Graduate Student Handbook

Department of Mechanical, Industrial and Manufacturing Engineering

This handbook is intended to be a resource for information on services, programs, organizations and people within Mechanical, Industrial and Manufacturing Engineering. Efforts have been made to include the most accurate and up-to-date information, however it is not a contract with any student. If any information is found to differ from the UToledo catalog or any other official document, the official document should be relied on for such information.

Revised AY24-25

Message from the Chair and Graduate Program Director

Welcome to the Mechanical, Industrial and Manufacturing Engineering Department (MIME) department. Formed in the spring of 1995, the MIME department is composed of the former Mechanical Engineering and Industrial Engineering Departments. Our department offers distinct degrees in mechanical and industrial engineering disciplines. Students pursuing a master's 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 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 when they come to visit our department and join them when you finish your studies here. Several of our faculty members have received the highest teaching award bestowed at The University of Toledo. Several faculty members 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 College of Engineering Graduate Student Handbook and The Graduate Student Handbook of The College of Graduate Studies. 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 webpage 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; Office of Graduate Studies and Research, College of Engineering, NI 1014; 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 "Manual for the Formatting of Graduate Dissertations and Theses," which is available from the College of Graduate Studies.

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. The research focus of the department is in the following two areas: (1) Thermal-Fluid Science, and (2) Materials, Design and Manufacturing.

Thermal-Fluid Science: The Thermal-Fluid Science research focus group encompasses broad research activities. These include research in such areas as alternative energy, computational fluid dynamics, phase change heat transfer, tribology, flow stability and transition, vortex dynamics, drag reduction, small and medium engine turbines, microgravity flows, thermal systems simulation, biofluid flow dynamics, turbulent boundary layer characterization, interfacial thermal-fluid engineering, atmospheric icing research, experimental methods using hot wire/film anemometry, laser Doppler velocimetry, particle image velocimetry, and flow visualization techniques.

Materials, Design and Manufacturing: The objectives of the Materials, Design and Manufacturing focus group are to conduct research that will advance the engineering knowledge base and lead to new processes and products in the broad areas of mechanical systems, dynamic systems and control, mechanical behavior of materials and mechanical design. This focus group also emphasizes solving manufacturing problems. Example problems include the development of processes for products, basic understanding of metal forming and cutting, and improvement of the environmental impact of industry. Specifically, the research thrust of this group includes but is not limited to the dynamic behavior and control of mechanisms, machines, mechanical systems, processes, structures, and smart material systems, including MEMS, biomechanics, design methodology, fatigue and fracture mechanics, machine dynamics, noise and vibration analysis and control, solid modeling, and vehicle dynamics. An essential aspect of this group 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 defining theoretical 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 includes internationally recognized faculty in rapid prototyping and additive manufacturing, process engineering, facilities planning and modeling, and environmentally conscious manufacturing.

It is important to note that UToledo has two fifteen-week long academic semesters during the school year. These are Fall Semester, which runs from end-August to mid-December, and Spring Semester, which runs from January until the first week of May. Summer semester is a third semester consisting of twelve 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. Omid Amili, Assistant Professor
Ph.D., Monash University, 2012
Experimental fluid mechanics, turbulence, biofluids

Dr. Halim Ayan, Associate Professor
Ph.D., Drexel University
Non-equilibrium Electric Discharges, Plasma Medicine, Plasma Physics and Applications

Dr. Lesley Berhan, Associate Professor, Associate Dean of Student Success and Strategic Initiatives
Ph.D., University of Michigan, 2003
Mechanics of Materials, solid mechanics and FEA, 2D and 3D fibrous networks

Dr. Sarit Bhaduri, Distinguished University Professor
Ph.D. State University of New York
Materials Science, Fracture and Fatigue, Solid State Materials, Biomaterials, Ceramics

Dr. George Choueiri, Assistant Professor
Ph.D. University of Ottawa, 2014
Experimental Fluid Mechanics, Turbulence, Nonlinear dynamics, Non-Newtonian flows, Additive Drag Reduction

Dr. Sorin Cioc, Clinical Associate Professor and Undergraduate Program Director
Ph.D., Polytechnic University of Bucharest, Romania

Dr. Mohammad Elahinia, Distinguished University Professor and Interim Dean of Engineering
Ph.D., Virginia Tech, 2004
Additive Manufacturing, Shape Memory Materials

Dr. Nicoleta Ene, Associate Lecturer
Ph.D., The University of Toledo, 2008
Tribology, vibrations

Dr. Matthew Franchetti, Professor and Associate Dean of Undergraduate Studies
Ph.D., The University of Toledo
Orientation, Professional Development, Statistical Quality Control, Facilities Planning, Engineering Economics, Statistical Analysis, Senior Design

Dr. Anju Gupta, Associate Professor
Ph.D., University of Rhode Island
Thermal Analysis of Phase Changing Materials, Phase Change Heat transfer, High Temperature Coatings, Materials: Characterization, Nanocomposites, Manufacturing, Soft Nanomaterials

Dr. Meysam Haghshenas, Associate Professor
Ph.D., Western University (UWO), 2013
Fatigue and Fracture, Materials Science, Micro/Nano-Mechanics, Metal Additive Manufacturing

Dr. Mohamed Samir Hefzy, Professor and Graduate Programs Director
Ph.D., University of Cincinnati, 1981
Orthopaedic Biomechanics, Assistive Technology and Rehabilitation Engineering, Finite Element Methods

Dr. Duane Ray Hixon, Professor
Ph.D., Georgia Institute of Technology, 1993
Computational Aeroacoustics, Fluid Dynamics

Dr. Steven Huebner, Research Professor and Executive Director of the Univ. of Toledo Institute of Applied Eng. Research
Ph.D., The University of Toledo
Small Turbojet and Turbofan Engine Technology; Design of Small Engine Combustors, Heat Transfer and CFD

Dr. Ahalapitiya H. Jayatissa, Professor
Ph.D., Shizuoka University, Japan, 1995
Materials Characterization and Electronic Materials, MEMS, Nanomaterials

Dr. Theo G. Keith, Distinguished University Professor Emeritus
Ph.D., University of Maryland, 1971
Tribology, Computational Fluid Dynamics, Fluid Mechanics, Heat Transfer, Aeroelasticity

Dr. Douglas Oliver, Assistant Lecturer, Professor Emeritus
Ph.D., Washington State University, 1985
Heat Transfer, Mathematical Modeling, Microgravity Flow Dynamics

Dr. Behrang Poorganji, Research Professor, Director of Advanced Manufacturing, Univ. of Toledo, Institute of Applied Engineering Research
Ph.D., Tohuku University, Japan, 2007
Additive Manufacturing Materials and Process Development, Powder Metallurgy, Accelerated Alloy Design, High Temperature and Light Weight Materials, Materials-Process-Property Relationships, Thermomechanical Processes, Technology Commercialization

Dr. Ala Qattawi, Associate Professor
Ph.D., Automotive Engineering, Clemson University, 2012
Design for Manufacturing, Metals Processing, Origami Sheet Metal Forming, and Sustainable Manufacturing

Dr. Chunhua Sheng, Professor
Ph.D., Mississippi State University
Computational Fluid Dynamics, Numerical Algorithms for Structural and Unstructured Grids, Turbulence and Transition Modeling, Fluid-Structure Interaction Coupling

Dr. Hossein Sojoudi, Associate Professor, Interim Chair
Ph.D., Georgia Institute of Technology
Thermal-Fluid, Nanoscience & Nanongineering, Interfacial Engineering, Thin Film Materials and Coatings, Atmospheric Icing Research
Dr. Hongyan Zhang, 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

Part-time, Adjunct and Visiting Faculty

Dr. Shawn Capser

Staff

Mr. Brian Combs: Laboratory Machinist I
Room NI-1093 - Telephone: 530-8244 - Fax: 530-8206 - Email: Brian.Combs@utoledo.edu

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Room NI 1063 – Telephone: 530-8113 – Fax: 5308206 – Email Terence.kahle@utoledo.edu

Ms. Debbra L. Kraftchick: Associate Director of Department Student Services
Room: NI 4006F, Telephone: 530 8204, Fax: 530-8206, Email: Debbra.Kraftchick@utoledo.edu

Ms. Kim McIntosh: Academic Resource Analyst
Room: NI-4004, Telephone: 530-8037, Fax: 530-8206. Email: Kimberley.Mcintosh@utoledo.edu

Ms. Kathryn Rose: Secretary II
Room: NI 4005, Phone: 530-8210, Fax: 530-8214, Email: Kathryn.Rose@utoledo.edu

Section 3: Admission

3.1 Master's 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 3.0/4.0 or higher.

If the baccalaureate degree is from an English-speaking country, the preceding is sufficient.

2. 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 80 (for IBT) or 550 (for PBT), or scores from the International English Language Testing System (IELTS) equal to or in excess of 6.5, or scores from the Duolingo English Test equal to or in excess of 105, or scores from the Pearson Test of English (PTE) equal to or in excess of 58 must be submitted.

Provisional Graduate Student

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

1. If the undergraduate GPA is somewhat below 3.0/4.0, results of the GRE verbal, quantitative and analytic writing sections may be required with scores equal to or in excess of 145, 150, and 3.5, respectively.
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 they expect 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 also expected to complete a similar preparatory course program in excess of the 30 credit hours minimum required for the master's degree. 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 semester performance. Specifications will usually include no grades below a B and completion of all courses recommended by the Director of Graduate Studies (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 the TOEFL/IELTS/Duolingo/PTE

required minimum score listed above. If such a student has met all admission requirements, including GPA at least 3.0/4.0, except for the TOEFL/IELTS/Duolingo/PTE requirement, they 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 80 for IBT (or 550 for PBT), they 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. Students may be considered for admission to individual colleges as "non-degree" students. These students are expected to have at least a bachelor's degree and must have permission from the Graduate Director of the department to enroll in each specific course. Individuals applying are not candidates for degrees, but subsequent admission to a degree program is possible based on the 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. For students with a baccalaureate degree, if the degree granting institution is in a country where English is not the native language, scores from the TOEFL/IELTS/Duolingo/PTE tests must be submitted.

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 Director of Graduate Studies. For students with a baccalaureate degree, if the degree granting institution is in a country where English is not the native language, scores from the TOEFL/IELTS/Duolingo/PTE tests must be submitted.

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 MS programs. Up to 9 semester credit hours of graduate level courses from the MS degree program may be used in lieu of BS degree credits. 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 MS plan of study must be filed indicating the courses that will be accepted in place of specific BS 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 BS 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 BS 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 demonstrates 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 requirement is sufficient.

2. 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 documents written by the student and a personal or telephone interview with them. 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/IELTS/Duolingo/PTE tests must be submitted.
3. 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.
4. 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 in industrial or mechanical engineering within the more appropriate of the two 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 Director of Graduate Studies including:	
	1.	A letter from the student to the MIME Graduate Program requesting transfer of 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 Director of Graduate Studies 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 College of Engineering Associate Dean of Graduate Studies and then 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 master's or doctoral program. Approval of the master's Plan of Study or the Doctoral Program Plan of Study is a separate issue.
For more details, please review the University of Toledo Transfer of credit to Graduate Degree Policy (utoledo.edu/policies/academic/graduate/pdfs/3364-77-06.pdf).

If a student would like to take a course at another university and have it applied to his/her degree at UToledo, the student needs to fill out a form called "Pre-approval to Take a Course at Another University". This form is available at utoledo.edu/engineering/mechanical-industrial-manufacturing-engineering/pdfs/Advanced%20Approval%20fillable.pdf. The Director of Graduate Studies 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 coursework is appropriate for the student's program.

Section 4: Financial Support

Students eligible for or who have achieved regular admission to the graduate program full-time are eligible 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 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, tuition scholarships (TS) based on college-controlled funds and only for MS students and fellowships awarded through the College of Graduate Studies.

Graduate Assistantships (GA): A limited 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 9 credit hours for instructional and out-of-state surcharge fees. The student is responsible for the general and laboratory/technology fees and health insurance. The student, in turn, works half-time (20 hours/week) at assigned duties for the Department. Such duties may include assignments as a laboratory teaching assistant, 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. Students who receive teaching assistantships will be reviewed once in the middle and again at the conclusion of each semester on their teaching and research performance (when applicable) by the instructor of the classes and research advisors (when applicable), respectively. The teaching assistantship may be terminated if the performance is unsatisfactory in the middle of semester. Only those students who obtained satisfactory performance in teaching and research will be considered for the teaching assistantship in the following semesters, depending on availability of the funding among other considerations.

Fellowships: Graduate fellowships may also be available and are awarded to outstanding students. When available, fellowships provide support for full-time study without work assignments. 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:

College of Graduate Studies
University Hall Room 3240; MS 933
The University of Toledo
Toledo, Ohio 43606

Fellowship awards vary depending on their source. However, full fellowships provide a stipend comparable to a full graduate assistantship and 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.

Tuition Scholarship (TS): A limited number of Tuition Scholarships are available each year for qualified full-time graduate students pursuing a MS degree in the MIME department. These awards are available only to MS students. When available, graduate students may receive a fee waiver for up to a total of 18 credit hours for 2

semesters for instructional and out-of-state surcharge fees. The student is responsible for the general and laboratory/technology fees and health insurance. Fee waiver for additional credit hours may be provided at the discretion of the MIME department and the College of Engineering after approval from the College of Graduate Studies.

Research Assistantships (RA): Research assistantships are available through externally funded research grants. Appointments are available for graduate students to participate in sponsored projects or grants under the direction of the MIME faculty. These projects in general constitute 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 based on the availability of funds and the student's progress in research and academic areas. RAs are very competitive. Research assistants are selected from 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. Information on available scholarships can be found at the following site: Tuition, Scholarships, Fellowships and Awards (utoledo.edu).

Loans: Graduate students who attend the University of Toledo are eligible to make an application for federal need-based financial aid. For details, check with the office of Student Financial Aid (Rocket Hall – Room 1200). Information about financial aid can be found at the following site: Office of Financial Aid (utoledo.edu)

Selection of Graduate Assistantships and Tuition Scholarships 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 TOEFL/IELTS/Duolingo/PTE scores when required or when available. In addition, the previous classroom and 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. Most 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 decides 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 College of Graduate Studies and are highly competitive. The departmental role in this process is to choose a few applicants 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. International students can visit the Office of International Student and Scholar Services for assistance with tax return preparation.

