



GRADUATE STUDENT HANDBOOK

The University of Toledo

**Department of
Mechanical, Industrial and Manufacturing Engineering**

August 2005

Message from the Department Chair and Graduate Program Director

Welcome to the Mechanical, Industrial and Manufacturing Engineering Department (abbreviated MIME). This is the name of the relatively new department, formed in the spring of 1995, composed of the former Mechanical Engineering and Industrial Engineering Departments. Our department offers distinct degrees in mechanical and industrial engineering disciplines. Students pursuing a masters degree in Mechanical Engineering will receive the MSME degree upon completion of degree requirements. Similarly, students in Industrial Engineering will receive the MSIE degree. Doctoral degree students in both programs will receive the Ph.D. degree in Engineering Science.

The Mechanical Engineering and Industrial Engineering programs are recognized as two of the best programs on campus. This is primarily because of the quality of our students, our laboratory facilities, and our faculty. Many of our graduates are enjoying excellent careers in engineering and it is likely you will meet them as they come to visit our department and possibly join them when you finish your studies here. Several of our faculty have received the highest teaching award bestowed at The University of Toledo. Several faculty have been nationally recognized in their professional societies in engineering because of their contributions in research and service.

You are here to be educated in industrial or mechanical engineering. The faculty, staff, and administration are here to help you reach your goal. We have the necessary knowledge and experience as well as the educational and research facilities, and we will contribute much of the effort. However, we will not contribute all of it. Education is an active process, and you, the student, must contribute your share of the effort. You will find it rewarding to succeed in developing your fundamental knowledge and your professional skills.

This Graduate Student Handbook is designed to help you by providing information on services, programs, organizations, and people. Specifically, the handbook provides information on:

1. Procedures for graduate Mechanical and Industrial Engineering students;
2. Information about the Mechanical and Industrial Engineering programs; and
3. Student-oriented resources and services

This booklet **supplements** the Engineering College Bulletins and Catalog of the Graduate School of the University of Toledo. This booklet does not contain all the rules and regulations that must be followed to successfully earn your degree. It is your responsibility as a student to identify and comply with the current applicable regulations or procedures not included or referenced in this booklet. We intend to update this handbook regularly. However, you will want to check the MIME bulletin board occasionally for the latest updates and changes in requirements.

For further information contact the following offices, publications or persons: the Graduate School Office, UH 3240; the MIME Graduate Program Director, NI 4006D; and the Graduate Catalog of the University of Toledo. Additional instructions and regulations are contained in a publication entitled "Thesis/Dissertation Format General Requirements" which is available from the Graduate School.

Once again, welcome to our department. We hope you have a successful student career in the MIME department, and we look forward to working with you.

Sincerely yours,

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SECTION 1:

Graduate Study in Mechanical, Industrial and Manufacturing Engineering

Graduate students enrolled in the **Mechanical, Industrial and Manufacturing Engineering Department (MIME)** at The University of Toledo may pursue the following degrees: Master of Science in Industrial Engineering (MSIE), Master of Science in Mechanical Engineering (MSME), and Doctor of Philosophy in Engineering Science. The research focus of the department is in the following areas: (1) Computational and Experimental Thermal Sciences, (2) Manufacturing Processes and Systems, and (3) Materials, Mechanics and Design.

The **Computational and Experimental Thermal Sciences** research focus encompasses broad research activities. These include research in such areas as computational fluid dynamics and heat transfer, tribology, flow stability and transition, vortex dynamics, drag reduction, microgravity flows, thermal systems simulation, biofluid flow dynamics, turbulent boundary layer characterization, experimental methods using hot wire/film anemometry, laser Doppler velocimetry, particle image velocimetry, flow visualization techniques as well as thin film heat flux gauge research.

The objectives of the **Materials, Mechanics and Design** focus group is to conduct research which will advance the engineering knowledge base and will lead to new processes and products in the broad areas of mechanical systems, dynamic systems and control, and mechanical design. More specifically, the research thrust of this group includes but is not limited to the dynamic behavior and control of mechanism, machines, mechanical systems, processes, structures, smart materials, bio-mechanics, fatigue and fracture mechanics, noise and vibrations analysis and control, intelligent control of mechanical systems, design methodology, and machine dynamics. An additional goal of this group is the codification of research results to place them in a form useful for professional practice. Research methods include a blend of techniques involving mathematics and computer simulation as well as physical experimentation.

The **Manufacturing Processes and Systems** focus group concentrates engineering efforts in solving industrial and manufacturing problems. Example problems include planning and modeling the manufacturing system, forecasting industrial needs for materials, determining the best ways to transport goods to customers, development of processes for products, basic understanding of metal forming and cutting, design of assembly systems and improving the environmental impacts of industry. A key aspect of this program is the blend of practical plant expertise with the benefits of computational technologies including computer aided design and manufacturing. Processes are understood from a “hands-on” perspective and expanded through theoretical defining models. Engineering materials are studied throughout their life cycle from raw material acquisition, product creation and usage, remanufacturing, recycling and final material disposal. Key expertise within this group include internationally recognized faculty in computer aided design and manufacturing engineering, facilities planning and modeling and environmentally conscious design and manufacturing, rapid prototyping, system optimization, artificial intelligence, process engineering, grinding and abrasives engineering, facilities planning and modeling and environmentally conscious design and manufacturing.

It is important to note that UT has two fifteen-week long academic semesters during the school year. These are Fall Semester, which runs from mid-August to mid-December, and Spring Semester, which runs from January until the first week of May. Summer term is a third term consisting of fourteen weeks. For those students used to a quarter system, full-time study of 45 credits in an academic year is equivalent to 30 credits in the semester system.

SECTION 2: Faculty and Staff

Faculty

Dr. Robert J. Abella, Associate Professor

Ph.D., University of Toledo, 1975

Manufacturing Systems, Numerical Control, Production Management, Computer Aided Manufacturing

Dr. Abdollah A. Afjeh, Professor and Chair

Ph.D., University of Toledo, 1984

Fluid Dynamics, Propulsion Systems, Computational Methods, Energy Conversion Systems

Dr. Sk Ahad Ali, Visiting Assistant Professor

Ph.D., University of Wisconsin – Milwaukee

Multi Constraint Based Optimization, Decision Support Systems, Computer Modeling and Simulation, Scheduling, Logistics, Supply Chain Management, and Artificial Intelligence

Dr. Robert A. Bennett, Professor

Ph.D., Wayne State University, 1969

Plastics Recycling, Materials, Product Design, Engineering Economy, Applied Statistics

Dr. Lesley Berhan, Assistant Professor

Ph.D., University of Michigan, 2003

Mechanics of Materials, solid mechanics and FEA, 2D and 3D fibrous networks

Dr. Mohammad Elahinia, Assistant Professor

Ph.D., Virginia Tech, 2004

Vehicle Dynamics and Vibrations, Modeling, Simulation and Control of Mechanical Systems

Dr. Ali Fatemi, Professor

Ph.D., University of Iowa, 1985

Fatigue, Fracture Mechanics, Materials, Mechanical Systems

**Dr. Mohamed Samir Hefzy, Professor and Interim Associate Dean of Graduate Studies and
Director of Graduate Programs**

Ph.D., University of Cincinnati, 1981

Orthopaedic Biomechanics, Assistive Technology and Rehabilitation Engineering, Finite Element Methods

Dr. Duane Ray Hixon, Assistant Professor

Ph.D., Georgia Institute of Technology, 1993

Computational Aero-Acoustics, Fluid Dynamics

Dr. Ahalapitiya H. Jayatissa, Assistant Professor

Ph.D., Shizuoka University, Japan, 1995

Materials Characterization and Electronic Materials, MEMS, Nanomaterials

Dr. Theo G. Keith, Distinguished Professor

Ph.D., University of Maryland, 1971

Tribology, Computational Fluid Dynamics, Fluid Mechanics, Heat Transfer, Aeroelasticity

Dr. Steven N. Kramer, Professor and Director of Undergraduate Programs

Ph.D., Rensselaer Polytechnic Institute, 1973
Mechanisms, Robotics, Dynamics of Mechanical Systems

Dr. Ioan D. Marinescu, Professor

Ph.D., University of Galatzi, 1991
Manufacturing Processes, Grinding, Tribology, Advanced Materials, Machining of Brittle Materials

Dr. K. Cyril Masiulaniec, Associate Professor

Ph.D., University of Toledo, 1987
Phase Change Heat Transfer, Convective Heat Transfer from Roughened Surfaces, High Temperature Heat Exchangers and Industrial Furnaces

Dr. Nagi G. Naganathan, Professor and Interim Dean

Ph.D., The Oklahoma State University, 1986
Smart Materials, Dynamics, Vibrations, Robotics

Dr. Terry Tsun-Ming Ng, Professor

Ph.D., University of California, Berkeley, 1981
Aerodynamics, Stability, Turbulence, Experimental Methods

Dr. Efstratios Nikolaidis, Professor

Ph.D., The University of Michigan, 1985
Structural Dynamics, Vehicle Structural Dynamics, Engineering Design Optimization, Design, Reliability and Quality, Structures and Structural Dynamics

Dr. Douglas L. R. Oliver, Associate Professor

Ph.D., Washington State University, 1985
Heat Transfer, Mathematical Modeling, Microgravity Flow Dynamics

Dr. Walter W. Olson, Professor

Ph.D., Rensselaer Polytechnic Institute, 1988
Manufacturing Processes & Systems, Life Cycle Engineering, Vehicle Dynamics

Dr. Mehdi Pourazady, Associate Professor

Ph.D., University of Cincinnati, 1985
Finite Element Methods, Computer-Aided Design and Manufacturing

Dr. Phillip R. White, Professor

Ph.D., State University of New York (SUNY) at Buffalo
Computer Graphics, Solid Modeling, Computer-Aided Design and Manufacturing

Dr. Hongyan Zhang, Associate Professor

Ph.D., Ohio State University, 1991
Solid Mechanics, Sheet Metal Forming, Welding Fundamentals and Applications, Material Forming and Joining, Adhesion, Welding and Composite Material Processing

Staff

Ms. Carrie Schonter: Administrative Specialist

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Mr. Randall Reihing: Technical Staff

[Room NI-1091 - Telephone: 530-8244 - Fax: 530-8206 - Email: rreihing@eng.utoledo.edu]

SECTION 3: Admission

3.1 Masters Programs

Regular Graduate Student

The minimum requirements for admission as a regular graduate student to pursue the Master of Science Degree are the following:

1. A baccalaureate degree in mechanical or industrial engineering (or a closely related engineering program) with an overall grade point average of 2.7/4.0 or higher.

If the baccalaureate degree is from an ABET accredited program located in an English speaking country, the preceding is sufficient.

2. If the undergraduate program is not ABET accredited, results of the GRE verbal, quantitative and analytic writing sections must be equal to or in excess of 450, 700 and 4.0, respectively.
3. If the baccalaureate institution is located in a country where English is not the native language, scores from the Test of English as a Foreign Language (TOEFL) equal to or in excess of 550 (for paper test) or 213 (for computer test) must be submitted.

Provisional Graduate Student

Provisional admission may be offered to students who do not satisfy all of the criteria for regular admission subject to the following conditions.

1. If the undergraduate GPA is somewhat below 2.7/4.0, GRE scores must be submitted which meet or exceed the standard described under #2 above.
2. If the baccalaureate degree is in an engineering field other than mechanical or industrial engineering (or a closely related engineering program), or a hard science (physics, math, chemistry, etc.) provisional admission will be subject to specified preparatory courses. A preparatory course program sufficient in number and with content designed to provide the student with those competencies normally expected of entering graduate students within the technical specialty he/she expects to pursue will be specified. These courses will be in excess of the 30 credit hours minimum required for the master's degree. The preparatory courses may include undergraduate courses that are required or optional in the baccalaureate mechanical or industrial engineering curriculum. The number of credit hours required will be specified at the time of admission. Specification of which courses are required may be postponed until the initial registration. (A student with a baccalaureate degree in engineering technology (BET) is expected to obtain a baccalaureate degree in engineering before graduate admission will be considered.) This would be accomplished through the undergraduate program as a UWD (undergraduate with a degree).
3. Students admitted provisionally may have specific limitations placed on their initial term performance. Specifications will usually include no grades below a B and completion of all courses recommended by the Graduate Director (no drops or withdrawals).

Once the conditions specified under 2 and/or 3 are met, the provisional designation will be changed to regular.

