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# Mechanical Engineering Handbook: Master of Science

## FALL 2015-SPRING 2016

*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*
  - *Course Option (MSC)*
  - *Research Option (MSR)*
- *Integrated Master's/Bachelor's Program (IMB) for CIT undergrads only*
- *Engineering and Technology Innovation Management Dual Degree (ETIM)*
- *Master of Science in Computational Design & Manufacturing (MSCDM)*

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## Welcome to MechE!

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.

## University Policies & Expectations

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/academic-integrity](http://www.cmu.edu/academic-integrity)
- University Policies Website: [www.cmu.edu/policies/](http://www.cmu.edu/policies/)
- Graduate Education Website: <http://www.cmu.edu/graduate/policies/index.html>
- Carnegie Institute of Technology (CIT) Website: <http://engineering.cmu.edu/>

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

### 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:

<http://www.cmu.edu/policies/administrative-and-governance/statement-of-assurance.html>.

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## 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:

<http://www.cmu.edu/student-affairs/theword/code.html>.

## Mechanical Engineering Department Structure

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

## Degrees Offered & Requirements

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

Multiple options are available under the Master of Science degree program to satisfy a range of student needs and goals.

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

MechE M.S. degree programs 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. options does not guarantee admission to the Department's Ph.D. 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 [here](#).

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

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

### MASTER OF SCIENCE IN MECHANICAL ENGINEERING—COURSE-WORK OPTION (MSC)

This program is designed for students who want to become engineering professionals in private industry or the public sector after graduation. Nearly 80% of MechE M.S. students pursue the MSC option. In this option, students take graduate-level courses to expand their knowledge base beyond a typical undergraduate mechanical engineering curriculum. Students have the flexibility to choose among a range of fundamental and specialized courses to create a degree program that matches his/her interests and needs. Specialized courses are designed to provide in-class project experience to allow students to work in teams to apply their skills to real world problems. Students are encouraged to take advantage of the many extra-curricular engineering and design experiences on campus (such as MechE Master Makers, the MechE Bennett Conference, other college or university-wide research symposia, and organizations such as Carnegie Mellon Racing).

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The MSC option requires completion of 96 units (typically eight, 12-unit courses). The majority of students complete the degree in three semesters. Students who are qualified and interested may elect to take a heavier course load and complete the degree in two semesters. Students interested in completing the program outside of the normal three semesters must discuss this carefully with an [M.S. Advisor](#) prior to enrollment. The MSC option is also available as a part-time program to individuals who are currently in the workforce. Part-time registration (less than 36 units in a given semester) is not available to students on an F-1 visa.

Students who enter the MSC option 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 Graduate Education Committee (GEC) will work closely with the student to devise a suitable program of study. 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 take a minimum of 36 units that counts towards their degree requirements each semester.

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

## MSC 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 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>
Minimum of 48 units of MechE graduate-level courses	<ul style="list-style-type: none"><li>- MechE graduate-level courses have a 24-6## or 24-7## designation, excluding Research (24-794) and Supervised Reading (24-793).</li><li>- Students are encouraged to select a set of core courses to achieve depth in one MechE <a href="#">specialty area</a>.</li></ul>
1 math course	<ul style="list-style-type: none"><li>- Must be from the approved <a href="#">math course list</a></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>- 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>
CITI research training	Mandatory for all CIT students conducting research. See <a href="#">policy</a> .



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## MASTER OF SCIENCE IN MECHANICAL ENGINEERING—RESEARCH OPTION (MSR)

This program is designed for students who want to perform graduate-level research, either as prelude to pursuing a Ph.D. degree or to pursue a more research-oriented career after graduation. In addition to taking graduate courses, students admitted to this option 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 MSC option.

The MSR option 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 MSR option is a final written research report and presentation to faculty and students at the annual Bennett Conference, held in the spring of each year. 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 take a minimum of 36 units that count towards their degree requirements each semester, must secure a research advisor by the end of their first semester, and complete 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 progress switch to the MSC option.

To learn about faculty research areas visit: <http://www.cmu.edu/me/research/index.html>, and <https://www.cmu.edu/me/people/faculty.html>.

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

### Advisor Matching

A key step for the MSR degree is to secure a research advisor who will oversee the research project. MSR faculty research advisors may be from any pre-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 the MSC option. MechE will facilitate advisor matching during the summer prior to enrollment and during the Fall semester. However, it is the MSR student's responsibility to choose a research area, agree on a research project, and secure a faculty member to advise that project. Please notify the MSR academic advisor (Melissa Brown) immediately upon finding a faculty research advisor using the [Declaration of Research Advisor form](#).