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, teaching assistantship duties (when applicable), 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 completing their studies. 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 semester 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 merely 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 complete 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 a student takes off a summer, 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) or five (5) terms of support. Students pursuing a non-thesis option (project option or course work only option) are also expected to complete their degrees in four (4) to five (5) terms. **Students receiving GA's or RA's or Fellowships are expected to complete the MS degree with a thesis option. Students receiving tuition scholarships are expected to complete the MS degree with the project option. Students completing their MS degree with the course work only option are not eligible to receive financial aid in the form of GA's or RA's or fellowships or tuition scholarships**.

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 master's degree. **No tuition scholarships are offered to Ph.D. students**. In addition, all Ph.D. students (supported and unsupported) 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	Ph.D. Qualifying Exam	Degree Completed
MS [Thesis/Project]	1	1	NA	4 - 5
MS [Coursework] (No financial support in the form of GA's or RA's or fellowships or	1	1	NA	4 - 5
Ph.D.	1	2	2 or 3	9 - 12

In certain circumstances, the number of terms may increase; 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 if 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 they will have high priority for continuation of that support to the successful completion of that degree if 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.

4.4 English Screening Exam for International Student Teaching Assistants

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 semester 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 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 semester may go through a special screening process prior to the next fall semester such that they can be given classroom assignments, or they may be withheld from classroom. For more information about the International Teaching Assistant (ITA) Speaking Screening procedure, visit the A.L.I website at ITA Screening (utoledo.edu).

Section 5: Registration Procedures

Graduate student registration is identical to procedures followed by all other UToledo students in most respects. Students need to consult with their faculty advisors about the courses to be taken during a given semester. Please visit the following site utoledo.edu/offices/registrar/frequently-asked-questions.html for registration frequently asked questions and review important dates for registration and add, drop and withdrawal deadlines for each term. Students can register online (web registration). They can also register in-person in Rocket Solution Central at Room 1200 Rocket Hall. Web registration does not require the signed 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 6960 X where X is the number of credit hours and ranges from 1 to 9), project (MIME 6920) or for dissertation (MIME 8960 X) requires the advisor's approval. It also requires 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 must register for a full course load (9 hours) during the fall and spring terms. MS students may use the independent research course with an academic advisor (MIME 6900) to meet the full-time requirements. Registering for this course also requires a 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 9-hour total with dissertation MIME 8960.

C. International Students

International students on F1 student visas are required by the Department of Homeland Security regulations to register for a minimum of 9 semester hours per semester. 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 still maintain 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 offers registration through The University of Toledo website for students [Register for Classes Using Banner Self-Service (utoledo.edu)]. This is the preferred method of registration for all open courses up until web registration closes after the 5th calendar day of classes. If you know what courses you need to take from the list of your approved plan of study and wish to register over the website, you are free to do so without making an appointment to see 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 that the Associate Director of Department Student Services place a copy of the newly approved courses in your file.

5.2 Registration at the Registrar's Office

The following procedure typically applies to late registration (from day 6-15 after the start of classes) or special permissions to take a course:

1. A course request form is available on the web at the following link: Course Request form revised Jan 2016 (utoledo.edu). Also, this form and other important forms can be found by following this link; Resources and Important Forms (utoledo.edu). You are expected to make an appointment with your Academic Advisor for course request approval.
2. If changes are to be made to your plan of study, you must see your advisor and request her or his approval.
3. There are several options for payment of fees as outlined at the following link payment options (utoledo.edu).

It is **highly** 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. If you require permits or signatures to take a course, that may cause a delay in your registration potentially resulting in late registration Fees. Also, some courses may get canceled based on low enrollment figures.

Using the new, "Plan Ahead and Register" option in Student Self Service, students may now create a registration plan before registration opens by utilizing the 'Plan Ahead' feature. This feature allows students to plan out their semester schedule in advance of their registration date then, once their registration window opens, they can register for their classes directly from the plan. An overview of this feature is listed at the following site Plan Ahead and Register option in Student Self Service.pdf (utoledo.edu).

Failure to plan on your part does not constitute an emergency on ours.

5.3 Adding and Dropping a Course

Can I add a class or register late?

The process of adding a class or registering late varies depending on when you add the class or register [Registration Frequently Asked Questions (utoledo.edu)]

Within the first five calendar days of a new semester — You may add a course or register late without permission from the instructor if you have the prerequisites as along as a seat is available. If there is no space available, you will need the signature of the **instructor** on the line where you listed the course on the course request form and you must go to the Registrar's Office.

Between the 6th and 15th calendar days of a new semester — You may add a course with the instructor's permission via the Course Request and Seminar Request Form.

After the 15th day — Adding a course will require signatures from the instructor of the course and the Dean or designee from the student's College Office via the Course Request and Seminar Form. Please note, deadlines will be shorter for summer semester or courses not meeting the full 15-week semester. Refer to the registration and important dates chart for specific deadlines at Add/Drop/Withdraw Deadlines (utoledo.edu). A late registration fee is assessed for initial registrations on or after the first day of the semester.

Late Registration Fees are listed on the office of the Registrar web site at Registration Frequently Asked Questions (utoledo.edu) and currently as follows:

- 1st - 3rd day of part of semester $50
- 4th - 15th day of part of semester $100
- 16th day to end of part of semester $200
- After the semester $500

For more information regarding late fee assessment, review the Treasurer's Office website.

Can I drop a course or withdraw from a course after the semester starts?

You may drop a course at the beginning of the semester during the drop period. After the drop period has ended for a term, you may choose to withdraw from a course during the withdrawal period. Refer to the Add, Drop and Withdrawal page for specific deadlines. A student may not add or drop a course beyond the indicated deadlines.

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

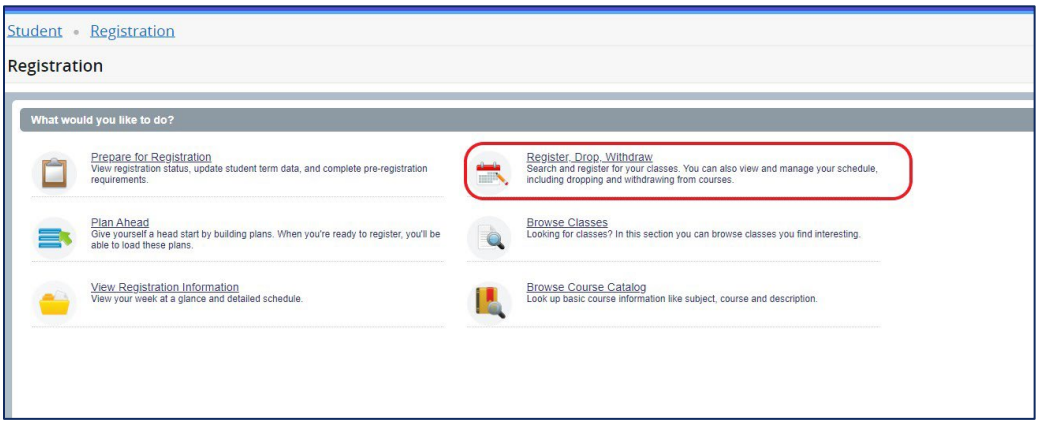
To WITHDRAW FROM A COURSE after the 15th calendar day to the last day of the tenth week of the semester, use the add/drop/withdraw link through myUT portal or the PetitionForOfficialWithdrawal2021.pdf (utoledo.edu). The instructor's permission is not required. You will be given a grade of "W" on your transcript. 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**.

Make sure you understand the difference between dropping and withdrawing from a class.

- A dropped course will be removed from your schedule and will not appear on your official transcript.
- Withdrawing from a course will result in a grade of "W," which will appear on your official transcript. A grade of "W" is not calculated into your grade point average (GPA). However, there are other implications of withdrawing from a course. (see below).

Failure to drop or withdraw from a course that you have stopped attending may result in a grade of "F."

You can drop or withdraw from classes online through Register for Classes Using Banner Self-Service (utoledo.edu) if you do not have any registration holds by choosing the "Register, drop, withdraw" link on the registration homepage to begin (picture below). If you have a registration hold, you must submit a Course Add/Drop Request form or a Course Withdrawal form. The form can be processed at Rocket Solution Central (RSC), located in Rocket Hall, Room 1200.



All requests to drop or withdraw must be submitted by the deadlines for that term. Contact Rocket Solution Central (RSC) at 419.530.8700 with questions.

WHAT ARE THE IMPLICATIONS OF WITHDRAWING FROM A COURSE?

Once a withdrawal is processed, it cannot be rescinded. Based on the date of withdrawal, fees may or may not be adjusted. Since withdrawn courses reduce your enrolled hours, withdrawing from courses may have an adverse effect on financial aid benefits, scholarships, loan deferments, athletic eligibility, health insurance, veteran's benefits, degree requirements, or other areas. Contact Rocket Solution Central or your academic advisor if you are uncertain about how withdrawing may affect you.

SECTION 6: Faculty Advisors, the Graduate Program Director, and the Associate Director of Department Student Services

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 College of Graduate Studies 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 assignments as an advisor will normally be done during the first semester. When the student is prepared to select a permanent advisor, the student should fill out and submit the advisor/focus group assignment form, available on the MIME website at Advisor/Focus Group Assignment (utoledo.edu). 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 whom 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 members so that a permanent advisor can be selected as soon as possible but not later than the second semester of registration. In

consultation with her/his advisor, the student must form a doctoral advisory committee in order to take the Ph.D. qualifying exam. The purpose of the advisory committee is to help the student complete the program proposal, conduct the qualifying examination, and to evaluate and approve the dissertation research.

The advisory committee must have at least five members, at least one of whom must be outside the MIME department. As soon as this committee is formed, the Graduate Director must be notified and the Doctoral Plan of Study finalized. After successful completion of the qualifying examination, the student must prepare a dissertation proposal. The dissertation proposal will be presented to the advisory committee for their approval and if approved will be forwarded to the Director of Graduate Studies then sent to the College of Graduate Studies. As soon as the dissertation proposal is approved the student may begin the final phase of research.

The **Director of Graduate Studies** 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 is also a liaison between the MIME Department and the College of Graduate Studies. The Director supervises recruiting and admission efforts, coordinates graduate curriculum development, and provides advice to students on the implementation of graduate policies.

The **Associate Director of Department Student Services** ensures that registration and scheduling issues are handled effectively and efficiently, maintains all graduate records, keeps Plans of Study and all other forms (also available on the MIME website), and interacts with the students and MIME faculty.

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 semester to make sure all requirements are being met. If a student has questions about his/her grades or graduation requirements, they should contact his/her 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 GPA 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 College of Graduate Studies. Consult the College of Graduate Studies webpage for details on probation and suspension utoledo.edu/graduate/currentstudents/references/AcademicStandards.html

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 hours required for the MS degree, a minimum of three (3) hours (or one course) 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, if any. 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 that will be most beneficial for the specialization area selected. The goals of the MS Mathematics requirements are:

i) Ensure that the MS graduates have the minimal mathematics tools to perform research in the student's chosen area of specialization,
ii) Assist the MS students who are interested 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 Master's 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 College of Graduate Studies 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 Master's program, a Master's Plan of Study form must be completed by each Master's student in consultation with the student's advisor. A work copy may be obtained at utoledo.edu/graduate/forms/MasterPOS.pdf 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 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	6	6
Mathematics Requirement (see approved course list)	3	3	3
Thesis/Project/Focus Area Elective Courses	9*	9**	9***
Any Approved Engineering or Mathematics elective	12	12	12
TOTAL	**30**	**30**	**30**

* 9 credit hours of thesis.

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

*** 9 credit hours of focus area elective courses.

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-level 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 normally requires that the study plan be filed before registration for the second term. An example of the plan of study for a master's student is in the appendix.

Students following a MS degree with a focus on Thermal-Fluids:

Required courses include completing one of the following two Advanced Math courses:

- Advanced Engineering Math I - MIME 6000
- Advanced Engineering Math II - MIME 6100 and

Completing two courses from the approved core courses below:

- Intermediate Fluid Mechanics and Heat Transfer – MIME 6460
- Advanced Heat Transfer – MIME 6580
- Advanced Fluid Mechanics – MIME 6570
- Computational Fluid Dynamics I – MIME 6440
- Advanced CFD – MIME 6470
- Experimental Fluid Mechanics - MIME6450

Students following a MS degree with a focus on Materials, Design and Manufacturing:

Required courses include completing one of the following two Advanced Math courses:

- Advanced Engineering Math I - MIME 6000
- Advanced Engineering Math II - MIME 6100 and

Completing two courses from the approved core courses below:

- Design of Experiments - MIME 6720
- Advanced Dynamics- MIME 6200
- Advanced Mechanics of Materials - MIME 5300
- Manufacturing Engineering - MIME 5060

Students following a MS degree in Industrial Engineering:

Required courses include completing one of the following two Advanced Math courses:

- Advanced Engineering Math I - MIME 6000
- Advanced Engineering Math II - MIME 6100 and

Completing the following two core courses:

- Design of Experiments - MIME 6720
- Manufacturing Engineering - MIME 5060

Course substitutions: 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 College of Graduate Studies 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 College of Graduate Studies form entitled "College of Graduate Studies: Plan of Study Course Substitution." This form is available on the College of Graduate Studies website at utoledo.edu/graduate/forms/CourseSubPOS.pdf.

The plan of study **must be typed**. The total number of credit hours listed in the plan of study must be equal to 30 credit hours. Any more or less will result in a rejection and return for correction. Students may register for additional coursework, thesis or project, but only a total of 30 credit hours are to be listed on the Plan of Study.

7.2.2 Thesis, Project or Coursework degree

Graduate students in the MIME department may elect to pursue a thesis, a project or coursework-only Master's degree. Research and Teaching 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.