Conditional Graduate Student

Conditional admission is a classification restricted to students who graduated from a baccalaureate institution in a country where English is not the native language and who have not achieved a TOEFL score of at least 550 (or 213). If such a student has met all admission requirements including GPA at least 2.7/4.0 and GRE verbal, quantitative, and analytic at least 450, 700 and 4.0 respectively, except the aforementioned TOEFL requirement, he/she may be admitted as a conditional student. Such admission allows a student visa to be granted for the purpose of attending the American Language Institute (A.L.I.) at UT.

After a period of study at A.L.I. when the student achieves a TOEFL at least 550 (or 213), he/she may be reclassified as a regular or provisionally admitted student. A conditionally admitted student is not permitted to register for academic courses.

Non-Degree Graduate Student

Non-degree Admission will be granted to those students who want specific courses or groups of courses to meet special personal needs may be considered for admission to the individual colleges as "non-degree" students. These students are expected to have at least a bachelor's degree and must have permission of the Graduate Director of the department to enroll in each specific course. Persons applying are not candidates for degrees, but subsequent admission to a degree program is possible based on recommendation of the college. In such cases, up to 12 graduate credits earned as a non-degree student may be accepted as determined by the Graduate Director of the department.

Graduate Special Student

Applicants who wish to explore graduate study before deciding on a degree program may request the simpler application form for Graduate Special Student Status. If they are subsequently accepted into a degree program, a maximum of 10 semester hours earned while on this status may be counted toward a degree if approved by the Graduate Program Director.

3.1.1 BS-MS Degree Option

Students currently enrolled in the MIME undergraduate program at the University of Toledo are given an opportunity to participate in the BS-MS option. If accepted, these students will be automatically accepted into one of the MIME M.S. programs. Up to 9 semester credit hours of graduate level courses from the M.S. degree program may be used in lieu of B.S. degree credits. In order to receive graduate credit hours, the courses must meet the following requirements:

1. The courses must be taken at The University of Toledo after the student is accepted into the BS-MS option.
2. Only 5000-level or higher engineering courses may be included.
3. An approved M.S. plan of study must be filed indicating the courses that will be accepted in place of specific B.S. degree requirements.

Students who are within 18 hours of graduation, have a minimum of 3.3 GPA, and have completed their minimum co-op work requirements may participate in the option. Applications will be accepted no earlier than one year (33 semester credit hours) prior to the expected completion of the B.S. program. Applications should contain a completed application form for regular admission status (special student application is not accepted), three letters of recommendation, and a biographical sketch (1 page). Students must file an MS plan of study immediately after being accepted into the program, and specify in it up to 9 semester credit hours that they intend to apply in lieu of specific B.S. degree requirements.

3.2 Ph.D. Program

Admission to the Ph.D. program in the MIME department normally requires:

1. An MS degree in mechanical or industrial engineering (or a closely related engineering program) with a GPA of 3.3/4.0 or higher (exclusive of thesis grades). The completion of a thesis as a part of the MS degree, which document evidences a high degree of technical competence and articulate technical communication, is considered very favorably.

If the institution granting the MS degree has an ABET accredited baccalaureate engineering program and the language of the thesis is English, the above are sufficient.

2. If the baccalaureate program of the institution granting the MS degree is not ABET accredited, then results of the GRE must be submitted with scores on the verbal, quantitative and analytic portions equal to or in excess of 450 and 700 and 4.0, respectively.
3. If the MS thesis is not completed in English or a thesis is not completed as a part of the MS program, then evidence of effective technical communication in English in written and spoken forms must be submitted. Such evidence may be in the form of documents written by the student and a personal or telephone interview with the student. If the student has both the baccalaureate and MS degrees from institutions located in countries where English is not the native language, scores from the TOEFL at least 550 (or 213) must be submitted.
4. If the MS degree and, in rare cases, the baccalaureate degree also are not in mechanical or industrial engineering (or a closely related field), admission will require evidence that the student possesses most of the prerequisite competencies normally expected of an entering Ph.D. student within the technical specialty of intended study.
5. When the MS degree was completed without thesis, admission may be granted if the student's other credentials are exceptional.

If the above conditions are satisfied, the student will be admitted as a Ph.D. student of mechanical or industrial engineering within the most appropriate of the four focus groups with respect to the intended area of interest.

3.3 Transfer Credits from Another University

A student who has attended another university, may wish to apply the attained credits to his/her graduate program in the MIME department. At the MS level, the Graduate School allows the transfer of up to 10 credit hours (based on UT's semester system) from another institution subject to the approval of the MIME Graduate Program Director. Application for transfer of credits must be made to the student's advisor. The following procedure must be followed to transfer credit

A.	The student must prepare a package for the Graduate Program Director including:	
	1.	A letter from the student to the MIME Graduate Program requesting transfer of the credit and identifying the course(s) for which credit is sought.
	2.	An official transcript from the other institution showing the course(s) taken and grade(s) given. Only courses with grades of B or better can be transferred. Only an official transcript is acceptable.
	3.	The course syllabus, name of the professor teaching the course, textbook used, examinations taken, and samples of work performed for the course.
B.	The Graduate Program Director will:	
	1.	Review and recommend approval/disapproval of transfer of credit for courses in or closely related to Mechanical, Industrial and Manufacturing Engineering.
	2.	Courses not in Mechanical, Industrial and Manufacturing Engineering will be reviewed and a recommendation made by the appropriate department.
	3.	Upon completing the recommendations, the package will be forwarded to the Dean of the Graduate School for final approval.
C.	The Dean of the Graduate School will	
	1.	Give final approval/disapproval of transfer credit.
	2.	Send a letter on the final decision(s) to the advisor. A copy of the letter will be placed in the student's file.

NOTE: The acceptance of a course and subsequent granting of transfer credit does not guarantee that the course will be accepted as a part of the Plan of Study for a masters or doctoral program. Approval of the Masters Plan of Study or the Doctoral Program Plan is a separate issue.

If a student would like to take a course at another university and have it applied to his/her degree at UT, the student needs to fill out a form called "Pre-approval to Take a Course at Another University". This form is available from the Academic Coordinator. The Graduate Director must approve the form.

A student who has obtained one master's degree at The University of Toledo and elects to take a second master's degree at The University of Toledo may use up to 12 semester hours from the first master's if the course work is appropriate for the student's program.

SECTION 4: Financial Support

Students who are eligible for or who have achieved regular admission to the graduate program on a full time basis are eligible for consideration for financial aid from departmental, college of engineering, and/or university sources. Formal consideration will not begin and no award can be made before the student is admitted as a regular graduate student (provisionally or conditionally admitted students are not normally eligible until their admission status is changed to regular). Aid is available in the form of graduate assistantships (GA) based on college controlled funds or research assistantships (RA) positions based on grant or contract funds to various faculty members, and fellowships awarded through the graduate school.

Graduate Assistantships (GA): A number of graduate teaching assistantship(s) are available each year for qualified full-time graduate students in the MIME Department. When available, these awards provide employment for the student to aid in financing a graduate education and experience in engineering education and research. In addition to paying student stipends, graduate assistants receive a fee waiver for up to 12 hours for instructional and out-of-state surcharge fees. The student is responsible for the general and laboratory/technology fees. Assistants are also entitled to an insurance subsidy but are responsible for the balance of the health insurance costs above the subsidy, information for which can be obtained from the Health Services Coordinator. The student, in turn, works approximately half-time (20 hours/week) at assigned duties for the Department. Such duties may include assignment as a laboratory instructor, a course grader, or as a research assistant to a professor. Assistantships are awarded on a competitive basis from among those graduate students who apply.

Fellowships: Graduate fellowships may also be available and are awarded to outstanding students. When available, fellowships provide support for full-time study without work assignment. In general fellowships are competitive and available through the Graduate School. Deadlines for candidate applications are announced annually. Information on graduate fellowships is available from the:

Graduate School
University Hall Room 3240; MS 933
University of Toledo
Toledo, Ohio 43606

Fellowship awards vary depending on their source. However, full fellowships generally provide a stipend that is comparable to a full graduate assistantship as well as tuition. Fellowship students do not have specific work assignments; however, they must satisfy any stipulation set by the fellowship source as well as maintain an acceptable level of academic performance and make appropriate progress on their thesis/dissertation research.

Dean's Fellowship Awards: The College of Engineering provides a small number of Dean's Fellowship Awards to exceptionally qualified students. These awards include a calendar year stipend at an enhanced level as well as a tuition scholarship. During the first semester of the appointment, Dean's Fellows work under the guidance of the Graduate Director to explore various topics of research and identify a faculty advisor. Dean's Fellows have the special privilege of presenting a research seminar in the College towards the end of the program. Dean's Fellowships may be renewed annually contingent upon maintaining excellent progress towards the degree in a manner consistent with the high standards of this award.

Research Assistantships (RA): Research assistantships are available through externally funded research grants. Appointments are available for graduate students to participate on sponsored projects or grants under the directions of the MIME faculty. These projects in general constitute the thesis or dissertation subjects for research assistants. Accordingly, research assistants are expected to focus their thesis or dissertation efforts on the sponsored research project. These awards are given directly by the faculty in charge of the sponsored research. Continuation or termination of the appointment is decided by the faculty advisor on the basis of the availability of funds and the student's progress in research and academic areas. RA's are very competitive. Research assistants are selected from among current MIME students as well as outstanding new students. Research Assistants are expected to work a minimum of 20 hrs./week at assigned research duties.

Scholarships: University scholarships from various industries, private foundations, government and other funding sources are available. As these scholarships become available and are announced, the notices are posted. However, the student must also seek their availability independently as the various stipends, tuition and fee waivers have different criteria for eligibility.

A limited number of these scholarships are available each year. For information on available scholarships, contact the Academic Coordinator's office (NI 4006).

Loans: Graduate students who attend the University of Toledo are eligible to make application for federal need-based financial aid. For details, check with the Student Financial Aid Office (Rocket Hall – Room 1200).

Selection is based on availability of funds and academic credentials to include: degrees, transcripts of all previous college level education and the corresponding grade point averages, and letters of recommendation, as well as GRE and TOEFL scores when required or when available. In addition, the previous classroom as well as research performance will be weighted heavily in considering the application of enrolled students.

Applications are accepted at any time from enrolled students as well as from new students entering the program during any term. The majority of awards, however, will be made in March or April to new students entering the program in August and to enrolled students to begin their support in August. The Graduate Director makes the decision on who will be supported as a GA from college sources. The decision on whom will be supported as an RA on each individual grant and contract is made by the principal investigator. Fellowship recipients are generally selected by the Graduate School and are highly competitive. The departmental role in this process is to choose among its applicants a few who are exceptionally well qualified to be considered in such competitions. If these applicants are not awarded a fellowship, they will normally be among the first to be offered assistance from some other source.

4.1 Tax Status

Research and Teaching Assistantships are subject to federal, state, and local taxes since they are considered compensation for services rendered. The final determination of whether such awards are taxable is the prerogative of the Internal Revenue Service and the corresponding authorities for state and local taxation.

4.2 Renewal of Financial Aid

Financial aid to incoming and continuing students is offered for the purpose of assisting them in the pursuit of their degree objectives. Awards are made for a fixed term with the possibility of renewal if sufficient funds are available, teaching or research needs exist in the department, and the student is making satisfactory progress in courses and research. The receipt of an award does NOT imply a commitment by the MIME department to subsequent awards. Offer letters to students describe the type of award (teaching or research), the time period of the award, and the stipend and other benefits, if any, attached to the award. If the award is to be continued, the student will receive a subsequent offer letter.

For incoming students receiving initial financial aid (GA's or RA's) support beyond the initial one-year offer is the primary responsibility of the student's permanent research advisor. The best assurance that a student has with respect to continuing financial assistance is to devote their efforts toward high scholastic achievement and the best possible progress toward the completion of their degree objective.

Any student with an assistantship that fails to maintain a 3.0 GPA may be given one semester to raise it to the minimum level. Failure to do so will result in termination of the assistantship. If a student's GPA falls below the minimum for two consecutive semesters, the student is subjected to suspension or termination.

