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# Mechanical Engineering Handbook: Master of Science

## FALL 2018 – SPRING 2019

*This handbook provides information about department policies and procedures, as well as specific details pertinent to the following Master's degree programs:*

- *Master of Science (M.S.) in Mechanical Engineering*
- *Master of Science (M.S.) in Mechanical Engineering – Advanced Study*
- *Master of Science (M.S.) in Mechanical Engineering - Research*
- *Integrated Master's/Bachelor's Program (IMB) for CIT undergrads only*
- *Engineering and Technology Innovation Management Dual Degree (ETIM)*
- *Master of Science in Technology Ventures Dual Degree (MSTV)*
- *Master of Science in Computational Design & Manufacturing (MSCDM)*

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## 1. Welcome to Mechanical Engineering

We thank you for choosing the Mechanical Engineering Department and hope your time here will be both successful and enjoyable.

The Mechanical Engineering Department at Carnegie Mellon University offers an intellectually stimulating, collaborative environment to advance your learning as a graduate student. Today's mechanical engineers are working across technologies and disciplines to solve some of society's toughest problems. The department answers the need for professional skills with a comprehensive program that provides depth in mechanical engineering fundamentals and breadth in emerging multidisciplinary topics. Academic activities are balanced with hands-on research opportunities to give our graduates the ability to frame complex problems and collaborate widely across organizations.

Our diverse student body currently includes post-doctoral researchers, part-time students and over 300 full-time graduate students. At the graduate level, the department offers both course work and research oriented M.S. degrees, as well as a research-oriented Ph.D. degree.

This handbook describes the Department policies that govern the M.S. programs in MechE. It is not an exhaustive list of all applicable policies as Department policy does not supercede College of Engineering (CIT) or University policies. The handbook provides links, where appropriate, to relevant College or University policies including The Word (the student handbook). Information from the Office of the Assistant Vice Provost for Graduate Education, and from the Office of the Dean of Student Affairs and others are included in [Appendix B](#). Students should consult these external resources to understand all policies that apply to Carnegie Mellon University M.S. Degrees.

### 1.1 DEPARTMENT PERSONNEL

- Mechanical Engineering Department Head – Allen Robinson  
[www.meche.engineering.cmu.edu/faculty/robinson.html](http://www.meche.engineering.cmu.edu/faculty/robinson.html)  
Executive Assistant – Katherine Tucker – 412-268-3860 (SH 426)
- Head of Graduate Education Committee (GEC) – Prof. Alan McGaughey  
[www.meche.engineering.cmu.edu/faculty/mcgaughey.html](http://www.meche.engineering.cmu.edu/faculty/mcgaughey.html)
- Head of M.S. Subcommittee of GEC – Prof. Satbir Singh  
[www.meche.engineering.cmu.edu/faculty/singh-satbir.html](http://www.meche.engineering.cmu.edu/faculty/singh-satbir.html)
- Mechanical Engineering Graduate Administrators

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- Chris Hertz, Manager of Academic Programs – 412-268-3175 (SH 405), [chertz@andrew.cmu.edu](mailto:chertz@andrew.cmu.edu)
- Melissa Brown, Graduate Academic Advisor – 412-268-1562 (SH 407), [mlb2@andrew.cmu.edu](mailto:mlb2@andrew.cmu.edu)
- The Graduate Administrators are also able to assist with academic or personal situations that graduate students may not have the resources to resolve. If you have questions or concerns, please schedule an appointment: [www.meetme.so/MechEAdvisors](http://www.meetme.so/MechEAdvisors). Additionally, students may confer with the university graduate student ombudsperson, Suzie Laurich-McIntyre, [slaurichmcintyre@cmu.edu](mailto:slaurichmcintyre@cmu.edu), on issues of process or other concerns as they navigate conflicts. Suzie Laurich-McIntyre is the Assistant Vice Provost for Graduate Education.
- Associate Director & Career Consultant, College of Engineering & CPDC
  - Shaina Tsupros – [www.cmu.edu/career](http://www.cmu.edu/career)
- Faculty: [www.meche.engineering.cmu.edu/faculty/directory-faculty.html](http://www.meche.engineering.cmu.edu/faculty/directory-faculty.html)
- Department Points of Contact: [www.cmu.edu/me/people/who-to-call](http://www.cmu.edu/me/people/who-to-call)
- Department Directory (Faculty and Staff): [www.meche.engineering.cmu.edu/faculty/directory-staff.html](http://www.meche.engineering.cmu.edu/faculty/directory-staff.html)
- Department location: Scaife Hall 402
- Department phone: 412-268-2500
- Department fax: 412-268-3348

## 2. University Policies, CMU Statement of Assurance, & CMU Code

It is the responsibility of each member of the Carnegie Mellon community to be familiar with university policies and guidelines. In addition to this departmental graduate student handbook, the following resources are available to assist you in understanding community expectations:

- The Word/Student Handbook: [www.cmu.edu/student-affairs/theword//index.html](http://www.cmu.edu/student-affairs/theword//index.html)
- Academic Integrity Website: [www.cmu.edu/student-affairs/ocsi/academic-integrity/index.html](http://www.cmu.edu/student-affairs/ocsi/academic-integrity/index.html)
- University Policies Website: [www.cmu.edu/policies/](http://www.cmu.edu/policies/)
- Graduate Education Website: [www.cmu.edu/graduate/policies/index.html](http://www.cmu.edu/graduate/policies/index.html)
- Carnegie Institute of Technology (CIT) Website: [engineering.cmu.edu/](http://engineering.cmu.edu/)

Please see [Appendix B](#) for additional information about The Word and University resources.

### 2.1 CARNEGIE MELLON UNIVERSITY STATEMENT OF ASSURANCE

Carnegie Mellon University does not discriminate in admission, employment, or administration of its programs or activities on the basis of race, color, national origin, sex, handicap or disability, age, sexual orientation, gender identity, religion, creed, ancestry, belief, veteran status, or genetic information. Furthermore, Carnegie Mellon University does not discriminate and is required not to discriminate in violation of federal, state, or local laws or executive orders.

Inquiries concerning the application of and compliance with this statement should be directed to the vice president for campus affairs, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone 412-268-2056.

Obtain general information about Carnegie Mellon University by calling 412-268-2000.

The Statement of Assurance can also be found on-line at:

[www.cmu.edu/policies/administrative-and-governance/statement-of-assurance.html](http://www.cmu.edu/policies/administrative-and-governance/statement-of-assurance.html).

## 2.2 THE CARNEGIE MELLON CODE

Students at Carnegie Mellon, because they are members of an academic community dedicated to the achievement of excellence, are expected to meet the highest standards of personal, ethical and moral conduct possible.

These standards require personal integrity, a commitment to honesty without compromise, as well as truth without equivocation and a willingness to place the good of the community above the good of the self. Obligations once undertaken must be met, commitments kept.

As members of the Carnegie Mellon community, individuals are expected to uphold the standards of the community in addition to holding others accountable for said standards. It is rare that the life of a student in an academic community can be so private that it will not affect the community as a whole or that the above standards do not apply.

The discovery, advancement and communication of knowledge are not possible without a commitment to these standards. Creativity cannot exist without acknowledgment of the creativity of others. New knowledge cannot be developed without credit for prior knowledge. Without the ability to trust that these principles will be observed, an academic community cannot exist.

The commitment of its faculty, staff and students to these standards contributes to the high respect in which the Carnegie Mellon degree is held. Students must not destroy that respect by their failure to meet these standards. Students who cannot meet them should voluntarily withdraw from the university.

The Carnegie Mellon Code can also be found on-line at:

[www.cmu.edu/student-affairs/theword/code.html](http://www.cmu.edu/student-affairs/theword/code.html)

## 3. Mechanical Engineering Department Structure

The Department of Mechanical Engineering (MechE) is part of Carnegie Mellon's College of Engineering. The MechE Graduate Education Committee (GEC) administers the MechE graduate programs.

### 3.1 GRADUATE EDUCATION COMMITTEE

The Graduate Education Committee (GEC) and its subcommittees (Ph.D. and M.S.) establish graduate curricula and requirements, policies, and course changes and additions. The GEC coordinates graduate student advising, admission and financial aid decisions, the Ph.D. qualifying exams, and provides major support for the graduate recruitment process.

Graduate student concerns, suggestions, and feedback, should be directed to the GEC Chair through the Graduate Administrator or through the Mechanical Engineering Graduate Student Organization (MEGSO).

## 4. Degrees Offered & Requirements

Information on specific requirements for attainment of each M.S. degree can be found in this section.

Multiple M.S. degree programs are available to satisfy a range of student needs and goals.

- *Master of Science (M.S.) in Mechanical Engineering*
- *Master of Science (M.S.) in Mechanical Engineering – Advanced Study*
- *Master of Science (M.S.) in Mechanical Engineering - Research*
- *Integrated Master's/Bachelor's Program (IMB) for CIT undergrads only*
- *Engineering and Technology Innovation Management Dual Degree (ETIM)*
- *Master of Science in Technology Ventures Dual Degree (MSTV)*
- *Master of Science in Computational Design & Manufacturing (MSCDM)*

The M.S. degree programs offered by the MechE department are self-supported or supported through an outside funding source (such as the student's employer) to pay for tuition and living expenses. (To see cost of attendance rates at Carnegie Mellon University, visit the [HUB](#). For more information on funding, see the section on [Financial Support](#)). Admission to any of the M.S. programs does not guarantee admission to the Department's Ph.D. program. Students interested in pursuing the Ph.D. program must apply directly to that program. Students pursuing a graduate degree from another Carnegie Mellon department must apply and be admitted into the MechE department before pursuing a MechE degree. For the policy on double-counting degree requirements, please see [Section 7.5.1](#). Students interested in completing an M.S. degree program on a part-time basis must review the section on [Full & Part Time Status](#) policy and discuss this carefully with the [Graduate Academic Advisor](#) prior to enrollment.

Notes: The Mechanical Engineering Department has the numerical designation of "24" for course listings. Mechanical Engineering courses consist of all 24-### courses.

### 4.1 MASTER OF SCIENCE IN MECHANICAL ENGINEERING (MSME)

This program is designed for students who want to become engineering professionals in private industry or the public sector after graduation. In this program, students take graduate-level courses to build on the fundamentals they learned in their undergraduate mechanical engineering program. Students are encouraged to take advantage of the many extra-curricular engineering and design experiences on campus (such as MechE Master Makers, the MechE Graduate Research Symposium, other college or university-wide research symposia, and organizations such as Carnegie Mellon Racing).



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The MSME degree program requires completion of 96 units (typically eight, 12-unit courses). Students pursuing this degree program on a full-time basis are expected to complete the degree requirements in two full-time semesters. An M.S. degree in Mechanical Engineering is awarded at the end of this program.

To maintain adequate progress towards their degree, full-time students must complete a minimum of 42 units of their degree requirements by the end of their first semester.

To learn about course offerings visit the [Schedule of Classes](#) and the list of MechE [courses](#) (24-###).

## 4.1.1 MSME DEGREE REQUIREMENTS:

Minimum of 96 total units	<ul style="list-style-type: none"> <li>– All courses must be taken for a letter grade including research and independent study.</li> <li>– Only courses with a letter grade of C or better count towards degree requirements.</li> <li>– Maximum of one pre-approved upper division undergraduate course (300 -599 level).</li> <li>– Cumulative grade point average must be 3.0 or higher at graduation. (See <a href="#">QPA Calculation</a> section of handbook.)</li> </ul>
MechE graduate-level courses: Minimum of 60 units	<ul style="list-style-type: none"> <li>– MechE graduate-level courses with a 24-6## or 24-7## designation, excluding: <ul style="list-style-type: none"> <li>▪ Research (24-794)</li> <li>▪ Supervised Reading (24-793)</li> <li>▪ Practicum in Mechanical Engineering (24-799)</li> </ul> </li> <li>– Students are encouraged to select a set of core courses to achieve depth in one MechE area.</li> </ul>
1 math course: 12 units	<ul style="list-style-type: none"> <li>– Must be from the approved <a href="#">math course list</a></li> <li>– The course taken to satisfy the math requirement cannot be double counted as a MechE graduate level course or a technical elective</li> </ul>
Technical electives: 24 units	<ul style="list-style-type: none"> <li>– Technical electives are additional MechE courses (24-###) or courses from an <a href="#">approved department</a> used to complete the minimum 96 total units.</li> <li>– Maximum of 12 units of Research (24-794) or Supervised Reading (24-793). (See the <a href="#">supervised reading/research</a> section of the handbook.)</li> <li>– Students are encouraged to select technical electives to further develop their breadth and depth in Mechanical Engineering.</li> </ul>
CIT Units Per Semester	Minimum of 36 units per semester must be taken within the College of Engineering (CIT).
CITI research training	Mandatory for all College of Engineering (CIT) students conducting research. See <a href="#">policy</a> .

## 4.2 MASTER OF SCIENCE IN MECHANICAL ENGINEERING – ADVANCED STUDY (MSME-AS)

This program is designed for students who want to become engineering professionals in private industry or the public sector after graduation. In this program, students have the flexibility to choose from a range of courses to acquire a depth in a concentration area, the ability to work in teams to propose, plan, and execute projects of engineering relevance, and to develop a range of professional skills including oral and written communication. Students are encouraged to take advantage of the many extra-curricular engineering and design experiences on campus (such as MechE Master Makers, the MechE Graduate Research Symposium, other college or university-wide research symposia, and organizations such as Carnegie Mellon Racing).

The MSME-AS degree program requires completion of 120 units (typically ten, 12-unit courses). Students pursuing this degree program on a full-time basis are expected to complete the degree requirements in three full-time semesters. An M.S. degree in Mechanical Engineering – Advanced Study is awarded at the end of this program.

To maintain adequate progress towards their degree, all MSME-AS students must declare their Technical Concentration by the 10<sup>th</sup> day of their second semester. In addition, full-time students must complete a minimum of 66 units of their degree requirements by the end of their second semester.

To learn about course offerings visit the [Schedule of Classes](#) and the list of MechE [courses](#) (24-###).

### 4.2.1 Technical Concentrations

Students in the MSME-AS program acquire a depth in a concentration area by completing a minimum of 60 units within a Technical Concentration. Students have until the 10<sup>th</sup> day of class in their second semester to declare their concentration. There are four concentrations that students can select from:

- Design and Manufacturing of Mechanical Systems
- Energy and Thermal Fluid Systems
- Robotic and Control Systems
- Self-defined (must be approved by the GEC and Provost)

Students declare their concentration by completing the MSME-AS Concentration Declaration Quiz on the Mechanical Engineering Graduate Program Canvas module:

<https://canvas.cmu.edu/courses/1088/quizzes>. It may be possible for a student to pursue more than one concentration. Students interested in doing so should consult with their Academic Advisor prior to enrollment or during their first semester. Courses taken to satisfy the primary concentration cannot be double counted for the secondary concentration. Concentrations are not listed on the degree or transcript. Students are encouraged to list their concentration(s) on their resume. Students who wish to pursue a self-defined concentration must prove that their educational objectives cannot be met through one of the other concentrations.