7.2.3 Summary of Steps toward Graduation

i) Admission
- File Application Form, transcripts, and three (3) letters of recommendation. (TOEFL or IELTS or Duolingo English Test or PT scores when required).

ii) Registration
- Meet with the MIME Director of Studies Graduate or permanent advisor to register for initial courses.

iii) Advisor
- Select an advisor if the thesis or project degree option is selected and complete and submit the advisor selection form found at: utoledo.edu/engineering/mechanical-industrial-manufacturing-engineering/graduate/advisorandfocusgroup.html. Full-time students pursuing a coursework degree (first semester registration of 9 or more credits) will be assigned permanent advisors before the end of the first semester in consultation with graduate director.
- Part-time students (First semester registration of 8 or fewer credits) will be assigned permanent advisors before the end of second semester in consultation with the graduate director.

iv) Academic Standards
- At all times during the program, the student must maintain a GPA of at least 3.0 in (a) all graduate coursework and (b) in all graduate MIME courses.

v) 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. Forms are available on the College of Graduate Studies web site. utoledo.edu/graduate/currentstudents/academicprogramforms/
- The Plan of Study may be changed subject to the approval of the advisor, the Graduate Director, and the College of Graduate Studies.
- **Restriction on changes:** A student cannot change from thesis-option to coursework only or project option, neither can he/she change from the project option to coursework only option if they received teaching/research assistantship stipend or tuition scholarship for at least one term.

vi) Advisory Committee (not required for coursework option)
- The advisory committee membership and thesis/project title must be filed before the conclusion of the second semester on the "Graduate Research Advisory (GRAD) Committee Approval and Assurance form" available at GRADform.pdf (utoledo.edu). For the MS thesis option, the student must also submit a "Defense Acceptance and Intellectual Protection" form at utoledo.edu/graduate/forms/IntellectualProtection.pdf to the Graduate School. A copy of the notice of thesis/project form prepared by the department must be placed in the student file. Forms are available on the College of Graduate Studies website: utoledo.edu/graduate/currentstudents/academicprogramforms/

vii) Application for Degree
- Must be filed no later than the fourth week of the semester during which degree is to be awarded; forms are available at the College of Graduate Studies in University Hall or on the College of Graduate Studies website:

utoledo.edu/graduate/currentstudents/graduation/

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

i) A 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) Submit a defense announcement request form **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 (e.g. PowerPoint presentation). 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) During your defense, each member of your advisory committee shall complete a Graduate Presentation Assessment
v) Submit completed thesis approval and the defense acceptance and intellectual protection forms:

utoledo.edu/graduate/forms/ApprovalofThesis.pdf

utoledo.edu/graduate/forms/IntellectualProtection.pdf

vi) Following a successful exam, committee members sign thesis/project approval forms (available on the College of Graduate Studies website:

Approval of Project form (utoledo.edu) or Approval of Thesis form (utoledo.edu)

vii) Submit a copy of the College of Graduate Studies Thesis Approval/Project approval form, and an abstract of your thesis/project to the office of the Associate Dean of Graduate Studies of the College of Engineering.
viii) Submit the original to the College of Graduate Studies following the Electronic Thesis/ Dissertation (ETD) Process Overview on the College of Graduate Studies Website:

utoledo.edu/graduate/success-center/etd.html. You need to complete the *OhioLINK* ETD Center submission process and upload final document (successfully defended in PDF file format with fonts embedded) and any supplementary files to *OhioLINK* by the posted deadline for the semester in which you are graduating. Your file will be transferred to *ProQuest* from *OhioLINK* electronically, and you must select that option during the submission process.

ix) Submit an electronic PDF copy to the Associate Director of Department Student Services.
x) It is your responsibility to provide your advisor and committee members with copies of your thesis.

ix) Departure from the MIME Department
i) Check with your advisor about what information you need to leave in your lab for other students to continue your work.
ii) All keys obtained from the Key Control Office must be returned to the Key Control Office as they are in your name.
iii) Return all keys to desks and filing cabinets to the secretary in the MIME department office.
iv) Remove all personal belongings from your desk; leave the desk and filing cabinets unlocked when you leave.
v) Update addresses in your MyUT Student Profile.

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 College of Graduate Studies

graduate student handbook Graduate Student Handbook 2021-2022 (utoledo.edu). 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, and before completing the First Semester, each doctoral student must complete a Plan of Study for the Doctoral Degree form in conjunction with the student's doctoral examination committee. The fillable PDF form is available on the College of Graduate Studies website at: utoledo.edu/graduate/forms/DocPOS.pdf . The form **must be typed** before submission. An example of a plan of study for a Ph.D. student is in the appendix.

The Doctoral Program Plan of study includes the coursework to be completed, the proposed dates for the qualifying exam, and the membership of the advisory committee. A minimum of 15 credit hours of advanced graduate coursework (8000 level) is required. In addition, specific core courses may be required by the student's research focus area. A minimum registration of 60 hours beyond the master's program is required for the Ph.D. degree. This number includes an allowance for dissertation hours (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 Plan of Study for the Doctoral Degree Form following instructions listed below (Please refer to the form in the appendix for the following references and instructions):

Section 1

a) Complete the top portion with name, Rocket ID, First Semester Enrolled,
b) College: Engineering; Degree: Ph.D.; Major: Mechanical Engineering or Industrial Engineering
c) Time limitation for degree (credit applied towards the doctoral degree must be earned within seven years immediately preceding the time the degree is awarded)
d) Expected Graduation
e) Academic background including degree, date awarded, institution, and major for bachelor's and master's degrees

Section 2: List all graduate courses required for the degree

a) List a minimum of 15 credit hours of coursework beyond the 6000 level
b) List a 45 Dissertation Research hours (MIME 8960).
c) The program total listed on the Plan of Study for the Doctoral Degree form should equal 60 credit hours. **Any more or any less will result in a rejection and return for correction.** Students may register for additional coursework and dissertation research, but only a total of 60 credit hours are to be listed on the Plan of Study.

Section 3: Residency Requirement

Doctoral students satisfy the doctoral residency requirement by completing a total of 18 hours of coursework taken over 3 consecutive semesters. Enrollment in a summer semester is not required to maintain continuity, but credits earned during summer terms could count toward the 18 hours required for residency.

Section 4: Additional program degree requirements as per the plan of study for the Doctoral degree:

a) Check the Qualifying Examination box
b) List the proposed Semester of Candidacy

When the above has been accomplished, complete and submit the plan of study for the Doctoral degree to the Director of Graduate Studies for approval. Both you and your advisor should keep a copy, and a copy should be submitted to the Director of Graduate Studies to be included in your permanent file. After approval by the Graduate Program Director, the plan will be sent to the Associate Dean for Graduate Studies of the College of Engineering and then to the College of Graduate Studies for their approval.

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. Note that circumstances that require modification of the study plan are not uncommon. Indeed, there are cases where it may be appropriate to change courses and in some cases advisors or committee members. If there are significant changes, a new plan of study should be submitted. For minimal changes, a Plan of Study – Course Substitution form may be used available at Plan of Study Course Substitution form (utoledo.edu) .

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 and the Doctoral Advisory committee of the student, subject to the approval of the Graduate Director. 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 at the 8000 level).

Students entering the program with a Master's degree need a total of 60 hours to complete their degree. This includes 45 credit hours of dissertation (8960) and 15 hours of coursework.

Students entering the direct Ph.D. program with a BS degree need 90 credits to get their Ph.D. This includes 45 credits of Ph.D. dissertation (MIME 8960). The remaining of the 90 credits are typically 45 credits of coursework.

- Other courses taken may include non-department courses, independent study courses, and courses taken S/U.

- Twenty-seven (27) of the above 45 course credits are regular departmental courses beyond their bachelor's degree, and at least 21 credit hours are at the 6000/8000 level courses for a letter grade at the advanced level (normally at the 6000/800 level). All required courses are at the advanced graduate level as determined by the department. Other courses taken may include courses not listed as departmental courses and independent study courses.

- Departmental courses include those listed as MIME courses, and those related in subject matter and approved by the Dissertation Advisor as being equivalent to "departmental" courses with the numbering level set according to the MIME standards for numbering courses.

- If graduate level coursework 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 applying for Credit Transfer

TransferCred.pdf (utoledo.edu). The work must have been done after the completion of bachelor's degree and at a school acceptable to the College of Graduate Studies. Only courses in which the student received a grade of B or better will be considered.

- The College of Graduate Studies 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 master's students as well as at least 6 credits of regular (non-independent study) coursework 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 graduate seminar MIME 8930.

- Deviations from these guidelines are expected but must be requested by petition and approved by the department Graduate Director. As a 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, if such courses contribute to a strong and coherent program.

7.3.3 Ph.D. Candidacy Qualifier

Purpose

The Ph.D. Candidacy Qualifier provides an assessment of whether the student is prepared to carry his/her Ph.D. program to its conclusion and involves an evaluation of the student's preparation in core areas fundamental to his/her area of concentration.

Scope

The Ph.D. Candidacy Qualifier is an instrument designed to give the student’s Doctoral Research Committee an opportunity to evaluate the students’ academic abilities and promise. The exam seeks to assess the students’ **research performance**, their understanding of the requisite engineering fundamentals, their capacity to think clearly, and their ability to express their technical knowledge.

Format

Students can complete a Ph.D. degree with a concentration in Mechanical Engineering or Industrial Engineering. The Ph.D. with a concentration in Mechanical Engineering can be completed in one of two research focus areas: Materials, Design and Manufacturing focus area and Computational & Thermal-Fluid focus area.

The MIME Ph.D. qualifier in Mechanical Engineering includes earning a minimum grade of (A-) in three classes in either of the two focus areas (1) Materials, Design and Manufacturing or 2) Thermal-Fluid Sciences. The MIME Ph.D. qualifying in Industrial Engineering includes also earning a grade of (A-) in three classes. These classes must be taken by all students (with or w/o a prior MS degree) who are seeking a Ph.D. degree in MIME at the University of Toledo. The required courses are listed below. These classes are currently offered at least once a year.

MATERIALS, MECHANICS, AND DESIGN (MMD) CORE COURSES:

Students must complete the mathematics course (Advanced Engineering Mathematics I – MIME 6000/8000) and two courses from the list below (a total of 3 classes):

- Design of Experiments (Design of Experiment - MIME 6720/8720)
- Dynamics & Vibration (Advanced Dynamics- MIME 6200/8200)
- Deformable Body Mechanics (Advanced Mechanics of Materials - MIME 5300)
- Manufacturing Engineering (Manufacturing Engineering - MIME 5060)

THERMAL-FLUID CORE COURSES:

Students must complete the mathematics course (Advanced Engineering Mathematics I – MIME 6000/8000) and two courses from the list below (a total of 3 classes):

- Heat Transfer (Intermediate Fluid Mechanics and Heat Transfer - MIME 6460/8460)
- Fluid Mechanics (CFD I – MIME 6440/8440 or Advanced CFD – MIME 6470/8470 or Experimental Fluid Mechanics - MIME 6450/8450)

INDUSTRIAL ENGINEERING CORE COURSES:

Students must complete the mathematics course (Advanced Engineering Mathematics I – MIME 6000/8000) and the following two courses (a total of 3 classes):

- Design of Experiments (Design of Experiment - MIME 6720/8720)
- Manufacturing Engineering (Manufacturing Engineering - MIME 5060)

STUDENTS MUST FOLLOW THE FOLLOWING STEPS:

A. Students must select their Ph.D. advisor by the end of their first academic semester by completing and submitting the form at utoledo.edu/engineering/mechanical-industrial-manufacturing-engineering/graduate/advisorandfocusgroup.html.

B. Students must form their doctoral advisory committee (Ph.D. committee) by the end of their second semester. The GRAD form must be filled out and signatures of the committee members **must be obtained**. The student's Ph.D. committee must consist of at least five members. The chair of the committee will be the candidate's principal advisor. The other members usually will be the co-advisor (if any), faculty members or experts in a related field, with at least one committee member outside the focus area and one member outside the department.

C. The committee members will check and verify whether the student has fulfilled grade requirements (A-) in the selected courses after students finish their second semester. Proper signatures to be obtained.

D. The student's doctoral committee can decide (before beginning of the 3rd semester) what courses students must take if the grade requirement is not fulfilled in each area/course.

E. Students must present to their committee by the end of their 3rd and no later than 4th semester at MIME UToledo about **their research topic (i.e. research questions, literature review, and preliminary data if available).** The committee can probe fundamental understanding of the students related to their research. This is different than research progress and can focus on fundamentals in a student's area of study. Committee members will decide whether 1) the student is on the right track in research. 2) Whether the student has fundamental understanding related to the research area by completing research progress assessment form to evaluate your fundamental understanding of your research area. If the committee members deem appropriate, they can suggest to students to take classes related to their research area and to improve fundamental understanding of the students. This can include an independent study with a research advisor.

If a student does not satisfy grade requirements in core classes or other classes suggested by the Ph.D. committee, the committee must assess student's research performance, fundamental understanding, and grades to decide whether the student can continue in the Ph.D. program. The Ph.D. committee members will vote to make the final decision.

Students will be considered Ph.D. candidates after this step.

F. Research Proposal Presentation: Students should present their research progress to their committee during a formal proposal defense.

G. Students can schedule their dissertation defense a semester following their successful proposal defense. Summer can count as a semester.

> *Note: If students change their Ph.D. advisor after their qualifying exam requirements are fulfilled, the student must select a new advisor and form a new committee and then can resume from step E. The new advisor and the student will decide about taking new classes and the committee might suggest that the student should take some other classes as well. If students change their advisor any time before fulfilling the qualifying exam, the student must find a new advisor and work with him/her to start from step B.*

Administration

The student's doctoral examination committee will be responsible for administering the qualifier including recommendation to the Graduate Director for final approval.

Announcement of Exam Results

Results of the qualifying exam will be available approximately two weeks after the date of the exam. The Director of Graduate Studies will contact individual examinees in writing immediately after the student's doctoral examination committee makes a decision.

All grievances concerning the qualifying exam will be filed with the Director of Graduate Studies and will be reviewed by the student's doctoral examination committee. The Chair and/or the Director of Graduate Studies will meet with the individual examinees immediately after the review of the grievance by the doctoral examination committee has been conducted in order to discuss the results.

Students who do not successfully complete the qualifying examinations 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 student's doctoral examination committee chaired by the faculty advisor, and in consultation with the Graduate Director and/or the Chair 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, possibly subject to specific performance standards.

7.3.4 Ph.D. Candidacy Requirements

Doctoral candidacy requires selection of an academic advisor (step **A** above), formation of a doctoral dissertation committee (step **B** above) satisfactory performance in the doctoral qualifying examination (steps **A** through **E** above), filing of an approved doctoral program plan of study, and maintaining good academic performance as specified in the MIME Department Graduate Student Handbook.