4.3 Duration and Limitation of Support

Graduate students are supported for the dual purpose of accomplishing their assignments related to instruction and research and to enable them to complete their studies. In order to accomplish the latter, they must complete both the courses designated in their plan of study with satisfactory grades and their thesis/dissertation projects, when required. Thus, satisfactory performance by supported graduate students requires completion of work assignments at the time requested, completion of the courses in the plan of study during the specified term with satisfactory grades, and completion of the successive stages of their thesis/dissertation projects such that completion will be achieved within the duration scheduled for their support. Note that it is not sufficient to complete work assignments satisfactorily and on time while completing courses

in the plan of study with satisfactory grades. In addition, it is necessary for the student to be completing those incremental portions of thesis/dissertation research that are required to complete that portion of thesis/dissertation research that registration each semester implies. It is not satisfactory to postpone this effort expecting to accelerate progress at some later time in the program. Further, a proper plan of study will be timed to complete the program within the time-duration goals specified below.

Expected Duration of Study for Full Time Students:

The specifications below assume full time support. Semesters at partial support, including summers, are counted in proportion to that support. If the summer is taken off, that summer is not counted. The graduation goals for Ph.D. students are referenced from the semester after they have completed the requirements for their MS degree.

MS - Fellows, GA's or RA's who are supported by a grant or the department and whose work is also to be his/her thesis project, will normally be expected to complete the degree in four (4) terms of support. GA's pursuing a non-thesis option are normally expected to complete their degrees in two (2) to three (3) terms of support.

Ph.D. - Fellows, GA's or RA's who are supported by a grant or the department and whose work is also to be his/her dissertation project will normally be expected to complete their program in nine (9) to twelve (12) terms of support beyond the masters degree. In addition, Ph.D. students will be expected to satisfy the incremental goals as summarized in the following table:

**Incremental Goals
(Number of Academic Terms)**

Degree Classification	Advisor Chosen	Plan of Study Filed	Qualifying Exam and/or Dissertation Proposal	Degree Completed
M.S. [Thesis/Project]	1	1	NA	3 - 5
M.S. [Coursework]	1	1	NA	2 - 3
Ph.D.	1	2	2 or 3	9 - 12

In certain circumstances, the numbers of terms are increased. These are handled on a case by case basis.

If a student is picked up on support during his/her program or that student transfers with credits completed or shifts from RA to GA or vice versa, a decision will be made at that time on an appropriate goal for completion of the program. That is, students who receive departmental support part way through their program will not be funded as if they were just starting.

Commitments of support will normally be made for an academic year (two semesters) or for the remainder of an academic year for students picked up on support within that year or until the expected completion of a degree when that is within that academic year. The receipt of an award does not imply a commitment by the MIME department to subsequent awards. However, when a student is invited into the program as an MS/Ph.D. student with support, it will be understood that he/she will have high priority for continuation of that support to the successful completion of that degree as long as performance of duties, coursework and/or progress on thesis/dissertation research are satisfactory. It should be noted that the periods listed in the above table are maximum terms and support is *not* guaranteed for these periods. If there is to be a continuation of the award beyond the specified period (normally of 10 months), the student will receive a subsequent letter of appointment.

Excessive Credit Hours:

Students who have earned more than 172 graduate credit hours at The University of Toledo are not eligible for financial aid from general funds.

4.4 English Screening Exam for International Student Teaching Assistants

In order to assure that Teaching Assistants (TAs) are sufficiently skilled in oral communication in English (speaking and understanding) to fulfill classroom assignments, the State of Ohio requires that all international students involved in classroom teaching be certified as proficient before they are permitted to teach. The University implements this requirement by screening all new international students at the beginning of the fall term to determine their oral English proficiency. The screening is done by interview with a committee composed of departmental and University faculty and graduate and undergraduate students. There are three potential outcomes of the screening:

- Category 1: These TAs may have no direct contact with students. They may be utilized as graders or in some other capacity that does not involve any form of instruction or interaction with students for instructional purposes.
- Category 2: These TAs may have limited contact with students. They may assist with one-on-one help sessions like those that typically take place during office hours, but they may not conduct any regularly scheduled instructional event such as a lab, recitation or course section.
- Category 3: These TAs have no restrictions on their instructional interactions with students. They may conduct labs, recitations, small-group sessions or regular classes as deemed appropriate by the department.

It should be noted that the support as committed to new international students is not dependent on their placement under the screening exam. A student previously designated as belonging to Category 1 or 2 can be re-screened to move up to a higher category. Students who are placed in category 1 or 2 may be required to attend a training course conducted by the American Language Institute (A.L.I.) until they achieve a qualified rating. It is expected that such a student will earn a qualified rating after one or, at most, two terms in the A.L.I. course. If they do not, that will jeopardize their reappointment.

International student TA's who are appointed other than Fall term may go through a special screening process prior to the next fall term such that they can be given classroom assignments or they may be withheld from classroom.

SECTION 5: Registration Procedures

Graduate student registration is in most respects identical to procedures followed by all other UT students. Graduate registration materials can be picked up in the Graduate Studies office. In general, the student's advisor signs the registration form. Phone and Web registration do not require the approval of student's advisor. However, registered courses must be consistent with the Plan of study. A few special procedures include the following:

A. Project, Thesis, and Dissertation Research Registration:

Registration for thesis (MIME 696X where X is the number of credit hours and ranges from 1 to 9), project (MIME 6920) or for dissertation (MIME 896X) need the advisor's approval. They also require the advisor's personal section number which can be obtained from the advisor.

B. Supported Student (RA's, TA's and Fellowship Holders) Registration:

Supported students normally are required to register for a full course load during the fall and spring terms. MS students pursuing a thesis, project, or other independent research with an academic adviser may use the MIME 6900 course to meet the full time requirements. This course also requires a seminar course request form and the advisor's personal section number. New graduate students may also be required to demonstrate their research capabilities by enrolling in the MIME 6900 course. Details on this requirement will be provided during the Graduate Student Orientation. Ph.D. students may fill up the 16-hour total with dissertation, since there is no limit on these hours. During the Fall and Spring semesters, TA's and RA's are required to register for 16 credit hours.

C. International Students

International students on F1 student visas are required by immigration policy to register for a minimum of 9 semester hours per term. After completing all course requirements and registering for the required thesis/dissertation/project research credit hours, international students must take a letter to the Office of International Student Services verifying that they are required to register for at least 1 credit hour until they complete their research. **Failing to provide this documentation may result in a violation of their immigration status.** The summer academic semester is considered an authorized vacation. International students may choose to go to school full-time, part-time, or not at all during this semester and will be maintaining their legal status. Students must enroll for a minimum of 1 credit hour during the summer semester if they are completing their degree requirements during the semester.

Students who have maintained their legal immigration status may apply, through the Office of International Student Services, for one year of optional practical training based on the satisfactory completion of their degree requirements.

5.1 Registration through the Web

The University of Toledo has a registration through The University of Toledo Web for Students (<http://stuweb1.utoledo.edu>). Many MIME students choose to register this way as it is convenient and fast. If you know what courses you need to take from the list of your approved plan of study and wish to register over the telephone, you are free to do this without even making an appointment to see the Academic Program Coordinator or your advisor. **If you wish to register for classes outside your plan of study you must first secure the approval of your faculty advisor.** In addition, you will need to request the Academic Coordinator to place a copy of the newly approved courses in your file.

5.2 Registration at the Registrar's Office

The following procedure applies to advanced, open, continuous and late registration:

1. Pick up a blank course request form and a course schedule booklet from the Student Services Office. You are

expected to make an appointment with your Academic Adviser for course request approval.

2. If changes are to be made to your plan of study, you must see your advisor and request his or her approval.
3. Fill out the course request form indicating as many options as you possibly can. This is because if you get closed out of a course and you listed an alternate [option] on the course request form, you can get into that without going back to get another signature and then having to do an add-drop. You and your advisor can decide what is best to take next semester.
4. You now may go to the Registrar's Office in Rocket Hall then go for payment of fees.

It is recommended that you do not put registration and scheduling of classes off to the last minute. Plan ahead and get your course request form approved (if taking classes outside your plan of study) as soon as possible to increase your chances of getting the courses you request. Also, your chances are better if you go through advanced registration versus waiting until continuous or open registration since some courses may get canceled based on low enrollment figures obtained from the advanced registration.

5.3 Adding and Dropping a Course or Changing Sections

To ADD A COURSE before the end of third day of the semester using the web page, no approval is needed if you have the prerequisites and there is space available in the course. If there is no space available, you will need the signature of the **instructor** on the line where you listed the course and you must go to the Registrar's Office.

To ADD A COURSE before the end of the third day of the semester that has been listed as an alternate on the course request form, you can go to the Registrar's Office without additional approval. If there is no space available, you will need the signature of the **instructor** on the line where you listed the course.

To ADD A COURSE before the end of the third day of the semester that has not been listed as an alternate on the course request form, fill out an add-drop form. Obtain approval from your Academic Adviser and go to the Registrar's Office for registration if there is space available in the course. If there is no space available, you will need the signature of the instructor on the line where you listed the course.

To ADD A COURSE after the third day but before the 14th day of the semester, fill out the add-drop form and get the **instructor's** signature on the line where you listed the course even if the course is not closed. [Note that many instructors are hesitant to add a student much after the first week.] Go to the Registrar's Office for registration.

To DROP A COURSE any time during the first three weeks of the semester, you do not need approval and the course will not show up on your transcript. **Students my be held responsible for drop charges.** **Regardless, all hours registered charged against the student tuition scholarship will be credited to the total scholarship to which the student would normally be awarded.** Check the course schedule booklet for amount of charges.

To WITHDRAW FROM A COURSE after the 15th calendar day to the last day of the eighth week of the semester, pick up a withdrawal petition from the Registrar's Office Information counter in Rocket Hall 1200. Return it to the Registrar's Office no later than Friday of the eighth week. The instructor's permission is not required. You will be given a grade of "W" on your transcript. After the eighth week you can withdraw from a course only if the instructor agrees to give you an instructor withdraw (IW). You will need to state your reasons for a late withdrawal to the instructor. After the tenth week, the student cannot withdraw from the class. **A Tuition Fees Waiver cannot be applied to any course from which you withdraw.**

To CHANGE SECTIONS OF A COURSE, you do not need approval unless the section is closed. You do not need to list the section you want until you get to the Registrar's Office to see what sections are available.

Deadlines regarding the adding or dropping of courses appear in the Schedule of Classes (see College of Engineering Web Page). A student may not add or drop a course beyond the indicated deadlines.

SECTION 6:

Faculty Advisors, the Graduate Program Director, and the Academic Program Coordinator

The **Faculty Advisors** in the Mechanical, Industrial and Manufacturing Engineering Department help students decide upon a course of study and research area. After a student has been accepted for graduate study by the Graduate School and by the MIME department, the Graduate Director will normally be the initial advisor until the student and a professor (not necessarily the Graduate Director) have decided upon a course of study and research area. This professor will then be the student's permanent advisor. The advisor must be a full-time MIME faculty member. Such assignment of an advisor will normally be done during the first semester. When the student is prepared to select a permanent advisor, the student should notify the Academic Program Coordinator. This should be accomplished during the first semester of enrollment and no later than the second semester. A change of advisor later in the program is permitted, but a change can lengthen the program of study. A student's advisor will also normally be the supervisor of the thesis research.

A doctoral student is required to have a dissertation advisory committee consisting of at least five graduate faculty members at least one of which must be from outside the MIME department. The initial advisor for a doctoral student will usually be the Graduate Director. The student should visit with all department faculty so that a permanent advisor can be selected as soon as possible but not later than the second semester of registration. The purpose of the advisory committee is to help the student complete the program proposal, prepare for the qualifying examination, and evaluate and approve the dissertation research.

After successful completion of the qualifying examination, the student must form a doctoral dissertation committee and prepare a dissertation proposal. The dissertation committee must have at least five members at least one of which must be outside the MIME department. This committee may be the same as the advisory committee but it need not be. As soon as this committee is formed, the Graduate Director must be notified and the Doctoral Plan of Study updated. The dissertation proposal will be presented to the research committee for their approval, and if approved will be forwarded to the Graduate Director for approval and then sent to the Graduate School. As soon as the dissertation proposal is approved the student may begin the final phase of research.

The **Graduate Director** will be the temporary faculty advisor for all students until a permanent faculty advisor has been selected. In addition, the Director, in cooperation with the Graduate Advisory Committee, is responsible for the graduate programs within the MIME Department as well as the administration of the graduate policies described in this handbook. The Director also serves as a liaison between the MIME Department and the Graduate School. The Director supervises recruiting and admission efforts, coordinates graduate curriculum development, provides advice to students on the implementation of graduate policies, and certifies students for graduation.