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## 4.2.2 MSME-AS Degree Requirements

Minimum of 120 total units	<ul style="list-style-type: none"> <li>– All courses must have a letter grade of C or better to count towards degree requirements including Supervised Reading (24-793) &amp; Research (24-794)</li> <li>– Cumulative grade point average must be 3.0 or higher at graduation (See <a href="#">QPA Calculation</a> section of handbook.)</li> </ul>
MechE Graduate-level Courses: Minimum of 72 units	<ul style="list-style-type: none"> <li>– MechE graduate-level courses with a 24-6## or 24-7## designation, <b>excluding</b>: <ul style="list-style-type: none"> <li>▪ Research (24-794)</li> <li>▪ Supervised Reading (24-793)</li> <li>▪ Practicum in Mechanical Engineering (24-799) and all Professional Development Courses</li> <li>▪ Approved non-MechE courses (Project, Technical Concentration, and/or Math courses)</li> </ul> </li> <li>– Approved MechE courses (Project, Technical Concentration, and/or Math courses) will be counted towards the corresponding requirement <i>and</i> the MechE Graduate Course Requirement</li> </ul>
Project Courses: Minimum of 24 units	<ul style="list-style-type: none"> <li>– 24 units of <a href="#">designated Project courses</a> <ul style="list-style-type: none"> <li>▪ 12 units (minimum) of Project courses must be in declared technical concentration</li> </ul> </li> </ul>
Technical Concentration: Minimum of 60 units	<ul style="list-style-type: none"> <li>– 60 units in declared area of technical concentration from <a href="#">approved list</a>, including: <ul style="list-style-type: none"> <li>▪ 12 units (minimum) in <a href="#">designated Fundamental courses</a> for the declared technical concentration</li> <li>▪ 12 units (minimum) in <a href="#">designated Project courses</a> for the declared technical concentration</li> </ul> </li> </ul>
1 Math course: 12 units	<ul style="list-style-type: none"> <li>– Must be from the approved <a href="#">math course list</a></li> </ul>
Professional Development: Minimum of 12 units	<ul style="list-style-type: none"> <li>– Must be from the Professional Development <a href="#">approved course list</a></li> </ul>
Technical Electives: As needed to complete degree requirements	<ul style="list-style-type: none"> <li>– Up to 12 units of Supervised Reading (24-793) or Research (24-794). (See the <a href="#">supervised reading/research</a> section of the handbook.)</li> <li>– Up to 3 units of Mechanical Engineering Practicum (24-799)</li> <li>– One pre-approved upper division (300-599) undergraduate course up to 12 units</li> <li>– Additional MechE graduate-level courses (24-6## or 24-7##), excludes 24-793, 24-794, and Professional Development courses</li> <li>– Courses from <a href="#">approved departments</a></li> </ul>
CIT Unit Requirement	Minimum of 36 units within the College of Engineering (CIT) per semester
CITI Research Training	Mandatory for all College of Engineering (CIT) students conducting research. See <a href="#">policy</a> .

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## 4.2.3 Approved Course Lists

MSME-AS students should use the Approved Technical Concentration Course Lists to determine which courses will satisfy their Technical Concentration, Project Course, and Fundamental Course requirements. The Professional Development requirement can be satisfied by courses on the Approved Professional Development Course List. These lists will be updated each semester to include new courses offered by the department and will be published when the Schedule of Classes is posted by the University Registrar's Office, typically 3 weeks prior to registration week of an upcoming semester. The lists can be found on the Mechanical Engineering Graduate Program Canvas module: <https://canvas.cmu.edu/courses/1088>. The Approved Math Course List is used by all students in a MechE M.S. degree program and is located in [Appendix D](#).

## 4.3 MASTER OF SCIENCE IN MECHANICAL ENGINEERING—RESEARCH (MSME-R)

This program is designed for students who want to perform graduate-level research, either as prelude to pursuing a Ph.D. degree or to become engineering professionals in private industry or the public sector after graduation. In addition to taking graduate courses, students admitted to this degree program perform research with a faculty member for the entire duration of the program. Given the emphasis on research, the minimum course requirements are less than the MSME or MSME-AS degree programs.

The MSME-R requires completion of 192 units. Students typically enroll full-time for four semesters except summer. During the summer, students often continue their research or pursue internship opportunities either in industry or with their faculty advisor. The culmination of the MSME-R degree program is a final written research report and presentation to faculty and students at the annual Mechanical Engineering Graduate Student Symposium, held in the spring of each year. An M.S. degree in Mechanical Engineering - Research is awarded at the end of this program.

To maintain adequate progress towards their degree, full-time students must take a minimum of 36 units that count towards their degree requirements each semester, must secure a research advisor by the 10th day of class in their second semester, must take a minimum of 24 units of research (24-794) each semester – beginning their second semester, and complete a minimum of 138 units of the degree requirements [including a minimum of 48 research units (24-794)] by the end of the third semester. MSR students who are unable to secure a research advisor by the end of the tenth day of classes of their second semester or fail to maintain adequate research progress will be required to switch to either the MSME or MSME-AS degree program.

To learn about faculty research areas visit: [www.meche.engineering.cmu.edu/research/index.html](http://www.meche.engineering.cmu.edu/research/index.html), and [www.meche.engineering.cmu.edu/faculty/directory-faculty.html](http://www.meche.engineering.cmu.edu/faculty/directory-faculty.html).

To learn about course offerings visit the [Schedule of Classes](#) and the list of MechE [courses \(24-###\)](#).

## 4.3.1 Advisor Matching

A key step for the MSME-R degree is to secure a research advisor who will oversee the research project. MSME-R faculty research advisors may be faculty members from any approved department. Students who have not secured a research advisor by the tenth day of classes of their second semester will be required to switch to a course-based degree program (MSME or MSME-AS). The MechE department will facilitate advisor matching prior to enrollment and during the first semester of the program. However, it is the MSME-R student's responsibility to choose a research area, agree on a research project, and secure a faculty member to advise that project. Students should submit the 24-794 M.S. Project Registration Form to declare their research advisor and register for research units. The form is available on the Mechanical Engineering Graduate Program Canvas module: <https://canvas.cmu.edu/courses/1088>.

## 4.3.2 Graduate Research Symposium

Students enrolled in the MSME-R degree program are required to present their research at the annual Mechanical Engineering Graduate Research Symposium. The Symposium is held each year, typically in March.

The Master's Poster Session Competition is open to any master's level graduate student in Mechanical Engineering; however, **participation is required for MSME-R degree candidates** during one of their two years with the department. An award will be given for the best poster(s) as determined by a panel of judges consisting of faculty and potentially industry members from a variety of disciplines.

**A written report describing their research is also required of all MSME-R degree program students.** The report must be in the format of an ASME journal paper, and should not exceed 10 pages in length. The report must be reviewed and approved by the research advisor and must bear the research advisor's signature at the time of submission. Students must submit their written report to their Academic Advisor by the appropriate deadline. May graduates must submit their report by April 30 of that year and December graduates must submit their report by November 30 of that year.

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## 4.3.3 MSME-R Degree Requirements:

Minimum of 192 total units	<ul style="list-style-type: none"> <li>– Only grades of C or better will count towards degree requirements.</li> <li>– Cumulative grade point average must be 3.0 or higher at graduation. (See <a href="#">QPA Calculation</a> section of handbook.)</li> </ul>
Course work: minimum of 60 units	<ul style="list-style-type: none"> <li>– At least 36 units must be Mechanical Engineering graduate level courses (24-6## or 24-7##), excluding Research (24-794) and Supervised Reading (24-793).</li> <li>– 1 course must be from the approved <a href="#">math list</a>.</li> <li>– Any additional course units must be technical electives (additional MechE courses (24-###) or courses from an <a href="#">approved department</a>).</li> <li>– Maximum of one pre-approved upper division undergraduate course (300 - 599 level).</li> </ul>
Research: minimum 96 units	<ul style="list-style-type: none"> <li>– Enroll in Master of Science Project (24-794).</li> <li>– Secure research advisor by tenth day of classes of second semester.</li> <li>– Complete at least 48 research units by the end of the 3<sup>rd</sup> semester to maintain progress towards the degree.</li> <li>– Must take at least 24 research units per semester beginning in the second semester.</li> <li>– Research units will be awarded a letter grade in each semester they are taken.</li> </ul>
Research Report and Graduate Research Symposium Participation	<ul style="list-style-type: none"> <li>– The MSME-R degree culminates in a comprehensive and professionally written report (ASME conference paper format) documenting the research.</li> <li>– The report must be approved by the research advisor and submitted to the department prior to graduation.</li> <li>– Must present research at the Mechanical Engineering Graduate Research Symposium.</li> </ul>
Departmental Seminar	<ul style="list-style-type: none"> <li>– Two semesters of attendance is required for full-time students.</li> </ul>
CIT Units Per Semester	Minimum of 36 units per semester must be taken within the College of Engineering (CIT).
CITI Research Training	Mandatory for all College of Engineering (CIT) students conducting research. See <a href="#">policy</a> .

## 4.4 INTEGRATED MASTER'S/BACHELOR'S DEGREE PROGRAM

Only for current Carnegie Mellon University undergraduate students in the College of Engineering (CIT).

An integrated program is available to Carnegie Mellon undergraduate engineering students who also wish to complete a master's degree in mechanical engineering. Students from outside CIT should contact the Mechanical Engineering MS Academic Advisor. Students may enroll in the M.S. in Mechanical Engineering (MSME), M.S. in Mechanical Engineering - Advanced Study (MSME-AS), or

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M.S. in Mechanical Engineering – Research (MSME-R) programs outlined above. Students interested in the ETIM, MSTV, or MSCDM programs must apply through the traditional application process. Mechanical Engineering undergraduates may be able to complete their master’s degree with only one additional full-time semester after the bachelor’s degree. (Students from other undergraduate majors typically require more time.) Students participating in IMB must complete their undergraduate degree prior to assuming graduate student status. Beyond eight semesters, at least one semester of full-time graduate student status is required. Please refer to the [CIT Integrated Master’s/Bachelor’s Degree Program policy](#) for additional information.

## 4.3.1. IMB Admission

Without exception, admission to the IMB requires good academic/disciplinary standing and a minimum undergraduate cumulative QPA of 3.0 at the time of admission. Students who do not meet this threshold must apply for admission via the [Graduate Admissions guidelines](#). All portions of the application must be completed.

Students interested in the IMB program should consult with their undergraduate academic advisor. Students who wish to enroll in the program must complete the [Integrated Master’s/Bachelor’s Degree Program Form](#). Students may apply to the IMB program after the end of the fall semester of their junior year, and must apply by the end of the last day of the month in which they complete their undergraduate degree (May 31 or December 31). All questions regarding forms and requirements should be directed to the Mechanical Engineering Undergraduate Academic Advisors.

Students are responsible for meeting the degree requirements outlined in the [handbook](#) in effect for their semester of admission. (For example, if you are officially accepted into the IMB program during the spring of 2019, you will follow the degree requirements outlined in the Mechanical Engineering Handbook: Master of Science, 2018-2019.)

## 4.3.2 IMB Advisors

Students will continue their advisor-advisee relationship with their undergraduate advisor if they are admitted through the IMB program and enroll in the MSME degree program. Student who are admitted through the IMB program and enroll in the MSME-AS or MSME-R degree program will be advised by the Graduate Academic Advisor. Students who apply for admission via the Graduate Admissions guidelines will be advised as outlined in [Degree Administration](#).

## 4.3.3 IMB Registration

Students may take graduate coursework as an undergraduate student, but they are not given priority in the waitlists for graduate courses until they are in their graduate semester(s).

## 4.3.4 IMB Research

Students planning to use research towards their graduate degree must enroll in 24-794 Master of

Science Project. Enrollment in this course is limited to students who have already been officially accepted into the IMB program. All other research-related restrictions and policies are outlined in the degree-specific sections above and in the [Research](#) section.

#### 4.3.5 IMB Delayed Entry

Students who need to take a break in their studies due to certain situations may do so. For IMB students, there are two options for delaying entry into the graduate portion of the IMB program: a leave of absence and a deferral of admission.

Students who have completed at least 24 units of coursework towards their graduate degree are eligible for either a leave of absence or a deferral of admission. Students who have not completed at least 24 units of coursework toward their graduate degree are not eligible for a leave of absence, but can defer their admission to the graduate program for up to one year.

A leave of absence allows a student to leave the university temporarily, and can be taken at any time during the program. Students requesting a leave of absence between the undergraduate degree and graduate degree must first officially become a graduate student, and then apply for a leave of absence through the appropriate university channels. (Note: A leave of absence does not extend the time allotted to finish a degree. Students should review the [Statute of Limitations](#) before taking a leave.)

More details are available in the official [CMU Student Leave Policy](#).



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## 4.5 MASTER OF SCIENCE IN COMPUTATIONAL DESIGN AND MANUFACTURING (MSCDM)

This innovative program is intended for students who have a Bachelor of Science degree in engineering and desire to advance their careers by acquiring problem-solving skills with modern computational engineering tools such as computer-aided design (CAD), computer-aided engineering (CAE) and computer-aided manufacturing (CAM). Students will sharpen their skills by learning the theories and applications of computational design and manufacturing methods through a balance of course and project work. The project work provides students with practical problem-solving experiences through the use of commercial computational tools or the development of their own custom software. MSCDM may be completed in two or three semesters. An M.S. degree in Computational Design and Manufacturing is awarded at the end of this program. See next page for degree structure. Students are limited to a maximum of 54 units per semester. No exceptions.

### 4.5.1 MSCDM Degree Requirements:

Minimum of 96 total units	<ul style="list-style-type: none"><li>– All courses must be taken for a letter grade including research and independent study.</li><li>– Only grades of C or better count towards degree requirements.</li><li>– Maximum of one pre-approved upper division undergraduate course (300 or 400 level).</li><li>– Cumulative grade point average must be 3.0 or higher at graduation. (See <a href="#">QPA Calculation</a> section of handbook.)</li></ul>
Core Computation Course	<ul style="list-style-type: none"><li>– <b>Must take 24-780 Engineering Computation</b> (typically offered in Fall).</li></ul>
36 units of Engineering Computation Project 24-781/782	<ul style="list-style-type: none"><li>– Computation project is considered an integral part of the curriculum and 36 units is required. Students may register for 12-24 units of project each semester until 36 accumulated project units is reached.</li></ul>
Technical electives	<ul style="list-style-type: none"><li>– Technical electives are additional MechE courses (24-###) or courses from an <a href="#">approved department</a> used to complete the minimum 96 total units.</li><li>– Students are encouraged to take courses that focus on computer-aided design (CAD), computer-aided engineering (CAE) and computer-aided manufacturing (CAM).</li></ul>
CITI research training	Mandatory for all CIT students conducting research. See <a href="#">policy</a> .