When the above requirements have been met, the student may file his/her application for doctoral candidacy utoledo.edu/graduate/forms/CandidacyDoctoral.pdf . The department requires that the application be filed within one year of the time the doctoral qualifying examination is passed. Doctoral students must have established candidacy for the doctoral degree before presenting and defending dissertation research.

Candidacy for the Ph.D. degree begins officially with the approval of the application and lasts for a period of five years.

7.3.5 Ph.D. Dissertation Requirements

As indicated above, the student must write a dissertation proposal and present it to the doctoral dissertation committee and successfully defend it. The signatures of the committee members on the candidate's approval of dissertation form Approval of Dissertation form (utoledo.edu) indicate approval of the dissertation research and represent the final certification of its adequacy.

Doctoral 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. Provide an opportunity for the student's doctoral examination committee to offer suggestions and references on the work conducted and the work to be conducted.
2. Provide a safeguard against duplication of research effort.

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

After approval by the Doctoral Examination 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 members of the Doctoral Examination Committee, and the date.
2. A 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.

The final document should be sent to the associate director of department student service in the PDF format. A copy of the proposal should be placed in the student file for review by the faculty.

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 the Doctoral Examination Committee and other experts in the field; and
3. Demonstrate the capabilities for which a Ph.D. degree is awarded by answering satisfactorily any questions considered pertinent by the examination committee.

As stated above, the student's doctoral examination committee must consist of at least five members. The chair of the committee will be the candidate's principal advisor. The other members usually will be the co-advisor (if any) and faculty members or experts in a related field with at least one committee member outside the focus area and at least one other 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 Doctoral Dissertation Committee Chairperson with 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 Advisor as the chair) has the responsibility of supervising the candidate's research work and ensuring 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 and TOEFL scores when required).
2. Registration: Meet with the MIME Director of Graduate Studies to register for initial courses.
3. Advisor: Select an advisor during first semester (full-time students) by completing and submitting the form at utoledo.edu/engineering/mechanical-industrial-manufacturing-engineering/graduate/advisorandfocusgroup.html.
4. Plan of Study: Specifies coursework, language, proposed dates of qualifying exam, and doctoral examination membership on the form available at DocPOS.pdf (utoledo.edu). The department requires that this form be filed before completion of the first semester of post-master's study.
5. Qualifying Exams: The student's doctoral examination committee chaired by the faculty advisor administers the Ph.D. qualifying exam. The exam is arranged through your advisor and should occur by their 3rd and no later than 4th semester at the department. The exam assesses the student's competence in fundamental understandings related to the area of study and on conducting research.
6. Complete the Research proposal, arranged by advisor and committee.
7. Admission to Candidacy: The admission to candidacy form needs to be filed after the qualifying exams are passed. Forms are available at utoledo.edu/graduate/forms/CandidacyDoctoral.pdf.
8. Defense acceptance and intellectual protection form completed and submitted. The form can be found at IntellectualProtection.pdf (utoledo.edu)
9. Application for degree. Apply online through the myUT portal. Use the "Apply to Graduate" link located in the My Records section of the Toolkit menu. The form must be filed no later than the second week of the semester during which degree is awarded.
10. Dissertation Defense
    I. Complete dissertation accompanied by a letter of transmittal from advisor must be distributed to the doctoral examination committee not less than two weeks prior to exam.
    II. Fill out the defense announcement request not less than two (2) weeks prior to defense. Also see the Department Secretary to arrange a room.
    III. Prepare a no longer than 40 minute presentation utilizing appropriate visual aids (slides, & etc.).
    IV. Following successful exam, committee members sign dissertation approval form available at: Approval of Dissertation form (utoledo.edu) .
    V. The final, corrected, document in PDF format must be approved by the College of Engineering and uploaded on OhioLINK no later than the last day of classes for the semester that the degree is awarded. The process overview for ETD submission can be found on the College of Graduate Studies website at utoledo.edu/graduate/currentstudents/etd/etd_process.html.
    VI. One electronic PDF version of the 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 copy of her/his dissertation.
11. Departure from the MIME Department

Check with your advisor about what information you need to leave in your lab for other students to continue your work.

I. Check with your advisor about what information you need to leave in your lab for other students to continue your work.
II. All keys obtained from the Key Control Office (work control) must be returned to them as they are in your name.
III. Return all keys to desks and filing cabinets to the secretary in the MIME office.
IV. Remove all personal belongings from your desk; leave the desk and filing cabinets unlocked when you leave.
V. Provide a physical forwarding address for forwarding mail, to the MIME department secretary.
VI. Provide an email forwarding address, to your advisor, the MIME Director of Graduate Studies, and the MIME department secretary.

7.3.7 Getting a master's degree along with Ph.D.

The student must have completed a minimum of 30 credits of graduate coursework, successfully completed the qualifier exam and passed his/her doctoral dissertation proposal. Of the above graduate coursework required, a minimum of 12 semester credit hours of coursework must be at the advanced level (normally 6/8000).

Students who will receive a master's degree along with a Ph.D. receive their master's degree at the end of the academic semester that they complete the above requirements for a master's degree. Students must apply for graduation and meet the requirements of the College of Graduate Studies for their master's degree.

Students who pursue a master's degree along with their Ph.D. must submit to the department an approved plan of study. The student academic advisor, the department's Director of Graduate Studies, the Associate Dean of Graduate Studies of the College of Engineering, and the College of Graduate Studies must approve this program of study.

7.4 Graduate Certificates

The department of Mechanical, Industrial and Manufacturing Engineering offers the following four graduate certificates: graduate certificate in aerospace engineering, graduate certificate in manufacturing, graduate certificate in materials science and engineering, and graduate certificate in mechatronics.

The courses in the four graduate certificates can all be applied toward an MS degree in Mechanical Engineering or General Engineering. Consider stacking two certificates for additional credentials or to complete a master's degree.

7.4.1 GRADUATE CERTIFICTE IN AEROSPACE ENGINEERING

The Graduate Certificate in Aerospace is designed for practicing mechanical engineers in the workforce and graduate students pursuing an M.S. in Mechanical Engineering who wish to demonstrate a focus in aerospace related curriculum. The graduate certificate in aerospace engineering offers courses focused on fluid dynamics, heat transfer, aerothermodynamics, materials, design, and manufacturing. The certificate requires the completion of four courses (12 cr. Hrs.) from three of the four aerospace-related subject areas. An understanding of these topics provides the basis for design and development of advanced aerospace systems. Students can take these courses remotely. The certificate will develop the technical skills engineers need to conceptualize, design, develop, and test aerodynamic components and systems as well as communicate effectively with specialized engineering teams.

CURRICULUM

The certificate is structured to require 12 credit hours of course work. A total of four (4) courses from at least three (3) of the subject areas listed below must be successfully completed for the certificate.

Fluid Dynamics (3 cr. hrs.)
Course List

Code	Title	Hours
MIME 5550	Aerodynamics	3
MIME 6440	Computational Fluid Dynamics I	3
MIME 6450	Experimental Fluid Mechanics	3
MIME 6460	Intermediate Fluid Mechanics and Heat Transfer	3

Heat Transfer (3 cr. hrs.)
Course List

Code	Title	Hours
MIME 6460	Intermediate Fluid Mechanics and Heat Transfer	3
MIME 6580	Advanced Heat Transfer	3

Aerothermodynamics (3 cr. hrs.)
Course List

Code	Title	Hours
MIME 5510	Turbomachinery	3
MIME 5540	Jet Propulsion	3
MIME 5560	Gas Dynamics	3

Materials, Design, And Manufacturing (3 cr. hrs.)

Course List

Code	Title	Hours
MIME 5060	Manufacturing Engineering	3
MIME 5300	Advanced Mechanics of Materials	3
MIME 6200	Advanced Dynamics	3
MIME 6720	Design of Experiments	3

7.4.2 GRADUATE CERTIFICATE IN MANUFACTURING

https://www.utoledo.edu/engineering/graduate-studies/manufacturing.html

Many industries are seeking to upgrade the skills of their workforce as methods of manufacturing expand to include additive manufacturing, advanced automation, and automated assembly. Replacing legacy processes with new manufacturing methods also requires re-imagining engineering design for production with these new technologies. Want to be a leader in the manufacturing revolution? Let the new Graduate Certificate in Manufacturing take your career to the next level.

Manufacturing is undergoing systemic changes because of technological advances and reshoring of manufacturing to the U.S. The adoption and integration of additive manufacturing technologies is changing the way products are made and opening product opportunities that were previously unfeasible. Employers have sought out and hired graduates with specialized knowledge and skills in manufacturing for many years. This Certificate allows you to transcript manufacturing skill-base and enables employers to identify graduates with the manufacturing expertise that they need.

CURRICULUM

The certificate is a total of 15 credit hours with all courses offered online. The certificate program is structured around several core manufacturing courses with electives to allow customization.

Required core manufacturing courses (9 cr. hrs.).

Choose only 3 courses from the following four courses:

MIME 5060 Manufacturing Engineering (3 cr. hrs.)
MIME 5830 Additive Manufacturing (3 cr. hrs.)
MIME 6720 Design of Experiments (3 cr. hrs.)
MIME 6810 Assembly and Joining processes (3 cr. hrs.)

Engineering Elective courses (6 cr. hrs.)

Choose only 2 courses from the following courses:

MIME 5080 Operation Research (3 cr. hrs.)
MIME 5100 Manufacturing Systems Simulation (3 cr. hrs.)
MIME 5690 Reliability (3 cr. hrs.)
MIME 5800 Design for Manufacturability (3 cr. hrs.)
MIME 5820 Sustainability Analysis and Design (3 cr. hrs.)
MIME 6800 Advanced manufacturing Systems Engineering (3 cr. hrs.)

7.4.3 GRADUATE CERTIFICATE in MATERIALS SCIENCE AND ENGINEERING

HTTPS://WWW.UTOLEDO.EDU/ENGINEERING/GRADUATE-STUDIES/MATERIALS-SCIENCE-AND-ENGINEERING.HTML

Material science is an interdisciplinary area of study and research that supports many engineering disciplines as well as chemistry, and physics. New technologies for manufacturing as well as greening of chemistry and engineering are driving development of new material formulations and production methods. The graduate certificate in material science and engineering is designed to support engineers and physical scientists that are interested in materials development, performance, and applications.

Materials science is an important research and development area in a wide range of industries. If you are a STEM professional interested in expanding your technical skills in the materials field, this certificate is for you. Mini-projects integrated into the courses provide hands-on experience on material applications. You will develop and conduct experiments, analyze and interpret data, and make decisions for material selection and development for advanced technologies such as nanotechnology micro-machines and additive manufacturing.

The graduate certificate in material science and engineering offers courses focused on all classes of compounds - metals, ceramics, electronic materials, and polymers. Understanding materials properties and behaviors from the molecular level to the manufacturing scale provide a strong basis for materials selection, development, and advancement of specialized manufacturing methods.

CURRICULUM:

The certificate program is structured to require 12 credit hours. Any four courses from the list below may be selected to complete the certificate.

Engineering Courses (12 cr. hrs.)

Select only four courses from the following list:

MIME 5350	Advanced Ceramics (3 cr. hrs.)
MIME 5370	Advanced Materials for Automotive Structures (3 cr. hrs.)
MIME 5380	Engineering Polymers and Rubbers (3 cr. hrs.)
MIME 5390	Failure Analysis of Materials (3 cr. hrs.)
EECS 5600	Solid State Devices (3 cr. hrs.)

7.4.4 GRDAUATE CERTIFICATE IN MECHATRONCIS

https://www.utoledo.edu/engineering/graduate-studies/mechatronics.html

Many organizations are seeking to upgrade the skills of their workforce as traditional mechanical systems are being replaced by mechatronic systems. Expand your knowledge in this rapidly expanding field with the graduate certificate in mechatronics. Mechatronics is the synthesis of traditional mechanical engineering with electronics and control engineering. Our graduate certificate includes controls, mechanical systems, electronics, and electrical systems, taught with automotive-specific content, but applicable across a range of industries.

CURRICULUM:

Engineering Core (required courses) (9 cr. hrs.)

MIME 5420 Either Modeling and Control of Engineering Systems (3 cr. hrs.)

or

MIME 5430 Advanced Automotive Control Systems (3 cr. hrs.)

MIME 5460 Advanced MATLAB for Engineers (3 cr. hrs.)

EECS 5480 Power Electronics 1 (3 cr. hrs.)

Engineering Electives (3 cr. hrs.)

MIME 5420 Modeling and Control of Engineering Systems (3 cr. hrs.)

MIME 5430 Advanced Automotive Control Systems (3 cr. hrs.)

Mime 5450 Advanced Automation Design (3 cr. hrs.)

Hands-on Project Course (3 cr. hrs.)

MIME 5440 Mechatronics (3 cr. hrs.)

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 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 they 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 with a MIME course, whether of an academic or nonacademic nature, 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 9 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 coursework. 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 semester 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). Instructional fees for audited courses are the student’s responsibility and are not covered by the fee waiver granted to students receiving financial aid.

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 misses 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 semester 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, 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 Coursework

Independent Study (MIME 6990/8990) is intended to be used in a one-on-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 MS 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 Advisor and a copy turned in to the Associate Director of Department Student Services. 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 Director of Graduate studies.

8.8 Research Outside of Supervision by a MIME Faculty Member

All graduate students in the MIME Department at UToledo should consult all their research activities (while at UToledo) with their graduate advisor or MIME's graduate director (if such advisor has not yet been identified). Graduate students **should NOT** be involved in conducting research and/or submitting/publishing abstracts, conference proceedings, oral/poster presentations, and journal publications without obtaining written permission from their academic advisor or MIME's graduate director (if there is no graduate advisor assigned yet). The graduate advisor of graduate director should keep records of such exceptional permissions and provide them to the department when asked. Violation of this policy may result in termination of student's support from the department (TA, RA, or tuition waiver) and possible expulsion of the student from the program. If a written approval is obtained to be involved in research activities outside of the supervision by a MIME faculty member, the student should NOT use the University of Toledo's affiliation in their product. This policy applies to ALL MIME graduate students including a) those who are receiving TA, RA, or tuition waiver from the department and b) those who are NOT receiving any support from the department.