The **Academic Program Coordinator** attends to the day-to-day operation of the graduate programs. The Academic Program Coordinator ensures that registration and scheduling issues are handled effectively and efficiently, maintains all graduate records, processes all admission applications, maintains the database, keeps Plans of Study and all other forms, and interacts with the students and MIME faculty. These forms can be found on the MIME website.

SECTION 7:

Graduate Degree Procedures

7.1 General Requirements

It is the student's responsibility to be aware of his/her own academic progress relative to grade-point average and graduation requirements. Each student should review his/her own academic progress at least once a term to make sure all requirements are being met. If a student has questions about his/her grades or graduation requirements, he/she should contact their academic advisor.

7.1.1 Minimum Continuous Enrollment

Graduate students who are working on their project, thesis, or dissertation and/or who are using University facilities and services (i.e., the library, health services, consulting with faculty, computer services, laboratories, etc.), must register for a minimum of one graduate credit hour each semester. Access to certain other facilities and services, such as the Student Recreation Center and parking, will require additional user fees.

7.1.2 Standards of Academic Performance

At the University of Toledo there are standards of academic performance which students must maintain. Students will be placed on probation and eventually suspended if they do not show improvement. To avoid probation and suspension, a graduate student must maintain (a) a grade point average of 3.0 on a 4.0 system for all courses completed, and (b) an average of 3.0 for courses completed in the department of specialization. Students whose GPA falls below 3.0 are subject to loss of support and dismissal from the Graduate School. Consult the University catalog for details on probation and suspension.

Only graduate courses in which a grade of C or better is earned can be counted toward degree requirements. Grades of C- or less do not count toward a degree but are included in the calculation of the GPA. **Students may be responsible for the charges associated with taking another course or repeating a course because of receiving a grade of C- or less.**

7.1.3 Mathematics Requirement

Among the 30 (36 for coursework-only students) hours required for the MS degree, a minimum of six (6) hours (or two courses) must be taken in approved courses at the 5000 or 6000 level involving a concentration of advanced mathematics. The same courses may be used by Ph.D. students in selecting courses to satisfy the mathematics requirement in their program. The MIME faculty recommend, but do not require, that MIME graduates should have knowledge of complex variables, differential equations, numerical analysis, probability and statistics, and linear algebra. These courses should not duplicate courses taken by the student in any previous training nor should they duplicate each other. Each student should select, with his/her advisor, courses for this requirement which will be most beneficial for the specialization area selected. The goals of the MS Mathematics requirements are:

- i) to insure that the MS graduates have the minimal mathematics tools to perform research in the student's chosen area of specialization,
- ii) to assist the MS students in preparing for the Ph.D. Qualification Examination.

The Mathematics requirements for an MS degree from the MIME Department are included in the list of approved mathematics courses for MS students.

7.2 Masters Program

The information presented here is intended to assist you in meeting the degree requirements for the Master of Science degree in Mechanical Engineering (MSME) and the Master of Science degree in Industrial Engineering (MSIE). Additional details are given in the Graduate School Catalog. Your cooperation in following the procedures outlined here will help to ensure that all necessary requirements are met in a timely fashion.

7.2.1 Plan of Study

As soon as possible after admission to the Mechanical, Industrial and Manufacturing Engineering masters program, a Master's Plan of Study form must be completed by each Master's student in conjunction with the student's advisor. A work copy may be obtained from the Academic Program Coordinator for advisor's approval before the final typing of this form. The plan of study maps the entire MS program.

The program must include 30 hours (36 hours for coursework only option) of engineering coursework, thesis, or project, selected from those approved for graduate study (5000 level or above). Each plan of study must complete the following requirements:

MS Degree Requirements	Thesis Option (semester hours)	Project Option (semester hours)	Coursework Option (semester hours)
Focus Area Core Courses	6 or 9****	6 or 9****	6 or 9****
Mathematics Requirement (see approved course list)	6	6	6
Thesis/Project/Focus Area Elective Courses	9*	9**	15***
Any Approved Engineering or Mathematics elective	9 or 6****	9 or 6****	9 or 6****
TOTAL	30	30	36

* 9 credit hours of thesis.

** 6 credit hours of project and 3 credit hours of focus area elective course.

*** 15 credit hours of focus area elective course.

**** for computational and experimental thermal science focus area

Of the coursework credit hours required for graduation, a minimum of 12 semester credit hours (or four classes) of coursework must be at the advanced level (normally 6000). Thesis, project or independent study will not be included as part of the 6000 coursework requirement.

The plan of study for the MS degree must be filed before 16 hours of academic coursework have been completed. For full-time students this will normally require that the plan of study be filed before registration for the second term.

It is understood that the first plan of study filed by a student may be subject to change as the student progresses. However, whenever a student's plan changes it is the student's responsibility to bring the Graduate School records up to date, especially at the time the student registers for the last time before completing the requirements for the degree. Changes to an approved Plan of Study should be submitted on the Graduate School form entitled "Graduate School: Plan of Study Course Substitution." This form is available from the MIME Student Services Office or the Graduate School.

7.2.2 Thesis, Project or Course-Work Degree

Graduate students in the MIME department may elect to pursue a thesis, a project or coursework-only master's degree. Research assistants who have received stipend support for one or more terms at any time during their graduate study are required to complete the thesis degree. A thesis is awarded as 9 credit hours toward the minimum requirement of 30 credit hours with registration under MIME 6960. Projects involve work at a smaller scale and are awarded as 6 credit hours of registration under MIME 6920 toward the minimum requirement of 30 credit hours. Note that students being supported by a partial or full tuition scholarship and who have selected non-thesis or project degree option will not be eligible for research assistantships at any time during their degree studies.

7.2.3 Summary of Steps toward Graduation

1. Admission

File Application Form, transcripts, and three (3) letters of recommendation. (GRE, TOEFL scores when required).

2. Registration

Meet with the MIME Graduate Director or permanent advisor to register for initial courses.

3. Advisor

Select an advisor if thesis or project degree option is selected. Full-time students pursuing a coursework degree (first term registration of 12 or more credits) will be assigned permanent advisors before the end of the first term (file appropriate form in MIME office).

Part time students (First term registration of 11 or fewer credits) will be assigned permanent advisors before the end of second term, (file appropriate form in MIME office).

4. Academic Standards

At all times during the program, the student must maintain a GPA of at least 3.0 in (a) all graduate course work and (b) in all graduate MIME courses.

5. Plan of Study

A plan of study must be filed before completion of 16 credit hours. Thus, full-time students should file before completion of their first term. Blank forms are available on the College of Engineering web site. The Plan of Study may be changed subject to the approval of the advisor, the Graduate Director, and the Graduate School.

Restriction on changes:

A student cannot change from thesis-option to course or project option if he/she received research assistantship stipend for at least one term.

6. Advisory Committee (not required for course work option)

The advisory committee membership and thesis/project title must be filed before the conclusion of the second term on a notice of thesis/project form (available on the MIME website). For the M.S. thesis option, the student must submit a "Notice of Thesis", an "Assurance of Compliance" and an "Intellectual Property Sign-off" forms to the Graduate School. For the M.S. project option, the student must submit an "Assurance of Compliance" and an "Intellectual Property Sign-off" forms to the Graduate School. A copy of the notice of thesis/project form must be placed in the student file. Forms are available on the College of Engineering website: http://www.eng.utoledo.edu/grad_studies/forms.html.

7. Application for Degree

Must be filed no later than the fourth week of the term during which degree is to be awarded; forms are available at the Graduate School in University Hall or on the College of Engineering website: http://www.eng.utoledo.edu/grad_studies/forms.html.

8. Thesis/Project Defense (* areas apply for thesis option)

- i) Complete hard copy of thesis/project accompanied by a letter of transmittal from advisor must be distributed to the advisory committee no less than two weeks prior to exam.
- ii) See the Academic Program Coordinator in the MIME Student Services office to schedule exam and publish announcement not less than two (2) weeks prior to the defense and see the Department Secretary to arrange room.
- iii) Prepare a presentation, not longer than 40 minutes, utilizing appropriate visual aids (slides, transparencies). The results of your thesis/project research must be presented to and approved by your

advisory committee during a final oral examination. The public should be invited to the thesis/project defense.

- iv) Following a successful exam, committee members sign thesis/project cover sheet (available on the College of Engineering website: http://www.eng.utoledo.edu/grad_studies/forms.html).
- v) Submit a copy of the UT cover page, the College of Engineering cover page, and an abstract of your thesis/project to the office of the Associate Dean of Graduate Studies of the College of Engineering.
- vi) *Submit the original (on paper approved by the Graduate School) and one copy of the thesis to the Graduate School not less than 30 days before scheduled graduation.
- vii) Submit an unbound copy to the Academic Program Coordinator.
- viii) It is your responsibility to provide your advisor and committee members with copies of your thesis.

9. Departure from the MIME Department

- i) All keys obtained from the Physical Plant must be returned to them as they are in your name.
- ii) Return all keys to desks and filing cabinets to the secretary in the MIME department office since you received those keys from her.
- iii) Remove all personal belongings from your desk; leave the desk and filing cabinets unlocked when you leave.
- iv) Leave a forwarding address for forwarding mail.

7.3 Doctoral Program

The information presented here is intended to assist you in meeting the degree requirements for the Doctor of Philosophy in Engineering Science degree. Additional details are given in the Graduate School catalog. Your cooperation in following the procedures outlined here will help to ensure that all necessary requirements are met in a timely fashion.

7.3.1 Plan of Study

As soon as possible after admission to the MIME Ph.D. program, a Doctoral Plan of Study form must be completed by each doctoral student in conjunction with the student's advisory committee. A work copy may be obtained from the College of Engineering website (<http://www.eng.utoledo.edu/grad/forms.htm>) for advisor's approval before the final typing of this form. The plan of study maps the entire Ph.D. program.

The Doctoral Program Proposal includes the coursework to be completed, the proposed dates for the qualifying exam, and the membership of the advisory committee. A copy of this four-page form is available from the College of Engineering website (<http://www.eng.utoledo.edu/grad/forms.htm>). The department requires that this form be filed before completion of the third term of study. A minimum of 15 credit hours of advanced graduate coursework is required. In addition, specific core courses may be required by the student's research focus area. A minimum registration of 90 hours is required for the Ph.D. degree. This figure includes an allowance of 30 hours for the master's degree and registration for research (MIME 8900) and dissertation (MIME 8960). The student and his/her advisor should reach agreement on the entire program before the plan is submitted for approval.

Specifically, the student is required to complete the Doctoral Program Proposal Form following instructions listed below (Please refer to the form for the following references and instructions):

- Page 1.
 - a. Complete the top portion including date, name, previous degrees with degree titles, dates, University, and major.
 - b. Seeking Degree In line should be completed as follows:
Ph.D. in Engineering
 - c. For *College Language Requirement* enter None.

- Page 2.
- a. Item 2: The proposed date for the *Residence* section must include starting and ending date and encompasses a minimum of two consecutive semesters of full time study (24 semester hours).
Graduate assistants should include a period of at least four consecutive (excluding summer) semesters of at least half time registration. In either case, at least 24 credits must be completed during the Residence period. If the residence requirement has been satisfied, enter the date on which it was completed.
 - b. Item 3: Under the *College of Engineering* column, fill in the proposed time at which you expect to take the Qualifying Examination.
 - c. Enter your current grade point average.

- Page 3.
- a. Item 5: Enter the names of your advisory committee members and their respective departments.
 - b. Item 6:
 - (i) List the courses taken to complete your Masters degree, date and place taken, credit hours and grades. If the courses were not taken at UT, indicate whether credit hours are quarter or semester hours.
 - (ii) Draw a horizontal line at the end of the Masters course list and total the hours.
 - (iii) List the courses to be taken for the Ph.D. together with the actual or proposed date. Include grades for completed courses. NOTE: A minimum of 60 hours beyond the Masters must be listed so that the total of Masters plus Doctoral is at least 90. **Dissertation research (MIME 8960) should be included and must be at least 30 hours. Only Ph.D. candidates may register for dissertation research (MIME 8960).**
 - (iv) Total the credit hours for the degree including those approved from the Masters (not to exceed 30). The total must be at least 90.

- Page 4.
- a. Item 7: Insert the projected number of hours for the dissertation, a proposed research director, and a tentative title or area for the dissertation research.
 - b. Item 8.
 - i.) There is no teaching requirement for the Ph.D. in Engineering.
 - ii.) Enter the date on which you began work on the Ph.D. This date does not encompass the Masters work.
 - iii.) Sign and date the form and have the Chair of your advisory committee sign and date the form.