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## 4.6 ADDITIONAL MS DEGREE PROGRAMS

The Department also helps administer the following additional MS degree programs:

### 4.6.1 Dual Degree with the Master of Science in Engineering & Technology Innovation Management (ETIM)

[Engineering and Technology Innovation Management MS](#) (E&TIM) educates future engineering leaders by coupling technical education with frameworks to lead, foster, and manage technical innovation. A summer internship is an integral element of this interdisciplinary program.

The MSME degree program may be combined with the E&TIM program to form a 21-month [dual degree M.S. program](#) that equips students to drive value creation from technical innovation based on their understanding of technical concepts, innovation management fundamentals, and real world implications. Students must apply to both MechE and E&TIM (and be admitted to both) in order to pursue the dual degree. M.S. degrees in Mechanical Engineering AND Engineering and Technology Innovation Management are awarded at the end of this program.

The E&TIM dual degree is considered a “sandwich” program (students will take the first semester in MechE, followed by two consecutive semesters of E&TIM, and complete the degree as a MechE student in the final semester). Two semesters of the MechE MSME degree program (see [MSME requirements](#) above) and two semesters of E&TIM are required. Up to 12 units may double-count between the two degrees. Students will have a MechE advisor and ETIM advisor to assist with degree administration.

### 4.6.2 Dual Degree with the Master of Science in Technology Ventures

The [Master of Science in Technology Ventures](#) (MSTV) equips students with tools and skills to bring high tech ideas to market. Students learn to leverage cutting-edge technologies in order to make a true impact on society.

In partnership with the Integrated Innovation Institute, this dual degree is a two-year bicoastal program that allows students to combine the MSME degree program with the Master of Science in Technology Ventures. Students enrolled in the dual degree program gain a deeper knowledge of emerging technology and skills to succeed in the entrepreneurial marketplace including in Silicon Valley, arguably the world’s most exciting and lucrative environment for new venture creation.

Students spend their first year focused on completing their MSME degree requirements (see [MSME requirements](#) above) before traveling to Silicon Valley for an internship at an established startup and fulfill two academic semesters learning about tech transfer and entrepreneurship at the CMU campus in Mountain View, CA. Up to 48 units may double-count between the two degrees. Students will have a MechE advisor and MSTV advisor to assist with degree administration.

## 4.7 STUDENTS WITHOUT AN UNDERGRADUATE ENGINEERING DEGREE

Students who enter an M.S. degree program without an undergraduate Mechanical Engineering degree (e.g. with a baccalaureate in another engineering discipline, mathematics, or one of the physical sciences) may be required to complete additional course work. In such cases, the M.S. advisors and the GEC will work closely with the student to devise a suitable program of study.

## 4.8 SWITCHING DEGREE PROGRAMS WITHIN MECHE

Students should consider their interests and professional goals to ensure the degree program selected during the application process is the best fit. However, we understand that situations, interests, and goals may change between the time of application and the start of the degree program. As such, we have developed the following process for students wishing to internally switch between MechE degree programs. Students should complete this process as soon as they have confirmed their decision, but no later than the 10th day class in their second semester.

- Consult with their academic advisor.
- Submit a petition to the Graduate Education Committee (GEC) to request to switch between M.S. degree programs offered by MechE.
- Students wishing to switch to the MSME-R program must secure a research advisor prior to submitting a petition to the GEC.

International students should also consult with OIE regarding any immigration policies or paperwork (including a new I-20) that may result from switching degree programs.

Note: Students are only permitted to switch their degree program once during their time as an M.S. student in the Mechanical Engineering department.

## 4.9 INTERNAL TRANSFER TO ANOTHER GRADUATE DEPARTMENT WITHIN CMU

Students wishing to transfer to another graduate department within Carnegie Mellon University should consult with the admission staff of intended transfer department for policies and procedures related to the potential transfer. Students should also alert their MechE academic advisor regarding their intention to transfer. MechE shall share any necessary application materials (test scores, transcripts, recommendations, etc.) upon written request of the transferring student.

## 5. Academic Advising

### 5.1 ADVISOR-ADVISEE RELATIONSHIP

All students entering an M.S. degree program in MechE will be assigned an academic advisor. Students in the MSME-R degree program will also need to identify a faculty research advisor. Advising is monitored by the Graduate Program Administrator and the Graduate Education Committee (GEC). Concerns regarding department advising should be presented directly to the GEC. **All students are responsible for ensuring that they satisfy the requirements of their degree.** The research advisor is responsible for notifying the student regarding the progress of the research. All graduate students are treated equitably by all advisors, by the Graduate Administrator, and by the GEC.

- **Role of the Academic Advisor:** The academic advisor's role is to help guide the student from enrollment through to graduation.
- **Role of the Research Advisor:** The research advisor's role is to help guide the student through successful completion of a research project.
- **Role of the Student:** All students are responsible for ensuring that they satisfy the requirements of their degree.
- **How and When Advisors are Assigned/Selected:** All M.S. students are assigned an academic advisor. Faculty research advisors are selected during the first semester (for MSME-R) or during any semester (for MSME or MSME-AS). Please alert your academic advisor when a faculty research advisor is selected.
- **How to Change Research Advisor:** A research advisor is specifically involved in the area of interest that the student wishes to study. Because of this specificity, changing the research advisor is only recommended if the student wants to change research area. Please contact your academic advisor or the Graduate Program Administrator before finalizing a change of research advisors.

### 5.2 DEGREE ADMINISTRATION

The Department provides multiple advising resources for M.S. students as they move toward degree completion. The academic advisor for MSME, MSME-AS, MSME-R, and the ETIM dual-degree is the Graduate Academic Advisor. The Manager of Academic Programs is the academic advisor for MSCDM. Students in the IMB program will continue to work with their undergrad advisor. Advisors are available to assist with academic or personal situations that M.S. students may not have the

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knowledge or resources to resolve. To meet with an academic advisor, please schedule an appointment: <http://www.meetme.so/MechEAdvisors>.

Students should regularly meet with their academic advisor (e.g. at the beginning of each semester, prior to registration, prior to graduation, etc.) to discuss their plan of study (e.g. courses and other activities) and to ensure they are meeting all degree requirements. It is ultimately the student's responsibility to meet the requirements for graduation. Students should utilize the [Stellic Degree Audit Application](#) to plan and track their progress.

In addition to the academic advisors, the Head of the M.S. Subcommittee to the Graduate Education Committee (GEC) is available to meet with students and answer questions.

The course-based degree programs (MSME and MSME-AS) provide faculty mentors for the following specialization areas:

- Design and Manufacturing of Mechanical Systems: TBD
- Energy and Thermal Fluid Systems: Satbir Singh
- Robotic and Control Systems: TBD

Please direct questions to your academic advisor first, and they may direct you to speak to a faculty mentor, if appropriate.

MSME-R students are encouraged to meet with their faculty research advisor regularly for advice on course selection and updates on research progress. The academic advisor will continue to be the overall degree administrator and academic advisor for the durations of your MSME-R degree program.

MechE also has career consultants located at The Career and Professional Development Center (CPDC): <http://www.cmu.edu/career/>. Meet with them for support with resume review, mock interviews, internships, and jobs after graduation. We strongly encourage every student to meet with the career counselors early in the first semester to discuss career goals and the job search process.

## 6. Financial Support

### 6.1 DEPARTMENTAL FINANCIAL SUPPORT

The MechE department at Carnegie Mellon does not offer financial assistance of any kind to M.S. students. All M.S. students are self-funded or externally funded. Some M.S. students work as Course Assistants (CA) or Graders. The Department will notify M.S. students when positions are available – this typically occurs immediately before each semester. In rare instances, M.S. students secure Research Assistantships (RA). RA's are offered by a student's research advisor, not the Department.

#### 6.1.1 Tuition & Other Costs

Current tuition rates and cost of living including books, insurance, activities and technology fees, food, and lodging costs can be found at the [Enrollment Services website](#). **Master's programs are not funded by the department, however students are welcome to apply for external funding opportunities. Please review the extensive data available on-line: [www.cmu.edu/fso](http://www.cmu.edu/fso).**

#### 6.1.2 Research Assistantships

In extremely rare instances, a paid Research Assistantship (RA) may be offered to M.S. students from their faculty advisor. The RA can either be an hourly wage or a stipend. RA's are provided by research projects which are funded by government agencies, private industries, and consortia. M.S. RA's will be expected to conduct appropriate research under the direction and guidance of their research advisor.

#### 6.1.3 Course Assistantships

M.S. students can serve as course assistants (CA's). T.A. positions are reserved for Ph.D. students. CA duties include, but are not be limited to, holding office hours, conducting recitation classes, and grading. There are minimum English proficiency requirements that must be met in order for a student to accept a course assistantship. Pennsylvania state law requires that all students who are not native speakers of English take and pass a state administered proficiency test – the International Teaching Assistant (ITA) test administered through the [ICC](#).

Support for teaching activities can be found through the [Eberly Center for Teaching Excellence](#). Students who will be C.A.s for the department are encouraged to visit the Eberly Center and to take advantage of the information and services located there.

#### 6.1.4 Outside Employment

Students who receive a research assistantship (tuition and full stipend) from their research advisor are not permitted to be employed outside of the department during the period of time they are

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funded. International students should review OIE's guidance on employment options:

[www.cmu.edu/oie/foreign-students/employment.html](http://www.cmu.edu/oie/foreign-students/employment.html)

## 6.1.5 Consumer Information

Carnegie Mellon University suggests that all current and prospective students be informed consumers. Please see this link for detailed consumer information: [www.cmu.edu/hub/consumer-information/](http://www.cmu.edu/hub/consumer-information/).

## 6.1.6 Travel/Conference Funding

Travel funding is provided by the M.S. research advisor through research grants. Students can also seek funding from the university through the Graduate Student Assembly (GSA) and the Office of the Assistant Vice Provost for Graduate Education. Information regarding the university application process for conference funding may be found here: <http://www.cmu.edu/graduate/professional-development/conference-funding/index.html>.

In the event that conference funding is not available from the research advisor or from the university, M.S. students may petition the MechE department for a one-time grant of \$500. The student should contact the Graduate Program Administrator to secure a General Petition form. The completed form should be submitted to the Chair of the M.S. Subcommittee of the Graduate Education Committee (GEC) as well as the Graduate Program Administrator. The petition should include the name and description of the conference, the student's role at the conference (presenter, collaborator, etc.), and how the money will be allocated (travel expenses, accommodation, meals, etc.). Please also include a statement from the research advisor that no funding is available from the research advisor or from the university. If the petition is approved by the GEC, department funding will be provided as a reimbursement for expenses paid. Receipts must be provided upon return from the conference.

## 6.1.7 Research Funding

Funding for supplies and other materials for the M.S. research project is provided by the research advisor. Please consult your research advisor regarding the possibility of receiving a paid research assistantship for your project.

At the university level, GuSH Research Funding is a source of small research grant funds provided by GSA and the Provost's Office and managed by the Office of the Assistant Vice Provost for Graduate Education. Students can find more information about the application process and deadlines on the Graduate Student Funding website: [www.cmu.edu/graduate/financial-assistance/index.html](http://www.cmu.edu/graduate/financial-assistance/index.html).

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## 6.2 UNIVERSITY FINANCIAL AID

Graduate students should consult the graduate student financial aid information found on The HUB website: [www.cmu.edu/finaid/basics/graduate/index.html](http://www.cmu.edu/finaid/basics/graduate/index.html). Students will find the Graduate Financial Aid Guide, information about funding options and how to apply for financial aid and other helpful links.

Graduate students who find themselves in need of immediate funds for emergency situations should contact the Office of the Dean of Student Affairs (see [Appendix A](#)), [www.cmu.edu/student-affairs/index.html](http://www.cmu.edu/student-affairs/index.html), to inquire about an Emergency Student Loan.

## 6.3 EXTERNAL FUNDING

### 6.3.1 U.S. Department of Education Resources

U.S. citizens and permanent residents may complete the Free Application for Federal Student Aid (FAFSA) on line at <https://fafsa.ed.gov/>.

Students may obtain information regarding their loans through the William D. Ford Direct Loan Program, including deferment forms and payment information, at <https://studentloans.gov/myDirectLoan/index.action>.

Information about the federal student aid programs may be found at <https://studentaid.ed.gov/sa/>.

### 6.3.2 Additional Loan Resources

#### *Grad PLUS*

Effective July 1, 2006 a graduate or professional student may be eligible to borrow a [Federal Graduate PLUS Loan](#). This loan allows you, not your parents, to borrow up to the cost of attendance less any other financial aid you receive. You must be a US citizen or permanent resident to qualify.

**You must complete a FAFSA and have applied for your annual loan maximum eligibility under the Stafford program first.** You will also have to complete a Master Promissory Note (MPN) and Addendum for this loan.

#### *Private Loans*

Students who need additional funds have the option to borrow funds through a private lender. These loans are credit based, so applicants may need a cosigner. International students may utilize private lenders if they have a US citizen or permanent resident as a cosigner.

FASTChoice is a loan comparison serviced offered free-of-charge to schools by the Great Lakes Higher Education Corporation. Private loan options are available for both students and parents. You can



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access FASTChoice through the HUB's website: <https://www.cmu.edu/sfs/financial-aid/types/private.html>

## 6.3.3 Other Resources

The following websites are available for researching other sources of financial aid. Please be sure to pay close attention to the stated application deadlines.

- <http://www.finaid.org/>
- [College Board Scholarship Search](#)
- [Fellowship Resources Compiled by the Soros Fellowship](#)
- [National Association of Fellowship Advisors](#)

## 6.3.4 Additional Sources of Financial Aid for International Students

The following information is designed to help international students in the search for additional sources of financial aid. This list includes a Fellowship Program from the Institute of International Education, a number of Loan Programs, and relevant websites and online sources of information.

### *Grants and scholarships*

#### Institute of International Education (IIE)

The IIE is a nonprofit organization that promotes international education. They provide information about the Fulbright Program on their website: <http://www.iie.org/>. Number and amount of grants differs from country to country. They also publish several useful guides, including *Funding for US Study: A guide for Foreign Nationals*, *English Language Orientation Programs* (a guide to ESL programs in the US), and *Academic Year Abroad*. Books can be ordered through e-mail to [iie-books@iie.org](mailto:iie-books@iie.org).