### Graduate Technical/Bennett Conference

Students enrolled in the MSR option are required to present their research at the annual Mechanical Engineering Bennett Conference. The Conference is held each year, typically around mid-March.

The Master's Poster Session Competition is open to any master's level graduate student in Mechanical Engineering; however, **participation is required for MSR 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 four to six judges consisting of faculty and potentially industry members from a variety of disciplines.

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**A written report describing their research is also required of all MSR option students.** The paper, which is in the format of an [ASME journal paper](#), must bear the advisor's signature. The paper is due **1 week prior** to the Bennett Conference. Students with a December graduation must submit their report by November 30 of that year.

## MSR Degree Requirements:

Minimum of 192 total units	<ul style="list-style-type: none"> <li>- Student and advisor determine the distribution of units.</li> <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 or 400 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>- Recommended to take at least 24 research units per semester.</li> <li>- Research units are pass/fail until the final semester when a letter grade is required.</li> </ul>
Research Paper and Bennett Conference Participation	<ul style="list-style-type: none"> <li>- The MSR degree culminates in a comprehensive and professionally written report (ASME conference paper format) documenting the research.</li> <li>- The report must be approved by advisor and submitted to the department prior to graduation.</li> <li>- Must present research at the Mechanical Engineering Bennett Conference.</li> </ul>
Departmental Seminar	<ul style="list-style-type: none"> <li>- Two semesters of attendance is required for full-time students.</li> </ul>
CITI research training	Mandatory for all CIT students conducting research. See <a href="#">policy</a> .

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## MASTER OF SCIENCE IN MECHANICAL ENGINEERING – 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 must satisfy either the MSC (most common) or MSR degree requirements outlined above.** As described in the [CIT Integrated Master's/Bachelor's Degree Program policy](#), Mechanical Engineering undergraduates can 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 will be changed to graduate status during the 9th (and subsequent) semesters.

Please refer to the Integrated Master's/Bachelor's Degree Program [website](#) for additional information. An M.S. degree in Mechanical Engineering is awarded at the end of this program.

Students participating in IMB must complete at least 24 units of graduate coursework (with a QPA of 3.0 or better) by the end of the Senior year. This graduate course work does not count towards the B.S. degree. A total of 96 units (beyond those needed for the B.S. degree) are required for completion of the MSC option. A total of 192 units (beyond the B.S. degree) are required for completion of MSR. Students are limited to a maximum of 54 units in their graduate semester(s). No exceptions.

Interested students should consult with their undergrad advisor, Students who wish to declare an IMB are **required** to complete the [Integrated Master's/Bachelor's Degree Program Form](#).

\*Students with a cumulative undergraduate QPA below a 3.0 must apply for admission via the [Graduate Admissions guidelines](#). All portions of the application must be complete.

**NOTE:** The deadline for Integrated Master's/Bachelor's Degree Program applicants is April 30th of the junior year. All questions regarding forms and requirements should be directed to your undergrad advisor.

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## ADDITIONAL MS DEGREE PROGRAMS

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

### DUAL DEGREE WITH THE MASTER OF 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 MSC option 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 MSC option (see MSC 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.

### 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.

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## MSCDM Degree Requirements:

Minimum of 96 total units	<ul style="list-style-type: none"><li>- Student and advisor determine the distribution of units.</li><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>
Minimum of 24 units of MechE graduate-level courses	<ul style="list-style-type: none"><li>- <b>Must take 24-780 Engineering Computation</b> (typically offered in Fall).</li><li>- May not include Supervised Reading (24-793) or research units (24-794).</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>
Maximum 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 is strongly suggested. Students may register for 12-24 units of project each semester until a maximum of 36 accumulated project units is reached.</li></ul>
CITI research training	Mandatory for all CIT students conducting research. See <a href="#">policy</a> .

## SWITCHING DEGREE OPTIONS WITHIN MECHE

Students wishing to internally switch between MechE degree options should first consult with their academic advisor. International students should also consult with OIE regarding any immigration policies or paperwork (including a new I-20) that may result from switching degree options.

## 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.

## Academic Advising

### ADVISOR-ADVISEE RELATIONSHIP

All students entering an M.S. degree program in MechE will be assigned an academic advisor. Students in the MSR option 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 MSR) or during any semester (for MSC). 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 changes research areas. Please contact your academic advisor or the Graduate Program Administrator before finalizing a change of research advisors.