When the above has been accomplished, submit the Doctoral Program Plan to the Graduate Program Director for approval. Both you and your advisor should keep a copy and a copy should be submitted to the Graduate Program Director to be included in your permanent file. After approval by the Graduate Program Director, the plan will be sent to the Graduate School for their approval.

It has been known that early selection of a permanent advisor and early filing of the plan of study is necessary to assure that the graduate program is planned from the outset. It should be noted that circumstances that require modification of the plan of study are not uncommon. Indeed there are cases where it may be appropriate to change courses and in some cases advisors or committee members. Procedurally either or both of these changes can be accomplished by filing a revised plan of study. (Note: The approved copy of the plan of study should be forwarded to the department office for the student's file. Advisors may request a copy for their files.)

7.3.2 Ph.D. Course Program

A satisfactory course program in all focus areas is developed jointly by the student and the Dissertation Advisor, subject to the approval of the Graduate Advisory Committee. The student is expected to meet the following minimum guidelines.

Minimum Number of Course Credits

A minimum of 15 credits of regular (non-independent study) courses taken for a letter grade beyond the MS degree is required of which 12 credits must be departmental courses. All required courses are at the advanced level (normally above the 6000 level).

- Other courses taken may include non-department courses, independent study (research) courses, and courses taken S/U.
- Students entering the direct Ph.D. program with a B.S. degree must complete 27 credits of regular departmental courses for a letter grade at the advanced level (normally 6000 and above). Project credits are not counted on this total.
- Departmental courses include those listed as MIME courses, and those related in subject matter and approved by the Dissertation Adviser as being equivalent to "departmental" courses with the numbering level set according to the MIME standards for numbering courses.
- If graduate level course work or a master's degree is completed at another school, the student may be able to transfer up to 50% of the required course credits by submitting an Application for Credit Transfer. The work must have been done after the completion of bachelor's degree and at a school acceptable to the Graduate School. Only courses in which the student received a grade of B or better will be considered. A quarter credit counts as 2/3 semester credit.
- The Graduate School Admissions Office will determine the admissibility of credit from a foreign university.

Other Minimum Course Requirements

The Ph.D. degree in the MIME department is a specialized degree, but the department has a breadth requirement for the Ph.D. degree since it builds on a broad base of physics and mathematics. The program therefore normally includes core courses required of masters students as well as at least 6 credits of formal course work in advanced physics, mathematics, or computer science courses, depending on the area of research. Candidates with primarily experimental projects should include at least three credits on experimental techniques. This requirement is waived if suitable courses have already been taken at MS level. In addition to the minimum 15-credit requirement, all Ph.D. candidates must participate each semester in the following (or equivalent) seminar: MIME 6930.

- Deviations from these guidelines are expected, but must be requested by petition and approved by the department Graduate Director. As a general rule, the courses should consist primarily of graduate courses in engineering and sciences, although the candidate's Ph.D. committee may approve a limited number of upper division undergraduate courses outside of engineering and sciences, as long as such courses contribute to a strong and coherent program.

7.3.3 Ph.D. Qualifying Examinations

Purpose

The qualifying examination provides an assessment of whether the student is prepared to carry his/her Ph.D. program to a conclusion and involves an evaluation of the student's preparation in core areas fundamental to his/her area of concentration. The qualifying examination was instituted in the MIME department as the main requirement for Ph.D. candidacy. Passing of this exam will consequentially entitle a student to a Ph.D. dissertation advising committee and prepare the student for candidacy.

Scope

The qualifying examination is an instrument designed to give the entire faculty of the department an opportunity to evaluate

the students' academic abilities and promise. The exam seeks to assess the students' understanding of the requisite engineering fundamentals, their capacity to think clearly, and their ability to express their technical knowledge clearly in writing.

The exam consists of an engineering mathematics section and an engineering fundamentals section constrained by the examinee's departmental focus area. The former pertains mainly to the first-year graduate level engineering mathematics. The latter pertains only to advanced undergraduate-level and first-year graduate level industrial or mechanical engineering principles. Advanced graduate engineering topics, while not discouraged, are not required. The exam is based on material taken from the subject areas identified by the focus area the student is admitted into and published in the document Requirements for the Ph.D. Qualifying Exam in the MIME Department. The list of subject areas is updated as necessary when focus areas deem appropriate. Students should not approach faculty with individual questions on the material covered or recommended preparation but should use the information gathered and posted by the department for this purpose.

Eligibility

Students who intend to work for the Ph.D. should take the qualifying examination during their first year of post-masters graduate study at UT. Admission to the qualification examination is limited to MIME graduate students. First-year graduate students will normally be admitted if their GPA in focus area courses numbered 6000 or above is 3.50 or better. Thesis, special studies, seminar, lower division, non-technical and Pass (or Satisfactory) grades will generally be excluded in computing the averages. Students with a UT masters degree who have not taken the qualifying examinations may take the qualifying examinations for admission to the Ph.D. candidacy on the same basis as transfers from other schools. Early qualification is encouraged.

Applicants not meeting these standards will be considered only if the application is accompanied by a statement giving acceptable supporting evidence of academic achievement based on the latest 30 credits of coursework. It is the responsibility of the applicant to bring the most favorable aspect of their records to the attention of the department by means of such a statement.

Schedule and Format

Full-time students are required to take the Ph.D. qualifying exam by the beginning of the third semester and pass it by the beginning of the fourth semester of graduate study in the MIME Department. Part-time students are not required to adhere to the above schedule; but they are advised to set up a schedule for the taking the qualifying exam as early, and as close to this schedule, in their program as possible (no later than the sixth semester). A request by a student for taking the exam earlier than the above schedule will be honored. Students planning on taking the qualifying exam should petition for the exam by informing the Academic Program Coordinator in writing of their intentions. This notification should be given at least two months prior to the exam date.

In all cases, two attempts to pass the exam may be allowed. If the exam is failed in the first attempt, the student must petition the Graduate Program Director to re-take the exam. Granting permission to repeat the exam is not automatic. If the petition is not granted or the exam is failed both times, the student is dismissed from the program.

The qualifying exam may be given at most twice each academic year. Since the majority of graduate students begin their graduate program in the Fall term, most graduate students are required to take their qualifying examination in the Spring semester of their first year. The exam is normally offered in the Spring semester during the 13th week of the term. Students entering in the Spring term will be provided an opportunity to take the qualifying exam in the Fall term (during their second semester).

The exam is given on three days of the qualifying exam week, typically with two two-hour sessions per day of written work (from 1 p.m. to 5 p.m.). The first day of the examination comprises the open and closed book parts of the mathematics exam. The second day of the examination comprises typically the open book portion of the exam in the focus area. The candidates are allowed to take into the exam only books and notes specifically approved by the committee responsible for the exam. Any irregularity will be considered equivalent to failing the exam. The closed book part of the exam in the focus area will normally be given on the third day of the exam.

Administration

An *ad hoc* Ph.D. Qualifying Exam Committee of at least three members chaired typically by the respective focus area leader will administer the qualifying exam in each focus area. Any and all department faculty may submit questions (accompanied by solutions) for the exam.

The Qualifying Exam Committee will be responsible for notification of exam days and periods, solicitation of questions from faculty, selection of exam questions, exam room arrangements, evaluation of exam results, and recommendation to the Graduate Advisory Committee for final approval. The Committee may ask faculty members to modify or abbreviate their questions before accepting them. The committee will ensure, to the extent possible, that questions from all faculty members are included in the qualifying exam.

The respective authors of the questions will evaluate answers to the exam questions. Evaluation is typically by numerical scale 0-100 for each exam, with 70 or higher being considered a passing grade. The Qualifying Exam Committee will summarize the evaluations of exam questions and makes a pass/fail recommendation to the Graduate Advisory Committee. This committee will deliberate about the qualifying exam and reach a decision concerning all candidates no later than one week after receiving the recommendations of the Qualifying Exam Committee.

The qualifying exam is graded anonymously. Students are required to write a code number or letter on what they submit rather than their names. The key to the code numbers is kept for the department by the Graduate Program Director. The identification of students will be kept from faculty grading the exam until after the faculty report their results to the Chair of the Qualifying Exam Committee. Faculty do not see the result of other faculty's grades until after all grading is complete.

Announcement of Exam Results

Results of the qualifying exam will be available approximately two weeks from the date of the exam. Students are informed of the results of the exam only after all students' grades are determined. The Director of Graduate Studies will contact individual examinees in writing immediately after the Graduate Advisory Committee makes a decision.

All grievances concerning the qualifying exam will be filed with the Graduate Program Director and will be reviewed by the Graduate Advisory Committee. The Chair and/or the Graduate Program Director will meet with the individual examinees immediately after the review of the grievance by the Graduate Advisory Committee has been conducted in order to discuss the results.

Students who do not complete the qualifying examinations successfully will ordinarily not be permitted to continue in the Ph.D. program. Such students may petition the department for special consideration. This petition must be made within one month after the date examination results have been mailed out. The Department Qualifying Exam Review Committee, chaired by the Department Graduate Director, will then either (1) confirm the examination results (the student will then no longer be considered as a participant of the Ph.D. program) or (2) reverse the decision; or (3) recommend that the student be allowed to take the examination again during the next scheduled exam, possibly subject to specific performance standards.

7.3.4 Ph.D. Candidacy Requirements

Candidacy for the Ph.D. degree begins officially with the approval of the application, and lasts for a period of five years. Before applying for candidacy, the following requirements must first be satisfied:

1. During the first semester of work beyond the MS degree, the student decides on coursework plan, gets approval from his/her Academic or Dissertation Adviser, and have the Advisor sign the course plan application to be submitted to the Academic Coordinator. The form should contain a list of all graduate courses completed at UT and elsewhere and all courses yet to be completed.
2. Successful completion of the departmental Ph.D. qualifying exams. The exams should be taken no later than the Spring Semester of the first year of graduate study beyond MS degree (the second year of graduate study for direct Ph.D. students with BS degrees in ME or IE).
3. The student will arrange with a faculty member (usually, but not always, on the MIME Department faculty) to serve as Principal Dissertation Adviser. The Principal Adviser must be a member of the College of Engineering Graduate Faculty. If the Principal Adviser is not a member of the MIME faculty, at least one of the advisers must be associated with the MIME Department. A Senior Research Associate may serve as an Associate Dissertation Adviser (co-advisor) if prior approval is obtained from the Ph.D. Advisory Committee Chair. The selection of a Ph.D. Dissertation Advisor requires agreement by both the student and the faculty member. Potential Dissertation Advisers may wish to become acquainted with the student through a special studies course or project before agreeing to supervise student's Ph.D. dissertation. Hence students should start becoming acquainted with the faculty early in their program.

4. Student's overall graduate GPA (excluding thesis and independent study courses) must be at least 3.30.

Completing the Application for Doctoral Candidacy

When the above requirements have been met, the student may file his/her application for Ph.D. candidacy. The department requires that the application be filed within one year of the time the qualifying examination is passed. The department also requires that a new student file the application for candidacy before completing the second year of doctoral study at UT. The student's candidacy remains in effect for five years from the date of approval by the department.

The application should be signed by (a) the Principal Dissertation Adviser, (b) the Dissertation Co-Adviser (if any), and (c) the Department Graduate Director. The form should also contain a list of a minimum of 15 credits of graduate courses completed and courses to be completed which are to be used to meet the required coursework for the Ph.D. degree.

7.3.5 Ph.D. Dissertation Requirements

Doctoral Dissertation Proposal

After the student and the advisor have agreed on a dissertation topic, the student must write a short dissertation proposal. The proposal documents the study through a brief introduction to the subject stating the dissertation purpose and including a list of references, which will indicate that the student has performed a thorough literature search. The proposal serves to:

1. Ensure that the student has the approval of the topic at an early date
2. Provide an opportunity for the MIME faculty to offer suggestions and references on the proposed dissertation project.
3. Provide a safeguard against duplication of research effort.
4. Keep the faculty aware of departmental activity.

Therefore, it is important that the dissertation proposal be written early in the dissertation research and not significantly after the research has begun. The student will present and successfully defend his/her dissertation proposal.

After approval by the Ph.D. Dissertation Committee, the advisor will submit the thesis proposal to the Department Graduate Director for review. The dissertation proposal format consists of the following items:

1. A title page giving the proposed title of the dissertation, the student's name, the names of the Ph.D. Dissertation Committee, and the date.
2. The proposal organized to present the study's purpose, scope, methodology, significance and expected results. The proposal should be as concise as possible.
3. A list of literature references.