You may also write to:

Institute of International Education (IIE)  
809 United Nations Plaza  
New York, NY 10017-3580

#### Ford Foundation International Fellowship Program (IFP)

The Foundation sponsors three minority graduate fellowship programs – pre-doctoral, doctoral, and postdoctoral - through the National Research Council.

For information write or call to:

National Research Council  
2101 Constitution Avenue

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Washington, DC 20418  
202-334-2872

The IFP provides support for up to three years of formal graduate-level study. Fellows will be selected from countries in Africa and the Middle East, Asia, Latin America, and Russia where the foundation maintains active overseas programs. U.S. nationals are not eligible, although fellows may study in the United States. IFP Fellows must be nationals of eligible countries.

Please refer to the following website for more detailed information concerning the application process, eligible candidates, and IFP requirements: <http://www.fordfoundation.org/>.

## Links

International students may find the information on these websites helpful in researching funding sources:

- [www.internationalscholarships.com](http://www.internationalscholarships.com)
- [www.edupass.org](http://www.edupass.org)
- [educationusa.state.gov](http://educationusa.state.gov)
- [244Bwww.channelfoundation.org](http://244Bwww.channelfoundation.org) (women only)
- <http://www.onsf.uconn.edu/find-scholarships/opportunities-for-non-us-citizens/>

## 7. Department Policies

### 7.1 ACADEMIC INTEGRITY

MechE follows the university protocol for Academic Integrity. Please see these websites for more details:

Please review the University expectations at: [www.cmu.edu/student-affairs/ocsi/academic-integrity](http://www.cmu.edu/student-affairs/ocsi/academic-integrity).

Please review the entire Academic Integrity policy at:  
[www.cmu.edu/policies/student-and-student-life/academic-integrity](http://www.cmu.edu/policies/student-and-student-life/academic-integrity).

Please review the Academic Integrity University-wide Protocol (including rules for policy procedures, reviews, and appeals) at: [www.cmu.edu/student-affairs/ocsi/academic-integrity/grads](http://www.cmu.edu/student-affairs/ocsi/academic-integrity/grads).

#### 7.1.2 Department Expectations

MechE expects all students to maintain academic integrity throughout their time in the department. Academic integrity accusations are extremely serious. Violations will be reviewed on a case-by-case basis and may result in discipline up to and including [academic probation](#), suspension, or expulsion from the program. Disciplinary action will be discussed at the time of review (including the possibility of returning to good standing), and students may appeal by following the procedures outlined at the links above.

### 7.2 FULL & PART TIME STATUS

The M.S. degree programs are full-time programs in which MSME students complete two full-time semesters, MSME-AS complete three full-time semesters and MSME-R complete four full-time semesters. Full-time status requires a student to be registered for at least 36 units each semester.

Part-time enrollment in an M.S. degree program is available for students in special circumstances, such as students who would like to pursue an MS degree while maintaining external employment. Part-time status requires a student to be registered for less than 36 units each semester. Although part-time students are typically working toward the MSME degree program, students may pursue any of our M.S. degree programs on a part time basis. Part time students are not required to satisfy the seminar requirements of their degree, if any. Students must be registered full time to receive a stipend, if applicable.

Note that immigration regulations do not allow Carnegie Mellon University to issue visa documents for the part-time MS program.

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Students who wish to switch from full-time to part-time enrollment must request approval from the Graduate Education Committee (GEC) by submitting a petition.

## 7.3 STATUTE OF LIMITATIONS

All units required for a master's degree, whether earned in residence or transferred from another institution, must be recorded on the transcript within six years of the date on which the student enrolled in the program. Once this time-to-degree limit has lapsed, the student must reapply to the M.S. program. Previously completed degree requirements may carryover upon approval of the GEC. This statutory period can be extended by the CIT Associate Dean for Academic Affairs for special circumstances that do not make it possible for the student to complete the requirements within the statutory period. Any request for a waiver of the statute of limitations for master's degree studies must be approved by the department head and by the CIT Associate Dean for Academic Affairs. The waiver request must explain the exceptional circumstances that warrant an extension. For cases in which a waiver is granted, the waiver will cover specific courses and will specify a time period for completion of the program.

## 7.4 DEPARTMENT REGISTRATION PROCESS AND PROCEDURES

Students are limited to a maximum of 54 units per semester. No exceptions.

For instructions, go to the [HUB Registration Website](#) and work through the four easy steps for registration. You will be asked to authenticate your identity with your Andrew ID and password.

Use the [Schedule of Classes](#) to help prepare for registration. This link provides information on courses offered in the current, previous, and upcoming semesters.

For questions regarding registration please contact your academic advisor ([www.meetme.so/MechEAdvisors](http://www.meetme.so/MechEAdvisors)).

## 7.5 COURSE REQUIREMENTS AND RELATED POLICIES/PROTOCOLS

Please see the [Degree Requirements](#) section for course requirements specific to each degree. Please note that course availability changes each academic year. For a current list of available courses, visit the [Schedule of Classes](#). For Add/Drop dates, please follow the [university academic calendars](#). Please note that Heinz College and Tepper courses follow a separate calendar.

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## 7.5.1 Policy on Double Counting Courses

No courses used to fulfill requirements of a previously completed degree shall count towards any MechE M.S. degree requirement. Likewise, no courses used for any MechE M.S. degree shall double count towards another degree. The only exceptions are the dual-degree programs (ETIM and MSTV) where some course-work may be double counted as outlined in the above degree requirements. Please contact both your MechE and dual degree (ETIM or MSTV) advisors to discuss further.

## 7.5.2 Policy for Courses and Advising from Outside of the Department/College

The technical electives component of the M.S. degree requirements creates flexibility for students to better tailor their M.S. degree program towards their technical interests. M.S. students may take courses and receive credit as well as have a research or Supervised Reading advisor from the following departments: all departments in the College of Engineering (Biomedical Engineering [42-###], Chemical Engineering [06-###], CIT Interdisciplinary Courses [39-###], Civil and Environmental Engineering [12-###], Electrical and Computer Engineering [18-###], Engineering and Public Policy [19-###], Information Networking Institute [14-###], Integrated Innovation Institute [49-###], Materials Science and Engineering [27-###]); all departments in the School of Computer Science (Computer Science (15-###), Human Computer Interaction (05-###), Institute for Software Research (08-### or 17-###), Language Technologies Institute (11-###), Machine Learning (10-###), Robotics (16-###)); and all departments in the Mellon College of Science (Biology (03-###), Chemistry (09-###), Mathematical Sciences (21-###), and Physics (33-###)); and Information Systems: School of IS and Management (95-###).

Students must discuss the selection of courses outside of MechE with the academic advisor. These courses must fit into the student's overall educational plan for their Mechanical Engineering degree. Students do not receive credit for independent study, supervised reading, or research course numbers taken outside of MechE.

Credit is rarely given for non-technical courses. Courses in Tepper and Heinz are not accepted.

## 7.5.3 Policy for Incompletes

If a student receives an "Incomplete" grade on their transcript, they must work with the course instructor to make up the work necessary to receive a letter grade for the class. All "incomplete" grades are submitted with a default grade. The default grade is automatically processed as the final grade if the instructor does not supply the University with an alternate grade (via the "Change of Grade" form) by the last day of class the following academic semester (this does not include summer). For appeals, please see the [Summary of Graduate Student Appeal and Grievance Procedures](#) section of this handbook.

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## 7.5.4 Policy for ‘W’ Grade in a Course

If a student drops a class after the course drop deadline, but before the last day of the class, they will receive a “W” (withdrawal) grade for the course. Students may also be withdrawn from a course for failing to provide adequate attendance. “W” grades do not factor into the students QPA, and cannot be removed from the transcript.

## 7.5.5 Policy for Make-Up Exams

Make-up exams may be provided at the discretion of the teaching faculty for the course in question.

## 7.5.6 Petition/Waiver Procedures

A student wishing to petition the GEC for special permission or special circumstances related to their degree, or for a waiver of degree requirements, must submit the appropriate petition form to their academic advisor. The petition form should outline the reason for the request, and provide any relevant information (course descriptions, syllabi, etc.).

Please note: The GEC does NOT accept petitions to consider CMU courses outside of MechE as MechE course units. Only courses offered from the MechE department or cross-listed within MechE (i.e. courses that start with 24-###) count towards the MechE course-unit requirement.

## 7.6 SUPERVISED READING/INDEPENDENT STUDY/RESEARCH

Students conducting research must be registered for research units or employed as a research assistant. This applies even if the student is working with a faculty member outside of MechE. To register for research, students must submit a completed 24-794 M.S. Project Registration form to their academic advisor and they will be enrolled in the MechE research “course” number (24-794 Master of Science Project). Students shall not receive credit for research conducted under other department research “course” numbers. The 24-794 M.S. Project Registration form can be found at: <https://canvas.cmu.edu/courses/1088>.

Supervised Reading (24-793), also known as Independent Study, is a course designed to provide students with an opportunity for intensive study of a subject that is either unavailable or insufficiently covered in regular course work. Supervised Reading is not intended to substitute for existing courses or research, but to provide the opportunity for a specialized educational experience. A letter grade (A, B, C, etc.) will be assigned upon completion. To count towards MechE degree requirements, students must enroll in the MechE Supervised Reading “course” number (24-793). Supervised reading /independent study “course” numbers offered by other departments do not count towards MechE degree requirements.

Students arranging Supervised Reading must:

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- Obtain approval from their advisor or Graduate Program Administrator as well as secure a supervising faculty member from an [approved department](#).
- Complete the 24-793 Supervised Reading Registration form, available at: <https://canvas.cmu.edu/courses/1088>, with your supervising faculty member. The completed form should include a description of required content and deliverables that must be completed to receive credit. The form should be submitted to the academic advisor or Graduate Program Administrator.

Supervised Reading may also be used to supplement an existing lower-unit course. For example, a 9 unit course may be turned into a 12 unit course by supplementing 3 units of Supervised Reading. In this case, the supervisor must be the teaching faculty of the lower-unit course. And the Supervised Reading units must be taken concurrently with the course being supplemented.

Supervised Reading may not take the place of course units or research units (24-794).

## 7.7 SEMINAR

MSR students are required to complete two semesters of seminar. The MechE Department offers a seminar series in the Fall and Spring semesters. Distinguished guest speakers are invited from both inside and outside the CMU community to discuss topical issues in engineering and research. There are typically 7 or 8 seminar speakers each semester. Only MSR students are required to attend seminar (in 2 of their 4 semesters). MSC, MSCDM, ETIM dual degree, and IMB students are invited to, but not required to attend seminar. To register, please use 24-791 section A for Fall, or 24-792 section A for Spring.

Seminar is worth 0 (zero) units and students will be granted an S-grade (Satisfactory) or an N-grade (Non-Pass) based on attendance. There are no other academic requirements (no tests or papers) associated with seminar. Students registered for seminar must attend all seminars offered that semester. (Seminars offered during university break periods are considered optional.) To earn credit for attending, students enter a code in Canvas. Failure to enter the code during the allotted seminar time will result in a missed seminar for that week.

Students who miss a seminar may attend a maximum of two make-up seminars per semester. Make-up seminars may be attended in one of the following pre-approved departments: all engineering departments, machine learning, robotics, human computer interaction, computer science, and the natural sciences – biology, chemistry, physics, and math. MechE may also advertise pre-approved make-up seminars throughout the semester. To receive credit for attending a make-up seminar, please submit a brief 1-2 paragraph summary of the make-up seminar attended to Canvas.

Seminar waivers may be granted for students in extenuating circumstances: examples include conflicts with another CMU course, university-related travel (such as for research or for a

conference), or for medical reasons. Please alert your academic advisor or the Graduate Program Administrator if you believe you qualify for a seminar waiver for any reason.

## 7.8 ACADEMIC PROBATION

M.S. students whose QPA drops below 3.0, or who are not making adequate progress towards their degree, or who have committed an integrity violation will be placed on academic probation. The GEC shall provide a formal written notice of probation with clear instructions on how the student can regain good academic standing. Registration will be restricted and the student must meet with their academic advisor before registering for courses for the upcoming semester.

The probationary period will be specified in the letter. During this period the student can address the issue (student's QPA reaches 3.0 or above, and/or the student resumes adequate progress towards the degree, and/or the integrity violation is resolved) and return to good standing. If the student does not address the issue during the probationary period, they will be asked to leave the program. Failure to regain good academic standing may lead to removal from the program.

## 7.9 OUTLINE OF REGULAR REVIEWS & EVALUATIONS BY DEPARTMENT

The department does not provide formal reviews or evaluations for each student. Each student is responsible for keeping track of their own progress towards their degree. Students are encouraged to discuss any questions regarding degree attainment or remaining requirements with the Graduate Program Administrator or the student's academic advisor.

### 7.9.1 Inadequate Progress Toward Degree

Full time students must enroll in at least 36 units (courses or research) that can be used towards their degree requirements in a given semester and meet the adequate degree progress as listed in their [degree requirements](#). If they do not, they will receive written notification from the GEC that they are making inadequate progress towards their degree and will be placed on [academic probation](#). Such a letter will also include specific criteria that must be met to continue towards degree certification.

## 7.10 REQUIREMENTS FOR ENTRY INTO PH.D. PROGRAM

M.S. students interested in pursuing a Ph.D. degree in Mechanical Engineering must apply to and be admitted to the PhD program. If admitted, it is possible to take the Ph.D. qualifying exam as early as desired. Consult the Graduate Program Administrator for more details. (Application deadline for Fall Ph.D. entry: December 15. Application deadline for Spring Ph.D. entry: September 15.)



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## 7.11 GRADUATE CERTIFICATION PROCESS AND DEGREE TITLE

The Graduate Program Administrators will review each student's record ensure they are eligible to graduate. If all degree requirements have been met, the student will be certified with an M.S. degree after the final grading period of the graduation semester.

- MSME students will receive a Master of Science in Mechanical Engineering.
- MSME-AS students will receive a Master of Science in Mechanical Engineering – Advanced Study.
- MSME-R students will receive a Master of Science in Mechanical Engineering – Research.
- MSCDM students will receive a Master of Science in Computational Design and Manufacturing.

## 7.12 WITHDRAWAL FROM PROGRAM & LEAVE OF ABSENCE

Please see The HUB's webpage for information on the Process for Withdrawal from Program and Taking & Returning from Leave of Absence: [www.cmu.edu/hub/registrar/leaves-and-withdrawals/index.html](http://www.cmu.edu/hub/registrar/leaves-and-withdrawals/index.html).

## 7.13 WITHDRAWAL OF DEGREE

The university reserves the right to withdrawal a degree even though it has been granted should there be discovery that the work upon which it was based or the academic records in support of it had been falsified. In such a case, the degree will be withdrawn promptly upon discovery of the falsification. The complete reference to this university policy is available at: [www.cmu.edu/policies/student-and-student-life/withdrawal-of-a-degree.html](http://www.cmu.edu/policies/student-and-student-life/withdrawal-of-a-degree.html).