### DEGREE ADMINISTRATION: GRADUATION IS THE GOAL

The Department provides multiple advising resources for M.S. students as they move toward degree completion. The academic advisor for MSC, MSR, and the ETIM dual-degree is Melissa Brown ([mlb2@andrew.cmu.edu](mailto:mlb2@andrew.cmu.edu), 412-268-1562). Chris Hertz ([chertz@andrew.cmu.edu](mailto:chertz@andrew.cmu.edu), 412-268-3175), Manager of Academic Programs, is the academic advisor for MSCDM. Students in the IMB program will continue to work with their undergrad advisor (Bonnie Olson or Eva Mergner). Advisors are available to assist with academic or personal situations that M.S. students may not have the knowledge or resources to resolve. To meet with an academic advisor, please schedule an appointment:

<https://booknow.appointment-plus.com/1hgky36e/10>.

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

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ensure they are meeting all degree requirements. It is ultimately the student's responsibility to meet the requirements for graduation. Utilize the requirement tracking sheet provided by your advisor to track your progress.

In addition to the academic advisors, Professor Satbir Singh ([satbirs@andrew.cmu.edu](mailto:satbirs@andrew.cmu.edu)), Head of the MS Subcommittee to the Graduate Education Committee (GEC), is available to meet with students and answer questions.

The MSC degree provides faculty mentors for the following specialization areas:

- Design and Simulations of Thermo-Fluid Systems: Satbir Singh
- Controls and Robotics: Carmel Majidi
- Engineering Design, Materials, and Manufacturing: Phil LeDuc
- Computational Techniques in Engineering: Kenji Shimada.

Please direct questions to Melissa Brown first, and she may direct you to speak to a faculty mentor, if appropriate.

MSR students are encouraged to meet with their faculty research advisor regularly for advice on course selection and updates on research progress. Melissa Brown will continue to be the overall degree administrator and academic advisor for MSR.

MechE also has career counselors (Shaina Tsupros and Marcie Foy) 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.

## Degree Attainment Policies

### ACADEMIC INTEGRITY

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

Please review the University expectations at: <http://www.cmu.edu/academic-integrity/>.

Please review the entire Academic Integrity policy at:  
<http://www.cmu.edu/policies/student-and-student-life/academic-integrity.html>.

Please review the Academic Integrity University-wide Protocol (including rules for policy procedures, reviews, and appeals) at: <http://www.cmu.edu/academic-integrity/documents/academic-disciplinary-actions-overview-for-graduate-students.2013.pdf>.

### 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.

### FULL & PART TIME STATUS

Students may be registered as full or part time in the department. Full time status means a student is registered for at least 36 units. Students registered for less than 36 units are considered part-time and pay reduced tuition. (Please note: To complete the MS-Research option in four semesters, students must average 48 units per semester to accumulate the 192 total units required for the MSR option in two years.)

**Students can enroll in a maximum of 54 units (total) per semester.**

**International Students:** It is CIT policy, in an effort to remain in compliance with United States Government immigration regulations, that all international M.S. engineering students be registered full time (at least 36 units) for all semesters. This includes the final semester of study even if fewer than 36 units are required to complete the degree requirements.

Although part time students are typically working toward the MSC option, some students do pursue the MSR option 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.



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## STATUTE OF LIMITATIONS

Students enrolled at Carnegie Mellon University must complete all requirements for the M.S. degree within a maximum of seven years from their original matriculation date. 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.

Under extraordinary circumstances, such as military or public service, family or parental leave, or temporary disability, a school or college may, upon the relevant department's recommendation and with the written approval of the dean (or designate), defer the lapse for a period commensurate with the duration of that interruption. Students who are pursuing a master's degree as part-time students for all semesters of their program, as approved by their program, may also appeal to their program or department for extension of the time to degree limit.

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. 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.

## DEPARTMENT REGISTRATION PROCESS AND PROCEDURES

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 (<https://booknow.appointment-plus.com/1hgky36e/10>).

## 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](#).

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## 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 one exception is the ETIM dual-degree where a maximum of 12 units of course-work may double count. For ETIM students: Please contact both your MechE and ETIM advisors to discuss further.

## 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-####], Materials Science and Engineering [27-####]); all departments in the School of Computer Science (Computer Science (15-####), Human Computer Interaction (05-####), Information Systems: School of IS and Management (95-####), Institute for Software Research (08-####), 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-####)).

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.

## 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.

## 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 academic integrity violations or failing to provide adequate attendance. "W" grades do not factor into the students QPA, and cannot be removed from the transcript.

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## Policy for Make-Up Exams

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

## 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 send a formal letter of petition via email to the Head of the GEC. The letter should outline the reason for the request, and provide any relevant information (course descriptions, syllabi, etc.). Please CC your academic advisor on the request.

Please note: The GEC does NOT accept petitions to consider CMU courses outside of our department 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.

