

# MECHANICAL ENGINEERING STUDENT HANDBOOK

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# MECHANICAL ENGINEERING STUDENT HANDBOOK

The Mechanical Engineering (ME) handbook has been written with an emphasis on requirements and policies and is not a comprehensive listing of ME student opportunities. This handbook should be used in conjunction with our website and the University's online Student Records System. Periodic consultations with your Academic Advisor and undergraduate office staff will also be very important to your academic success.

We are eager to assist if you have additional questions. Feel free to email, call, or visit the undergraduate office.

Undergraduate Programs  
139-140 Reber Building  
University Park, PA  
(814) 863-1503  
advising@me.psu.edu

## Academic Integrity

Academic integrity is the pursuit of scholarly activity in an open, honest and responsible manner. Academic integrity is a basic guiding principle for all academic activity at The Pennsylvania State University, and all members of the University community are expected to act in accordance with this principle. Consistent with this expectation, the University's Code of Conduct states that all students should act with personal integrity, respect other students' dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts.

Academic integrity includes a commitment by all members of the University community not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others.

To protect the rights and maintain the trust of honest students and support appropriate behavior, faculty and administrators should regularly communicate high standards of integrity and reinforce them by taking reasonable steps to anticipate and deter acts of dishonesty in all assignments. At the beginning of each course, it is the responsibility of the instructor to provide students with a statement clarifying the application of University and College academic integrity policies to that course.

[READ SENATE POLICY 49-20: ACADEMIC INTEGRITY](#)

## Student Responsibilities

- To attend every class unless extenuating circumstances occur (such as illness, emergencies, etc.).
- To treat faculty and staff with respect and courtesy.

- To come to class prepared to actively listen and participate (having completed reading and other assignments).
- To exhibit academic integrity.
- To respect other students and faculty in class through appropriate conduct (such as on-time attendance, attention to class activities, etc.)
- To put forth an honest effort to understand material and prepare specific questions for faculty or teaching assistants when problems arise.
- To provide prior information and documentation for situations meriting special attention (such as illness, athletic team travel, etc.).
- To meet with his/her adviser regularly to ensure that all academic requirements are met.
- To follow the stated policies of each course.
- To plan for their professional development and future.
- To review prerequisite material as needed.
- To properly and safely use and care for all department facilities and equipment.
- To equally participate in all group labs, assignments, and projects.
- To take SRTEs seriously and provide a fair assessment, of course and faculty.
- To display enthusiasm for courses with a real concern for learning.

## Faculty Responsibilities

- To be prepared for every class.
- To develop a comprehensive syllabus covering topics to be studied, exam timing, policies, office hours, etc. for distribution during the first week of class.
- To treat students and staff with respect and courtesy.
- To administer courses in a fair manner and in accordance with University policy.
- To assign meaningful homework.
- To provide meaningful feedback on graded material in a timely manner.
- To post and hold office hours to be accessible to most students and be available during those times.
- To do everything possible to enhance and enforce academic integrity.
- To develop fair assessment instruments which will be impartially and fairly graded.
- To encourage student professional growth and participation in preparation for future careers.
- To provide an atmosphere conducive to learning.
- To instruct, as needed, on the use and safety of equipment.
- To inform students when classes or office hours cannot be met.
- To display enthusiasm in courses taught and be concerned about student learning

## Academic Advisor

Every student in Mechanical Engineering is assigned to the Mechanical Engineering Academic Advisor in 140 Reber Building. The advisor will assist you in planning your academic curriculum and will help you in other matters associated with your college life. In some cases, advisers may not know the answers, but they will sit down and explore the possibilities and, where appropriate, recommend other avenues for

assistance. Their role is to help guide and provide insight such that you may make informed decisions. You can also refer to the following website for online advising information: <http://launch.lionpath.psu.edu/>. Advisors are the most important professional link you have at Penn State. Get to know them as soon as you can.

## Student Curriculum Coordinator

The Student Curriculum Coordinator in 140 Reber Building, is responsible for all student records. Please contact them if you have any questions about your degree audit, course substitutions, co-op and internship questions, or anything related to interpreting statements made in this manual. In emergencies where neither the Academic Advisor nor the Student Curriculum Coordinator is available, the Associate Head of Undergraduate Programs for Mechanical Engineering can be consulted in 140 Reber Building. Although the staff of the ME Undergraduate Program Office will help you as much as possible, the student should realize two important facts:

- 1) Your advisor's role is to help guide and provide insight such that you may make informed decisions. Each student is responsible for their program/course choices and the monitoring of their academic progress.
- 2) Be aware that the student must "assume final responsibility for course scheduling, program planning, and the successful completion of all graduation recommendations." (Academic Policy 32-30)

## Degree Requirements, Academic Plans and Flow Charts

- [Mechanical Engineering, B.S. \(Engineering\) Degree Requirements](#)
- [Academic Plans and Flow Charts](#)

## Technical Electives Overview

Before graduation, all Mechanical Engineering students must enroll in twelve credits of technical electives to prepare themselves for engineering careers. The strength of the major and its long-standing appeal to employers is that students are required to master both mechanical and thermal science subjects. Implicit in all their studies, students are expected to develop personal skills needed to be leaders in their profession.

