Mechanical Engineering, Ph.D.

COLLEGE OF ENGINEERING (http://engineering.temple.edu)

About the Program

The Ph.D. in Mechanical Engineering is designed to develop mechanical engineers who have a solid foundation in mechanical engineering research methods, design, and analytics. Doctoral students are prepared to identify a research area in mechanical engineering and analyze the literature, develop theory, perform experimentation, and develop their own methodologically rigorous research studies. Students complete their studies with a mastery of the fundamental critical thinking and analytic skills and competencies necessary for mechanical engineering. Graduates are well prepared to be engineers and researchers in a range of academic units, non-profit organizations, government agencies, and the private sector.

Time Limit for Degree Completion: 7 years

Campus Location: Main

Full-Time/Part-Time Status: Students are able to complete the didactic portion of the Ph.D. degree program through classes offered after 4:30 p.m.

Interdisciplinary Study: Engineering research is highly interdisciplinary and draws on collaboration with members of the faculty and students within the department, as well as with departments in other schools and colleges at Temple University, including the School of Medicine and the College of Science and Technology.

Areas of Specialization: Faculty in the Department of Mechanical Engineering are actively engaged in research in the following areas:

- Biofluidics
- Biomechanics
- Combustion
- Composite Materials
- Finite Element Analysis
- Fluid Dynamics
- Fluid Mechanics
- Heat and Mass Transfer
- Material Science
- Mechanics of Materials
- Vibration and Controls

Job Prospects: The program is primarily intended for individuals who wish to pursue careers in industry, government, and academia in a highly creative environment. The program is dedicated to producing engineers who will contribute to advancements in mechanical engineering.

Non-Matriculated Student Policy: Up to 9 credits of graduate Engineering coursework may be taken at Temple University on a non-matriculated basis and subsequently applied to the Ph.D. degree upon admission. If the applicant's undergraduate GPA was less than 3.0, a GPA of 3.25 or better is required on this non-matriculated graduate coursework to receive an admissions exception. Consequently, the Mechanical Engineering Graduate Program Director may encourage those with an undergraduate GPA less than 3.0 to take their first three graduate courses prior to making formal application to the Ph.D. program. (See the relevant Graduate School policies on special admission procedures for non-matriculated students: 02.23.11.03 (http://www.temple.edu/grad/policies/gradpolicies.htm) and 02.24.19 (http://www.temple.edu/grad/policies/gradpolicies.htm).)

Financing Opportunities: Applicants for full-time study in the Mechanical Engineering Ph.D. program are automatically considered for financial aid. Three forms of financial aid are awarded to Ph.D. students on a competitive basis:

1. Teaching Assistantship (TA): TA awards are made solely by the Department and require the awardee to work 20 hours per week in support of the Department's undergraduate programs. The TA is compensated with a 9-month stipend, a basic health-insurance plan, and 9 credits per term of tuition remission.
2. Research Assistantship (RA): Individual faculty confer RA awards, using their research funds, upon students who appear well-qualified to carry out the research. Typically, this faculty member becomes the RA's doctoral advisor. The RA normally works up to 20 hours per week and is compensated with a stipend, basic health insurance, and tuition remission.
3. Fellowships: Fellowships are awarded by the University in a competitive process that is open to all Ph.D. applicants. The Mechanical Engineering Graduate Program Director nominates exceptional Ph.D. applicants for a University Fellowship. Fellows receive 9 to 12 months of stipend, depending on the award; basic health insurance; and 12 credits of tuition remission each Fall and Spring term. Fellows of the University have no work obligations with respect to either the Department, the College, or the University.

Because financial aid is awarded on a competitive basis, applicants are urged to complete the application as early as possible.
Admission Requirements and Deadlines

Application Deadline:

Fall: March 1
Spring: November 1; August 1 international

Applications are processed on a continual basis. Ordinarily, the applicant is informed of an admissions decision within 4 to 6 weeks of receipt of all supporting application documents.

Both admissions and financial aid award decisions originate in the Department of Mechanical Engineering within the College of Engineering. Applicants who plan to matriculate full-time are automatically considered for financial aid awards so no separate application for financial aid is required. To ensure financial aid consideration for the intended term of study, however, applicants should submit a complete application by January 15 (Fall) and August 1 (Spring).

APPLY ONLINE to this graduate program.

Letters of Reference:
Number Required: 3

From Whom: Letters of recommendation should be obtained from college or research faculty who are familiar with the applicant's competency. If the applicant has an established career in engineering, one of the letters should be provided by the applicant's immediate supervisor. If the applicant has been out of school long enough that relevant academic reference letters appear impractical, s/he should contact the Mechanical Engineering Graduate Program Director to obtain a waiver of this admission requirement.