## SUPERVISED READING/INDEPENDENT STUDY/RESEARCH

Students enrolled in Supervised Reading and/or research must enroll in the appropriate MechE course number (24-793 for Supervised Reading and 24-794 for research). This applies even if the student is working with a faculty member outside of MechE,

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.

To receive credit for research, students must enroll 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.

Students arranging Supervised Reading must:

- Obtain approval from their advisor or Graduate Program Administrator as well as secure a supervising faculty member from an approved department.
- Draft a contract with the supervising faculty member that describes in detail the course and its requirements. A copy of the contract should be given 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,

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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).

## 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, please remember to sign the attendance sheet circulated during each seminar. Failure to sign the attendance sheet will result in a missed seminar for that week.

Students who miss a seminar may attend a make-up seminar from 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 send a brief 1-2 paragraph summary of the make-up seminar attended in an email to your academic advisor. Your academic advisor will add the summary to your file and make sure you receive credit. Students may attend a maximum of two make-up seminars per semester.

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.

## 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: [http://engineering.cmu.edu/current\\_students/graduates/policies.html](http://engineering.cmu.edu/current_students/graduates/policies.html).
- For more information on CMU grading policies, please see this link: <http://www.cmu.edu/policies/documents/Grades.html>.

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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.

Project work may be given an S (Satisfactory) grade on a semester-by-semester basis, but a letter grade (A, A-, B+, B, B-, C+, C, C-, D+, D, or R) must be given in the final semester for a multi-semester project. The units with an S grade are counted toward degree requirements but are not included in computing the average grade.

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/Fail may not be used towards graduation requirements for degree certification.

## 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.

## QPA

All MechE M.S. degrees require a QPA of 3.0 or above to graduate. QPA calculations follow the [CIT policy](#). For the MSC 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/fail and audit courses do not satisfy degree requirements.) MSC 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 MSR 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/fail 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.

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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

## 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.

Probationary status shall continue until such time as the 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.

## AUDIT AND PASS/FAIL COURSES

CMU students are permitted to take classes for no credit via the audit or pass/fail 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 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.

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## 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:  
<http://www.cmu.edu/hub/registration/undergraduates/cross/>.

## 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:  
<http://www.cmu.edu/policies/student-and-student-life/transfer-credit-evaluation-and-assignment.html>.

College of Engineering Transfer Policies can be found at:  
[http://engineering.cmu.edu/current\\_students/services/transfer\\_credit.html](http://engineering.cmu.edu/current_students/services/transfer_credit.html).

### **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

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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.

## 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.

### 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. 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.

## REQUIREMENTS FOR ENTRY INTO PH.D. PROGRAM

M.S. students may switch to Ph.D. at any time prior to the completion of their M.S. degree if they have a faculty member willing to advise them as a Ph.D. student. A formal application may be required. Consult the Graduate Program Administrator for more details.



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If an M.S. student does not have a current faculty member willing to advise their Ph.D., they may still apply to the Ph.D. program through the general application process where they will be reviewed by the Ph.D. admission committee. (Application deadline for Fall Ph.D. entry: December 15. Application deadline for Spring Ph.D. entry: September 30.)

## 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.

- MSC option and MSR option students will receive a Master of Science in Mechanical Engineering.
- MSCDM students will receive a Master of Science in Computational Design and Manufacturing.

## 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: <http://www.cmu.edu/hub/registration/leave.html>.

## 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: <http://www.cmu.edu/hub/transcripts/verifications/enrollment.html>.

## Financial Support

### 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). The Department will notify M.S. students when CA 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.

### 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:** <http://www.cmu.edu/fso>.

### 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.

### 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 (<http://www.cmu.edu/icc/testing/ITA/index.shtml>).

Support for teaching activities can be found through the [Eberly Center for Teaching Excellence](#), located in Warner Hall 425. Students who will be C.A.s for the department are encouraged to visit the Teaching Center and to take advantage of the information and services located there.

### Outside Employment

Students are not allowed to be employed outside of the university during the academic year nor during the summer if they are being supported by the department. Self-supported M.S. students may have outside employment. International students on an F-1 visa must maintain full time registration (at least 36 units) and may only work a maximum of 20 hours per week.

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## Consumer Information

Carnegie Mellon University suggests that all current and prospective students be informed consumers. Please see this link for detailed consumer information: <http://www.cmu.edu/hub/consumer/index.html>.