A copy of the thesis proposal should be filed in the student's permanent file in the department office.

Dissertation Defense

Ph.D. students must have established candidacy for the Ph.D. degree before presenting and defending dissertation research. The dissertation defense is an oral examination intended to verify that the research represents the candidate's own contribution to knowledge and to test his or her understanding of the research. The examination is normally open to the public and should not exceed three hours in length. A passing candidate in the oral examination is expected to:

1. Present a comprehensible account of the research and its potential consequences to scholars whose special areas of interest lie outside the candidate's area of research;
2. Demonstrate his or her ability to explain and defend the dissertation and its contribution to knowledge before Ph.D. Dissertation Committee and other experts in the field;
3. Demonstrate the capabilities for which a Ph.D. degree is awarded by answering satisfactorily any questions

considered pertinent by the examining committee.

The Ph.D. Dissertation Committee must consist of at least five graduate faculty members. The Chair of the examination will be the candidate's principal advisor. The other members will usually be the co-advisor (if any), faculty members in a research focus area with at least one committee member outside the focus area and at least another member outside the department.

The dissertation defense should be scheduled at least two weeks prior to the examination to allow a notice to be advertised in the department and arrange the date and time and reserve a room. The student will provide the Dissertation Committee Chairperson with a folder that includes the exam schedule, Department and University dissertation approval forms for the exam, and an abstract. The student must provide draft copies of the dissertation to members of the examination committee at least two weeks before the exam.

Dissertation Publication

The Doctoral Dissertation Committee (with the Principal Dissertation Adviser as the chair) have the responsibility of supervising the candidate's research work and insuring that high standards of performance are maintained. To that end, it is the candidate's responsibility to keep the Committee members informed about his or her research progress. A satisfactory completion of the research work is usually implied if a minimum of two technical papers are accepted for publication in professional archival journals. The signatures on the candidate's dissertation represent the final certification of its adequacy.

7.3.6 Summary of Steps toward Graduation

1. Admission

File an application form, transcripts, and 3 letters of recommendation.
(GRE, TOEFL scores when required).

2. Registration

Meet with the MIME Graduate Director to register for initial courses.

3. Advisor

Select an advisor during first term (full time students). File the 'Designation of Advisor Form' (available on the MIME website).

4. Plan of Study

Specifies coursework, language, proposed dates of qualifying exam, and advisor committee membership. Forms are available on the MIME website. The department requires that this form be filed before completion of the third term of post-masters study.

5. Qualifying Exams

The Graduate Advisory Committee administers the qualifying exams during the Spring term. The exams are arranged through your advisor and should occur after 30 to 45 of graduate coursework hours. Research proposal follows, arranged by advisor and committee.

6. Admission to Candidacy

The admission to candidacy form needs to be filed after the qualifying exams are passed. Forms are available on the College of Engineering website: http://www.eng.utoledo.edu/grad_studies/forms.html.

7. Application for Degree

Must be filed no later than the second week of the term during which degree is awarded. This form is available at the Graduate School in University Hall.

8. Dissertation Defense

- i) Complete typewritten dissertation accompanied by a letter of transmittal from advisor must be distributed to advisory committee not less than two weeks prior to exam.
- ii) See the MIME department academic coordinator to schedule exam and publish announcement not less than two (2) weeks prior to defense. Also see the Department Secretary to arrange a room.
- iii) Prepare a not longer than 40 minute presentation utilizing appropriate visual aids (slides, transparencies).
- iv) Following successful exam, committee members sign dissertation cover sheet (available on the College of Engineering website: http://www.eng.utoledo.edu/grad_studies/forms.html).
- v) The original, final, corrected, unbound copy of the dissertation on UT tower bond paper signed by the committee and the department chairperson must be submitted to the Graduate School not less than 30 days before scheduled graduation. In addition, one unbound copy on fine quality bond paper must also be submitted to the Graduate School Office. This paper can be purchased through the UT Bookstore.
- vi) One unbound final corrected copy must be submitted to the MIME office.
- vii) It is the responsibility of the student to provide each committee member with a bound copy of his/her dissertation.

9. Departure from the MIME Department

- i) All keys obtained from the Physical Plant (work control) must be returned to them as they are in your name.
- ii) Return all keys to desks and filing cabinets to the secretary in the MIME office.
- iii) Remove all personal belongings from your desk; leave the desk and filing cabinets unlocked when you leave.
- iv) Leave a forwarding address for forwarding mail.

SECTION 8: Academic Policies

8.1 Absence from Class

The Mechanical, Industrial and Manufacturing Engineering Department expects students to meet attendance requirements in all courses. Attendance requirements vary depending on the course and the professor. It is the student's responsibility to know what each professor requires. If a student finds it necessary to be absent from a laboratory class or exam due to illness of emergency nature, it is the student's responsibility to notify the professor in advance of the class or exam or as soon as possible thereafter. Make-up procedures are at the discretion of each professor.

If a student wishes to be absent from the class for a religious holiday or observation, the student must notify the instructor within the first three weeks of class of the specific dates on which he/she will be absent. The faculty are encouraged not to schedule examinations or mandatory exercises that require class attendance on commonly recognized religious holidays. For further information regarding department policy on conflicts between academic requirements and religious holidays, contact the Graduate Director.

8.2 Problems with a Course

Problems, whether of an academic or nonacademic nature, with a MIME course should be dealt with as soon as possible. It is the student's responsibility to contact the appropriate person for the course. The first contact by the student should be the faculty member directly responsible for the course. If the issue cannot be resolved with the professor, the student should then discuss the issue with his/her academic advisor. Any issue not resolved at this point can be taken to the Graduate Director, who will attempt to provide assistance.

8.3 Minimum Course Load

Students receiving any form of financial assistance are expected to maintain full-time standing. A full-time student may not reduce his or her course load to fewer than 12 credits (during a semester), unless permission has been received from the Graduate Director.

8.4 Course Audits

A student may audit a course with the approval of the instructor and the Graduate Director or an academic advisor. Auditors are expected to attend class with regularity and complete assigned course work. Auditors may participate in the class and take examinations only as permitted by the instructor. Audited courses carry no degree credit and are not graded.

Audited courses do not count toward the minimum number of credits needed for full-time standing for the term, but do count toward the term's credit load for fee purposes. The deadline to change a course from a credit basis to an audit basis, or from an audit basis to a credit basis, is the same as adding or dropping any regular course and is specified in the University Academic Calendar. Audited courses may affect eligibility for financial aid (students should consult an advisor in the Office of Student Financial Services).

8.5 Grade of Incomplete

A grade of Incomplete or "IN" may be reported for a student who has carried a course with a passing grade until near the end of the semester and then, because of illness or other unusual and substantiated circumstances beyond the student's control, has been unable to take or complete the final examination or to complete some limited amount of work.

A grade of Incomplete will not be given to a student who stays away from a final examination unless it is proven to the instructor that the student was prevented from attending, as indicated above. In absence of such proof, if the term work convinces the professor that the student cannot pass, the grade will be an F.

A student who receives a grade of Incomplete must complete the course no later than the close of the next semester of his/her residence at UT. If not completed during this time period, the Incomplete will lapse into an F (failing).

8.6 Final Examination Schedule

The semester's final exam schedule includes one two-hour period for each course of two or more credits. This period is used for an exam or other instructional activities as deemed appropriate by the professor and the focus area instructional unit offering the course.

Take-home final exams are due at the scheduled period. Final exams or other final period activities cannot be scheduled during the last two weeks of classes.

The time of the final period may be changed only with prior approval of the dean. Seminar courses, independent study and directed study courses are exempt from these regulations. Students enrolled in these courses should contact their professors regarding final evaluation requirements.

Students should attempt to avoid having more than two exam periods within 24 hours. If a student has more than two final exams within 24 hours, the professor may, within guidelines adopted by the University faculty, reschedule to avoid hardships. Rescheduled exam periods shall be of the same general nature and quality as the original period. If the final exam schedule places too many exams in a 24-hour period, the student should talk to his/her professors regarding possible exams schedule changes. This must be done prior to the end of the eighth week of the semester.

8.7 Independent Study Course Work

Independent Study (MIME 6990/8990) is intended to be used in a one-to-one situation. Typically, a faculty member guides a student, who works independently of other students, on a project or topic of interest. Certain rules govern enrollment in an independent study course:

- A student must be in good standing.
- No more than 6 credits of Independent Study work may count toward the M.S. requirement.
- A letter grade must be received if the credits are to be applied toward the required minimum coursework.

Prior to enrollment in an Independent Study course, a student must obtain the permission of the faculty member supervising the course by having the faculty member fill out and sign a Seminar Course (Independent Study) Form. This form must be approved by the student's Academic Adviser and a copy turned in to the Academic Coordinator. A brief resume of attainment, written by the student at the end of the course, should be retained in the student's academic file.

Exception to the above requirements may be made only with the permission of the academic advisor or the Graduate Director.

SECTION 9: General Information

9.1 Advisory Committee

MS thesis, MS project and Ph.D. students are required to have an advisory committee.

MS Thesis and MS project Students - Early in the program the student and his/her advisor should select faculty members to serve on the advisory committee. A minimum of three members of the UT graduate faculty including the advisor, who serves as Chair, is required. At least half of the members must have an appointment in the MIME Department. The purposes of the committee are to provide advice to the student and his/her advisor on the conduct of the research, to read, offer suggestions and approve the manuscript, and to assess the success of the oral defense of the thesis or project. Once the proposed members of a thesis committee have agreed to serve, the membership should be reported to the graduate school on a notice of thesis form along with the Assurances of Compliance with Applicable Federal and State Regulation Governing Research Form. The yellow copy of notice of thesis should be returned to the department for the student's file. Both forms must be filled in completely or it could significantly delay the graduation of the student. The department requires that this be completed before the fourth registration.

Ph.D. Students - The student and his/her advisor in consultation with the graduate advisor should select an advisory committee before the end of the third term of study. The membership is designated on the Doctoral Proposal along with the Assurances of Compliance with Applicable Federal and State Regulation Governing Research Form. A copy of the Doctoral Proposal should be given to the department office for the student's file. The minimum membership is five members of the graduate faculty, including the advisor who serves as chairperson. The majority of the members must have appointments in the college of engineering and at least one member must have his faculty appointment outside of MIME Department. The members of the advisory committee should represent the principal subject areas of the student's program. The committee functions include: offering advice on the formulation of the plan of study, participating in and administering the qualification examinations, assisting in the selection and prosecution of the research program to include criticizing and approving the dissertation and assessing the success of the oral defense of the dissertation.

9.2 Thesis or Project or Dissertation Defense

Working under the supervision of his/her advisor with advice from his/her committee, the student conducts the research that will become the thesis/project/dissertation. At an early stage of the work, the student and advisor should agree on a detailed outline for the document. (The student may want to review the outline with the remainder of his/her committee.) As the research nears completion, the student should develop a draft of the document and submit it to his advisor for review (as a complete document or chapter by chapter). (The Graduate School has produced a pamphlet describing the required manuscript form. It is available in the department office.) The advisor will review the manuscript, provide editorial criticism, and make suggestions for revision and reorganization. It is desirable that drafts, revisions, and the final manuscript be typed on a word processor as this will facilitate adopting improving suggestions with minimal difficulty or added expense. The process of criticism and revision between the student and advisor should continue until both are satisfied that the document is complete in all respects, is well organized, well written, and of professional quality.

Once the document has reached that stage, it is ready for wider criticism. The advisor should prepare a letter of transmittal to the committee asserting that he is satisfied with the form and substance of the document, as well as asking them both to read and criticize the document and to participate in the defense. The student is responsible for coordinating an examination time that is satisfactory for each member of the committee and for reserving a room at the proper time. The student should arrange a time and place for the examination no sooner than two weeks after the document has been distributed to the advisory committee.

The MS thesis/project and Ph.D. dissertation defense is a public examination. The oral examination or defense for a thesis, project and dissertation usually lasts about two hours. The room should be reserved for three hours and should accommodate the committee and a reasonable number of guests. The students should prepare an announcement and see that it is posted in

Nitschke Hall and distributed to departmental faculty and graduate students, interested faculty in other departments, and the secretary at least two weeks before the exam. The student should prepare an oral discussion of the document that can be completed in about 40 minutes, leaving time for discussion. Keep in mind that the committee has read the document. Although most of the guests will not have read it, it is not appropriate to attempt to read segments of the document as part of the presentation. The presentation should describe the approach and summarize the findings. Visual aids that facilitate communication should be prepared.

