

Department of Mechanical Engineering
Carnegie Mellon University
5000 Forbes Ave
Pittsburgh, PA 15213
(412) 268-2500
Fax: 412-268-3348

Mechanical Engineering Handbook: Undergraduate

FALL 2020 – SPRING 2021

This handbook provides information about policies and procedures for the undergraduate Mechanical Engineering program at Carnegie Mellon University.

TABLE OF CONTENTS

Contents

1. Welcome to Mechanical Engineering _____	1
1.1 Program Objectives and Student Outcomes _____	1
1.2 Department Personnel _____	1
1.3 Facilities and Technical Services _____	1
2. University Policies, CMU Statement of Assurance, & CMU Code _____	3
2.1 Carnegie Mellon University Statement of Assurance _____	3
2.2 Safeguarding Educational Equity: Policy Against Sexual Harassment and Sexual Assault _____	3
2.3 The Carnegie Mellon Code _____	4
3. Mechanical Engineering Department Structure _____	5
3.1 Undergraduate Education Committee _____	5
3.2 Student Advisory council _____	5
4. Academic Advising _____	6
4.1 Four-pronged advising in MechE _____	6
4.2 Student responsibilities _____	6
5. Department Policies _____	7
5.1 Academic Integrity _____	7
5.2 Course Requirements and Related Policies/Protocols _____	7

1. Welcome to Mechanical Engineering

Congratulations on your choice of major and welcome to the Mechanical Engineering Department. We hope your time here will be both successful and enjoyable.

The purpose of this handbook is to describe the department policies that govern the undergraduate Mechanical Engineering program at Carnegie Mellon University. This handbook supplements information contained in the Carnegie Mellon Undergraduate Catalog: <http://coursecatalog.web.cmu.edu/schools-colleges/collegeofengineering/departmentofmechanicalengineering/>

The catalog contains official descriptions of policies, courses, and degree requirements. All information in the University catalog supercedes this handbook.

1.1 Program Objectives and Student Outcomes

Mechanical Engineering Department's program objectives and student outcomes can be found in the Meche Undergraduate Catalog: <http://coursecatalog.web.cmu.edu/schools-colleges/collegeofengineering/departmentofmechanicalengineering/#objectivestextcontainer>

1.2 Department Personnel

- Mechanical Engineering Department Head – Allen Robinson
Executive Assistant – Katherine Sencindiver – sencindiver@cmu.edu
- Head of Undergraduate Education Committee (UEC) – Mark Bedillion
- Mechanical Engineering Academic Administrators
- Chris Hertz, Manager of Academic Programs – chertz@andrew.cmu.edu
 - Eva Mergner, Undergraduate Academic Advisor – emergner@andrew.cmu.edu
 - Michelle Mahouski, Undergraduate Academic Advisor – mmahousk@andrew.cmu.edu

The Undergraduate Academic Advisors are able to assist with academic or personal situations that undergraduate students may not have the resources to resolve. If you have questions or concerns, please schedule an appointment: <https://go.oncehub.com/MechEUG>.
- Associate Director & Career Consultant, College of Engineering & CPDC – Lisa Dickter
- Mechanical Engineering Faculty:
<https://www.meche.engineering.cmu.edu/faculty/directory-faculty.html>

1.3 Facilities and Technical Services

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

1.3.1 TechSpark

Mechanical Engineering students access TechSpark for hands-on projects in multiple courses. TechSpark is the cornerstone of the College of Engineering's maker ecosystem having an integrated set of resources where faculty and students create and develop new ideas, concepts, and products for technology innovation. The space houses a simulation cluster, 3D printers, laser machines, electronics stations, PCB fabrication, manual & CNC mills, metal welding, wood working & CNC Router, polymer composite fabrication, paint booth, and more to allow students, faculty, and staff to design and prototype in a multi-disciplinary environment.