## Travel/Conference Funding

Funding may be available from the MechE department for students to travel and attend conferences to present results from their research at Carnegie Mellon. Before being considered for department support, students should request funding from their research advisor and/or pursue conference funding on the university level (see below for details). If funding is not available from the research advisor or from the university, then students may petition the department for a one-time grant of \$500. The petition should be presented in an email to the Chair of the M.S. Subcommittee of the Graduate Education Committee (GEC) as well as the Graduate Program Administrator. Funding is only provided if the student has a substantial role in the conference such as presenting an oral paper on their work or organizing a session. 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 used (travel expenses, accommodation, meals, etc.). Funding will be provided as a reimbursement of expenses paid (please provide receipts upon return from the conference).

At the university level, funding exists from the Provost's Office for individual students or student groups to attend a conference, whether as a participant or as a presenter. The process is managed by the Office of the Assistant Vice Provost for Graduate Education. Students can find more information about the application process and deadlines here: <http://www.cmu.edu/graduate/professional-development/conference-funding/index.html>.

## 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: <http://www.cmu.edu/graduate/financial-assistance/index.html>.

## UNIVERSITY FINANCIAL AID

Graduate students should consult the graduate student financial aid information found on The HUB website: <http://www.cmu.edu/finaid/docs/grad-guide.pdf>. Students will find the Graduate Financial Aid Guide, information about funding options and how to apply for financial aid and other helpful links.

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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.

## EXTERNAL FUNDING

### 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://www.fafsa-application.com/home.php>.

Students may obtain information regarding their loans through the William D. Ford Direct Loan Program, including deferment forms and payment information, at <http://www2.ed.gov/programs/wdffd/index.html>.

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

### 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. It has a fixed interest rate of 8.5%, and no aggregate limits. You must be a US citizen or permanent resident to qualify. Credit checks are also required to determine eligibility, but the credit criteria are much less stringent than for most private alternative loans. If you don't meet the credit criteria you may still obtain the loan with an "endorser" who does meet the credit requirements. PLUS applicants cannot have adverse credit based on a review of at least one credit report from a national credit reporting agency. Adverse credit is defined as:

- No Federal Student Aid loans in default or delinquent status
- No accounts that are 90 days or more past due
- No evidence of default, foreclosure, tax lien, repossession, wage garnishment, or judgments in the last 5 years
- No accounts in collection
- No accounts that were "write-offs" or never able to collect upon

A lack of credit history or insufficient credit history is not considered adverse credit. Credit-worthiness is not based on a FICO score, debt to income ratio, or annual salary.

**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.

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Preferred lenders have been chosen because of the benefits that they offer our students and in addition, **will not** charge the 1% default fee mentioned in the attached comparison chart. If you choose to go with an outside lender, please keep in mind that there is a possibility that you **may** be charged a 1% default fee.

## *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.

To apply for a Graduate Citiassist Loan through Citibank on line, please go to:

<https://www.citiassist.com/index.htm>.

If you are unable to obtain a loan through Citibank's Graduate Citiassist Loan Program or you would prefer to use a different lender, you may wish to consider the following loan programs:

- [Sallie Mae](#)
- [Bank of America](#)

## *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/>
- <https://mycollegeinfo.com/public/home.aspx>
- [https://www.fastweb.com/ppc?utm\\_source=bing&utm\\_medium=ppc](https://www.fastweb.com/ppc?utm_source=bing&utm_medium=ppc)
- <http://www.collegenet.com/mach25/app>
- [College Board Scholarship Search](#)
- [Fastaid.com](#)
- [Fellowship Resources Compiled by the Soros Fellowship](#)
- [National Association of Fellowship Advisors](#)

## *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.

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## *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 - predoctoral, doctoral, and postdoctoral - through the National Research Council.

For information write or call to:

National Research Council  
2101 Constitution Avenue  
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:

- <http://www.internationalscholarships.com/>
- <http://www.edupass.org/>
- <https://educationusa.state.gov/>
- [Native Leadership Scholarship \(women only\)](#)
- <http://www.onsf.uconn.edu/find-scholarships/opportunities-for-non-us-citizens/>
- [International Options.pdf](#)

## Additional Department, College, and University Resources/Policies/Protocols

### 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.

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).

### RESEARCH-RELATED RESOURCES

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

### 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:

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- 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 forward your completion email to the MechE receptionist.

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! We ask that everyone complete the course by the end of September of their first semester.

## INTELLECTUAL PROPERTY

Students enrolled in MechE must follow the University Intellectual Property guidelines:

<http://www.cmu.edu/policies/documents/IntellProp.html>.

## 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.



## 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:

<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*)

### 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).

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## 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.

## 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:

[http://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:

- 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

## 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

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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.