## 7.14 ENROLLMENT VERIFICATION

Enrollment Services is the only University office that can provide an official letter of enrollment, official transcript and enrollment verification. Enrollment verification can be requested online through The HUB at: [www.cmu.edu/hub/registrar/student-records/verifications/](http://www.cmu.edu/hub/registrar/student-records/verifications/).

## 7.14 PRACTICUM IN MECHANICAL ENGINEERING (FOR INTERNSHIPS)

Students completing an internship or co-op may register for 3 units of 24-799 Practicum in Mechanical Engineering and those units may be used toward the degree requirements (but not as course units). The student will be assessed tuition for the required 3 units as an essential component of the degree requirements. The internship or co-op must be integral to the student's curriculum. Students must provide their academic advisor with an offer letter from the hiring company that includes the title of the internship or co-op and the job duties to be performed. The academic advisor

and/or MS Subcommittee Chair will determine if the internship or co-op is integral to the students curriculum based on the offer letter from the hiring company. Additional information may be required if the offer letter does not clearly reflect how the position is integral to the student's curriculum. Once registered for the course, students must submit a written report (1-2 pages) to their academic advisor detailing the nature of the job duties and how their experience relates to their MechE degree. The report should be signed by the student's internship supervisor. Students will receive a letter grade (A, B, C, etc.) for 24-799 based on the written report, and the grade will factor into the student's QPA.

While most internship and co-op experiences happen during the summer semester, it is also possible to have an internship or co-op experience during the regular academic year (Fall or Spring). The policy stated above still applies.

International Students may be required to secure work authorization and should consult with the Office of International Education to determine their work authorization needs and options.

## 8. Additional University Policies/Protocols

### 8.1 GRADES AND GRADING

The Mechanical Engineering Department follows the CIT and CMU policy for grading.

- For information on the CIT grading policy and QPA requirements, please see this link: <https://engineering.cmu.edu/education/academic-policies/graduate-policies/registration-grading-credit.html>.
- For more information on CMU grading policies, please see this link: [www.cmu.edu/policies/student-and-student-life/grading.html](http://www.cmu.edu/policies/student-and-student-life/grading.html).

CMU's grading policy offers details concerning university grading principles for students taking courses and covers the specifics of assigning and changing grades, grading options, drop/withdrawals, and course repeats. It also defines the undergraduate and graduate grading standards.

Research units (24-794) will receive a letter grade (A, A-, B+, B, B-, C+, C, C-, D+, D, or R) in each semester.

Course work or graduate project units with a grade of C- or lower do not count toward graduate degree requirements. Courses taken as Audit or Pass/No Pass may not be used towards graduation requirements for degree certification.

#### 8.1.1 Policy on Retaking a Course

Only courses taken with a grade of "C" or better may be used towards graduation requirements. A grade of "C-" or lower will not count towards the unit requirements for the degree. However, grades of "C-" and below will remain on the CMU transcript and count towards the student's *university* QPA. Departmental QPA (the QPA used towards MechE degree requirements) will not be affected.

Students may retake any course where they have received a grade of "C-" or lower in an attempt to have the course count towards degree requirements. If a student receives a grade of "C" or above for the retake, the course may then be counted towards degree requirements. Only the grade of C or above will factor into the student's MechE QPA. Courses may only be retaken once.

#### 8.1.2 QPA

All MechE M.S. degrees require a QPA of 3.0 or above to graduate. QPA calculations follow the [CIT policy](#). For the MSME option, the student may choose any 96 units of the first 120 units attempted to compute the QPA. However, the 96 units that are selected for the QPA calculation must fulfill all of the degree requirements. A student must receive a letter grade of at least a C in any course that is used to satisfy the degree requirement. (Courses with grades of C- and lower do not satisfy any

degree requirement; pass/no pass and audit courses do not satisfy degree requirements.) MSME students who have completed 120 units of course work while enrolled in the M.S. program without satisfying the QPA requirement shall not complete the M.S. degree.

For the MSME-AS and MSME-R option, all factorable units (courses and research taken for a letter grade) shall be used to compute the QPA. (Courses with grades of C- and lower do not satisfy any degree requirement; pass/no pass and audit courses do not satisfy degree requirements.)

**QPA Calculation:** A QPA of 3.0 or above is required for graduation and for successful academic standing. If a student's QPA drops below 3.0, they are considered to be on probation. No student with a QPA below 3.0 at the time of graduation will have their degree certified or be permitted to graduate.

The QPA is calculated only with courses, supervised reading (24-793), or research (24-794) taken for a letter grade and used to satisfy degree requirements. Audit courses, withdrawn courses, or courses or research taken as audit or pass/fail are not included in the QPA calculation. Only letter grades of C or better will be counted. Grades of C- or below do not count towards the requirements of the graduate degrees and therefore will be removed from the QPA calculation. "A" is the highest grade possible. A+ does not exist.

A = 4.0

A- = 3.67

B+ = 3.33

B = 3.0

B- = 2.67

C+ = 2.33

C = 2.0

## 8.2 AUDIT AND PASS/NO PASS COURSES

CMU students are permitted to take classes for no credit via the audit or pass/no pass process. Students must register for the course and submit the appropriate form with signatures to the HUB. Both audit and pass/fail courses require academic advisor and department head approval. Audit courses require instructor approval as well.

Audit and pass/fail courses do not count towards degree requirements, do not factor into the QPA calculation, and do not count as courses considered as making adequate progress towards the

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degree. Students should consult their academic advisor with any questions before selecting to take a course as audit or pass/fail.

Audit and Pass/Fail forms may be found [here](#) under the “Registration” tab.

## 8.3 PITTSBURGH COUNCIL ON HIGHER EDUCATION (PCHE) COURSES

Carnegie Mellon University offers students the opportunity to take courses for credit at other colleges or universities in the Pittsburgh area through a cross-registration program offered through the Pittsburgh Council on Higher Education (PCHE). The Carnegie Mellon University transcript will include information on such courses as follows: Courses taken through the university's cross-registration program will have grades recorded on the transcript and be factored into the QPA. A maximum of one course per semester may be taken through PCHE. Students must be registered full time at CMU (at least 36 units) and have enough room available in their course schedule to add the PCHE units.

PCHE Cross-Registration Information can be found at:  
[www.cmu.edu/hub/registrar/registration/cross/index.html](http://www.cmu.edu/hub/registrar/registration/cross/index.html).

## 8.4 TRANSFER COURSES

Carnegie Mellon University offers students the opportunity to receive transfer credit from other accredited institutions. The Carnegie Mellon University transcript will include information on transferred courses as follows: Carnegie Mellon courses and courses taken through the university's cross-registration program will have grades recorded on the transcript and be factored into the QPA. All other courses will be recorded on this transcript indicating where the course was taken, but without grade. Such courses will not be taken into account for academic actions, honors or QPA calculations. (Note: suspended students may take courses elsewhere, and may receive transfer credit based on the petition process outlined below.)

The University Transfer Policies can be found at:  
[www.cmu.edu/policies/student-and-student-life/transfer-credit-evaluation-and-assignment.html](http://www.cmu.edu/policies/student-and-student-life/transfer-credit-evaluation-and-assignment.html).

College of Engineering Transfer Policies can be found at:  
<https://engineering.cmu.edu/education/academic-policies/graduate-policies/registration-grading-credit.html#transfer-credit-&-special-students>.

### 8.4.1 Transfer Policy (for courses taken at a university other than CMU excluding courses taken through PCHE)

**Note:** Department policy does not supersede university policy.

- Decisions on transfer credit are made by the GEC. Students who wish to receive transfer credit for courses completed while not enrolled as a graduate student in MechE must petition the GEC. The petition should include the following material: course description, transcript documenting grade, analogous CMU course, syllabus, student work product (assignments, projects), and the reason for the transfer request.
- Transfer credit may only be granted if the course(s) taken is from an ABET accredited institution.
- A maximum of 24 units (two courses or equivalent) of graduate course work completed with a grade of B or better at another university may be given transfer credit provided that such course work is part of the graduate program leading to the degree sought and the course was not counted toward any other degree received by the student.
- A transfer course must be analogous to a CMU course the student has not taken.
- Transferred courses appear on the student's transcript as the analogous CMU course with a transfer designation added.
- For a transferred course to count as MechE units, it must be analogous to a course found in the MechE department.
- Course units transfer, but grades do not.
- Transfer credit is not granted prior to admission. Transfer credit may be granted after the student has successfully completed at least 36 units of graduate course work at CMU.
- Transferred courses must be "technical" courses (equivalent to a course that may be found in any engineering department, the natural sciences, computer science, robotics, machine learning, human-computer interaction, etc. at Carnegie Mellon). Courses that are non-technical in nature (humanities, fine arts, business, management, etc.) will not count towards graduation requirements and cannot be transferred for use towards the MechE degree.
- Transfer Grades (for courses taken at other departments at CMU): Students may transfer courses and grades from other internal CMU departments taken prior to enrolling in the MechE M.S. program provided that the courses and grades meet the degree requirements.
- Distance Education – The department does not accept distance or online education credits.

## 8.5 GRADUATE EDUCATION COMMITTEE

The Graduate Education Committee (GEC) and its subcommittees (Ph.D. and M.S.) establish graduate curricula and requirements, policies, and course changes and additions.

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Graduate student concerns, suggestions, etc., should be directed to the GEC Chair through the Graduate Administrator or through the Mechanical Engineering Graduate Student Organization (MEGSO).

## 8.6 RESEARCH-RELATED RESOURCES

- Resources and Regulations Governing Research at Carnegie Mellon:
  - Office of Sponsored Research: [www.cmu.edu/osp/](http://www.cmu.edu/osp/)
  - Office of Research Integrity & Compliance:  
[www.cmu.edu/research-compliance/index.html](http://www.cmu.edu/research-compliance/index.html)
- Intellectual Property Policy: [www.cmu.edu/policies/documents/IntellProp.html](http://www.cmu.edu/policies/documents/IntellProp.html)
- Policy on Restricted Research: [www.cmu.edu/policies/research/restricted-research.html](http://www.cmu.edu/policies/research/restricted-research.html)
- Environmental Health and Safety (EHS): [www.cmu.edu/ehs/](http://www.cmu.edu/ehs/)
- Human Subjects in Research Policy: [www.cmu.edu/research-compliance/human-subjects-research/index.html](http://www.cmu.edu/research-compliance/human-subjects-research/index.html)

## 8.7 CITI RESEARCH COMPLIANCE COURSE

The following is a MANDATORY REQUIREMENT of all CIT M.S. students conducting research: (See [CIT graduate policies](#) “Responsible Conduct of Research (RCR) Education.”)

In an effort to increase awareness and compliance of research ethics, the College of Engineering (CIT) Dean’s Office has asked that all personnel (students, faculty, post-docs) pass the Collaborative Institutional Training Initiative (CITI) research ethics training course. This is a mandatory requirement of all MechE Masters & PHD students, faculty and post-docs. You need only pass the course once.

To complete the CITI on-line education course go to [CITI's website](#). Create an account and select Carnegie Mellon University as your “organization.” Once your registration is complete, you will be directed to a list of courses. Please choose the following course under Responsible Conduct of Research (RCR):

- Physical Science Responsible Conduct of Research Course

Some helpful hints on navigating through the course:

- For the question: “Do you anticipate requesting CMU/CEU credits for the course?” Answer: No
- For “Institutional Email Address” please enter your Andrew email. For “Department” please enter “Mechanical Engineering.”
- Please complete “The Integrity Assurance Statement” before beginning the course.

- After submitting the integrity statement, you should be directed into the research ethics course itself. Please read the material, watch the videos and answer the subsequent test questions. **A score of 80% is needed to pass.**

The course may take a few hours to complete but can be done over a period of time. You may save your test at any time and return to it later. When you complete the course, CITI will e-mail your completion record to you. In order to receive credit for passing the course, please upload a copy of your completion record to the CITI Responsible Conduct of Research assignment on the MechE Graduate Student Canvas module: <https://canvas.cmu.edu/courses/1088/assignments/28363>.

You may take the course as many times as necessary until you pass. Again, passing the course is a mandatory requirement of all MechE grad students, faculty and post-docs. No exceptions! Students are required to complete the course before they will be permitted to register for research units.

## 8.8 INTELLECTUAL PROPERTY

Students enrolled in MechE must follow the University Intellectual Property guidelines: [www.cmu.edu/policies/documents/IntellProp.html](http://www.cmu.edu/policies/documents/IntellProp.html).

## 8.9 ACADEMIC CONFLICT

Graduate students are expected to discuss any concerns or grievances initially with members of their academic departments, including their academic advisor and Department Head, as appropriate. If a student wishes, the Associate Dean for Academic Affairs of the College of Engineering is available for consultation. All such discussions will be considered confidential at the request of the student.

If resolution of an academic grievance or concern cannot be obtained within their academic departments, graduate students may file a formal appeal of academic actions to the Associate Dean for Academic Affairs of the college. In accordance with the Carnegie Mellon Student Handbook, such appeals will ordinarily be heard and decided by the CIT (Engineering) College Council.

Written materials and findings of such appeal processes are considered confidential for all parties involved.

If a resolution cannot be reached by this process, an appeal may be made to the Provost at the request of either the student or the college.



## 8.10 SUMMARY OF GRADUATE STUDENT APPEAL AND GRIEVANCE PROCEDURES

Graduate students will find the Summary of Graduate Student Appeal and Grievance Procedures on the Graduate Education Resource webpage:

[www.cmu.edu/graduate/policies/appeal-grievance-procedures.html](http://www.cmu.edu/graduate/policies/appeal-grievance-procedures.html).

This document summarizes processes available to graduate students who seek review of academic and non-academic issues. Generally, graduate students are expected to seek informal resolution of all concerns within the applicable department, unit or program before invoking formal processes.

When an informal resolution cannot be reached, however, a graduate student who seeks further review of the matter is to follow the formal procedures outlined here. These appeal and grievance procedures shall apply to students in all graduate programs of the University. Students should refer to the department specific information in this handbook for department and college information about the administration and academic policies of the program (See [Academic Integrity](#))

### 8.10.1 Resources for Exceptional or Challenging Situations

Students may confer with the university graduate ombudsman, Suzie Laurich-McIntyre, [slaurichmcintyre@cmu.edu](mailto:slaurichmcintyre@cmu.edu), on issues of process or other concerns as they navigate conflicts. Suzie Laurich-McIntyre is the Assistant Vice Provost for Graduate Education.