Coursework Required for Admission Consideration: Students not adequately prepared for advanced courses may be required to take a number of prerequisites. The Department of Mechanical Engineering identifies the needed coursework on a case-by-case basis.

Master's Degree in Discipline/Related Discipline: A master's degree is not required, but preferred.

Bachelor's Degree in Discipline/Related Discipline: A bachelor's degree is required.

University regulations stipulate that the applicant must have earned a 3.0 grade-point average on a 4.0 scale in her/his undergraduate studies, but admission exceptions are made for a variety of circumstances. (See Graduate School Policy 02.23.11.03.) The Mechanical Engineering Graduate Program Director helps the applicant navigate the admission possibilities and assists in the assessment of her/his overall educational qualifications with respect to the departmental requirements for the Ph.D. program.

Statement of Goals: Describe your relevant technical experiences, career goals, and specific research interests in one to two pages.

Standardized Test Scores:
GRE: Required. Scores must be no more than 5 years in advance of the application date. (See Graduate School Policy 02.23.12.) Applicants who require a waiver of the GRE should consult the Mechanical Engineering Graduate Program Director concerning the mechanics and consequences of obtaining an exception.

TOEFL: 79 iBT or 550 PBT minimum. (See Graduate School Policy 02.23.13.01.)

Resume: Current resume required.

Advanced Standing: Both transfer credit for courses taken at another institution while matriculated at Temple and/or advanced standing credit for courses taken within the 5-year period prior to matriculating at Temple may be applied toward the Ph.D.-level didactic coursework requirement. Written approval is required from the student's doctoral advisor, the College's Associate Dean for Graduate Study, and the Graduate School. (See Graduate School Policy 02.24.21.) Up to six credits of advanced standing for courses taken within the 5-year period prior to matriculating at Temple may be used to satisfy the master's-level didactic coursework requirement. Approval of the Mechanical Engineering Graduate Program Director is required. The courses must be equivalent to courses offered at Temple in the student's area of study and research, and the grades must be "B" or better.

Program Requirements

General Program Requirements:
Minimum Number of Credits Required Beyond the Bachelor's: 60, including 45 credits of master's-level and Ph.D.-level didactic coursework and 15 credits associated with Ph.D. examinations and dissertation research

Minimum Number of Credits Required Beyond the Master's: 30, including 15 credits of Ph.D.-level didactic coursework and 15 credits associated with Ph.D. examinations and dissertation research
The 15 credits associated with Ph.D. examinations and dissertation research are expected to be distributed in the following manner, although the actual distribution of credits can vary across courses depending on the student’s particular circumstances:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEE 9991</td>
<td>Directed Research</td>
<td>8</td>
</tr>
<tr>
<td>MEE 9994</td>
<td>Preliminary Examination Preparation</td>
<td>1</td>
</tr>
<tr>
<td>MEE 9998</td>
<td>Pre-Dissertation Research</td>
<td>3</td>
</tr>
<tr>
<td>MEE 9999</td>
<td>Dissertation Research</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credit Hours</strong></td>
<td></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

In the first term, the student and the Mechanical Engineering Graduate Program Director jointly determine the cohort that is appropriate for the student and initiate the “Ph.D. in Engineering Plan of Study.” The Plan of Study form lists all required courses and suggests a Ph.D. program requirement execution sequence for the student to follow. This form is used to track the student’s progress, and is updated and annotated at least once a year as the student completes the various benchmarks in the Ph.D. program.

Note that, in general, students who want to take graduate coursework to satisfy either the Ph.D.-level or master’s-level didactic coursework requirement in schools/colleges other than the College of Engineering need to obtain the appropriate written approvals on their Plan of Study form.

1. Didactic coursework may include up to, but no more than, 3 credits of ENGR 9182 Independent Study I OR 3 credits of MEE 9991 Directed Research AND 3 credits of ENGR 9282 Independent Study II. Typically, this coursework is selected by the student’s Doctoral Advisory Committee and notated in the student’s Plan of Study form.

2. Ph.D.-level didactic coursework may include up to, but no more than, 3 credits of ENGR 9282 Independent Study II. Typically, this coursework is selected by the student’s Doctoral Advisory Committee and notated in the student’s Plan of Study form.