## "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.

## CPT/OPT POLICY (FOR INTERNATIONAL STUDENTS):

Curricular Practical Training (CPT) is available for qualified international students who have an internship or co-op related to their Mechanical Engineering course of study. Students must complete the CPT form (<http://www.cmu.edu/oie/forstu/pdf/cpt.pdf>), attend a CPT information session at OIE, and provide an offer letter from the hiring company that includes the title of the internship or co-op and the job duties to be performed. Students must register for 3 units of course 24-799 Practicum in Mechanical Engineering. CPT may only be used in cases where the internship or co-op is integral to the student's curriculum (being used towards graduation requirements). Therefore, the student will be assessed tuition for the required 3 units as an essential component of the degree requirements. 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 supervisor during the internship. 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. Students who have a summer internship or co-op, but wish to forego CPT (and therefore avoid registering for the 3 units of 24-799), must instead apply for pre-completion Optional Practical Training (OPT): <http://www.cmu.edu/oie/forstu/pdf/pre-opt.pdf>.

While most CPT 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. In addition, please note that students must maintain full-time registration (at least 36 units) at CMU, and may only work part-time (no more than 20 hours per week) if they use CPT during an academic semester. Please consult OIE for more information or questions: <http://www.cmu.edu/oie/>.

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Optional Practical Training (OPT) is available for qualified international students after graduation.

Pre-Optional Practical Training (Pre-OPT) is available for qualified international students during the academic year and must be filed at least three months in advance.

Students must attend an information session at OIE before filing for OPT or Pre-OPT. For more information, see the OPT form: <http://www.cmu.edu/oie/forstu/pdf/opt.pdf>.

Students should always consult the Office of International Education (OIE) on immigration or visa-related questions: <http://www.cmu.edu/oie/>.

## 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 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 must submit a [Voluntary Disclosure of Disability Form](#) to [access@andrew.cmu.edu](mailto:access@andrew.cmu.edu) to begin the interactive accommodation process.

For more information please see <http://www.cmu.edu/hr/eos/disability/index.html>. Students with disabilities are encouraged to self-identify with Equal Opportunity Services by contacting Larry Powell, 412-268-2013, [lpowell@andrew.cmu.edu](mailto:lpowell@andrew.cmu.edu) to access the services available at the university and initiate a request for accommodations.

## 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.

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The advisor must then notify the Graduate Program Administrator and Business Manager of this approval so that stipend adjustments can be processed.

## 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

## GRADUATION

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.

## Appendix A: Department Resources

### DEPARTMENT PERSONNEL

- Mechanical Engineering Department Head – Allen Robinson  
<http://www.cmu.edu/me/people/allen-robinson.html>  
Assistant – Patricia Eicholtz – 412-268-3860 (SH 426)
- Head of Graduate Education Committee (GEC) – Prof. Shelley Anna  
<http://www.cmu.edu/me/people/shelley-anna.html>
- Head of M.S. Subcommittee of GEC – Prof. Satbir Singh  
<http://www.cmu.edu/me/people/satbir-singh.html>
- Mechanical Engineering Graduate Administrators
  - Chris Hertz, Manager of Academic Programs – 412-268-3175 (SH 404)
  - Melissa Brown, Graduate Academic Advisor – 412-268-1562 – (SH 407)
  - 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: <https://booknow.appointment-plus.com/1hgky36e/10>. Additionally, students may confer with the university graduate student 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.
- Faculty: <http://www.cmu.edu/me/people/faculty.html>
- Department Points of Contact: <http://www.cmu.edu/me/people/who-to-call.html>
- Department Directory (Faculty and Staff): <http://www.cmu.edu/me/people/index.html>
- Department location: Scaife Hall 402
- Department phone: 412-268-2500
- Department fax: 412-268-3348

### COLLEGE PERSONNEL

- Dean, College of Engineering (CIT) – James H. Garrett Jr.  
[http://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 – Vijayakumar Bhagavatula  
412-268-2478 or 3026 (SH 110)

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## FACILITIES AND TECHNICAL SERVICES

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

### 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 60 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.

### Offices and Desk Space

M.S. students are generally not assigned desk space within the Department; however, M.S. students conducting graduate-level research may receive a desk space if there is space available and if their research advisor grants permission.

If a student is assigned an office space, it is their responsibility to keep the area clean and free of obstructions. Furniture should remain in the configuration that it is found; specifically in common areas.

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.

Any changes to office assignments must be pre-approved and documented. Questions or concerns regarding office assignments should be directed to the Graduate Program Administrator.

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

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## 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: <http://www.cmu.edu/computing/index.html>.