Examples of situations where students are encouraged to seek advice or assistance from the university graduate ombudsman include:

- Difficulty in communications with advisor, particularly when those difficulties may lead to considering changing advisors or leaving the program
- Conflict with other group members that is difficult to resolve within the group
- Issues related to diversity or the departmental climate for those in groups who are historically underrepresented in science, or
- Personal concerns that interfere significantly with the ability to make timely progress in research or program requirements. These might be due to health, family or financial challenges.

Upon the student's request, information shared will be kept in confidence, as long as no laws require otherwise. Should help be needed from additional sources, the student would be asked before sharing confidential information.

In the event that a difficulty cannot be resolved within the department, the ombudsperson can also assist with following the grievance procedures for resolving difficult matters, which are available here: [www.cmu.edu/graduate/policies/appeal-grievance-procedures.html](http://www.cmu.edu/graduate/policies/appeal-grievance-procedures.html).

## 8.10.2 Steps in Grievance procedure

- Student provides formal, written petition of grievance to both the academic advisor and faculty member.
- If resolution of an academic grievance or concern cannot be obtained at the faculty level, students may file a formal appeal at the department level with the Department Head.
- If resolution of an academic grievance or concern cannot be obtained at the department level, graduate students may file a formal appeal of academic actions to the Associate Dean for Graduate and Faculty Affairs of the college. In accordance with the Carnegie Mellon Student Handbook, such appeals will ordinarily be heard and decided by the Engineering College Council. Written materials and findings of such appeal processes are considered confidential for all parties involved.
- If a resolution cannot be reached by this process, an appeal may be made to the Provost at the request of either the student or the college.

## 8.11 SAFEGUARDING EDUCATIONAL EQUITY: POLICY AGAINST SEXUAL HARASSMENT AND SEXUAL ASSAULT

Sexual harassment and sexual assault are prohibited by CMU, as is retaliation for having brought forward a concern or allegation in good faith. The policy can be viewed in its entirety at: [www.cmu.edu/policies/documents/SA\\_SH.htm](http://www.cmu.edu/policies/documents/SA_SH.htm). If you believe you have been the victim of sexual harassment or sexual assault, you are encouraged to make contact with any of the following resources:

- Office of Title IX Initiatives, <http://www.cmu.edu/title-ix/>, 412-268-7125
- Sexual Harassment Advisors, found in appendix A of the Policy Against Sexual Harassment and Sexual Assault;
- Survivor Support Network, found in appendix B of the Policy Against Sexual Harassment and Sexual Assault;
- Sexual Harassment Process and Title IX Coordinators, found in section II of the Policy Against Sexual Harassment and Sexual Assault;
- University Police, 412-268-2323
- University Health Services, 412-268-2157
- Counseling & Psychological Services, 412-268-2922

## 8.12 MATERNITY ACCOMMODATION PROTOCOL

Students whose anticipated delivery date is during the course of the semester may consider taking time away from their coursework and/or research responsibilities. All female students who give birth to a child while engaged in coursework or research are eligible to take either a short-term absence or formal leave of absence. Students in coursework should consider either working with their course instructor to receive incomplete grades, or elect to drop to part-time status or to take a semester leave of absence. Students engaged in research must work with their faculty to develop plans for the research for the time they are away.

Students are encouraged to consult with relevant university faculty and staff as soon as possible as they begin making plans regarding time away. Students must contact the Office of the Dean of Student Affairs to register for Maternity Accommodations. Students will complete an information form and meet with a member of the Dean's Office staff to determine resources and procedures appropriate for the individual student. Planning for the student's discussion with her academic contact(s) (advisor, associate dean, etc.) will be reviewed during this meeting.

## 8.13 CHANGE OF ADDRESS

Students are responsible for notifying the HUB of all address changes in a timely manner. Students will be held responsible for any failure to receive official college notices due to not having a correct address on file; F-1 students may jeopardize their status if address information is not kept current.

Students can change their address using SIO, which is available via the HUB website: [www.cmu.edu/hub/index.html](http://www.cmu.edu/hub/index.html).

## 8.13 "GRANDFATHER" POLICY

When policies are changed it is because the department believes the new rules offer an improvement; any such changes will be discussed at a meeting with the GEC. However, students currently enrolled whose degree program is affected by a change in policy may choose to be governed by the older policy that was in place at the time of their matriculation. In case degree requirements are changed and certain courses are no longer offered, the department will try to find some compromise that allows those students to satisfy the original requirements.

## 8.14 ASSISTANCE FOR INDIVIDUALS WITH DISABILITIES

The Office of Disability Resources at Carnegie Mellon University has a continued mission to provide physical and programmatic campus access to all events and information within the Carnegie Mellon community. We work to ensure that qualified individuals receive reasonable accommodations as

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guaranteed by the Americans with Disabilities Act (ADA) and Sections 503 and 504 of the Rehabilitation Act of 1973. Students who would like to receive accommodations can begin the process through [Disability Resources secure online portal](#) or email [access@andrew.cmu.edu](mailto:access@andrew.cmu.edu) to begin the interactive accommodation process.

Students with disabilities are encouraged to self-identify with the Office of Disability Resources by contacting Catherine Getchell, 412-268-6121, [getchell@cmu.edu](mailto:getchell@cmu.edu) to access the services available at the university and initiate a request for accommodations.

## 8.15 VACATIONS AND TIME-OFF

[NOTE: The following policy generally applies to Ph.D. students, but may apply to M.S. students if they are receiving a funded research assistantship (extremely rare). In most cases, M.S. students will not have departmental funding and will therefore be allowed the normal semester breaks and vacations.]

Students with graduate assistantships are expected to continue with their research during academic breaks (including the summer months) with the exception of the official university holidays. A complete list of the official university holidays can be found below and at the [Human Resources website](#).

Due to federal regulations governing graduate student support, paid time off for personal business and vacations is not provided. A supported graduate student wanting to take a one week break during one of the summer months in which they are receiving a stipend is expected to receive approval for that break from their advisor and make up the work during the other three weeks of that month. Supported graduate students wishing to take longer periods of personal time off must do so without pay and must receive advanced approval from their research advisor a minimum of four weeks prior to the requested time off. The advisor must then notify the Graduate Program Administrator and Business Manager of this approval so that stipend adjustments can be processed.

### 8.16.1 University Holidays

- New Year's Day
- Martin Luther King Jr. Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Day After Thanksgiving
- Day Before Christmas
- Christmas Day
- Day Before New Years Day

The University has three graduation dates: May, August, and December. There is only one graduation ceremony (May). It generally takes several months to receive the August and December diplomas depending on when they are ordered through the registrar's office. Be sure to provide a complete

mailing address in the on-line graduation information as well as to your academic advisor to ensure that the diploma is forwarded to you promptly after degree certification.

## 9. Appendix A: Department Resources

### 9.1 COLLEGE PERSONNEL

- Dean, College of Engineering (CIT) – James H. Garrett Jr.  
[445Bhttp://engineering.cmu.edu/about/dean/garrett\\_bio.html](http://engineering.cmu.edu/about/dean/garrett_bio.html)
- Assistant – Sue Haslett – 412-268-6196 (SH 110)
- Associate Dean for Graduate and Faculty Affairs – Jonathan Cagan  
412-268-2478 (SH 110)

### 9.2 FACILITIES AND TECHNICAL SERVICES

The Mechanical Engineering department provides a variety of facilities to support our students, faculty, and affiliates.

#### 9.2.1 MS Collaborative Space

M.S. students have access to a collaborative study space in Wean Hall (WH 3716). The room is accessible via ID card swipe and includes tables and chairs for personal or collaborative study, a kitchenette, a small conference room, and storage lockers. Lockers may be reserved for up to one semester at a time. Please consult the MechE receptionist (SH 402) for information on how to reserve the conference room or one of the lockers.

The MS student collaborative space is a shared space. It is student responsibility to keep the area clean and free of obstructions. Furniture should remain in the configuration it is found. Cleaning supplies and a vacuum cleaner are available in the kitchenette for your convenience. Please contact the MechE receptionist (SH 402) to order additional cleaning supplies or to contact university facilities management (FMS) for help with large messes.

Note: The MS Collaborative Space and other Department office spaces are shared. Please practice courtesy at all times. These are work areas and therefore, personal belongings, such as bicycles, are not permitted in the office. There are bicycle racks located in front of Scaife and Hamerschlag Halls.

#### 9.2.2 Computer Cluster

The ME department maintains the Shimp Collaborative Computer Center on C level (C101) in Hamerschlag Hall. The space may be configured to create a small group study area. 45 Windows workstations are equipped with a variety of [engineering software packages](#). These facilities are for use only by MechE students and faculty. Students can gain access to the MechE cluster using their CMU ID card. If your ID card access is not working and you are a current MechE undergraduate or

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graduate student please contact the MechE Main Office: 412-268-2500 (please provide your CMU ID card number when you call).

## 9.2.3 Computing Services

MechE Computing Services and IT is maintained by the Electrical and Computer Engineering (ECE) department. Personal computing or MechE cluster-related questions and concerns may be directed to: [help@its.me.cmu.edu](mailto:help@its.me.cmu.edu). Please indicate that you are a student in MechE and the nature of your computing query.

Questions or concerns regarding your Andrew ID or CMU email account should be directed to CMU computing services: [it-help@cmu.edu](mailto:it-help@cmu.edu). More information regarding CMU computing services may be found here: [www.cmu.edu/computing/index.html](http://www.cmu.edu/computing/index.html).

## 9.2.4 Laboratories

MechE Faculty maintain state of the art research labs. To learn more about faculty labs, please visit each lab's web page.

## 9.2.5 The Tech Spark

College of Engineering students have access to a state of the art machine shop (known as Tech Spark) to complete course projects. Students may be required to take one or more mini safety courses before using Tech Spark. The mission is to provide a safe and innovative instructional workshop facility that serves College of Engineering students, researchers, staff, and faculty. We offer our students and researchers an opportunity to learn the "manufacturing side" of Mechanical Engineering making use of manual as well as cutting edge CAD/CAM/CNC, laser cutting/engraving, rapid prototyping machines, and 3D printing. Our staff brings many years of experience in prototyping to mentor our students and researchers through the process of design, fabrication and modification of prototypes bringing their ideas to life.

## 9.2.6 Shared Facilities

The department prides itself on the facilities it maintains for research and testing. University and outside researchers can use our facilities at the rates outlined on the Shared Facilities page.

## 9.2.7 Department Keys

Mechanical Engineering Department Building/Lab/Room keys are disbursed to enrolled graduate students with authorization of a faculty or staff member. Keys are recalled upon job termination, before graduation, or at the request of the authorizing faculty/staff member as appropriate. A \$5 cash deposit is required on all keys issued to graduate students and post doctorates. The deposit is forfeited on keys lost or not returned. Please see the MechE Department Receptionist (Scaife Hall

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402) for a Key Request Form (the form must be signed by the appropriate faculty member if for a lab space) and pay the cash deposit to obtain a key.

## 9.2.8 Mailroom

Scaife Hall 408 has mailboxes assigned to faculty, staff, and graduate students. Each bin is shared by several grad students, so please check your mail frequently to avoid overstuffed bins. Campus and regular mail is picked up from the same room daily when the new mail arrives at about 9:00 a.m. The new mail is usually sorted and in the bins by noon. Graduate students may have mail sent to:

Your name  
c/o Department of Mechanical Engineering  
Scaife Hall 402  
Carnegie Mellon University  
5000 Forbes Avenue  
Pittsburgh, PA 15213

## 9.2.9 Copy Machines

The department offers the use of two Copy Machines and one Fax Machine, located in the Mailroom (SH 408), for all faculty, staff, and graduate students. Students may make any lab or course-related copies or send/receive a fax using these machines. Please see the MechE receptionist (SH 402) for instructions.

## 9.2.10 Reporting Damages/Request for Repairs/Security Concerns

To report damages, needed repairs, or security concerns regarding department facilities, please contact the MechE department technician, Ed Wojciechowski: 412-268-2516 or [wojo@andrew.cmu.edu](mailto:wojo@andrew.cmu.edu).

## 9.3 PURCHASING AND REIMBURSEMENT POLICIES AND PROCEDURES

### 9.3.1 Purchasing

The purchasing of pre-approved research and lab supplies is handled by the Department's buyers (SH 423). There are many University and federal regulations that govern University spending. Students should contact the buyers with any questions that they may have regarding procedures—especially for large purchases ( $\geq$  \$2,500). Most purchases over \$2,500 require competitive bidding in which a minimum of three bids must be obtained and a bid package completed before the purchase can be made.

Please contact [me-purchasing@andrew.cmu.edu](mailto:me-purchasing@andrew.cmu.edu) for all purchase requests or general purchasing questions.



## 9.3.2 Reimbursements

All reimbursement requests must be submitted within 30 days from the date of purchase. Please refer to the Guidelines for Expense Reimbursements found on page two of the MechE Reimbursement Request Form prior to submitting your request. Please complete the MechE Reimbursement Request Form along with the appropriate itemized receipts to the Administrative Coordinators for preparation. Receipts must be originals (not copies). A missing receipt form will be required for any receipts that are not itemized or original. All forms and guidelines will be available on CANVAS. To view the complete policy on reimbursements, please see here: [http://www.cmu.edu/finance/controller/bte/files/bte\\_policy.pdf](http://www.cmu.edu/finance/controller/bte/files/bte_policy.pdf).

## 9.4 PRESS & MEDIA RELATIONS

To assure consistency in all communications and to maximize external visibility to target audiences, the College of Engineering's marketing and communications team works together to disseminate key messages and foster media relations. This team works to maintain productive relationships with local, national and international media representing a variety of communication channels— newspapers, magazines, radio, television, blogs, and online news sites. Lisa Kulick ([lkulick@andrew.cmu.edu](mailto:lkulick@andrew.cmu.edu)), manager of communications, is a member of this team and the point-of-contact between internal and external news media and the Department of Mechanical Engineering.

To support and protect our students, we discourage them from communicating directly with the media (unless a specific media opportunity has been vetted and approved. In this instance, the manager of communications will media train the student and attend the interview to guide the student, redirect the reporter, and provide context and clarification as needed). Adherence to the communications policies of research funding agencies must be strictly followed. If a student (or faculty or staff member) is contacted by a media representative, they are required to inform the manager of communications (or another member of the college's marketing and communications team) prior to speaking with the media representative.

The communications team regularly develops news stories and multi-media for the MechE and College of Engineering websites as well as social media channels. The team can also publicize a program, project, or event via social media with appropriate lead time. Contact the Manager of Communications for more information.

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## 9.5 DEPARTMENT/COLLEGE/UNIVERSITY BRANDS & LOGOS

Students interested in using the MechE unit mark, particularly for merchandise, should review the university's brand standards at: <https://www.cmu.edu/marcom/brand-standards/index.html> and contact either the academic programs coordinator or the manager of communications for more information.

Use of university, college, and department logos, unit marks, and icons must follow the regulations of, and have been approved by, the [Trademark Licensing Office](#).