8.9 Graduate Seminar Series:

All MIME graduate students must register for the MIME graduate seminar during their course of study at UToledo. This includes registration for the graduate seminar for all the semesters that the students are enrolled in MIME's graduate program at UToledo. Registration for and obtaining satisfactory grade in MIME graduate seminars (during all semesters) is mandatory and partial requirement to obtain an MS and/or Ph.D. degree from the MIME department at UToledo. The MIME faculty member who oversees the graduate seminars will set the criteria in the beginning of each semester on how students can obtain a satisfactory grade. When a student is off campus for a co-op or other reasons, they should communicate with the MIME's graduate director to obtain a permission for not registering for the graduate seminars. This policy applies to ALL MIME graduate students including a) those who are receiving TA, RA, or tuition waiver from the department and b) those who are NOT receiving any support from the department.

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 UToledo 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 College of Graduate Studies on a Graduate Research Advisor (GRAD) Committee Approval & Assurances Form along with any additional forms as necessary. A copy of GRAD Committee Approval & Assurances Form should be returned to the department for the student's file. The form 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 a doctoral examination committee before the end of the third or the fourth semester of study. The membership is designated on the Doctoral Proposal along with the Graduate Research Advisory (GRAD) Committee Approval & Assurances 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 examination, 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 her/his 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 well). 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 College of Graduate Studies has produced a website to aid in thesis and dissertation preparation available at utoledo.edu/graduate/currentstudents/thesis_dissertation/.) The advisor will review the manuscript, provide editorial criticism, and make suggestions for revision and reorganization. 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 student should prepare a letter of transmittal to the doctoral examination committee asserting that her/his advisor is satisfied with the form and substance of the document, as well as asking them to both 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 a defense announcement request form (available on the MIME graduate program website at utoledo.edu/engineering/mechanical-industrial-manufacturing-engineering/graduate/announcementrequest.html) and submit it online to the department secretary who will prepare an announcement, and distribute it to departmental faculty and graduate students, interested faculty in other departments, and the Associate Director of Department Student Services 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 examination 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 they have passed or have 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 Approval Form (utoledo.edu/graduate/forms/ApprovalofThesis.pdf) or approval of dissertation (utoledo.edu/graduate/forms/ApprovalofDissertation.pdf) form 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 approval of thesis/project/dissertation form which will be forwarded to the Associate Dean of Graduate Studies of the College of Engineering for approval before transmittal to the College of Graduate Studies. A complete and correct PDF copy of the final manuscript must be submitted to OhioLink (utoledo.edu/graduate/currentstudents/etd/etd_process.html) Prior to graduation

9.3 Thesis and Project Format

The master's thesis must be typed to meet the style and format requirement of the College of Graduate Studies. A set of instructions for preparing the thesis manuscript can be obtained at the College of Graduate Studies website at utoledo.edu/graduate/currentstudents/thesis_dissertation/. All students are strongly encouraged to submit a format review request prior to the electronic submission process (send a pdf copy of thesis to etdmc@utoledo.edu). The master's project should follow the same guidelines. The student has the sole responsibility for preparing the manuscript.

An approval of Thesis/Dissertation form must be included with the electronic copy submitted to the College of Graduate Studies (utoledo.edu/graduate/forms/ApprovalofThesis.pdf) or (utoledo.edu/graduate/forms/ApprovalofDissertation.pdf).

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 examination 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 a sense of professionalism and a desire to adhere to the highest ethical standards in all its students. 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 Policy on Graduate Student Academic Dishonesty (Policy # 3364-77-01) utoledo.edu/policies/academic/graduate/pdfs/3364_77_01.pdf This policy is listed *verbatim* in appendix 1.

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 each professor's policy in the first class period.

On occasion a professor has alleged that a student committed 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 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, or 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 may include a zero on the test or homework, a failing grade in the test, probation, suspension, or 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 appendix 1.

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.

LEARNING OUTCOMES

MS in Mechanical Engineering

1) Demonstrate technical proficiency in their focus area topics

2) Apply advanced engineering mathematics and/or statistical principles to solve engineering problems in one of the ME specialty areas

3) Demonstrate ability to conduct a literature review

4) Explain course projects in one of the ME specialty areas clearly and concisely in written and oral formats

5) Thesis or project option: explain their research clearly and concisely in written and oral formats

6) Thesis or project option: generate high quality engineering research

MS in Industrial Engineering

Learning Outcomes

1) Demonstrate technical proficiency in their focus area topics

2) Apply advanced engineering mathematics and/or statistical principles to solve engineering problems in one of the IE specialty areas

3) Demonstrate ability to conduct a literature review

4) Explain course projects in one of the IE specialty areas clearly and concisely in written and oral formats

5) Thesis or project option: explain their research clearly and concisely in written and oral formats

6) Thesis or project option: generate high quality engineering research

Ph.D. in Engineering with a concentration in Mechanical Engineering

PLO 1) Demonstrate technical proficiency in their focus area topics.

PLO 2) Deliver clear and concise written and oral presentations for doctoral level course projects.

PLO 3) Deliver clear and concise written and oral presentations of their doctoral research.

PLO 4) Generate high quality engineering research that is original, significant and consequential, and is publishable in high quality journals, book chapters, and conference proceedings.

PLO 5) Contribute to research proposals in collaboration and / or under the guidance of the faculty advisor.

PLO 6) Teach undergraduate engineering courses.

Ph.D. in Engineering with a concentration in Industrial Engineering

PLO 1) Demonstrate technical proficiency in their focus area topics.

PLO 2) Explain doctoral level course projects clearly and concisely in written and oral formats.

PLO 3) Explain their doctoral research clearly and concisely in written and oral formats.

PLO 4) Generate high quality engineering research that is original, significant and consequential, and is publishable in high quality journals, book chapters, and conference proceedings.

PLO 5) Participate in research proposal writing to fund their research

PLO 6) Teach undergraduate engineering courses.

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 network and make contacts with industry. In addition, there are Engineering College honorary societies, the Association of MIME graduate students, and the University of Toledo Graduate Student Association whose members are graduate students from all UToledo graduate programs.

American Society of Mechanical Engineers (ASME)

The ASME Student Section at UToledo 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. UToledo 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 UToledo 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, 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.

The Association of MIME Graduate Students (AMGS)

The Graduate Student Association of the MIME (Mechanical, Industrial, and Manufacturing Engineering) Department at the University of Toledo was founded in December 2019 and is on the web at Association of MIME Graduate Students (AMGS) - The University of Toledo | Facebook or LinkedIn

9.7 Practical Training for International Students

The United States Department of Homeland Security (DHS) 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 in their last semesters. Exceptions to this policy require the approval of (a) the major advisor, and (b) the Graduate Program Director or 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. There is a smaller, more specific McMaster Engineering Library, located in Palmer Hall, which offers assistance with access to scientific and technical databases and literature search.

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 mailboxes 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 Rocket Solutions.

Information Technology

The IT department provides many support services to staff, faculty and students to enhance their working and educational experience here at UToledo. Contact them for account or computer issues or visit their website for FAQ's or discounts on personal computer purchase.

Email: ithelpdesk@utoledo.edu
Phone: 419-530-2400
utoledo.edu/it/

Night Watch Campus Escort Service

Although UToledo 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, UToledo Community Technical College [as well as other locations if prearranged] and is free of charge.

Phone: 419-530-3024

Career Services

When job hunting, you will first want to register with the Career Services Office. They have a wealth of information including an online interactive database where you can find jobs, post your resume and research job openings. They can give you a practice interview and help you prepare your resume. These jobs include on-campus, off-campus, part-time as well as full-time before and after graduation.

Student Union Room 1533
Phone: 419-530-4341
utoledo.edu/career/

Engineering Career Development Center

Nitschke Hall, Room 1040
Phone: 419-530-8050
utoledo.edu/engineering/co-op-and-careers/

Counseling Center

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.

Rocket Hall Room 1810
Phone: 419-530-2426 –

utoledo.edu/studentaffairs/counseling/

Student Health and Wellness – University Health Center, Main Campus

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 between the Law School and Rocket Hall and across from Academic House and International House.

Phone: 419-530-3451
1735 West Rocket Dr., Entrance #3

utoledo.edu/health/student/

Off Campus Student Services

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.

Student Union Room 1532
Phone: 419-530-8521
Email: getinvolved@utoledo.edu

utoledo.edu/commuter/ Office of Residence Life

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

Phone: 419-530-2941
Email: residencelife@utoledo.edu

utoledo.edu/studentaffairs/reslife/Office of International Student & Scholar Services

The OISSS provides assistance and services to international students at The University of Toledo, helping students transition to life at UToledo and in the United States. Serves as a resource for orientation, visa requirements, on-campus and off-campus housing, banking and international student health insurance.

Snyder Memorial Room 1000
Phone: 419-530-4229
email: oisss@utoledo.edu
utoledo.edu/cisp/international/

University Police

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, UToledo Police are full-time police officers who have full arrest powers on and off campus.

Public Safety Center 3333 Dorr St
Emergency Response: 911
Police: 419.530.2600
utoledo.edu/depts/police/

Parking Services

Parking Services, also available through your UTAD account, where you go to register your car for a parking permit or pay for or appeal a parking ticket. Most services are available through their website.

Student Union Room 1550
Phone: 530-4100
Email: parking@utoledo.edu
utoledo.edu/parkingservices/

Rocket Solution Central

Rocket Solution Central (RSC) (utoledo.edu/rsc/) is your one-stop service location for assistance with financial aid, student accounts and registration questions.

Rocket Hall room 1200
Phone: 419-530-8700
Email: rocketsolutioncentral@utoledo.edu

Student Legal Services

Student Legal Services is a general practice law firm that provides licensed attorneys to UToledo students to advise and/or represent them in their personal legal matters. The Student Legal Services Fee covers access to Student Legal Services

utoledo.edu/studentaffairs/studentlegalservices/
Student Union room 3504
Phone: 419-530-7230
Email: studentlegal@utoledo.edu

9.13 Important Dates to Know

The following dates and times during the semester may prove useful. For more details on important dates, please visit the provost webpage for academic calendars at utoledo.edu/offices/provost/calendar/.

First five days of the semester

You can add a class without requiring the instructor's signature provided that there is space available in the class or use the web registration.

Friday 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 more information available on the Registrar site.

For graduating students in their second to last semester of classes

Students must apply for graduation by filling out an application for graduation through the apply to graduate link in MyUT and submitting it to the College of Graduate Studies by the 20th day of the semester during which the degree requirements are expected to be completed and graduation actually takes place.

Friday of the tenth 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.

Fifth week [approximately]

Advanced registration for next semester begins.

9.14 Frequently Asked Questions

- **Where do I get an unofficial (personal) copy of my UToledo transcript?**
  - Through MyUT (Myut.utoledo.edu) or the link on the office of the registrar webpage at utoledo.edu/offices/registrar/transcripts.html or by phone at 847.716.3005.
- **Where do I get or have sent elsewhere an official UToledo transcript?**
  - Through MyUT (Myut.utoledo.edu) or the link on the office of the registrar webpage at utoledo.edu/offices/registrar/transcripts.html or by phone at 847.716.3005.
- **Where do I go to have my name changed on my official UToledo records?**
  - Through MyUT (myut.utoledo.edu) → update personal information.
- **Where do I go to have my address changed on my official UToledo records?**
  - Update your address through your MyUT account (Myut.utoledo.edu).
- **Whom do I contact to have my GPA certified for auto insurance discounts or non-UT scholarships/loans?**
  - Through MyUT (myut.utoledo.edu) →Enrollment verifications
- **Whom do I (an international student) contact to obtain a letter for the Immigration & Naturalization Service (INS) regarding "practical training?"**
  - Contact the department secretary to prepare a letter from the department chair
- **Where do I (an international student) go if I have a question about my visa status?**
  - Office for International Students Services, Snyder Memorial room 1000
- **Where do I go to get an official check on my progress toward completion of graduation requirements?**
  - Associate Director of Department Student Services (530-8204)

- **Whom do I see about an add/drop, pass/fail registration, audit registration?**
  - Rocket Solutions Central, Rocket Hall 1200, 419-530-8700.
- **Whom do I see about a credit change for a registered course, withdrawal from school?**
  - Associate Director of Department Student Services (419-530-8204)
- **What do I need to do to obtain a letter for Financial Aid regarding my standing?**
  - Through MyUT.UToledo.edu → financial aid enrollment certification form
- **Where do I go to have UToledo enrollment history certified for an outside agency?**
  - Through MyUT.utoledo.edu → enrollment verifications
- **Where do I go if I have a question about residence status for tuition?**
  - Rocket Solutions Central, Rocket Hall 1200, 419-530-8700
- **Whom do I see to discuss the Board of Trustees Tuition Scholarship?**
  - The College of Graduate Studies
- **Where do I go if I need help with my studying or test-taking skills?**
  - Learning Enhancement Center, Carlson Library Room 0200, 419-530-2176
- **Where do I go if I need help deciding about a career other than engineering?**
- **Where do I go if I need personal counseling?**
  - University Counseling Center, University Heal Center (530-2426)
- **When and where do I submit my application for graduation?**
  - Submit the application through MyUT.utoledo.edu → Apply to Graduate
- **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 Associate Director of Department Student Services following their successful completion of the Ph.D. qualifying exam in consultation with their academic advising committee.

9.15 GRADUATE PROGRAM FORMS AND WHEN TO SUBMIT

WHERE TO FIND THE FORMS

Most graduate program forms are available through the College of Graduate Studies, but there are a few department-specific forms. Most academic program forms, once you have obtained signatures from your advisor and/or committee members can be submitted to Dr. Hefzy, and the department will forward them for additional signatures.