**Culminating Events:**

**Formation of the Doctoral Advisory Committee:**

One of the student’s first important tasks is to select a research advisor and form a Doctoral Advisory Committee. The Doctoral Advisory Committee selects the student’s Ph.D.-level coursework and is responsible for guiding the progress of the student’s dissertation research. The time frame for selecting a doctoral advisor depends on the student’s level of preparation upon entering the Ph.D. program:

- Students admitted to the 30-credit cohort are sufficiently experienced to form their Doctoral Advisory Committee before the end of their second regular term of study.
- Students admitted to the 60-credit cohort ordinarily take one or two years of master’s-level coursework before forming their Doctoral Advisory Committee by the end of their fourth regular term in the program.

See Graduate School Policy 02.28.11 (http://www.temple.edu/grad/policies/gradpolicies.htm) for clarification on the composition of the Doctoral Advisory Committee.

**Preliminary Examination:**

Whether the student is a member of the 30-credit cohort or the 60-credit cohort, s/he must complete all didactic coursework in her/his program of study prior to taking the preliminary examination. (See Graduate School Policy 02.27.11 (http://www.temple.edu/grad/policies/gradpolicies.htm).) Students in the 30-credit cohort ordinarily take the exam before the end of their third or fourth regular term. Students in the 60-credit cohort typically take the exam before the end of the eighth regular term.

The preliminary exam tests both the student’s core knowledge in Mechanical Engineering and her/his capacity to synthesize and interpret research communications. The specific form, content, and frequency of the Mechanical Engineering preliminary exam is supervised by the Mechanical Engineering Graduate Program Director. Questions about the exam should be directed to that individual. The student should also coordinate the scheduling of the preliminary exam with the Mechanical Engineering Graduate Program Director. Students have two opportunities to pass the preliminary exam and must register for one credit of MEE 9994 Preliminary Examination Preparation in each term that the exam is attempted. Students are dismissed upon the second failure.

**Dissertation Proposal:**

Within one year of passing the preliminary exam, the student must develop a written research proposal and present it in an open College seminar. The student is responsible for scheduling the proposal and posting an announcement at least 10 business days in advance of this seminar. Ordinarily, the proposal seminar is immediately followed by a meeting of the Doctoral Advisory Committee in which the student is closely questioned about the details and strategy of her/his proposed research.

The proposed dissertation research is considered “approved” when the Graduate School receives the “Dissertation Proposal Transmittal for Elevation to Candidacy” form, found at http://www.temple.edu/grad/forms/, signed by all of the Doctoral Advisory Committee members. The student is considered to be a doctoral candidate after her/his dissertation proposal has been accepted by her/his Doctoral Advisory Committee and the signed transmittal form has been received by the Graduate School. (See Graduate School Policy 02.28.12 (http://www.temple.edu/grad/policies/gradpolicies.htm) for further procedural specifics.)

**Research Credits:**
Students carry out research throughout their studies and must register for research credits throughout the Ph.D. program. The type of research credits that a student registers for depends, however, on the student’s progress in the Ph.D. program, specifically:

- In the terms prior to passing the preliminary exam, credit hours associated with the student’s research should be registered under MEE 9991 Directed Research.
- After the preliminary exam is passed, but before elevation to candidacy, credit hours associated with the student’s research should be registered under MEE 9998 Pre-Dissertation Research.
- After elevation to candidacy, the student’s research credits should be registered under MEE 9999 Dissertation Research. Students are required to register for at least two credit hours of MEE 9999 Dissertation Research following their elevation to candidacy. (See Graduate School Policy 02.28.15 [http://www.temple.edu/grad/policies/gradpolicies.htm].)

Publications:
All doctoral students must publish at least two technical papers in refereed journals or refereed conferences. The papers must be based on the student’s dissertation research, and the student must be first author. Paper writing and/or presentation at a conference is considered an integral part of the student's training. Also, peer review, in part, offers an indication of quality and novelty of the student's research.

Dissertation:
In the term that the student intends to defend her/his dissertation, the Dissertation Examining Committee must be formed. This committee consists of the original Doctoral Advisory Committee plus one additional “external” member who is not faculty in the College of Engineering. If the external examiner is not a member of Temple University’s Graduate Faculty, s/he must be approved by the Graduate School at least four weeks prior to the dissertation defense.

The Chair of the Dissertation Examining Committee is elected by all members of the committee at least three weeks prior to the defense; this elected Chair cannot be the student’s doctoral advisor. The elected Chair of the Dissertation Examining Committee coordinates the proceedings of the defense and is responsible for the completion of all relevant College and Graduate School forms concerning the defense. The Chair of the Dissertation Examining Committee must be approved by the College’s Associate Dean and is identified for the Graduate School in the student’s official request to the Graduate School for permission to schedule the defense. (See Graduate School Policy 02.28.15 [http://www.temple.edu/grad/policies/gradpolicies.htm].)