## 9.6 STUDENT ORGANIZATIONS

### 9.6.1 MEGSO

The Mechanical Engineering Graduate Student Organization (MEGSO) exists to enhance the graduate student life in the mechanical engineering department. MEGSO is a dedicated group of graduate students who organize academic and social events and serve as liaisons between the student body and the departmental administrators. MEGSO organizes an annual student conference to encourage interdepartmental exposure and collaboration. Socially, MEGSO hosts happy hours, cookouts, and end of semester parties to facilitate informal interaction among students, staff, and faculty.

MEGSO is a valuable resource for student concerns and has a budget to implement appropriate projects. Please don't hesitate to contact MEGSO by email at [megso@andrew.cmu.edu](mailto:megso@andrew.cmu.edu) or on Facebook at <https://www.facebook.com/cmuMEGSO>

### 9.6.2 GSA

For campus-wide student activities, the [Graduate Student Assembly \(GSA\)](#) hosts several events where you can connect with other Carnegie Mellon students. GSA has a presence on Facebook and Twitter.

Visit these links for more information about getting involved on campus:

- Graduate Programs Office: [www.cmu.edu/graduate/](http://www.cmu.edu/graduate/)
- Office of Student Activities: [www.cmu.edu/student-affairs/slice/](http://www.cmu.edu/student-affairs/slice/)
- Student Life Office: [www.cmu.edu/student-affairs/](http://www.cmu.edu/student-affairs/)
- Athletics & Fitness Facilities: <http://athletics.cmu.edu/landing/index>

## 10. Appendix B: Highlighted University Resources and The WORD, Student Handbook

### 10.1 KEY OFFICES FOR GRADUATE STUDENT SUPPORT

#### 10.1.1 Office of the Assistant Vice Provost for Graduate Education

[www.cmu.edu/graduate](http://www.cmu.edu/graduate); [grad-ed@cmu.edu](mailto:grad-ed@cmu.edu)

The Office of the Assistant Vice Provost for Graduate Education, AVPGE, directed by Suzie Laurich-McIntyre, Ph.D., Assistant Vice Provost for Graduate Education, provides central support for graduate students in a number of roles. These include being an ombudsperson and resource person for graduate students as an informal advisor; resolving formal and informal graduate student appeals; informing and assisting in forming policy and procedures relevant to graduate students; and working with departments on issues related to graduate students and implementation of programs in support of graduate student development.

The Office of the AVPGE often collaborates with the division of Student Affairs to assist graduate students with their Carnegie Mellon experience. Senior members of the student affairs staff are assigned to each college (college liaisons) and are often consulted by the Assistant Vice Provost for Graduate Education and departments on an individual basis to respond to graduate student needs.

The Office of the Assistant Vice Provost for Graduate Education (AVPGE) offers a robust schedule of professional development opportunities. Some are geared towards a specific population (master's students, PhD students at the beginning of their program, graduate students seeking tenure track positions, etc.) and others are open to all graduate students (time management, balancing, staying healthy). A full schedule of programs is at <http://www.cmu.edu/graduate/>.

The Office of the AVPGE also coordinates several funding programs, and academically focused seminars and workshops that advise, empower and help retain all graduate students. The fundamental goals of our programs have been constant: first, to support, advise and guide individual graduate students as they work to complete their degrees; second, to contribute to the greatest degree possible to the diversification of the academy. Visit the Graduate Education website for information about:

- Conference Funding Grants
- Graduate Small Project Help (GuSH) Research Funding
- Graduate Student Professional Development: seminars, workshops and resources

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## 10.1.2 Office of the Dean of Student Affairs

[www.cmu.edu/student-affairs/index.html](http://www.cmu.edu/student-affairs/index.html)

The Office of the Dean provides central leadership of the metacurricular experience at Carnegie Mellon. The offices that fall under the division of Student Affairs led by Vice President and Dean of Student Affairs Gina Casalegno, include (not an exhaustive list):

- Athletics
- Career and Professional Development Center
- Cohon University Center
- Counseling & Psychological Services (CaPS)
- Dining Services
- Housing Services
- Office of Community Standards and Integrity
- Office of Student Leadership, Involvement, and Civic Engagement
- University Health Services
- Wellness Initiatives

Graduate students will find the enrollment information for **Domestic Partner Registration** and **Maternity Accommodations** in the Office of the Dean of Student Affairs and on the website. The Office of the Dean of Student Affairs also manages the **Emergency Student Loan** (ESLs) process. The Emergency Student Loan service is available through generous gifts of alumni and friends of the university. The Emergency Student Loan is an interest-free, emergency-based loan repayable within 30 days. Loans are available to enrolled students for academic supplies, medication, food or other expenses not able to be met due to unforeseeable circumstances.

The Office of Integrity and Community Standards also provides consultation, support, resources and follow-up on questions and issues of Academic Integrity: [www.cmu.edu/academic-integrity](http://www.cmu.edu/academic-integrity).

## 10.1.3 Center for Student Diversity and Inclusion

[www.cmu.edu/student-diversity/](http://www.cmu.edu/student-diversity/)

Diversity and inclusion have a singular place among the values of Carnegie Mellon University. The Center for Student Diversity & Inclusion actively cultivates a strong, diverse and inclusive community capable of living out these values and advancing research, creativity, learning and development that changes the world.

The Center offers resources to enhance an inclusive and transformative student experience in dimensions such as access, success, campus climate and intergroup dialogue. Additionally, the Center supports and connects historically underrepresented students and those who are first in their family to attend college in a setting where students' differences and talents are appreciated and reinforced, both at the graduate and undergraduate level. Initiatives coordinated by the Center include, but are not limited to:

- First generation/first in family to attend college programs
- LGBTQ+ Initiatives
- Race and ethnically-focused programs, including Inter-University Graduate Students of Color Series (SOC) and PhD SOC Network
- Women's empowerment programs, including Graduate Women's Gatherings (GWGs)
- Transgender and non-binary student programs

#### 10.1.4 Assistance for Individuals with Disabilities

<http://www.cmu.edu/education-office/disability-resources/>

The Office of Disability Resources at Carnegie Mellon University has a continued mission to provide physical and programmatic campus access to all events and information within the Carnegie Mellon community. We work to ensure that qualified individuals receive reasonable accommodations as guaranteed by the Americans with Disabilities Act (ADA) and Sections 503 and 504 of the Rehabilitation Act of 1973. Students who would like to receive accommodations can begin the process through [Disability Resources secure online portal](#) or email [access@andrew.cmu.edu](mailto:access@andrew.cmu.edu) to begin the interactive accommodation process.

Students with disabilities are encouraged to self-identify with the Office of Disability Resources by contacting Catherine Getchell, 412-268-6121, [getchell@cmu.edu](mailto:getchell@cmu.edu) to access the services available at the university and initiate a request for accommodations.

#### 10.1.5 Eberly Center for Teaching Excellence & Educational Innovation

[www.cmu.edu/teaching](http://www.cmu.edu/teaching)

Support for graduate students who are or will be teaching is provided in many departments and centrally by the Eberly Center for Teaching Excellence & Educational Innovation. The Eberly Center offers activities for current and prospective teaching assistants as well as any graduate students who wish to prepare for the teaching component of an academic career. The Center also assists departments in creating and conducting programs to meet the specific needs of students in their programs. Specific information about Eberly Center support for graduate students can be found at: [www.cmu.edu/teaching/graduatestudentsupport/index.html](http://www.cmu.edu/teaching/graduatestudentsupport/index.html).

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## 10.1.6 Carnegie Mellon Ethics Hotline

The health, safety and well-being of the university community are top priorities at Carnegie Mellon University. CMU provides a hotline that all members of the university community should use to confidentially report suspected unethical activity relating to financial matters, academic and student life, human relations, health and campus safety or research.

Students, faculty and staff can anonymously file a report by calling 877-700-7050 or visiting [www.reportit.net](http://www.reportit.net) (user name: tartans; password: plaid). All submissions are reported to appropriate university personnel.

**The hotline is NOT an emergency service. For emergencies, call University Police at 412-268-2323.**

## 10.1.7 Graduate Student Assembly

[www.cmu.edu/stugov/gsa/index.html](http://www.cmu.edu/stugov/gsa/index.html)

The Carnegie Mellon Student Government consists of an Executive Branch and a Legislative Branch. This is the core of traditional student government, as governed by the Student Body Constitution. The Executive Branch serves the entire student body, graduate and undergraduate, and consists of one president and four vice-presidents. The Legislative Branch for graduate students, The Graduate Student Assembly (GSA) passes legislation, allocates student activities funding, and otherwise acts on behalf of all graduate student interests. GSA also contributes a significant amount of funding for conferences and research, available to graduate students through application processes managed by the Office of the Assistant Vice Provost for Graduate Education. GSA plans various social opportunities for graduate students and maintains a website of graduate student resources on and off-campus, [www.cmu.edu/stugov/gsa/resources/index.html](http://www.cmu.edu/stugov/gsa/resources/index.html). Each department has representation on GSA and receives funding directly from the GSA's use of the student activities fee for departmental activities for graduate students. The department rep(s) is the main avenue of graduate student representation of and information back to the graduate students in the department.

## 10.1.8 Office of International Education (OIE)

[www.cmu.edu/oie/](http://www.cmu.edu/oie/)

[Jump to Appendix C](#)

Carnegie Mellon hosts international graduate and undergraduate students who come from more than 90 countries. Office of International Education (OIE) is the liaison to the University for all non-immigrant students and scholars. OIE provides many services including: advising on personal, immigration, academic, social and acculturation issues; presenting programs of interest such as international career workshops, tax workshops, and cross-cultural and immigration workshops; maintaining a resource library that includes information on cultural adjustment, international education and statistics on international students in the United States; posting pertinent information to students through email and the OIE website, and conducting orientation programs.

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## 10.1.9 Intercultural Communication Center (ICC)

[www.cmu.edu/icc/](http://www.cmu.edu/icc/)

[Jump to Appendix C](#)

The Intercultural Communication Center (ICC) is a support service offering both credit and non-credit classes, workshops, and individual appointments designed to equip nonnative English speakers (international students as well as international students who attended high school and/or undergraduate programs in the U.S.) with the skills needed to succeed in academic programs at Carnegie Mellon. In addition to developing academic literacy skills such as speaking, reading and writing, students can learn more about the culture and customs of the U.S. classroom. The ICC also helps international teaching assistants (ITAs) who are non-native English speakers develop fluency and cultural understanding to teach successfully at Carnegie Mellon and provides ITA testing, required testing indicating a nonnative speaking student has a language proficiency required before being allowed to work with undergraduates in classes, labs or individual meetings.

## 10.1.10 Veterans and Military Community

[www.cmu.edu/veterans/](http://www.cmu.edu/veterans/)

Military veterans are a vital part of the Carnegie Mellon University community. Graduate students can find information on applying veteran education benefits, campus services, veteran's groups at CMU, non-educational resources and international military service information through the Veterans and Military Community website. There are also links and connections to veteran resource in the Pittsburgh community. The ROTC and Veteran Affairs Coordinator can be reached at [uro-vaedbenefits@andrew.cmu.edu](mailto:uro-vaedbenefits@andrew.cmu.edu) or 412-268-8747.

## 10.1.11 Global Communication Center (GCC)

[www.cmu.edu/gcc/](http://www.cmu.edu/gcc/)

[Jump to Appendix C](#)

The Global Communication Center (GCC) provides free communication instruction and support to students and faculty through one-on-one tutoring, campus workshops and classroom support. GCC staff offer research-based strategies to assist students on written, oral, or visual projects to help them communicate more effectively. They work with all students at all levels of English language ability.

## 10.2 KEY OFFICES FOR ACADEMIC & RESEARCH SUPPORT

### 10.2.1 Computing and Information Resources

[www.cmu.edu/computing](http://www.cmu.edu/computing)

Computing Services provides a comprehensive computing environment at Carnegie Mellon. Graduate students should seek Computing Services for information and assistance with your Andrew account,

network access, computing off-campus, campus licensed software, email, calendar, mobile devices, computer security, cluster services and printing. Computing Services can be reached at [it-help@cmu.edu](mailto:it-help@cmu.edu).

The Carnegie Mellon Computing Policy establishes guidelines and expectations for the use of computing, telephone and information resources on campus. The policy is supported by a number of guidelines graduate students should know. The policy and guidelines are available at: [www.cmu.edu/computing/guideline/index.html](http://www.cmu.edu/computing/guideline/index.html).

## 10.2.2 Research at CMU

[www.cmu.edu/research/index.shtml](http://www.cmu.edu/research/index.shtml)

The primary purpose of research at the university is the advancement of knowledge in all fields in which the university is active. Research is regarded as one of the university's major contributions to society and as an essential element in education, particularly at the graduate level and in faculty development. Research activities are governed by several university policies. Guidance and more general information is found by visiting the Research at Carnegie Mellon website.

## 10.2.3 Office of Research Integrity & Compliance

[www.cmu.edu/research-compliance/index.html](http://www.cmu.edu/research-compliance/index.html)

The Office of Research Integrity & Compliance (ORIC) is designed to support research at Carnegie Mellon University. The staff work with researchers to ensure research is conducted with integrity and in accordance with federal and Pennsylvania regulation. ORIC assists researchers with human subject research, conflicts of interest, responsible conduct of research, export controls, intellectual property rights and regulations, and institutional animal care & use. ORIC also consults on, advises about and handles allegations of research misconduct.

## 10.3 KEY OFFICES FOR HEALTH, WELLNESS & SAFETY

### 10.3.1 Counseling & Psychological Services

[www.cmu.edu/counseling/](http://www.cmu.edu/counseling/)

Counseling & Psychological Services (CaPS) affords the opportunity for students to talk privately about issues that are significant for them in a safe, confidential setting. Students sometimes feel confused about why they are feeling upset and perhaps confused about how to deal with it. An initial consultation with a CaPS therapist will clarify options and provide a recommendation to the appropriate mental health resource at Carnegie Mellon or the larger Pittsburgh community. CaPS services are provided at no cost. Appointments can be made in person or by telephone, 412-268-2922.



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## 10.3.2 Health Services

[www.cmu.edu/HealthServices/](http://www.cmu.edu/HealthServices/)

University Health Services (UHS) is staffed by physicians, advanced practice clinicians and registered nurses who provide general medical care, allergy injections, first aid, gynecological care and contraception as well as on-site pharmaceuticals. The CMU student insurance plan covers most visit fees to see the physicians and advanced practice clinicians & nurse visits. Fees for prescription medications, laboratory tests, diagnostic procedures and referral to the emergency room or specialists are the student's responsibility and students should review the UHS website and their insurance plan for detailed information about the university health insurance requirement and fees.