YOUR FIRST SEMESTER AND YEAR

- An Advisor/Focus Group form should be completed in the first few weeks of your first semester of study
- Once you have an adviser, you will work with him/her to complete a Plan of Study as soon as possible and no later than the second semester of study
- Select your research committee and complete a Graduate Research Advisory Committee Approval & Assurances (GRAD form) before beginning Research

PHD CANDIDACY

- Students must earn a grade of A- or better in your two focus area courses and Advanced Engineering Mathematics I (MIME 8000)
- Complete all proper forms required in your first semester and year
- In your 3rd or 4th semester, present to your research committee on your research topic (i.e. research questions, literature review and preliminary data if any). Each committee member will fill out a research progress assessment form to evaluate your fundamental understanding of your research area.
- After successful completion of Ph.D. Candidacy requirements, complete the Application for Admission to Candidacy for the Doctoral Degree

WHEN YOU ARE READY TO DEFEND

- A Defense Announcement request at least two weeks prior to your final project, thesis or dissertation defense date
- The Defense Acceptance and Intellectual Protection Form - at the time of your Thesis/Dissertation proposal and no later than 15 days prior to your final defense date
- A Presentation Assessment is to be completed by each of your committee members during both your proposal (PhD) and final dissertation or Thesis defenses. To be returned to the department secretary for graduate program tracking.
- The Approval of Project/Thesis/Dissertation - upon satisfactory completion of your final defense and before the last day of term that the degree will be awarded

Additional forms are available on the **College of Graduate Studies Academic Program Forms page**

Appendices

APPENDIX 1

The University of Toledo Policy on Graduate Student Academic Dishonesty (Policy # 3364-77-01)

utoledo.edu/policies/academic/graduate/pdfs/3364_77_01.pdf

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

EXAMPLE OF A PLAN OF STUDY OF A MS STUDENT PURSUING A THESIS OPTION

MIME 6000	Advanced Engineering Math	3 hrs
MIME 6xxx	Core course	3 hrs
MIME 6xxx	Core course	3 hrs
MIME 6xxx	Elective (or Core course)	3 hrs
MIME 6xxx	Elective course	3 hrs
MIME 5xxx	Elective course	3 hrs
MIME 5xxx	Elective course	3 hrs
MIME 6960	Graduate Research and Thesis	9 hrs
MIME 6930	Graduate Seminar (every semester)	0 hrs
TOTAL		30 hrs

APPENDIX 3

EXAMPLE OF A PLAN OF STUDY OF A Ph.D. STUDENT

MIME 8xxx	Course 1	3 hrs	
MIME 8xxx	Course 2	3 hrs	
MIME 8xxx	Course 3	3 hrs	
MIME 8xxx	Course 4	3 hrs	
MIME 8xxx	Course 5	3 hrs	
MIME 8960	Dissertation research		45 hrs
Credit from MS degree			30 hrs
MIME 8930	Graduate Seminar	0 hrs	(every semester)
TOTAL		90 hrs	

Appendix 4 Forms

Please see the following pages for samples of all forms to be submitted. Please refer to section 9.15 for a full list of links for form submission.

MECHANICAL, INDUSTRIAL AND MANUFACTURING ENGINEERING

ADVISER/FOCUS GROUP ASSIGNMENT

Please submit this form before the end of your first semester of study

MIME Advisor/Focus Group Assignment

Full Name
First Name Last Name

E-mail ex: myname@example.com

Rocket ID Number

Term Admitted

Full or Part-time
- [ ] Full Time
- [ ] Part Time

Program Advisor

Program Advisor Email ex: myname@example.com

Focus Group

Degree Option

Expected Graduation Date
Semester/Year

Submit Form

COLLEGE OF GRADUATE STUDIES
THE UNIVERSITY OF TOLEDO

Return to the College of Graduate Studies

- Email GCAcademicSvcs@utoledo.edu or
- University Hall 3240, Mail Stop 933 or
- Mulford Library 113, Mail Stop 1042

Date of Defense: _____

Fillable PDF. Digital Signatures and email submission strongly preferred. Illegible and incomplete forms will be returned.

Approval of Dissertation

Instructions: This form must be completed and submitted in order to graduate. All fields must be completed. Due upon the upload of the dissertation to the OhioLINK ETD Center, or the last day of the term, whichever is first.

STUDENT NAME_____ ROCKET ID_____

DEGREE_____ PROGRAM_____

TITLE OF DISSERTATION (Required)

MONTH/YEAR OF GRADUATION: MAY ☐ AUGUST ☐ DECEMBER ☐ /_____ (Year)

I hereby certify that the above titled document does not contain any copyrighted material, or that I have obtained permission from the publisher or copyright holder to include copyrighted material in the dissertation.

Student's Signature_____ **Date**_____

We certify that we have read the above titled document and it is our judgment that it is sufficient for publication. Our signatures indicate final acceptance of the dissertation and approval to submit to the College of Graduate Studies via upload to the OhioLINK ETD Center.

COMMITTEE CHAIR

Name_____ Signature_____ Date_____

COMMITTEE MEMBERS

Name_____ Signature_____ Date_____

Name_____ Signature_____ Date_____

Name_____ Signature_____ Date_____

Name_____ Signature_____ Date_____

Name_____ Signature_____ Date_____

ACADEMIC COLLEGE

Associate Dean's Name_____ Signature_____ Date_____

COLLEGE OF GRADUATE STUDIES

COGS Dean's Name _____ Signature_____ Date_____

COLLEGE OF GRADUATE STUDIES
THE UNIVERSITY OF TOLEDO

Return to the College of Graduate Studies

- Email GCAcademicSvcs@utoledo.edu or
- University Hall 3240, Mail Stop 933 or
- Mulford Library 113, Mail Stop 1042

Date of Defense: _____

Fillable PDF. Digital Signatures and email submission strongly preferred. Illegible and incomplete forms will be returned.

Approval of Thesis

Instructions: This form must be completed and submitted in order to graduate. All fields must be completed. Due upon the upload of the thesis to the OhioLINK ETD Center, or the last day of the term, whichever is first.

STUDENT NAME_____ ROCKET ID_____

DEGREE_____ PROGRAM_____

TITLE OF THESIS (Required)

MONTH/YEAR OF GRADUATION: MAY ☐ AUGUST ☐ DECEMBER ☐ /_____ (Year)

I hereby certify that the above titled document does not contain any copyrighted material, or that I have obtained permission from the publisher or copyright holder to include copyrighted material in the thesis.

Student's Signature_____ **Date**_____

We certify that we have read the above titled document and it is our judgment that it is sufficient for publication. Our signatures indicate final acceptance of the thesis and approval to submit to the College of Graduate Studies via upload to the OhioLINK ETD Center.

COMMITTEE CHAIR

Name_____ Signature_____ Date_____

COMMITTEE MEMBERS

Name_____ Signature_____ Date_____

Name_____ Signature_____ Date_____

Name_____ Signature_____ Date_____

Name_____ Signature_____ Date_____

Name_____ Signature_____ Date_____

ACADEMIC COLLEGE

Associate Dean's Name_____ Signature_____ Date_____

COLLEGE OF GRADUATE STUDIES

COGS Dean's Name _____ Signature_____ Date_____

COLLEGE OF GRADUATE STUDIES
THE UNIVERSITY OF TOLEDO

Return to the College of Graduate Studies

- Email GCAcademicSvcs@utoledo.edu or
- University Hall 3240, Mail Stop 933 or
- Mulford Library 113, Mail Stop 1042

Date of Defense: _____

Fillable PDF. Digital Signatures and email submission strongly preferred. Illegible and incomplete forms will be returned.

Approval of Project

Instructions: This form must be completed and submitted in order to graduate. All fields must be completed. Due upon the completion of the project, or the last day of the term, whichever is first.

STUDENT NAME_____ ROCKET ID_____

DEGREE_____ PROGRAM_____

TITLE OF PROJECT (Required)

MONTH/YEAR OF GRADUATION: MAY ☐ AUGUST ☐ DECEMBER ☐ /_____ (Year)

I hereby certify that the above titled document does not contain any copyrighted material, or that I have obtained permission from the publisher or copyright holder to include copyrighted material in the scholarly project.

Student's Signature_____ **Date**_____

We certify that we have read the above titled document and our signatures indicate final acceptance and approval of the project in partial satisfaction of degree requirements.

COMMITTEE CHAIR

Name_____ Signature_____ Date_____

COMMITTEE MEMBERS

Name_____ Signature_____ Date_____

Name_____ Signature_____ Date_____

Name_____ Signature_____ Date_____

Name_____ Signature_____ Date_____

Name_____ Signature_____ Date_____

ACADEMIC COLLEGE

Associate Dean's Name_____ Signature_____ Date_____

COLLEGE OF GRADUATE STUDIES
THE UNIVERSITY OF TOLEDO

RETURN TO:
College of Graduate Studies

Main Campus
3240 University Hall
Mail Stop 933

Application for Admission to Candidacy for the Doctoral Degree

Name: _____ Rocket ID: _____

Degree Sought: _____ Program: _____

When did you begin graduate study at The University of Toledo? (semester/year) _____

How many graduate credit hours have you completed to date at:

The University of Toledo? _____ At other universities? _____

When do you expect to complete your graduate work? (semester/year) _____

Undergraduate Record

University: _____ Major: _____

Degree: _____ Year: _____

Graduate Record

University: _____ Major: _____

Degree: _____ Year: _____

Qualifying Examination Passed (semester/year): _____

Foreign Language (s): _____ Passed (semester/year): _____

_____ Passed (semester/year): _____

Advisor Recommendation

I am familiar with the undergraduate and graduate records of the applicant and can certify that a 3.0 average has been maintained in the graduate program. The plans call for completion of all degree requirements within a seven-year period. I recommend the applicant for candidacy for the Doctoral Degree.

_____ _____ _____
Advisor (printed) Signature Date

Accepted for Candidacy

_____ _____
Vice Provost for Graduate Affairs and Dean of the College of Graduate Studies Date

COLLEGE OF GRADUATE STUDIES
THE UNIVERSITY OF TOLEDO

Original ☐ **Date:** _____

Amended ☐ **Date:** _____

Return to the College of Graduate Studies

- Email GCAcademicSvcs@utoledo.edu or
- University Hall 3240, Mail Stop 933 or
- Mulford Library 113, Mail Stop 1042

Fillable PDF. Digital signatures and email submission strongly preferred. Illegible and incomplete forms will be returned.

Plan of Study for the Certificate Program

Purpose of the Plan of Study Form

- To serve as a planning and advising tool between the student and advisor that
  - Defines the course of study, providing focus and direction to the graduate program in alignment with the catalog and timely certificate completion.
  - Constitutes an agreement that successful completion of proposed and approved course of study and any other general certificate requirements will result in the awarding of the certificate.

Policies and Permissions

- All students earning a certificate must file an approved Plan of Study [POS] with the College of Graduate Studies.
- It is the student's responsibility to notify the College of Graduate Studies of any changes to an approved POS. Such changes should be requested on a Plan of Study Course Substitution form or an amended Plan of Study. Changes involving term of registration e.g. taking a course in a different semester or year are exempted.
- All changes require the signatures of the advisor, chair or program director, and associate dean of college.
- According to university policy, all credit applied toward the certificate program must have been earned within the period of four [4] years immediately preceding the time the certificate is awarded.
- **According to university policy, any courses earning a "U" or below a "C" cannot remain on the Plan of Study or be applied towards degree fulfillment.**

Instructions for Completion

- List all credits earned or to be earned that you would like to apply toward fulfillment of the graduate certificate, following the catalog requirements for the year of your matriculation. **Document any deviation from catalog requirements on the last page of this form.**
- Enter department and course number under 'Course Alphanumeric Code.' Enter the course title in the second column. Enter term and grade information as appropriate. Enter number of credits in the 'Credit' column for each course.
- Obtain all required signatures and submit to the College of Graduate Studies for final approval.

Student Information

ROCKET ID _____ FULL NAME [First and last] _____

COLLEGE _____ DEGREE _____ PROGRAM _____

FIRST SEMESTER [term/year] _____

EXPECTED GRADUATION [term/year] _____

TIME LIMITATION TO DEGREE [4 years from first term] [term/year] _____

LIST ALL GRADUATE COURSES REQUIRED FOR THE DEGREE					
COURSE ALPHANUMERIC CODE	**COURSE TITLE**	**TERM**	**GRADE**	**# OF CREDITS**	**GRADUATE COLLEGE USE ONLY**
			PROGRAM TOTAL		

Student Signature and Academic College Approvals

STUDENT _____ SIGNATURE _____ DATE _____

ADVISOR _____ SIGNATURE _____ DATE _____

CHAIR/
DIRECTOR _____ SIGNATURE _____ DATE _____

ASSOCIATE DEAN OF
ACADEMIC COLLEGE _____ SIGNATURE _____ DATE _____

COLLEGE OF GRADUATE STUDIES USE ONLY

RECEIVED & REVIEWED _____ DATE _____ INCOMPLETE & RETURNED DATE _____

DEAN OR ASSOC. DEAN
GRADUATE COLLEGE _____ SIGNATURE _____ DATE _____

MECHANICAL, INDUSTRIAL AND MANUFACTURING ENGINEERING

DEFENSE ANNOUNCEMENT REQUEST FORM

MIME Announcement Request for Notice of Defense

Type of Defense (check only one) *

- ◯ Dissertation Proposal
- ◯ Dissertation Defense
- ◯ MS Thesis Defense
- ◯ MS Project Defense

Date and Time of Defense *

Month - Day - Year at Hour / Minutes AM

Building/ room# of defense or virtual meeting link *

O-I Conference Room NI 40

Reserve in Advance. You may reserve the OI conference room in NI 4020 with the dept. secretary

Full Name as you wish it to appear on the announcement *

Prefix | First Name | Middle Name | Last Name | Suffix

Full Title of Paper *

Graduate advisor/ committee chair *

Prefix | First Name | Last Name | Suffix

Committee member 2

Prefix | First Name | Last Name | Suffix

Committee member 3

Prefix | First Name | Last Name | Suffix

Committee member 4

Prefix | First Name | Last Name | Suffix

Committee member 5

Prefix | First Name | Last Name | Suffix

Any additional members

E-mail

ex: firstname.lastname@rockets.utoled

Submit Form

COLLEGE OF GRADUATE STUDIES
THE UNIVERSITY OF TOLEDO

Original ☐ **Date:** _____

Amended ☐ **Date:** _____

Return to the College of Graduate Studies

- Email GCAcademicSvcs@utoledo.edu or
- University Hall 3240, Mail Stop 933 or
- Mulford Library 113, Mail Stop 1042

Fillable PDF. Digital signatures and email submission strongly preferred. Illegible and incomplete forms will be returned.

Plan of Study for the Doctoral Degree

Purpose of the Plan of Study Form

- To serve as a planning and advising tool between the student and advisor that
  - Defines the course of study, providing focus and direction to the graduate program in alignment with the catalog and timely degree completion.
  - Constitutes an agreement that successful completion of proposed and approved course of study and any other general certificate requirements will result in the awarding of the certificate.

