious or intentionally dishonest.

APPENDIX IV

MECHANICAL ENGINEERING SAMPLE PROGRAMS

APPENDIX IV-A: FLUID MECHANICS AND HEAT TRANSFER

The graduate program in fluid mechanics and heat transfer is designed to provide the student with a rigorous and broad foundation in theoretical, numerical, and experimental aspects of the subject. Emphasis is placed on the elucidation of fundamental principles and techniques of solving problems in the various fields of thermal and fluids engineering. Considerable emphasis is given to the use of computers, both in the mathematical modeling of flow and transport phenomena and in the acquisition and processing of experimental data. Although most of the relevant courses are offered by the Department of Mechanical & Industrial Engineering, students are encouraged to take applied mathematics and classical mechanics courses offered by the Mathematics and Physics Departments, as well as appropriate courses from the Department of Chemistry and from other departments in the College of Engineering.

SAMPLE PROGRAMS - FLUID MECHANICS AND HEAT TRANSFER

M.S. Degree

(with thesis)

Course Number	Course Title	Semester Hours
58:113	Mathematical Methods in Engineering	3
58:140	Intermediate Thermodynamics	3
58:143	Computational Fluid and Thermal Engineering	3
58:145	Intermediate Heat Transfer	3
58:160	Intermediate Mechanics of Fluids	3
58:162	Exp. Methods in Fluid Mechanics & Heat Transfer	3
58:260	Viscous Flow	3
58:262	Inviscid Flow	3
58:199	M.S. Thesis or Project	<u>6</u>
		30

Ph.D. Degree

(after M.S.)

58:146	Modeling of Materials Processing	3
58:147	Fuel Cells	3
58:212	Analytical Methods in Fluid Mechanics	3
58:245	Diffusive Transport	3
58:248	Combustion Theory	3
58:264	Vortex Dynamics	3
58:266	Interfacial Flows and Transport Processes	3
58:267	Multiphase Flow and Transport	3
58:268	Turbulent Flows	3
58:269	Computational Fluid Dynamics and Heat Transfer	3
58:299	Research: Mechanical Engineering, Ph.D. Thesis	<u>12</u>
		42

Other Courses Relevant to Fluid Mechanics and Heat Transfer

58:110	Computer-Aided Engineering	3
58:111	Numerical Calculations	3
58:115	Finite Element I	3
58:133	Control Theory	3
58:148	Combustion and Propulsion Engineering	3
58:150	Intermediate Mechanics of Deformable Bodies	3
58:154	Intermediate Kinematics and Dynamics	3
58:163	Environmental Fluid Dynamics	3
58:165	Elements of Gas Flows	3
58:251	Continuum Mechanics and Elasticity	3
58:252	Advanced Continuum Mechanics	3
58:255	Multiscale Modeling	3
58:296	Advanced Topics in Thermal & Fluid Engineering	3

Additional courses are available from other departments.

APPENDIX IV-B: MECHANICAL SYSTEMS

The graduate program in mechanical systems is designed to provide the student with a broad and strong background in theoretical, computational, experimental, and applied aspects of the subject. The educational experience is designed to prepare those who wish to pursue careers in industry, teaching, and government. Emphasis is placed on fundamental principles, computational techniques, and experimentation used to analyze and design mechanical systems. Areas of concentration include machine dynamics, computational mechanics, operator-in-the-loop simulation, optimal design, structural optimization, control systems, fatigue and fracture mechanics, and biomechanics. Although most of the courses relevant to this area of specialization are offered by the Department of Mechanical & Industrial Engineering, students are encouraged to consider appropriate courses offered by the Mathematics, Statistics, and Physics Departments in the College of Liberal Arts, and by other departments in the College of Engineering.

SAMPLE PROGRAMS - MECHANICAL SYSTEMS

M.S. Degree (with thesis)

Course Number	Course Title	Semester Hours
58:110	Computer Aided Engineering	3
58:113	Mathematical Methods in Engineering	3
58:115	Finite Element I	3
58:150	Intermediate Mechanics of Deformable Bodies	3
58:153	Fundamentals of Vibrations	3
58:154	Intermediate Kinematics and Dynamics	3
58:158	Fatigue/Durability in Design	3
58:159	Fracture Mechanics	3
58:199	Research Mechanical Engineering: M.S. Thesis	<u>6</u>
		30

Ph.D. Degree (after M.S.)

58:214	Analytical Methods in Mechanical Systems	3
58:250	Advanced Fracture Mechanics	3
58:253	Computational and Analytical Dynamics	3
58:254	Energy Principles in Structural Mechanics	3
58:255	Multiscale Modeling	3
58:256	Computational Solid Mechanics	3
58:257	Probabilistic Mechanics and Reliability	3
58:259	Mechanical Design in Structures	3
58:270	Micromechanics of Solids	3
58:279	Continuum Mechanics and Elasticity	3
58:299	Research in Mechanical Engineering: Ph.D.	<u>12</u>
		42

Other Courses Relevant to Mechanical Systems

Mechanical Engineering

58:111	Numerical Calculations	3
58:112	Engineering Design Optimization	3
58:133	Control Theory	3
58:134	Computer-Based Control Systems	3
58:152	Vehicle Dynamics and Simulation	3
58:156	Mechanics of Robotics	3
58:170	Composite Materials	3
58:215	Finite Elements II	3
58:251	Computational Inelasticity	3
58:252	Advanced Continuum Mechanics	3
58:258	Continuum Mechanics and Plasticity	3
58:271	Elastic Waves in Solids	3
58:295	Advanced Topics in Mechanical Systems	3

Industrial Engineering

56:131	Manufacturing Systems	3
56:132	Introduction to Industrial Robotics	3
56:134	Process Engineering	3
56:138	Knowledge Discovery and Management	3
56:231	Computer Integrated Manufacturing	3
56:232	Manufacturing Process Control	3
56:233	E-commerce: Product Development	3
56:234	Information Systems for Design and Manufacturing	3
56:235	Computational Intelligence	3
56:238	Evolutionary Computation	3

Additional courses are available from other departments.

APPENDIX V

FACULTY AFFILIATED WITH MECHANICAL ENGINEERING PROGRAM

Primary Faculty

Beckermann, C.	2412 SC
Butler, P.B.	3100 SC
Chen, L.D.	2416B SC
Choi, K.K.	2134 SC
Han, R.P.S.	2136 SC
Lin, C.-L.	2406 SC
Lu, J.	2137 SC
Patel, V.C.	302 SHL
Rahman, S.	2140 SC
Ratner, A.	2401 SC
Stephens, R.I.	2410 SC
Stern, F.	2416 SC
Udaykumar, H.S.	2408 SC
Xiao, S.	2405 SC

Secondary Faculty

Abdel-Malek K. (BME)	1138 SC
Arora, J.S. (CEE)	4110 SC
Brown, T.D. (BME)	2181 WL
Chandran, K.B. (BME)	1402 SC
Darling, Warren (Exercise Science)	526 FH
Park, J.B. (BME)	1414 SC
Rim, K. (BME)	1402 SC
Wu, H.C. (CEE)	4113 SC

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Advisors	4, 6
Assistantships	4, 8
Committee	2, 3, 5, 6, 7, 10, 11, 12, 13, 14, 15, 16
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Offices	9
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Seminars	2, 5, 8
Test of English as a Foreign Language	3, 7
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