Following the presentation and discussion, the committee will meet privately with the student. This will allow discussion of their criticism of the document and/or to test the student's knowledge of other aspects of the program. Finally, the committee will excuse the student so that they can deliberate the outcome of the exam. The student will be informed that he/she has passed or has not passed the examination. If the examination was not passed, the student will be informed as to the deficiencies and as to how and when they can be corrected. If the examination is passed, the committee will sign the thesis/project/dissertation cover sheet at the conclusion of the successful exam. The committee may recommend that certain parts of the manuscript be revised before affixing individual signatures. Note that the student remains responsible for making corrections and/or revisions to the manuscript to the satisfaction of the committee. Once the document has been revised and corrected, the committee will sign the signature page in the thesis/project/dissertation. The signature sheet must also be signed by the department Chair. Thesis and dissertation signature sheets must be delivered to the graduate school 30 days before the student is to graduate. A complete and correct unbound copy of the final manuscript must be submitted to the department prior to graduation.

9.3 Thesis and Project Format

The master's thesis must be type-written to meet the style and format requirement of the Graduate School. A set of instructions for preparing the thesis manuscript can be obtained at the Graduate School office. The master's project should follow the same guidelines. The student has the sole responsibility for preparing the manuscript.

A thesis signature form must be included with the original thesis manuscript submitted to the Graduate School. All other thesis and project copies shall include a copy of the signature form as the very last page. The thesis/project signature form is available from the College or the Department website.

9.4 Publication of Research Results

The research topics addressed in Master's theses and doctoral dissertations are expected to be of sufficient interest and importance to merit publication in a refereed technical journal. As a result, Master's students completing a thesis, or in some cases a project report, as well as doctoral students completing a dissertation are expected to publish the results of their work in a technical journal. The paper or papers resulting from such research should list the major advisor and, depending on their contributions, members of the research committee as co-authors. To this end, masters and doctoral students should consider the preparation of a separate manuscript(s) in a format adhering to the requirements of the target journal(s) to be one of the requirements for the degree.

9.5 Academic and Non-Academic Misconduct Policy

The Mechanical, Industrial and Manufacturing Engineering Department is committed to encouraging in all of its students a sense of professionalism and a desire to adhere to the highest ethical standards. The MIME department has a responsibility to create an atmosphere in which professional attitudes can be cultivated. Each student has a responsibility to adhere to the highest standards of professional conduct, avoiding not only impropriety, but also even the appearance of impropriety. Improper conduct, both personal and academic, is incompatible with a career in the engineering disciplines. The MIME department will enforce the University of Toledo policies and standards for academic honesty and integrity. Those procedures describe the actions which the University may take in response to student misconduct, define the academic and non-academic conduct which is prohibited, and outline the procedures which are to be used in resolving allegations of misconduct. It is the student's responsibility to become familiar with the University of Toledo and the College of Engineering formal policy statement on Academic Dishonesty. These are listed *verbatim* in the appendix.

It is important to note that different professors conduct classes in different ways. For example, one professor may allow students to discuss some homework problems and even work together on some problems while other professors will not allow this. Thus, it is very important to find out in the first class period about such policies for that professor.

On occasion a professor has alleged that a student was committing an act of academic dishonesty when the student was innocent. Perhaps the student was just staring someplace in space and the professor interpreted it as looking at someone's paper. It is not true that professors are always trying to accuse students. It is just very difficult for anyone to tell right on the spot exactly what is going on. From the professor's point of view, he or she would rather not have even a hint of academic dishonesty occurring. Here are some situations, which could be construed as academic dishonesty and should be avoided, even though they may not appear as an offense:

1. During a test, do not loan your classmate a ruler, eraser, pencil, calculator, etc. This could be construed as collaboration.
2. Do not ask someone to pick-up a dropped pencil -- the instructor may think you two might be talking about the test. Just raise your hand.
3. If you need to glance around when thinking, just look up at the ceiling.
4. When working on a homework problem with a friend, it is important to know the 'line' where, on one side, the two of you are helping to master the subject and on the other, where one is doing the problem for both. Different professors have different policies and it is important to get this clarified early.

Penalties range from a zero on the test or homework, to a failing grade in the test, to probation, to suspension, to expulsion, and all carry a letter in the student's permanent file. The penalty is very stiff. Please take the time to read the official policy on academic dishonesty in the appendix.

Each student must also adhere to the University's nonacademic standards of conduct. Violation of these rules may be determined to indicate personal characteristics incompatible with education in the MIME department. Examples of such activities are listed below (this is not an inclusive list of all possible violations of the Non-Academic Standards):

1. Falsifying applications, forms, or records used for admission or other purposes by the MIME department.
2. Failing to be cooperative and honest in any investigation or hearing conducted under the Academic Standards.
3. Threatening to or committing acts of violence.
4. Stealing, damaging, defacing, or diverting to personal use (without permission) any property belonging to others.
5. Violating computer usage policies established by the University Computer Center
6. Possessing or trafficking in illegal drugs or other substances of abuse, or participating in drug diversion.
7. Failure to respect the right of other students, faculty, and staff to be free from illegal harassment and/or discrimination.

9.6 Student Societies in Mechanical, Industrial and Manufacturing Engineering

Student sections of professional societies are available for you to become a member in the Mechanical, Industrial and Manufacturing Engineering Program and the College of Engineering. Active participation in these societies is a great way to make friends, become more involved in the Engineering College, and to network and make contacts with industry. In addition, there are Engineering College honorary societies and the Graduate Student Association whose members are graduate students from all UT graduate programs.

American Society of Mechanical Engineers (ASME)

The ASME Student Section at UT is the student section of the national professional society of the American Society of Mechanical Engineers. ASME activities include meetings generally at noon every other Wednesday, guest speakers on various topics of interest, industrial tours, sponsorship of the Mechanical Engineering Picnic held on the last day of classes in June, no cost admission to all ASME national conferences, and many others. It is highly recommended to join ASME [for only \$15 per year and you get a great magazine] so that you can participate in these activities. In addition, if you are a student member when you graduate, your first year's dues as an ASME Associate Member are half of the normal membership and you are automatically upgraded to associate member instead of having to apply for membership. Each year in March, ASME sponsors Regional Student Conferences [RSC] in each region. UT is in Region V that includes Ohio, Michigan, West Virginia, Ontario, and the western half of Pennsylvania. There are many fun and educational activities at this conference including meeting ASME members from other schools. Check the MIME study lounge (Room NE-1050) and the ASME Office (Room NI-4026) for more information about ASME.

Institute of Industrial Engineers (IIE)

The Institute of Industrial Engineers is the national professional society in Industrial Engineering. The University of Toledo has a student section of IIE which is open to all engineering students. Student section activities include meetings with guest speakers on various topics of interest, industrial tours, co-sponsorship of the MIME Picnic held on the last day of classes in June and many other advantages. It is highly recommended for majors in Industrial Engineering to join IIE. Check the MIME study lounge (Room NE-1050) and the IIE Office (Room NI-4026) for more information about IIE.

Society of Automotive Engineers (SAE)

SAE is also the UT Student Section of the national professional organization. SAE Student Section activities include design, fabrication, maintenance, and performance testing of the vehicles for the SAE Formula competition, mini-baha, and super-mileage competition. Check the Mechanical Engineering study lounge for information about SAE.

Other Societies in Engineering - Not Just Mechanical, Industrial and Manufacturing Engineering

The College of Engineering also has several student societies open to all engineering students regardless of their departmental affiliation such as the Ohio Society of Professional Engineers (OSPE), the Society of Black Engineers (SBE), and the Society of Women Engineers (SWE). Information concerning these societies can be obtained on the organizational bulletin boards on the first floor. Three social engineering societies exist within the College of Engineering. Phi Sigma Rho is an engineering sorority [female], Triangle is an engineering fraternity [male], and Theta Tau is the co-ed professional engineering fraternity. Further information can be obtained during the respective rush periods or on the organization's bulletin boards in the first floor hallway.

The Graduate Student Association (GSA)

The Graduate Student Association is an organization formed to assist and serve graduate students in many ways at UT. Its primary aims are to secure the representation of graduate students on University committees, recognize graduate students for outstanding achievement and service, and establish a forum for discussion and communication of issues of importance to graduate students. The offices for GSA are located in the Student Union. Contact the GSA office to obtain a list of the services or assistance that GSA offers.

9.7 Practical Training for International Students

The United States Immigration and Naturalization Service (INS) permits international students who have maintained their legal immigration status to receive a specified amount of practical training with U.S. industry. It is the department's sincere desire to see that international students are able to get the maximum benefit from this training opportunity. In order to derive the maximum possible benefit from this training, it is important that the student be able to devote all their efforts to their industry position. As a result, it is the policy of the MIME Department not to issue permission for such training until the student has submitted an **APPROVED DRAFT** of their thesis, project, or dissertation. For MS students selecting a

coursework-only option, permission will not be issued until students are certified for graduation. Exceptions to this policy require the approval of (a) the major advisor, (b) the Graduate Program Director, and (c) the department Chair. Such exceptions are rarely granted. Processing of practical training requests takes some time; therefore students are advised to consult the International Students Services for the appropriate deadline.

9.8 Library and Computer Facilities

The University has an excellent facility in the Carlson Library and all graduate level students whether on scholarship or assistance or other support function may reserve for their personal use a carrel in the library for study purposes. Care must be taken in leaving personal items at the carrel location.

Graduate students may apply and hold for as long as they are students on the campus a computer account number by which they may access the University mainframe from PC terminals located at several locations on the campus. In addition, PC computers are available in several College of Engineering PC lab locations to which graduate students have automatic access.

9.9 Mail

All graduate students will be assigned a mailbox. However, mail sent to graduate students should be addressed to:

MIME Department, MS 312
The University of Toledo, Toledo, Ohio 43606-3390

Students' mail will be placed in student's mail boxes located adjacent to MIME Student Services Office by the elevators.

9.10 Keys

Keys for access to the labs and the office location assigned to the graduate students on support must be obtained ordered by the departmental secretary and picked up by the student at the Key Control office. All Key requests must be approved by the student's advisor. The Department will collect a \$25 security deposit from each student for each key they request. The deposit will be refunded after the student returns the key to the Key Control Office. Students who have completed a request for a key and fail to pick them up will be assessed a \$25.00 fee per key. These keys are assigned on a discretionary and as needed basis. Graduate students do not have a right to access any of the departmental or college areas or offices other than their own. All keys must be returned to the Key Control Office prior to leaving the university. **Grades and transcripts will be withheld from individuals who have not returned keys.**

9.11 Campus Resources

Every full time student at The University of Toledo is required to pay a general fee. This money is used for extra services like the student recreation center, football games, basketball games, and anything else that is so-called "free." Some of these services along with those that are provided independent of the general fee are described below. Other offices/services listed below are important ones you will likely need to visit such as Registrar's Office and Bursar's Office. These are listed alphabetically.

Dell and Apple Computer Sales to Students, Staff, and Faculty. [Educational and Information Technology – <http://www.eit.utoledo.edu/contact.asp>] The University has established a purchase agreement with Dell and Apple Computers by which students, faculty and staff can buy PCs at a discount. Go to the Educational and Information Technology website at <http://www.eit.utoledo.edu/students.asp> for information and prices.

Campus Escort Service [Telephone: 530-4292]

Although UT is considered a very safe campus, it is nevertheless wise to use the escort service when walking alone in the dark to your car, dorm, nearby apartment, or any other destination within reason. The service originates at the Recreation Center, Library, UT Community Technical College [as well as other locations if prearranged] and is free of charge.

Career Services [Student Union Room 1532 — Telephone: 530-4341]

When job hunting you will first want to register with the Career Services Office. They have a wealth of information including a book - updated annually - which lists all companies in the US and what kind of graduates they are looking for. The Career Services Office is where you will interview with companies who visit the campus for recruiting. They can give you a practice interview and help you prepare your resume. The Job Board just outside the office includes job description, the person to contact, and any other important information about job available. These jobs include on-campus, off-campus, part-time as well as full-time before and after graduation. For information about all positions, part-time and full-time, please check their web site at www.student-services.utoledo.edu/career

Counseling Center [Gillham Hall Room 1007 — Telephone: 530-2426]

The Counseling Center is designed to help you deal with any emotional or personal problems you may encounter. The center is staffed by psychologists and doctoral level graduate students in counseling who can help you through homesickness, failing a class, family problems, roommate conflicts, abuse, and many other problems.