Policies and Permissions

- All students earning a doctoral degree must file an approved Plan of Study [POS] with the College of Graduate Studies prior to the completion of 12 credit hours.
- It is the student's responsibility to notify the College of Graduate Studies of any changes to an approved POS. Such changes should be requested on a Plan of Study Course Substitution form or an amended Plan of Study. Changes involving term of registration e.g. taking a course in a different semester or year are exempted.
- All changes require the signatures of the advisor, chair or program director, and associate dean of college.
- According to university policy, all credit applied toward the doctoral degree must have been earned within the period of seven [7] years immediately preceding the time the certificate is awarded. [10 years for MD/PhD degree]
- **According to university policy, any courses earning a "U" or below a "C" cannot remain on the Plan of Study or be applied towards degree fulfillment.**

Instructions for Completion

- List all credits earned or to be earned that you would like to apply toward fulfillment of the doctoral degree, following the catalog requirements for the year of your matriculation. **Document any deviation from catalog requirements on the last page of this form.**
- Enter department and course number under 'Course Alphanumeric Code.' Enter the course title in the second column. Enter term and grade information as appropriate. Enter number of credits in the 'Credit' column for each course.
- Obtain all required signatures and submit to the College of Graduate Studies for final approval.

Student Information

ROCKET ID _____ FULL NAME [First and last] _____

COLLEGE _____ DEGREE _____ PROGRAM _____

FIRST SEMESTER [term/year] _____ EXPECTED GRADUATION [term/year] _____ TIME LIMITATION TO DEGREE [7 years from first term] [term/year] _____

ACADEMIC BACKGROUND

Degree _____ Date _____ Institution _____ Program _____

Degree _____ Date _____ Institution _____ Program _____

LIST ALL GRADUATE COURSES REQUIRED FOR THE DEGREE					
COURSE ALPHANUMERIC CODE	**COURSE TITLE**	**TERM**	**GRADE**	**CREDITS**	**GRADUATE COLLEGE USE ONLY**

LIST ALL GRADUATE COURSES REQUIRED FOR THE DEGREE					
COURSE ALPHANUMERIC CODE	**COURSE TITLE**	**TERM**	**GRADE**	**# OF CREDITS**	**GRADUATE COLLEGE USE ONLY**
PROGRAM TOTAL					

CHECK OR LIST ADDITIONAL DEGREE PROGRAM REQUIREMENTS			
Additional Requirement [can enter details as needed]	**N/A**	**Confirmation to COGS**	**Confirm internally**
EXAM (Qualifying or Comprehensive)			
TEACHING			
INTERNSHIP, PRACTICUM, FIELD EXPERIENCE			
FOREIGN LANGUAGE			
CONFERENCE PRESENTATION			
PUBLICATION			
OTHER:			

PROVIDE ALL DOCUMENTATION REGARDING WAIVERS, COURSE SUBSTITUTIONS AND TRANSFER CREDITS
LIST WAIVED COURSES WITH THE REASON FOR WAIVER [e.g. satisfied during undergraduate study] LIST ALL COURSEWORK WHICH WILL BE SATISFIED WITH SUBSTITUTIONS [must be equivalent credit hours/levels: 5000 ≠ 7000] LIST ALL COURSEWORK WHICH WILL BE SATISFIED BY TRANSFER CREDITS [completion of the Transfer Credit Request form for each institution from which transfer credit is being sought is required. Refer to policy on Transfer Credit on the COGS website.]

Student Signature and Academic College Approvals

STUDENT _____ SIGNATURE _____ DATE _____

ADVISOR _____ SIGNATURE _____ DATE _____

CHAIR/
DIRECTOR _____ SIGNATURE _____ DATE _____

ASSOCIATE DEAN OF
ACADEMIC COLLEGE _____ SIGNATURE _____ DATE _____

COLLEGE OF GRADUATE STUDIES USE ONLY

RECEIVED & REVIEWED _____ DATE _____ INCOMPLETE & RETURNED DATE _____

DEAN OR ASSOC. DEAN
GRADUATE COLLEGE _____ SIGNATURE _____ DATE _____

COLLEGE OF GRADUATE STUDIES
THE UNIVERSITY OF TOLEDO

Original ☐ **Date:** _____

Amended ☐ **Date:** _____

Return to the College of Graduate Studies

- Email GCAcademicSvcs@utoledo.edu or
- University Hall 3240, Mail Stop 933 or
- Mulford Library 113, Mail Stop 1042

Fillable PDF. Digital signatures and email submission strongly preferred. Illegible and incomplete forms will be returned.

Graduate Research Advisory (GRAD) Committee Approval and Assurances

Purpose of GRAD Form

- To document and approve the formation of the project, thesis, or dissertation committee in compliance with Graduate Faculty committee membership categories and the Graduate Student Handbook.
- To document the committee's approval of the topic and research approach and awareness of the federal requirements for institutional review of research methods.
- To document required approvals are obtained **prior** to beginning any research for a field experience, project, thesis, or dissertation involving humans, animals, radiation, or biohazardous substances in compliance with institutional and federal regulations.

Research Compliance at UToledo

- The Office of Research and Sponsored Programs provides researchers, staff, and students the resources and tools necessary to conduct research ethically and responsibly and in accordance with all institutional and governmental regulations. Contact the research compliance staff with any questions.

Instructions for GRAD Form

- Student and their primary adviser must complete the following sections:
  - Student Information: working title is a required field
  - Research Categories: address each category with a YES or NO – do not skip any
  - Committee Members: STUDENT enters each committee member's name and position on the committee – the member will fill in their Rocket ID and signature and will forward to the next signer
- After receiving approvals or waivers for the research categories, the form should be completed, signed, and routed to all signers noted in the approval section of this form.
- Student may submit an amended form when adding or removing members from the committee, or recording a change in research approval or waiver.
- The College of Graduate Studies office will receive, review, and record the form, signifying that institutional review requirements have been met.

Student Information

ROCKET NUMBER _____ NAME _____

DEGREE _____ PROGRAM _____

RESEARCH TYPE (select one):

WORKING TITLE:

Research Categories

HUMAN SUBJECTS

A project meets the definition of Human Subjects Research if it involves living individuals about whom an investigator obtains:

1. Data through intervention or interaction with the individual, including direction collection such as through interview or questionnaire, or indirect collection such as observation through one-way glass, or reviewing records.
2. Identifiable private information

If human subjects are involved, you must file an application for review with a UToledo Institutional Review Board (IRB). Researchers must complete the required human subjects research training **prior** to beginning the research. Additional training and approvals may be required when working with UToledo Medical Center patients or their records to comply with HIPAA. The Human Research Protection Program (HRPP) provides guidance to researchers and administrative support for the UToledo IRBs. For additional information, contact the appropriate member of the HRPP Office.

YES ☐ **APPROVAL NUMBER/WAIVER** _____ **NO** ☐

ANIMALS

If animals (all vertebrates and higher invertebrates such as octopus) are involved, you must file an application for approval from the UToledo Institutional Animal Care and Use Committee (IACUC). For additional information, contact the IACUC Administrator.

YES ☐ **APPROVAL NUMBER** _____ **NO** ☐

SOURCES OF IONIZING RADIATION

If sources of ionizing radiation are involved, you must file an application for usage with the UToledo Radiation Safety Committee. If approved, required training must be completed through the UToledo Radiation Safety Officer. For additional information, contact the department of Radiation Safety by phone at 419.383.4301.

YES ☐ **APPROVAL NUMBER** _____ **NO** ☐

BIOHAZARDOUS SUBSTANCES

If biological agents (or potential biohazards) are involved, you must file an application for approval from the UToledo Institutional Biosafety Committee (IBC). Biological agents include but are not limited to: viruses; fungi; parasites; recombinant and synthetic nucleic acids; select agents and toxins; human blood, cells/cell lines, and other human tissues and products; stem cells; plant cell lines; non-rodent transgenic animals; and animal blood, cells/cell lines, and other animal tissues and products. For additional information, contact the IBC Administrator.

YES ☐ **APPROVAL NUMBER** _____ **NO** ☐

Committee Members

All committee members must hold current graduate faculty membership to chair or serve. Faculty should consult the COGS Graduate Council webpage for membership information, including status and renewal. **Instructions:** Member needs to input their Rocket ID (non-UToledo faculty will not have a number), select correct membership status, sign electronically, and forward to the next signer on the list.

Name	Signature	R
Committee Role	Grad Faculty Membership Status	
Name	Signature	R
Committee Role	Grad Faculty Membership Status	
Name	Signature	R
Committee Role	Grad Faculty Membership Status	
Name	Signature	R
Committee Role	Grad Faculty Membership Status	
Name	Signature	R
Committee Role	Grad Faculty Membership Status	
Name	Signature	R
Committee Role	Grad Faculty Membership Status	

Student Signature and General Approvals

Student _____ Signature _____

Advisor _____ Signature _____

Dept. Chair or
Program Director _____ Signature _____

Associate Dean _____ Signature _____

FOR BIOMEDICAL SCIENCE PHD & MSBS PROGRAMS (CAB, MOME, MMI, & NND TRACKS) ONLY

Predoctoral Fellowship/Graduate Research Assistantships: PhD students with a stipend from a predoctoral fellowship/graduate research assistantship will be supported in whole or part by the College of Graduate Studies funds for a maximum of 3 years. Funding from the major advisor's grant(s), student predoctoral fellowship from other source(s), or from the major advisor's home department will extend this support for a fourth year, and beyond, if appropriate. Financial support from COGS also includes tuition of 9 credits per semester (6 credits summer semester) up to 5 years, at which time COGS will pay for 1 credit per semester until graduation, with the exception of students entering with a UT master's degree who will receive tuition support for up to 4 years. All financial support, regardless of source, is contingent upon satisfactory progress toward the degree, as determined by the major advisor and the student's advisory committee. There is no guarantee of financial support beyond the fifth year, although this may be granted under extraordinary circumstances if sufficient financial resources are available to the major advisor and/or the department.

I approve the above-named faculty member in my department serving as the major advisor for the above-named student. Should the major advisor, or any other financial source, be unable to the financial obligations to the student, the department accepts major advisor's financial responsibility for living stipend support.

REQUIRED:

Chair Name _____ **Department** _____

Chair Signature _____ **Date** _____

REQUIRED: **ADVISOR'S FUNDING SOURCE ACCOUNT NUMBER** for financial obligations beginning Year 2:

Account number _____ **Advisor's signature** _____

COLLEGE OF GRADUATE STUDIES USE ONLY

GRAD form received, reviewed, and recorded by: _____ **Date:** _____

SHACOMI and SGAADVR entered by: _____ **Date:** _____

COLLEGE OF GRADUATE STUDIES
THE UNIVERSITY OF TOLEDO

Original ☐ **Date:** _____

Amended ☐ **Date:** _____

Return to the College of Graduate Studies

- Email GCAcademicSvcs@utoledo.edu or
- University Hall 3240, Mail Stop 933 or
- Mulford Library 113, Mail Stop 1042

Fillable PDF. Digital signatures and email submission strongly preferred. Illegible and incomplete forms will be returned.

Plan of Study for the Master's Degree

Purpose of the Plan of Study Form

- To serve as a planning and advising tool between the student and advisor that
  - Defines the course of study, providing focus and direction to the graduate program in alignment with the catalog and timely degree completion.
  - Constitutes an agreement that successful completion of proposed and approved course of study and any other general master's degree requirements will result in the awarding of the degree.

Policies and Permissions

- All students earning a master's degree must file an approved Plan of Study [POS] with the College of Graduate Studies prior to the completion of 12 credit hours.
- It is the student's responsibility to notify the College of Graduate Studies of any changes to an approved POS. Such changes should be requested on a Plan of Study Course Substitution form or an amended Plan of Study, if extensive. Changes involving term of registration e.g. taking a course in a different semester or year are exempted.
- All changes require the signatures of the advisor, chair or program director, and associate dean of college.
- According to university policy, all credit applied toward the master's degree must have been earned within the period of six [6] years immediately preceding the time the degree is awarded.
- **According to university policy, any courses earning a "U" or below a "C" cannot remain on the Plan of Study or be applied towards degree fulfillment.**

Instructions for Completion

- List all credits earned or to be earned that you would like to apply toward fulfillment of the master's degree, following the catalog requirements for the year of your matriculation. **Document any deviation from catalog requirements on the last page of this form.**
- Enter department and course number under 'Course Alphanumeric Code.' Enter the course title in the second column. Enter term and grade information as appropriate. Enter number of credits in the 'Credit' column for each course.
- Obtain all required signatures and submit to the College of Graduate Studies for final approval.

Student Information

ROCKET ID _____ FULL NAME [First and last] _____

COLLEGE _____ DEGREE _____ PROGRAM _____

FIRST SEMESTER [term/year] _____ EXPECTED GRADUATION [term/year] _____ TIME LIMITATION TO DEGREE [6 years from first term] [term/year] _____

LIST ALL GRADUATE COURSES REQUIRED FOR THE DEGREE					
COURSE ALPHANUMERIC CODE	**COURSE TITLE**	**TERM**	**GRADE**	**CREDITS**	**GRADUATE COLLEGE USE ONLY**

PROGRAM TOTAL

CHECK OR LIST ADDITIONAL DEGREE PROGRAM REQUIREMENTS			
Additional Requirement [can enter details as needed]	**N/A**	**Confirmation to COGS**	**Confirm internally**
EXAM (Qualifying or Comprehensive)			
TEACHING			
INTERNSHIP, PRACTICUM, FIELD EXPERIENCE			
FOREIGN LANGUAGE			
CONFERENCE PRESENTATION			
PUBLICATION			
OTHER:			

PROVIDE ALL DOCUMENTATION REGARDING WAIVERS, COURSE SUBSTITUTIONS AND TRANSFER CREDITS

LIST WAIVED COURSES WITH THE REASON FOR WAIVER [e.g. satisfied during undergraduate study]

LIST ALL COURSEWORK WHICH WILL BE SATISFIED WITH SUBSTITUTIONS [must be equivalent credit hours/levels: 5000 ≠ 7000]

LIST ALL COURSEWORK WHICH WILL BE SATISFIED BY TRANSFER CREDITS [completion of the Transfer Credit Request form for each institution from which transfer credit is being sought is required. Refer to policy on Transfer Credit on the COGS website.]