MechE students fulfill their computing needs in TechSpark's 40 seat teaching cluster or 12 seat collaborative cluster with Windows workstations having a wide variety of engineering software packages. Some courses are run in the teaching cluster, while the collaborative cluster is set up as pods of computers with TVs for screen sharing.

For shop hours, equipment, and safety guidelines, please see the shop [web page](#).

1.3.2 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. 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. More information regarding CMU computing services may be found here: <http://www.cmu.edu/computing/index.html>.

1.3.3 Laboratories and Shared Facilities

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

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

It is the responsibility of each member of the Carnegie Mellon community to be familiar with university policies and guidelines. In addition to this departmental undergraduate 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
- Academic Integrity Website: www.cmu.edu/academic-integrity
- University Policies Website: www.cmu.edu/policies/
- Carnegie Institute of Technology (CIT) Website: <http://engineering.cmu.edu/>

2.1 Carnegie Mellon University Statement of Assurance

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

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

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

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

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

2.2 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. 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

2.3 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: <https://www.cmu.edu/student-affairs/theword/code/index.html>

3. Mechanical Engineering Department Structure

The Department of Mechanical Engineering (“MechE”) is part of Carnegie Mellon's College of Engineering. The MechE Undergraduate Education Committee (“UEC”) administers the MechE undergraduate program.

3.1 Undergraduate Education Committee

The Undergraduate Education Committee establishes undergraduate curricula and requirements, policies, and course changes and additions. Undergraduate student concerns, suggestions, and feedback should be directed to the UEC Chair through the Undergraduate Academic Advisors or through the Mechanical Engineering Undergraduate Student Advisory Council (SAC).

3.2 Student Advisory council

The Undergraduate Student Advisory Council is the primary body through which the department solicits feedback from the undergraduate student population. The SAC is comprised of three student representatives from each of the sophomore, junior, and senior classes. Representatives are elected by their peers each fall to serve for the duration of the academic year. SAC representatives host town hall meetings once per semester to solicit feedback from their classmates and meet monthly throughout the school year with the UEC Chair and Undergraduate Academic Advisors to provide updates on the student experience.

4. Academic Advising

4.1 Four-pronged advising in MechE

MechE has a four-pronged approach to academic advising. All undergraduate students are assigned a staff advisor upon declaration of the major. Your staff advisor will be the same throughout your undergraduate career in MechE. At the end of your sophomore year, you will choose a faculty advisor. In addition to these formal advisors, you will have the opportunity to develop a meaningful advising relationship with the MechE Career Consultant in the Career and Professional Development Center. You can also explore networking opportunities and connect with alumni experts via the university on-line community platform at <https://community.cmu.edu/s/>.

- **Academic Advisor:** A full time staff member who is here to assist you with curriculum questions, course questions, study abroad opportunities, or anything else pertaining to your experience at CMU. Your MechE academic advisor is with you throughout the duration of your academic career in the department.
- **Faculty Advisor:** A faculty member you choose at the end of your sophomore year and keep for the remainder of your time in MechE. Your faculty advisor is there for you to discuss course selection, ask technical questions, discuss research opportunities or career aspirations, ask questions about graduate school, etc.
- **Career Consultant:** A staff member in the CDPC who is available to assist with internship and job searches, resume reviews, and interview preparation.
- **Alumni Connections:** Available to students through CMU's [Alumni Community](#) to connect with alumni that can help with career exploration and networking.

4.2 Student responsibilities

Students should regularly meet with their academic advisor (e.g. at the beginning of each semester, prior to registration, prior to graduation, etc.) to discuss their plan of study (e.g. courses and other activities) and to ensure they are meeting all degree requirements. It is ultimately the student's responsibility to meet the requirements for graduation. Utilize Stellar, the degree audit application to track your progress.

In addition to the academic advisors, the Chair of the Undergraduate Education Committee (UEC) is available to meet with students and answer questions.

5. Department Policies

5.1 Academic Integrity

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

- University expectations: <http://www.cmu.edu/academic-integrity/>.
- Academic Integrity policy: <https://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: <https://www.cmu.edu/student-affairs/theword/academic-discipline/index.html>.