## Laboratories

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

## ME Machine Shop

Mechanical Engineering students have access to a state of the art machine shop to complete course projects. All MechE students are required to take 24-200 Machine Shop Practice before using the machine shop. Shop staff are happy to advise on design for manufacturing. The shop's mission is to provide a safe and innovative instructional workshop facility that serves Mechanical 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 after completing a shop safety course. 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. For shop hours, equipment, and safety guidelines, please see the shop web page.

## 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.

## 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 and post doctorates. The deposit is forfeited on keys lost or not returned. Please see the MechE Department Office (Scaife Hall 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.



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## Office Phones

If a student occupies a research office with a phone, they may receive an access code to use the phone, and will be responsible for paying their own bills for any phone charges. A bill will be distributed each month in department mailboxes. Please direct all questions about telephone billing to [Michael Scampone](#).

## 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

## Copy Machines

The department offers the use of two Copy Machines, located in the Mailroom, for all faculty, staff, and graduate students. Students may make any lab or course-related copies using these machines.

## PURCHASING AND REIMBURSEMENT POLICIES AND PROCEDURES

### Purchasing

The purchasing of 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.

### Reimbursements

All expense reports must be submitted within 30 days from the date of purchase.

An individual requesting reimbursement may delegate responsibility for preparation of the expense report but, in doing so, the accountability remains with the individual requesting reimbursement. Please submit the [Expense Reimbursement Request Form \[pdf\]](#) along with the appropriate itemized receipts to Mike Scampone (SH 423) for preparation.

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To view the complete policies on reimbursement, please see here:

<https://www.cmu.edu/me/departments/expense-reimbursement/index.html>.

## PRESS & MEDIA RELATIONS

To assure consistency in all communications and to maximize external visibility to target audiences, the College of Engineering marketing and communications team works together to coordinate key messages and activities involving publicity.

The Manager of Communications, [Lisa Kulick](#), is the point-of-contact between news media and the MechE community, including faculty, students, administrators and staff. The communications team can assist with strategic planning for publicity, interview preparation, and (depending on the specific project or issue) may assist in developing news stories or multi-media for the MechE website and social media channels.

If any MechE student, staff or faculty member is contacted by a media representative, they are required to immediately inform the Manager of Communications (or another member of the college's marketing and communications team). Persons are not required to answer any questions from journalists without first seeking counsel from the MechE communications staff.

The marketing and communications 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. Persons interested in publicizing a program, project, event, or other activity affiliated with MechE should contact the Manager of Communications. They can provide counsel to coordinate publicity efforts internally (internal news channels, magazines) or externally (press releases, podcasts, web video, press releases, etc.).

## DEPARTMENT/COLLEGE/UNIVERSITY BRANDS & LOGOS

Students interested in using the MechE brand name or logo should contact the Manager of Communications, [Lisa Kulick](#), for information on the department's branding and identity standards.

Carnegie Mellon University branding and logo use must follow the regulations of and have been approved by the [Trademark Licensing Office](#).

## STUDENT ORGANIZATIONS

### 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

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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 [www.facebook.com/cmuMEGSO](http://www.facebook.com/cmuMEGSO).

## 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: <http://www.cmu.edu/graduate/>
- Office of Student Activities: <http://www.cmu.edu/studentactivities/index.html>
- Student Life Office: <http://www.studentaffairs.cmu.edu/student-life/>
- Athletics & Fitness Facilities: <http://athletics.cmu.edu/landing/index>

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

### KEY OFFICES FOR GRADUATE STUDENT SUPPORT

#### 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, 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 partners 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 AVPGE offers a robust schedule of professional development opportunities. Some are geared towards a specific population (master's students, Ph.D. 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 can be found 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, particularly graduate students of color and women in the science and technical fields. 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 university. 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
- Graduate Women Gatherings (GWG)
- Inter-university Graduate Student of Color Series (SOC)

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## 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 of Student Affairs provides central leadership of the metacurricular experience at Carnegie Mellon. The offices that fall under the division of Student Affairs led by Dean of Student Affairs Gina Casalegno, include:

- The Career and Professional Development Center (CPDC): <http://www.cmu.edu/career/>.
  - MechE has specific career counselors located at the CPDC. Connect with them often for support with resume review, mock interviews, internships, and jobs after graduation.
- Counseling & Psychological Services (CAPS)
- Housing & Dining Services
- Orientation & First Year Programs (*note: for undergraduate students*)
- Office of International Education (OIE)
- Student Activities
- Student Life

Holly Hippensteel, Assistant Dean of Student Affairs, serves as the point person in the division for graduate student resources and concerns. Graduate students will find the enrollment information for Domestic Partner Registration 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 made available through the 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 the Dean of Student Affairs 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).