UHS also has a registered dietician and health promotion specialists on staff to assist students in addressing nutrition, drug and alcohol and other healthy lifestyle issues. In addition to providing direct health care, UHS administers the Student Health Insurance Program. The Student Health Insurance plan offers a high level of coverage in a wide network of health care providers and hospitals. Graduate students should contact UHS to discuss options for health insurance for spouses, domestic partners and dependents. Appointments can be made by visiting UHS's website or by telephone, 412-268-2157.

## 10.3.3 Campus Wellness

[www.cmu.edu/wellness/](http://www.cmu.edu/wellness/)

At the university, we believe our individual and collective well-being is rooted in healthy connections to each other and to campus resources. The university provides a wide variety of wellness, mindfulness and connectedness initiatives and resources designed to help students thrive inside and outside the classroom. The BeWell@CMU e-newsletter seeks to be a comprehensive resource for CMU regarding all wellness-inspired events, announcements and professional and personal development opportunities. To sign up for the e-newsletter, text BEWELLATCMU to 22828 and share your preferred email address.

## 10.3.4 University Police

[www.cmu.edu/police/](http://www.cmu.edu/police/)

412-268-2323 (emergency only), 412-268-6232 (non-emergency)

The University Police Department is located at 300 South Craig Street, Room 199 (entrance is on Filmore Street). The department's services include police patrols and call response, criminal investigations, shuttle and escort services (additional information included in the Parking and Transportation section of The WORD, see below), fixed officer and foot officer patrols, event security, and crime prevention and education programming. Visit the department's website for additional

information about the staff, escort and shuttle, emergency phone locations, crime prevention, lost and found, finger print services, and annual statistic reports.

## Shuttle and Escort Services

University Police coordinates the Shuttle Service and Escort Service provided for CMU students, faculty, and community. University Police [Shuttle & Escort website](#) has full information about these services, stops, routes, tracking and schedules.

Carnegie Mellon University publishes an annual campus security and fire safety report describing the university's security, alcohol and drug, sexual assault, and fire safety policies and containing statistics about the number and type of crimes committed on the campus and the number and cause of fires in campus residence facilities during the preceding three years. Graduate students can obtain a copy by contacting the University Police Department at 412-268-6232. The annual security and fire safety report is also available online at [www.cmu.edu/police/annualreports](http://www.cmu.edu/police/annualreports).

## 10.3.4 The WORD

[www.cmu.edu/student-affairs/theword/](http://www.cmu.edu/student-affairs/theword/)

The WORD is Carnegie Mellon University's student on-line handbook and is considered a supplement to the department (and sometimes college) handbook. The WORD contains campus resources and opportunities, academic policy information and resources, community standards information and resources. It is designed to provide all students with the tools, guidance, and insights to help them achieve their full potential as a member of the Carnegie Mellon community. Information about the following is included in The WORD (not an exhaustive list) and graduate students are encouraged to bookmark this site and refer to it often. University policies can also be found in full text at:

[www.cmu.edu/policies/](http://www.cmu.edu/policies/)

- Carnegie Mellon Vision, Mission
- Carnegie Code
- Academic Standards, Policies and Procedures
  - Educational Goals
  - Academic and Individual Freedom
  - Statement on Academic Integrity
  - Standards for Academic & Creative Life
- Assistance for Individuals with Disabilities
- Master's Student Statute of Limitations
- Conduct of Classes
- Copyright Policy
- Cross-college & University Registration
- Doctoral Student Status Policy

Evaluation & Certification of English Fluency for Instructors

Final Exams for Graduate Courses

Grading Policies

Intellectual Property Policy

Privacy Rights of Students

    Research

        Human Subjects in Research

Office of Research Integrity & Compliance

Office of Sponsored Programs

Policy for Handling Alleged Misconduct of Research

Policy on Restricted Research

Student's Rights

Tax Status of Graduate Student Awards

Campus Resources & Opportunities

    Alumni Relations

Assistance for Individuals with Disabilities

    Athletics, Physical Fitness & Recreation

    Carnegie Mellon ID Cards and Services

Cohon University Center

    Copying, Printing & Mailing

    Division of Student Affairs

    Domestic Partner Registration

    Emergency Student Loan Program

    Gender Programs & Resources

    Health Services

    Dining Services

    The HUB Student Services Center

ID Card Services

Leonard Gelfand Center

    LGBTQ Resources

Multicultural and Diversity Initiatives

    Opportunities for Involvement

    Parking and Transportation Services

Shuttle and Escort Services

    Spiritual Development

University Police

Student Activities

University Stores

Community Standards, Policies and Procedures

Alcohol and Drugs Policy

AIDS Policy

Bicycle/Wheeled Transportation Policy

Damage to Carnegie Mellon Property

Deadly Weapons

Discriminatory Harassment

Disorderly Conduct

Equal Opportunity/Affirmative Action Policy

Freedom of Expression Policy

Health Insurance Policy

Immunization Policy

Missing Student Protocol

Non-Discrimination Policy

On-Campus Emergencies

Pets

Political Activities

Recycling Policy

Riotous and Disorderly Behavior

Safety Hazards

Scheduling and Use of University Facilities

Sexual Harassment and Sexual Assault Policy

Smoking Policy

Student Accounts Receivable and Collection Policy and Procedures

Student Activities Fee

Student Enterprises

Workplace Threats and Violence Policy

Statement of Assurance

Last updated: May 31, 2018

## 11. Appendix C: Resources for International Students

### 11.1 POLICIES TO NOTE:

International students should take special note of the following policies:

- [Part-time status](#)
- [Internships/Co-ops](#)

### 11.2 RESOURCES TO NOTE:

International students should take special note of the following campus resources:

- [Office of International Education \(OIE\)](#)
- [Intercultural Communication Center \(ICC\)](#)
- [Global Communication Center \(GCC\)](#)

### 11.3 ESL RESOURCES

#### 11.3.1 CMU – On Campus Program

##### **ICC Language Program**

[www.cmu.edu/icc/language/training/](http://www.cmu.edu/icc/language/training/)

The Intercultural Communication Center offers classes, workshops, and seminars to develop various aspects of academic fluency (e.g., pronunciation, fluency, grammar usage, presentation skills, academic writing, and cross-cultural understanding). They also offer self-paced work videos and websites to supplement ICC classwork.

#### 11.3.2 Academic ESL Programs

##### **University of Pittsburgh - English Language Institute (ELI)**

[www.eli.pitt.edu/](http://www.eli.pitt.edu/)

Offers intensive fee-based programs for serious adults who want to improve their English for academic, professional or personal reasons. Options include classes in General English, English Pronunciation, TOEFL preparation, and evening courses for part-time students. University of Pittsburgh scholarships are available for eligible full-time faculty and research associates.

Phone: 412-624-5901

Fax: 412-624-6130

Email: [elipitt@pitt.edu](mailto:elipitt@pitt.edu)

## **Duquesne University - English as a Second Language Program (ESLP)**

[www.duq.edu/esl](http://www.duq.edu/esl)

An academic support program that offers foreign students semi-intensive and intensive English for Academic Purposes (EAP). The ESL Program offers Duquesne's international foreign national students semi-intensive and intensive English for academic purposes.

Phone: 412-396-5091

## **Chatham University - English Language Program**

[www.chatham.edu/elp](http://www.chatham.edu/elp)

Chatham University offers instruction in English to various levels of ESL students and provides a "bridge" through sheltered college classes to students who are striving to attain a high level of academic English level proficiency.

Phone: 412-365-1267

Email: [elp@chatham.edu](mailto:elp@chatham.edu)

## **LaRoche College - English as a Second Language (ESL) Program**

[www.laroche.edu/esl/](http://www.laroche.edu/esl/)

The English As a Second Language (ESL) Program at La Roche College is designed to provide proficiency-based instruction in English for degree and non-degree seeking students, to promote students' participation in their chosen field, and to support adjustment to and participation in the life of the college and the community.

Phone: 412-536-1279

Email: [esl@laroche.edu](mailto:esl@laroche.edu)

## **Point Park University - ELS Language Center**

[www.els.edu/en/ELSCenters/Detail?locid=PIT](http://www.els.edu/en/ELSCenters/Detail?locid=PIT)

The Language Center offers three month-long programs based on the intensity of instruction desired.

201 Wood Street

Pittsburgh, PA 15222

Phone: 412-392-3802

### 11.3.3 Private Tutors

Contact the ICC for a list of local ESL instructors available for private work (language training and editing).

Phone: 412-268-4979.

## 11.3.4 Free Programs

### **Carnegie Library of Pittsburgh – ESL Programs**

[www.carnegielibrary.org/services/for-language-learners/](http://www.carnegielibrary.org/services/for-language-learners/)

The Carnegie Library of Pittsburgh offers a variety of resources for non-native English speakers.

### **Greater Pittsburgh Literacy Council**

[www.gplc.org/our-programs.cfm](http://www.gplc.org/our-programs.cfm)

Offers English classes at beginning, intermediate, and advanced levels at its new Downtown Center (411 Seventh Avenue) as well as other locations throughout Allegheny County.

### **Goodwill Literacy Initiative**

[www.nationalliteracydirectory.org/goodwill-literacy-initiative](http://www.nationalliteracydirectory.org/goodwill-literacy-initiative)

This program offers beginning to advanced classes, class size limited to 6-10 students. In addition to an individualized study plan, a dedicated staff of tutors will assist students with college or job applications, cover letters, interviewing, recommendation letters, and other types of printed materials. We also offer computer laboratories with free email and Internet access. Students are encouraged to visit our Student Support Specialist, who assists our students in finding other student services such as housing, visas, health insurance, academic advising, and many others.

### **International Women's Association of Pittsburgh (IWAP)**

<http://iwap-home.blogspot.com/>

The primary purpose of the group is to develop understanding and appreciation among peoples from different nations and cultures, and to assist international women in enjoying their stay in Pittsburgh and in the United States. They offer informal free conversation classes in English as a Second Language. They also display in their website a complete list of English programs in Pittsburgh.

### **Allegheny Intermediate Unit (aiu3) – Adult ESL Program**

<https://www.aiu3.net/domain/15>

The AIU's Adult ESL program seeks to help any non-English speaking person to learn American English. Each year, the program serves nearly 1,000 learners from more than 40 countries.

### **Pittsburgh Regional International Student Ministries-PRISM**

<http://prismpgh.org/>

Designed especially for spouses of visiting students and scholars, introductory and intermediate instruction is offered on Bellefield Presbyterian Church.

## 11.3.5 Intensive Regional Programs

### **Washington and Jefferson College English Language Institute (ELI)**

[www.washjeff.edu/english-language-institute](http://www.washjeff.edu/english-language-institute)

The English Language Institute at Washington and Jefferson College offers an intensive English for academic purposes program that prepares students both academically and culturally for undergraduate study in the United States.

### **West Virginia University - Intensive English Program (IEP)**

<https://intensiveenglishprogram.wvu.edu/>

The Intensive English Program in the Department of Foreign Languages at West Virginia University has become a well-established program for international students needing to improve their English proficiency prior to entering an academic course of study.

## 11.3.6 Online ESL Resources

### **Activities for ESL Students**

<http://a4esl.org/>

This website offers grammar and vocabulary practice thorough quizzes and crossword puzzles.

### **Learn To Speak English**

[www.mylanguageexchange.com/Learn/English.asp](http://www.mylanguageexchange.com/Learn/English.asp)

Find pen-pals, practice written conversation using text chat, and practice speaking using voice chat.

### **Sounds of English**

[www.soundsofenglish.org/](http://www.soundsofenglish.org/)

This website offers pronunciation instruction and activities.

### **Learn English Vocabulary**

[www.vocabulary.co.il/](http://www.vocabulary.co.il/)

Play games to practice English vocabulary.



## 12. Appendix D: Math Requirement

### 12.1 LIST OF COURSES THAT SATISFY THE MECHE MATH REQUIREMENT:

#### **Chemical Engineering**

- 06-713 Mathematical Techniques in Chemical Engineering

#### **Civil and Environmental Engineering**

- 12-704/24-704 Probability and Estimation Methods for Engineering Systems
- 12-726/19-726 Mathematical Modeling of Environmental Quality Systems
- 12-755/24-755 Finite Elemental Method in Mechanics I
- 12-756 Finite Elemental Method in Mechanics II
- 12-758 Boundary Element Methods in Mechanics
- 12-759 Optimization in Mechanics

#### **Electrical and Computer Engineering**

- 18-660 Numerical Methods for Engineering Design and Optimization
- 18-751 Applied Stochastic Processes
- 18-771/24-771 Linear Systems

#### **Engineering and Public Policy**

- 19-726/12-726 Mathematical Modeling of Environmental Quality Systems

#### **Mechanical Engineering**

- 24-677 ST: Linear Control Systems
- 24-701 Mathematical Techniques in Mechanical Engineering
- 24-703/12-703 Numerical Methods
- 24-718 Computational Fluid Dynamics
- 24-755/12-755 Finite Elemental Method in Mechanics I
- 24-771/18-771 Linear Systems
- 24-785 Engineering Optimization

### 12.2 Other Miscellaneous Courses that Can be Used to Satisfy the MechE Math Requirement (added 5/9/02)

#### **Robotics Institute**

- 16-811 Mathematical Fundamentals for Robotics

#### **University of Pittsburgh**

Math courses at University of Pittsburgh may also count. However, the Graduate Education Committee (GEC) must approve the Pitt course as being analogous to a Carnegie Mellon course listed above.

**Mechanism for Adding Courses to the Math List:**

Students may petition the GEC to add a CIT course to the list. Please provide a statement from the instructor (course description or syllabus) as to the level of math content in the course. The math content must be 50% or more.

*Updated 04/24/2018*

# MECHANICAL ENGINEERING MS HANDBOOK

## 13. Appendix E: MSCDM Degree Requirement Tracking Sheet

### 13.1 MS IN COMPUTATIONAL DESIGN AND MANUFACTURING TRACKING SHEET

NAME		Advisor		Shimada		Admitted										
ID #						Graduated										
Course No.	Course Title	Semester	Grade	Units Carried	Factored Units	Qual Points	1) Course	2) Gaded Project	3) Engineering Computation	4) MechE	5) Grad Level	Transfer	Date Approved	Tms No.	Course Transferred From	Funding
<b>TOTALS</b>				0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	6) QPA	#DIV/0!		
no	1) Course Units ≥ 60 (600-level or Higher) **DOES NOT INCLUDED SUPERVISED READING OR RESEARCH															
	2) Engineering Computation Project (24-781/2) ≤ 36															
	3) Engineering Computation - 24-780															
no	4) ME Course Units ≥ 24															
no	5) Grad Level Units ≥ 48															
#DIV/0!	6) QPA ≥ 3.0															
no	Total Units ≥ 96															
Approved for Graduation		Date												Graduate Committee Chair		

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