5.1.2 Department Expectations

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

5.2 Course Requirements and Related Policies/Protocols

Please see the [Undergraduate Course Catalog](#) for specific degree requirements. Please note that course availability changes each academic year. For a current list of available courses, visit the [Schedule of Classes](#).

5.2.1 Credit Overload Policy

Mechanical Engineering students can register for a maximum of 54 units per semester. Students seeking additional units must submit a request to their academic advisor. The UEC has the final say in all overload requests.

- **Students with a QPA above 3.5** can email their advisor requesting up to an additional 12 units. Students seeking more than 12 units must submit a CIT Overload Petition Form, available in Canvas, and will need approval from the Office of the Associate Dean for Undergraduate Studies, CIT.
- **Students with a QPA below 3.5** must submit a MechE Overload Petition Form, available in Canvas, regardless of how many additional units they are requesting.

Note that no unit increases can be processed until the completion of the University's Registration Week.

5.2.2 Co-operative Education

The Mechanical Engineering Department considers experiential learning opportunities important educational options for its undergraduate students. One such option is cooperative education, which provides a student with an extended period of exposure with a company. To participate, students must submit a Co-Op Approval Form and Co-Op Job Acceptance Form (available in Canvas) and have both accepted by the UEC.

Employment must be related to Mechanical Engineering (approved by the MechE UEC) to be considered a MechE co-op. All co-ops must be at least 6 consecutive months in length, and must be a full-time, paid position with a single company.

5.2.3 MechE QPA

In addition to an overall QPA of 2.0, all MechE undergraduates must earn at least a 2.0 MechE QPA in order to graduate. No student with a MechE QPA below 2.0 at the time of graduation will have their degree certified or be permitted to graduate.

The MechE QPA is calculated with the following courses: 24-101, 24-221, 24-261, 24-231, 24-262, 24-302 (unless waived), 24-370, 24-322, 24-351, 24-311, 24-321, 24-352, 24-452, 24-441 (or 24-631 or 24-671).

5.2.4 Registering math as co-req after receiving a D in math course

CIT requires that all CIT students receive at least a C in all math classes. If a MechE student receives a D in a math class that functions as a pre-req for a MechE core class, they may retake the math class as a co-req for the MechE class. If a student, receives an R in a math class that functions as a pre-req for MechE core classes, they must wait until they pass that math course to take the MechE class. Students must work with their academic advisor to register for the targeted MechE core class.

5.2.5 Undergraduate Teaching Assistant opportunities

Upperclass undergraduate students have the opportunity to serve as Undergraduate Teaching Assistants (UTAs) or graders for our undergraduate courses. Duties include, but are not be limited to, holding office hours, conducting recitation classes, and grading. Positions are advertised via an email survey twice a year.

There are minimum English proficiency requirements that must be met in order for a student to accept a course support position with the department. Pennsylvania state law requires that all students who are not native speakers of English take and pass a state administered proficiency test – the International Teaching Assistant (ITA) test administered through the [ICC](#).

Support for teaching 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.

5.2.6 Petition/Waiver Procedures

A student wishing to petition the UEC for special permission or special circumstances related to their degree, or for a substitution or waiver of degree requirements, must submit the relevant petition form to their academic advisor for review by the UEC. The petitions can be found in Canvas and should be supported by documentation such as syllabi.

5.2.7 Cross Registering for Major requirements

Students may cross-register at PCHE (Pittsburgh Council on Higher Education) schools during their final undergraduate year if:

- They cannot wait for the course to be offered again at CMU
- Course at CMU conflicts with major and/or minor requirements

Students who do not fit above requirements must petition the UEC for exceptions including:

- Maintaining progress towards completion for transfer students
- Wanting to take a specific non-required MechE course that is relevant to career goals but conflicts with MechE requirement
- Other extraneous circumstances