## Assistance for Individuals with Disabilities

Students with disabilities are encouraged to self-identify with Equal Opportunity Services by contacting Larry Powell, 412-268-2013, [lpowell@andrew.cmu.edu](mailto:lpowell@andrew.cmu.edu) to access the services available at the university and initiate a request for accommodations.

## 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

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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).

## 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 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 the department rep(s) is the main avenue of graduate student representation of and information back to the graduate students in the department.

## Office of International Education (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; supporting international and cultural student groups such as the International Student Union and the International Spouses and Partners Organization; 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.

## 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 or college 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.

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## Global Communication Center (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.

## KEY OFFICES FOR ACADEMIC & RESEARCH SUPPORT

### 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.

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).

### 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.

### 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.

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## KEY OFFICES FOR HEALTH, WELLNESS & SAFETY

### Counseling & Psychological Services

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

### 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. There is a small visit fee to see the physicians and advanced practice clinicians; nurse visits are free of charge. Fees for prescription medications, laboratory tests, diagnostic procedures and referral to the emergency room or specialists are the student's responsibility. 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. It also covers most of the fees for care at Student Health Services. 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.

### University 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.



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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).

## The WORD

<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:

- 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

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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

SafeWalk

Survivor Support Network

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

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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

University policies can also be found in full text at: <http://www.cmu.edu/policies/>

Last updated: July 31, 2015

## Appendix C: Resources for International Students

### POLICIES TO NOTE:

International students should take special note of the following policies:

- [Part-time status](#)
- [CPT/OPT](#)

### 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 \(GCC\)](#)

### ESL RESOURCES

#### CMU – On Campus Program

##### ICC Language Program

<http://www.cmu.edu/icc/language/training/index.shtml>

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.

#### Academic ESL Programs

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

<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)

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

**<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**

**<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**

**<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

## **Private Tutors**

Contact the ICC for a list of local ESL instructors available for private work (language training and editing).  
Phone: 412-268-4979.

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## Free Programs

### Carnegie Library of Pittsburgh – ESL Programs

<http://www.carnegielibrary.org/research/languages/esl.html>

The Carnegie Library of Pittsburgh offers a variety of resources for non-native English speakers. They have a **Let's Speak English** program that meets on Tuesdays from 6-7 PM at CLP-Squirrel Hill and on Wednesdays from 5-6 PM at CLP-Main (Oakland) and a **Let's READ English** program, which meets on the second Friday of the month at 2 PM at CLP-Main (Oakland). The library also offers online **databases, web sites**, and **free online language resources** for interactive language improvement.

4400 Forbes Avenue

Pittsburgh, PA 15213

Phone: 412-622-3114

### Greater Pittsburgh Literacy Council

<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. Provides the English classes that used to be offered at Connelley Technical Institute, a division of Pittsburgh Public Schools that closed.

Phone: 412-393-7600

Email: [kmundie@gplc.org](mailto:kmundie@gplc.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.

Contact: Anna at 412-390-2358

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

<http://trfn.clpgh.org/iwap/esl.html>

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

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the United States. They offer informal free conversation classes in English as a Second Language on Monday mornings (10 to 11:30 a.m.) Church of the Ascension. They also display in their website a complete list of English programs in Pittsburgh, check:

4729 Ellsworth Avenue (at North Neville Street in Oakland)

Phone: 412-963-0659

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

<http://www.aiu3.net/Level3.aspx?id=310>

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.

Phone: 412-281-4494

## **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, every Monday in the afternoons. No registration needed, \$1 donation each week, child care available (\$2 per child).

Dr. Carl Templin: 412-683-0342

Jeanne Griffith: 412-422-7312

## **Intensive Regional Programs**

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

<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.

60 South Lincoln St.

Washington, PA 15301

Email: [dpoole@washjeff.edu](mailto:dpoole@washjeff.edu)

Phone: 724-531-6867

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

<http://iep.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.

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Phone: 304-293-3604

Email: [iep@mail.wvu.edu](mailto:iep@mail.wvu.edu)

## 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

<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

<http://www.soundsofenglish.org/>

This website offers pronunciation instruction and activities.

### Learn English Vocabulary

<http://www.vocabulary.co.il/>

Play games to practice English vocabulary.



## Appendix D: Math Requirement

### LIST OF COURSES THAT CAN BE USED TO SATISFY THE MECHE MATH REQUIREMENT:

#### **Chemical Engineering**

- 06-713 Mathematical Techniques in Chemical Engineering

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

- 12-704 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**

- 24-701 Mathematical Techniques in Mechanical Engineering
- 24-703 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

### 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 6/2/2015*