Office of Student Financial Aid [Rocket Hall Room 1200 — Telephone: 530-8700]

The Office of Student Financial Aid is the one office which deals with loans and scholarships.

Student Medical Services [Student Medical Center – M.S. 513 — Telephone: 530-3451]

The medical center that is available to students is top notch! The doctor visits are free, but you do have to pay for any medications or lab work. This is an excellent service that should be utilized if you are not feeling well. The Student Medical Center is conveniently located on the southwest side of Campus behind the Law School and across from Academic Hours and International House.

Center for Commuter and Off-Campus Services [Student Union Room 1511 — Telephone: 530-8521]

This office was set up to benefit students who live off campus. They offer a free "How to Live off Campus" guide, shuttle bus maps and schedules, cost comparison sheets, roommate assistance, and advice for roommate and landlord conflict resolution.

Office of Residence Life [Dowd Hall Room 100 — Telephone: 530-2941]

The Office of Residence Life deals mainly with UT's residence halls. They can give you information about your residence contract, your meal plan, any leadership or employment opportunities, and even a campus map! Visit their website at <http://www.student-services.utoledo.edu/residencelife>

Registrar's Office [also known as the Records Office] [Rocket Hall 1100 — Telephone.: 530-4824]

The Registrar's Office is where you go to register for classes if you do not register over the telephone. It is in Rocket Hall, Room 1100. A word to the wise about registering for classes: No matter when you register, always plan at least two different schedules by way of listing several alternates. Also, if you need a transcript, you go to the Records Office, fill out a form, pay the appropriate fees and they will send one to the address you indicate. The first one is free, though.

University Police [Transportation Center Room 1300 — Telephone: 530-2600]

There are many safety precautions taken around this campus. There are new, brighter lights, emergency telephones, patrolling police officers, and the campus escort service just to name a few. Also, UT Police are full time police officers who have full arrest powers on and off campus.

Student Accounts Office [Rocket Hall Room 1800 — Telephone: 530-5755]

This office is known as the Bursar's or Cashier's Office and is located in Rocket Hall, Room 1800. Here you will pick up your scholarship or loan checks. This also where you go to pay for classes, buy a breakage card for chemistry lab, cash a check, or conduct some other money transaction.

Parking Services [Rocket Hall Room 1610 — Telephone: 530-5843]

Parking Services is where you go to register your car for a parking permit if you do not do this in connection with course registration. Also, you go to the Parking Services for a parking pass for a guest [max of two per semester per student], or anything else in connection with your car. It is located in Rocket Hall.

9.12 Useful Telephone Numbers

The following numbers are commonly needed by students. Your campus directory has a complete listing.

Academic Program Coordinator	8204
Bookstore	2516
Campus Information	4242
Career Development	4341
Escort Service	4292
Financial Aid	8700
Library	2298
Lost and Found	2600
MIME Student Services	8204
Medical Centet	3451
Parking Services	2295
Police	2600
Recreation Center	3700
Security	2600
Student Credit Union	8534
UT telephone Information Service	4242

9.13 Important Dates to Know

The following dates and times during the semester may prove useful. For summer sessions, deadlines will be sooner so check the summer course scheduling booklet.

First three days of the semester

You can add a class without requiring the instructor's signature providing there is space available in the class or use the web registration. If you have the pre-requisite, you may do this over the telephone. If you do this in person, you need to obtain the approval of your Academic Adviser unless it was one of your alternates.

Wednesday of the second week of classes

This is the last day to drop a class and it will not show up on your transcript. You get a percentage of your tuition back depending on when you drop the course. See course schedule booklet. Also, this is the last day to add a class. See requirement for adding, just above.

For graduating students in their second to last term of classes

Students must apply for graduation on a 'Formal Application for Degree' form which is filed with the Student Records Office or the Graduate School by the 20th day of the term during which the degree requirements are expected to be completed and graduation actually takes place. Therefore, if you had planned on graduating on May 10, 2003, you must have applied for graduation by February 4, 2003.

Friday of the eighth week of classes

This is the last day to withdraw from a course. This is done at the Registrar's Office and you do not need anyone's approval. You do not even have to tell the instructor, however, to be courteous, you might want to do that. You will get a "W" on your grade card, but this does not affect your grade point average if you do not have too many.

After the eighth week

You can only drop a course after the eighth week if the instructor agrees to give you an IW. You should go to the instructor and state your reasons and see what he/she says. An IW can be processed up until the tenth week of classes.

Fifth week [approximately]

Advanced registration for next semester begins.

9.14 Frequently Asked Questions

- **Where do I get an unofficial (personal) copy of my UT transcript?**
Student Access on the Internet or Registrar's Office, Rocket Hall 1200
- **Where do I get or have sent elsewhere an official UT transcript?**
Registrar's Office, Rocket Hall 1200, extension 4831
- **Where do I go to have my name changed on my official UT records?**
Registrar's Office, Rocket Hall 1200, extension 4841
- **Where do I go to have my address changed on my official UT records?**
Registrar's Office, Rocket Hall 1200, extension 4841
Address changes also must be reported to the department so as to avoid unnecessary delays in receiving correspondence from the department.
- **Whom do I contact to have my GPA certified for auto insurance discounts or non-UT scholarships/loans?**
Academic Program Coordinator (530-8204)
- **Whom do I (an international student) contact to obtain a letter for the Immigration & Naturalization Service (INS) regarding "practical training?"**
Academic Program Coordinator (530-8204)
- **Where do I (an international student) go if I have a question about my visa status?**
Office for International Students Services, Student Union (530-1200)
- **Where do I go to get an official check on my progress toward completion of graduation requirements?**
Academic Program Coordinator (530-8204)

- **Whom do I see about an add/drop, pass/fail registration, audit registration?**
Registrar's Office, Rocket Hall 1200, extension 4831.
- **Whom do I see about a credit change for a registered course, withdrawal from school?**
Academic Program Coordinator (530-8204)
- **What do I need to do to obtain a letter for Financial Aid regarding my standing?**
Fill out the appropriate form available on the MIME web site.
- **Where do I go to have UT enrollment history certified for an outside agency?**
Registrar's Office, Rocket Hall 1200, extension 4831
- **Where do I go if I have a question about residence status for tuition?**
Registrar's Office, Rocket Hall 1200, extension 4848
- **Whom do I see to discuss the Board of Trustees Tuition Scholarship?**
The Graduate School
- **Where do I go if I: 1) need help with my studying or test-taking skills, 2) need help deciding about a career other than engineering, or 3) need personal counseling?**
University Counseling Center, Gillham Hall Room 1007 (530-2426)
- **When and where do I submit my application for graduation?**
The application must be filed with the Registrar's Office or the Graduate School.
- **When and where do I submit my proposal for admission to the Ph.D. candidacy?**
Candidates for the Ph.D. degree are expected to submit a Ph.D. proposal to the Academic Program Coordinator following their successful completion of the Ph.D. qualifying exam in consultation with their academic advising committee.
- **How do I get an engineering college computer account (including E-mail)?**
The Engineering College Computing (ECC) Office, located on the first floor of Nitschke Hall will issue engineering computer accounts. The accounts are automatically created and will be active while students are enrolled at UT in engineering. In order to receive your account, you will need to present a valid student ID to a consultant in NI 1013. There will be no tutorials or manuals given with this account number. However, there is documentation available in the Engineering College Computing Help Desk (NI 1013) for your perusal. Consult the ECC office for computer usage policies and requirements. For additional information about your account and about ECC, please check their web site at www.eng.utoledo.edu/ecc.

Appendices

APPENDIX 1

The University of Toledo Policy on Academic Dishonesty

Academic dishonesty will not be tolerated. Among the aims of education is the acquisition of knowledge and development of the skills necessary for success as an educator or in another profession. Activities inconsistent with these aims will not be permitted. Students are responsible for knowing what constitutes academic dishonesty. If students are uncertain, for example, about what constitutes plagiarism or cheating, they should seek the instructor's advice.

Examples of academic dishonesty include, but are not limited to:

1. Plagiarizing or representing the words, ideas or information of another person as one's own and not offering proper documentation.
2. Giving or receiving, prior to an examination, any unauthorized information concerning the content of that examination.
3. Referring to or displaying any unauthorized materials inside or outside of the examination room during the course of an examination.
4. Communicating during an examination in any manner with any unauthorized person concerning the examination or any part of it.
5. Giving or receiving substantive aid during the course of an examination.
6. Commencing an examination before the stipulated time or continuing to work on an examination after the announced conclusion of the examination period.
7. Taking, converting, concealing, defacing, damaging or destroying any property related to the preparation or completion of assignments, research or examination.
8. Submitting the same written work to fulfill the requirements for more than one course.

While academic integrity is particularly the responsibility of the student, the faculty members also have a responsibility. Assignments and tests should be constructed and proctored so as to discourage academic dishonesty. Faculty members are expected to inform their students explicitly as to what materials and procedures are authorized for use in the preparation of assignments or in examinations (e.g., the use of calculator, computer, 'ponies', text materials, etc.). Should cases of academic dishonesty be found among students, the instructor may choose to counsel the student, or the following sanctions may be imposed:

1. The student may be assigned an F for the work in question.
2. The student may be assigned an F for the course. In this case the instructor should inform the dean and the student of this action. The dean will make certain that the student receives the F grade and is not permitted to withdraw from the course.
3. The student may be placed on probation or suspended for some definite period of time, dismissed, or expelled by the dean if either the seriousness of the offense or a record of repeated offenses warrants it. A notation that such a sanction has been imposed will be made part of the student's permanent record. It is expected that the dean will consult with the instructor and the student making such a judgment, and that the dean will notify the student of the sanction imposed and of the appeals procedure.

A student found to be academically dishonest by a faculty member may appeal according to procedures approved by the respective colleges. The procedures for making a final appeal to the Student Grievance Committee may be found in the Student Handbook.

APPENDIX 2

The College of Engineering Policy on Academic Dishonesty

[Adopted December 1979]

Academic dishonesty in unacceptable conduct for engineering students, both as students of The University of Toledo and as candidates for careers in the engineering profession. Penalties commensurate with the offense shall be imposed on students found guilty of academic dishonesty.

Academic dishonesty includes improper access to evaluation material or records, submission of material, which is not the student's work, and conduct, which interferes with the work, or evaluation of other students. Instances of academic dishonesty range from inappropriate collaboration on homework (which may have relatively little effect on the course grade) to copying on examinations or similar dishonesty (which may have a direct and significant effect on the course grade). All such instances, however, are infractions of the standards of academic integrity expected of engineering students. Faculty members are to discourage academic dishonesty by: 1) emphasizing the University's and his/her own rules and expectations for student work, 2) reducing the possibility of academic dishonesty by methods of student work evaluation, and 3) initiating penalties for violation of these standards.

The basis for this policy is found in both University documents and standards of the engineering profession. Instead of providing a detailed listing of possible offenses and their penalties, indications of the ranges of action considered appropriate for three violations of varying seriousness are given. This approach leaves latitude to the University persons involved to act on the basis of the specific conditions of each case while still providing a framework for reasonable consistency of action.

1. Violations relating to homework, laboratory reports or similar work generally done *outside* of class may be treated with warnings and/or F's (or zeros) on the work. Because of varying practices in this area, the instructor should inform the class in advance of his/her requirements on such work. Such instances may be handled by the instructor.
2. Copying on test and examinations may receive penalties ranging from an F (or zero) on that paper to an F in the course. In such cases, the instructor should discuss the instance with the student's department Chair, to gain an independent review of the proof of dishonesty and to determine if there have been other violations by that student. After consultation, if this is the first offense, the instructor takes appropriate grade action.
3. Repeated violations or more flagrant acts (such as stealing information from the instructor's office or destroying another's paper) may receive an F in the course or suspension or dismissal (the latter options requiring action by the Dean's Office). In these cases, the instructor should refer to his/her department chair who will consult with the Dean's Office.

The following principles should be observed. The student should be informed of the charge and be given an opportunity to respond before the penalty is imposed. Penalties, consistent with the offense, are intended to be used to discourage dishonest behavior among engineering students and to encourage honest behavior in the future by the offender. The formality of the procedure increases with the severity of the penalty. The student's right of privacy of information should not be violated by the handling of the cases of academic dishonesty.