Student Signature and Academic College Approvals

STUDENT _____ SIGNATURE _____ DATE _____

ADVISOR _____ SIGNATURE _____ DATE _____

CHAIR/
DIRECTOR _____ SIGNATURE _____ DATE _____

ASSOCIATE DEAN OF
ACADEMIC COLLEGE _____ SIGNATURE _____ DATE _____

COLLEGE OF GRADUATE STUDIES USE ONLY

RECEIVED & REVIEWED _____ DATE _____ INCOMPLETE & RETURNED DATE _____

DEAN OR ASSOC. DEAN
GRADUATE COLLEGE _____ SIGNATURE _____ DATE _____

THE UNIVERSITY OF TOLEDO | Department of Mechanical, Industrial and Manufacturing Engineering

PhD PROPOSAL DEFENSE ASSESSMENT FORM

This form is in a rubric to give a clear understanding of the assessment criteria. It is expected that a thesis/dissertation approved by a committee would be evaluated as being above the "emerging" category in all areas.

Student Name: *(please print legibly)*

_____ Rocket ID: _____

Phone: _____ E-mail Address: _____

Committee Members: _____

Thesis/Dissertation Title: _____

_____

Signature: _____ Date: _____

Committee Chair/Member: _____

Circle one number in each category. Do not omit any categories.

Abstract

Exemplary Scholarship			Developed Scholarship		Developing Scholarship			Emerging Scholarship	
10	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
Clear and concise; smoothly draws the reader in; states the problem, findings, methodology, and significance.			Organized well; states the research problem, findings, methodology, and significance.		The abstract has an introduction to the finding; statement of the problem; findings, methodology, and/or significance may need some more organizational work.			Introduction to the problem or findings missing or not developed in a clear way; findings, methodology, and/or significance not well organized.	

Research Question or Thesis

10	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
The question or thesis is original and significant in its potential contribution; it calls forth new knowledge; is fully developed by the work of the dissertation and has obvious potential to address critical issues within the respective field.			The question or thesis is original and clear in its potential contribution; it is well-situated to advance existing knowledge; it is well developed by the work of the dissertation.		The question or thesis may be original, but its significance to the field is not well supported; it is developed by the work of the dissertation, but not as thoroughly as required.			The question or thesis needs more development to enhance its originality; the case is not well developed that it is interesting or important; the question or thesis is not strongly supported or developed by the work of the dissertation	

Oral Presentation

10	9	8	7	6	5	4	3	2	1
Critically articulates personal standpoint in relation to the topic; makes clear the integral transformation their themselves; articulates well the potential importance their work has for society at large.		Clearly and critically recognized own situation and context as part of self-inquiry and expresses personal assumptions regarding method and topic.			Addresses personal context in general terms but may not make a strong case for a personal connection.			Relation to the topic is not established well or is absent; reflective standpoint is not expressed clearly or is absent	

Literature Review

10	9	8	7	6	5	4	3	2	1
Mastery of and creative and critical engagement with both canonical and current relevant literature in the field. Demonstrates the gap in the literature relevant to their study and makes a compelling argument as to why the candidate's research will address the gap, significantly contributing to the body of research in their field.		An insightful review that draws connections and integrates literature in a new way; includes canonical and current relevant literature; demonstrates that the student can use the literature to discuss scholarly trends and to develop hypotheses; draws a clear relationship to the gap in literature their work will address.			Provides an analysis of previous findings; adequate coverage but limited as to viewpoints presented; reference to and discussion of canonical and current relevant literature but weak connection with their question or thesis; may not develop a strong connection to the gap ion the literature their work addresses.			The literature review does not include some of the important references related to the field and subject of the study; incomplete; relevance to the research question unclear; may only provide a list of previous findings without being in dialogue with the literature; there are omissions and unsubstantiated interpretations; little evidence the candidate understands the canonical and current literature within their field; may not address the gap in the literature being investigated.	

Theoretical Frameworks

10	9	8	7	6	5	4	3	2	1
Works with multiple demonstrably relevant theories or models; looks at the complementarity and tensions of competing theories; uses theory to generate questions, answers, and considers their implications; addresses how their work will contribute to, support, or change established theory.		Current theories are connected to and provide a clear framework for the research; well-versed in theory; gaps in the research identified in existing theories; discusses the impact on existing theories their research implies.			Current theories are connected to but provide a weak framework for the research; the research connects back to theoretical work weakly; little or no discussion of the impact on existing theories their research implies.			Theoretical framework is missing, unclear, or misunderstood; it is not connected to the literature review or research questions clearly; little or no discussion of the impact of theory on their research; may reject theory as important or pertinent to their study.	

Methods and Approaches

10	9	8	7	6	5	4	3	2	1

High quality, creative, study design; design of study manifests a deep understanding of the field; clear explanation of methodological choices, ethical considerations, and integration of approaches; iteratively explores questions raised by the data or theoretical analysis; communicates very clearly; discusses the limitations of the methodology, study design, and potential biases inherent in study; discussion of connection between methodology and data analysis clear and concise.	Creative methodology and study design; study biases and/or limitations within the study clearly understood and discussed; ethical issues are considered appropriately; discussion of connection between methodology and data analysis clear and concise.	Shows basic competence in understanding methodology and study design; some consideration of ethical issues; choice of methodology and study design acceptable but lacking originality; study biases and/or limitations within the study design discussed but may not be well developed; connection between the methodology and the data analysis discussed but may not be clearly developed.	Uses a methodology and/or population that does not lend itself well to the study of the question; is unaware of, or has not identified, the biases and/or limitation within the study design; ethical issues of research are not considered; a clear connection between the methodology and the data analysis either not discussed or not clearly made.

Theoretical Analysis, Discussion, and Interpretation

10	9	8	7	6	5	4	3	2	1

Analysis is rigorous, nuanced, and transparent; findings are tied to the research question and theoretical foundations; a rigorous discussion of the validity of the findings are engaged in and compared to previous work in the field.	Analysis is thorough, complete and well-connected to the research question and theoretical framework; validity of the findings are addressed rigorously.	The analysis connects back to theory but may not establish a clear connection; aspects of the data are adequately considered but a more thorough analysis should be considered; validity of the findings are addressed but may lack a thorough approach.	Analysis may be incomplete and/or poorly organized and/or implemented; findings may not be supported by the analysis; discussion of the findings may not be well organized and/or not address all of the findings clearly and/or be missing portions such as a discussion of the strengths and weaknesses of the research, validity of the findings may not be addressed.

Conclusions

10	9	8	7	6	5	4	3	2	1

Provides a focused discussion of conclusions, situating them in the literature to draw connections or point to differences with previous work; advances the field(s) of knowledge and raises questions for the future; makes a compelling an interesting argument as to the importance of their findings and how those findings address the 'gap' in the literature originally identified.	Conclusions are well-presented and insightful; they return to the larger context to identify future directions and/or discuss how the field needs to change; accentuates the 'gap' in the literature the study addresses and presents a compelling argument as to how their study fulfills this area.	Summarizes the results and provides a general discussion in reference to the literature; the results are situated as to their significance; little or no discussion of the 'gap' in the literature their study addresses.	May not include a summary of results; summary may not be clear and organized; the connection between the findings and data may not be established in a convincing way; little or no interpretation is provided or the interpretation may not fit the findings.

Writing and Scholarly Voice

10	9	8	7	6	5	4	3	2	1

Writing is fluid, precise, and clear; lexicon of the field is clearly explained and defined; the tone is professional; vocabulary and syntax are mature; scholarly style and format are accurately used; the candidate's 'voice' is heard and yields a definitive presence, authority, and understanding of the issues being discussed.	Writing is grammatically correct, fluid, precise, and clear; lexicon of the field is clearly explained and defined; the tone is professional; vocabulary and syntax are mature; scholarly style and format are accurately used.	Writing is somewhat developed and professional; spelling, punctuation, grammar, in general, meet program and institutional standards; dissertation formatting is adequate; the lexicon of the respective field is understood and used properly.	More work developing academic writing skills necessary; syntax or vocabulary may not be well developed; a reliance on jargon may be a weakness; errors in spelling, punctuation or formatting may be present; document may have formatting problems; the candidate may not have a command of the field's lexicon.

Publication & Achievements

10	9	8	7	6	5	4	3	2	1

Student work resulted in major publications in high impact factor journals in respected field. Student obtained major internal and external awards related to his/her thesis and dissertation.	Student work resulted in a publication in less reputable venues. Student published in conference proceedings in respected filed. Student received awards in respected department.	Student only submitted manuscripts in respected journals. Student also published in conference proceedings.	Failed to publish or submit any paper to journals or conference proceedings related to his/her work.

Role: *(check one)* ❑ Committee Chair ❑ Committee Member ❑ Committee External Member

Name: _____

Signature: _____ Date: _____

Committee Member Recommendation:

COMMITTEE MEMBERS – SUBMIT THIS FORM TO THE COMMITTEE CHAIR; SUBMIT OTHER FEEDBACK TO THE CHAIR IN WRITING SEPARATELY (E.G., IN THE DISSERTATION TEXT)

COMMITTEE CHAIR – SUBMIT THIS FORM, AND THOSE FROM THE COMMITTEE MEMBERS, TO MIME Graduate Office or to the online Share Drive

THE UNIVERSITY OF TOLEDO | Department of Mechanical, Industrial and Manufacturing Engineering

PhD RESEARCH PROGRESS AND FUNDAMENTAL UNDERSTANDING ASSESSMENT FORM

This form is in a rubric to give a clear understanding of the assessment criteria. It is expected that a thesis/dissertation approved by a committee would be evaluated as being above the "emerging" category in all areas.

Student Name: *(please print legibly)*

_____ Rocket ID: _____

Phone: _____ E-mail Address: _____

Research Area/Dissertation Title: _____

Committee Members: _____

Signature: _____ Date: _____

Committee Chair/Member: _____

Member Recommendation: _____

Research Question or Thesis

Exemplary Scholarship			Developed Scholarship		Developing Scholarship			Emerging Scholarship	
10	9	8	7	6	5	4	3	2	1
The question or thesis is original and significant in its potential contribution; it calls forth new knowledge; is fully developed by the work of the dissertation and has obvious potential to address critical issues within the respective field.			The question or thesis is original and clear in its potential contribution; it is well-situated to advance existing knowledge; it is well developed by the work of the dissertation.		The question or thesis may be original, but its significance to the field is not well supported; it is developed by the work of the dissertation, but not as thoroughly as required.			The question or thesis needs more development to enhance its originality; the case is not well developed that it is interesting or important; the question or thesis is not strongly supported or developed by the work of the dissertation	

Fundamentals

10	9	8	7	6	5	4	3	2	1

Student has excellent fundamental understanding related to the research; can answer any question related to core courses and research area.	Student has good fundamental understanding related to research area; student can answer most of the questions related to his/her core area.	Student needs to improve his/her fundamental understanding related to research. Most of fundamental questions cannot be answered by the student.	Student has a very poor understanding of fundamentals related to research. The student needs significant improvement.

Literature Review

10	9	8	7	6	5	4	3	2	1

Mastery of and creative and critical engagement with both canonical and current relevant literature in the field. Demonstrates the gap in the literature relevant to their study and makes a compelling argument as to why the candidate's research will address the gap, significantly contributing to the body of research in their field.	An insightful review that draws connections and integrates literature in a new way; includes canonical and current relevant literature; demonstrates that the student can use the literature to discuss scholarly trends and to develop hypotheses; draws a clear relationship to the gap in literature their work will address.	Provides an analysis of previous findings; adequate coverage but limited as to viewpoints presented; reference to and discussion of canonical and current relevant literature but weak connection with their question or thesis; may not develop a strong connection to the gap ion the literature their work addresses.	The literature review does not include some of the important references related to the field and subject of the study; incomplete; relevance to the research question unclear; may only provide a list of previous findings without being in dialogue with the literature; there are omissions and unsubstantiated interpretations; little evidence the candidate understands the canonical and current literature within their field; may not address the gap in the literature being investigated.

Role: *(check one)* ❑ Committee Chair ❑ Committee Member ❑ Committee External Member

Name: _____

Signature: _____ Date: _____

COMMITTEE MEMBERS – SUBMIT THIS FORM TO THE COMMITTEE CHAIR; SUBMIT OTHER FEEDBACK TO THE CHAIR IN WRITING SEPARATELY (E.G., IN THE DISSERTATION TEXT)

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THE UNIVERSITY OF TOLEDO | Department of Mechanical, Industrial and Manufacturing Engineering

MIME MS THESIS/PhD DISSERTATION ASSESSMENT FORM

This form is in a rubric to give a clear understanding of the assessment criteria. It is expected that a thesis/dissertation approved by a committee would be evaluated as being above the "emerging" category in all areas.

Student Name: *(please print legibly)*

_____ Rocket ID: _____

Phone: _____ E-mail Address: _____

Academic Division: ☐ M.S. ☐ Ph.D. Program: _____

Thesis/Dissertation Title: _____

_____

Signature: _____ Date: _____

Committee Chair/Member: _____

Abstract

Exemplary Scholarship		Developed Scholarship			Developing Scholarship			Emerging Scholarship	
10	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
Clear and concise; smoothly draws the reader in; states the problem, findings, methodology, and significance.		Organized well; states the research problem, findings, methodology, and significance.			The abstract has an introduction to the finding; statement of the problem; findings, methodology, and/or significance may need some more organizational work.			Introduction to the problem or findings missing or not developed in a clear way; findings, methodology, and/or significance not well organized.	

Research Question or Thesis

10	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
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Publication & Achievements

10	9	8	7	6	5	4	3	2	1
Student work resulted in major publications in high impact factor journals in respected field. Student obtained major internal and external awards related to his/her thesis and dissertation.			Student work resulted in a publication in less reputable venues. Student published in conference proceedings in respected filed. Student received awards in respected department.		Student only submitted manuscripts in respected journals. Student also published in conference proceedings.			Failed to publish or submit any paper to journals or conference proceedings related to his/her work.	

Role: *(check one)* ❑ Committee Chair ❑ Committee Member ❑ Committee External Member

Name: _____

Signature: _____ Date: _____

COMMITTEE MEMBERS – SUBMIT THIS FORM TO THE COMMITTEE CHAIR; SUBMIT OTHER FEEDBACK TO THE CHAIR IN WRITING SEPARATELY (E.G., IN THE DISSERTATION TEXT)

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