The dissertation document should be prepared in a format compliant with University standards. (See Graduate School Policy 02.28.18 [http://www.temple.edu/grad/policies/gradpolicies.htm].) The student should provide her/his committee with a copy of the completed dissertation at least three weeks before the date of the dissertation defense.

The student must post a public announcement of her/his defense at least 10 business days prior to the defense. The announcement must be approved in writing by the Graduate School in advance of the posting. Note that any Graduate Faculty may request a copy of the dissertation in advance of the defense and may participate in the defense. (See Graduate School Policy 02.28.16 [http://www.temple.edu/grad/policies/gradpolicies.htm].)

The dissertation defense may be scheduled on any day in a term when classes are regularly held; it may not be scheduled on study days, during final exams, or over term breaks. Furthermore, if the student is to graduate in the same term that s/he defends the dissertation, the defense should be scheduled no later than 30 days prior to the end of the term to allow for document revisions in keeping with Graduate School deadlines, as specified at http://www.temple.edu/grad/documents/Dissertation-and-Thesis-Handbook.pdf.

The dissertation defense is an open University seminar in which the student presents the concepts and results of her/his research. This presentation is typically followed immediately by a meeting in which the Dissertation Examining Committee closely examines the student and her/his research. External attendees may participate in this closed portion of the defense with the permission of the Dissertation Examining Committee Chair. However, only members of the Dissertation Examining Committee may actually vote on the decision to accept the dissertation as prepared, accept the dissertation with revisions, or not accept the dissertation.

Contacts

Program Web Address:
http://engineering.temple.edu/graduate-programs/phd-mechanical-engineering

Department Information:
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Courses

MEE 5110. Special Topics. 3 Credit Hours.
Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

MEE 5117. Finite Element Analysis. 3 Credit Hours.
Concepts and techniques of finite element and finite difference methods; mesh generation techniques; computer graphics presentation methods. Application to solids, liquids, and gases in the areas of stress, strain, deflection elasticity, heat transfer, fluid flow, and combustion.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

MEE 5201. Thermodynamics of Materials. 3 Credit Hours.
An introductory master's level course that explores materials from a thermodynamic perspective: Includes the laws of thermodynamics, free energy, chemical potential, stability, etc. A detailed analysis of phase diagrams is presented in the second half of the course.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

MEE 5203. Advanced Materials Science. 3 Credit Hours.
Chemical bonding, crystallography, defects and their effects on material properties, nucleation, growth, and microstructure development.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

MEE 5204. Solid State Physics for Material Science. 3 Credit Hours.
Crystal structures, bonding, crystal binding energies, reciprocal lattice, elastic properties, phonons, thermal properties, electronic properties, energy bands, band structures, semiconductors, doping, carrier concentration, fermi surfaces, metals, excitation, optical properties, electron scattering, carrier transport, impurities, defects, surfaces, interfaces.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.
MEE 5205. Microscopy and Microanalysis of Materials. 3 Credit Hours.
This course will cover various Microscopy and Microanalysis techniques which are widely used in research labs and in industries to characterize micro and nano structure and chemical composition of solid matter. Among them are visual light, scanning probe and electron beam microscopy and associated spectroscopy. The primary focus will be on fundamental aspects and experimental methods of Scanning Electron Microscopy (SEM) and associated spectroscopy. The SEM facility will be used for individual student projects. Particular attention will be given to the selection criteria used for choosing the appropriate technique for materials characterization.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

MEE 5312. Mechanics of Composite Materials. 3 Credit Hours.
Introduction to the behavior of composite materials and their use in engineering structures: behavior and properties of the constituent fibers and matrices, micromechanical predictions of composite properties, anisotropic elasticity, behavior of composite laminae, classical lamination theory; fracture mechanisms, failure theories; behavior of composite plates and beams.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

MEE 5411. Introduction to Mobile Robotics. 3 Credit Hours.
How can one create mobile robots that operate autonomously in cluttered indoor and outdoor environments? How do robots determine their state and properties from noisy sensor data to accomplish navigation and manipulation tasks? The Introduction to Mobile Robotics course will address motion planning, control, sensing and estimation for mobile robots. The goal of the class is to train students to develop real-time planning and control software modules for robotic systems. Students taking this course are expected to be familiar with differential equations, linear algebra, and multi-variable calculus. Experience with programming in Matlab or Octave is recommended (and Matlab will be used in the course).

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

MEE 5511. Thermodynamic Properties. 3 Credit Hours.
Review of quantum mechanics and introduction to statistical mechanics. Statistical thermodynamics and various models of matter. Accuracy and trends of the predicted properties of various materials.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

MEE 5512. Compressible Fluid Dynamics. 3 Credit Hours.
This course introduces students to the subject of high speed gas dynamics. Compressible flows exhibit fundamentally different behavior from those in low speed, constant density fluids. Such flows are found in aerodynamics, combustors, turbines, jets, gas pipelines, and wind tunnel facilities. Students study phenomena associated with supersonic flows, including normal and oblique shocks, expansion fans, and compressible flows with friction and/or heat transfer. An introduction to high temperature and rarified gas dynamics is also included.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

MEE 5575. Renewable and Alternative Energy. 3 Credit Hours.
The objective of the course is to establish the theoretical basis for the description of regular and chaotic dynamic systems. Students learn to understand the basic ideas of dynamic systems and the nature of chaotic behavior so they can apply these ideas to particular systems. They also learn how to choose the appropriate modeling techniques and hypothesis to establish a mathematical model of a qualitatively described phenomenon. Discussed applications include examples from fluid mechanics, physics, and biology.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

MEE 5576. Photovoltaic Syst Design. 3 Credit Hours.
Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.
MEE 5577. Power Generation and Storage Technologies. 3 Credit Hours.
This course will give an overview of electric power generation technologies including coal, gas, and nuclear power plants, as well as some emerging technologies such as photovoltaic. This course will also discuss technologies used in power transmission and distribution such as overhead power line conductors. Power storage technologies will also be introduced including compressed air, flywheel, hydrogen, and batteries.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

MEE 5731. Cardiovascular Fluid Dynamics. 3 Credit Hours.
Mechanics of blood circulation, fluid mechanics of the heart, blood flow in arteries, unsteady flow in veins, current concepts in circulatory assist devices, biofluidics, and other selected topics.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

MEE 5732. Tissue Biomechanics. 3 Credit Hours.
Tissue Biomechanics course is an introductory course about the mechanical properties of living tissues. The emphasis of the course is on the meaning of constitutive models for bio-solids and bio-fluids. Topics include a review of elastic, viscous, and viscoelastic constitutive models; bioviscoelastic solids; mechanical properties of blood vessels; mechanics of skeletal and heart muscles.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

MEE 5733. Viscoelasticity. 3 Credit Hours.
Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

MEE 5734. Forensic Engineering. 3 Credit Hours.
Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

MEE 8110. Special Topics. 3 Credit Hours.
Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

MEE 8315. Fracture Mechanics. 3 Credit Hours.
Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

MEE 9182. Independent Study I. 3 Credit Hours.
Special study in a particular aspect of engineering under the direct supervision of a graduate faculty member. May be taken once by MS/MSE students and once by Ph.D. students.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

MEE 9282. Independent Study II. 3 Credit Hours.
Special study in a particular aspect of engineering under the direct supervision of a graduate faculty member. May be taken once by Ph.D. students.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

MEE 9991. Directed Research. 1 to 6 Credit Hour.
Under the guidance of a faculty member, the student will conduct independent research on a selected topic in engineering.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.
MEE 9994. Preliminary Examination Preparation. 1 to 6 Credit Hour.
This course is intended for Ph.D. students who have completed their coursework but who have not yet passed both the Ph.D. Preliminary Examination.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

MEE 9995. Project. 1 to 3 Credit Hour.
A project assigned with the approval of the Mechanical Engineering Graduate Committee and conducted under the supervision of a graduate faculty advisor. An oral presentation in an open seminar and a written report are required to complete the independent project. Projects related to industrial applications are encouraged. For non-thesis students only.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

MEE 9996. Thesis. 1 to 3 Credit Hour.
Master's thesis. May be taken twice.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

MEE 9998. Pre-Dissertation Research. 1 to 6 Credit Hour.
This course is intended for Ph.D. students who have passed both the Preliminary and Qualifying Examinations but who have not been elevated to candidacy.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

MEE 9999. Dissertation Research. 1 to 6 Credit Hour.
This course is intended only for those students who have achieved Ph.D. Candidacy status. A minimum of 6 semester hours is required for graduation.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Student Attribute Restrictions:** Must be enrolled in one of the following Student Attributes: Dissertation Writing Student.

**Repeatability:** This course may be repeated for additional credit.