The twelve credits of technical electives are divided into three different areas:

**3 credits of Mechanical Engineering Technical Elective (METE):** 400-level ME course excluding ME 410, ME 440W, ME 450, ME 494 and ME 496.

**6 credits of Engineering Technical Elective (ETE):** 400-level Engineering courses not required for the major. The courses can be in ME or another Engineering program. ME 494 or 496 can be used for the ETE. IE 302 cannot be used for the ETE.

**3 credits of General Technical Elective (GTE):** math, science or engineering courses beyond the level of required courses in the program. Co-op and internship credits are accepted after completion of a combination of three Co-op rotations or internships (ENGR 195A ENGR 295A, ENGR 395A, and ENGR 495A).

- [Technical Elective Course List](#)

Some courses on this list do not automatically fall into the GTE requirement on the degree audit. In this instance, submit a through <https://coursesub.psu.edu/>.

*\*Student is not permitted to use more than 6 credits of any combination of ME 494H (Senior Thesis) and ME 496 (Independent Study).*

*\*Student completing Basic ROTC may substitute the final six of these credits for 3 credits of GHA and 3 credits of General Technical Elective. (mention*

*\*Some students choose to group their technical electives in a specialty area. Examples of specialty areas located at: <http://www.me.psu.edu/students/undergraduate/curriculummeelectivegroupings.aspx>.*

## Courses Requiring a C or Better to Graduate

Students admitted into Mechanical Engineering are required to earn a minimum of a C grade in each course designated by the major as a C-required course. These are listed below:

E MCH 211, E MCH 212, E MCH 213, ME 300, ME 320, ME 330, ME 340, ME 345, ME 348, ME 360, ME 370, ME 410, ME 450, ME 454

## Co-ops and Internships

The Mechanical Engineering Department strongly encourages students to participate in the co-op and internship program. This is an excellent opportunity for students to gain hands on experience prior to graduation.

The co-op program is an alternating work-study program where students work with a company for three semesters. Students can choose to complete a rotation during the fall, spring or summer semester. This program enables students to graduate with industrial experience, and as a result, graduation is usually extended to accommodate the work experience. In addition, graduates of the co-op program are often offered a higher starting salary. An internship is a short-term work experience for a company, typically lasting 12 to 15 weeks over the summer. Although internships can also occur during the fall or spring semester as well.

Students must register for 1 credit (ENGR 195, 295, 395, 495) for the first, second, or third work rotation. By enrolling in one of these co-op courses, students will maintain their “full time” student status with the university. This allows students to continue through the semester as if they were enrolled as a full-time student. For each work rotation, a student can earn one credit. If the student accumulates three co-op or internship credits, the credits can be used to satisfy the General Technical Elective (GTE).

The co-op and internship program is managed by the Engineering Career Resources & Employer Relations Office located in 117 Hammond Building. Interested students can obtain information about the program by using the College co-op web site: <https://career.engr.psu.edu/>.

## Minors

A minor consists of at least 18 credits that supplement a major. For the ME degree, required courses and technical electives can often be used to satisfy some requirements for a minor within Engineering. If carefully planned, some of these minors can be completed with only a few additional credits. See details at <http://www.engr.psu.edu/students/undergrad-prospective/majors-minors-certificates.aspx#minor> to see what required courses in the BSME program can be used to fulfill requirements for a minor.

Minors can also be obtained in other programs in other colleges. See the online Undergraduate Degree Programs Bulletin, <http://bulletins.psu.edu/bulletins/bluebook/> in the section describing programs within colleges which gives the content, standards of admission and graduation, and other details about specific minors in specific departments.

## Concurrent Majors

A student who receives approval from the respective colleges may gain entrance to more than one major. The student successfully completing the requirements for multiple majors shall receive a separate diploma for each major for which requirements have been completed. The final academic record will indicate the completion of the requirements for each major. Please see the following website for additional information: <https://handbook.psu.edu/content/concurrent-majors-program>.

Discussed below are several common concurrent majors. Program Requirements and Flow Charts for each of these Concurrent Majors are also included at the end of the section.

### **Concurrent Majors in Biomedical Engineering and Mechanical Engineering**

With department permission, a student may pursue concurrent majors in both Biomedical Engineering and Mechanical Engineering. Students receiving a concurrent major in BME and ME will receive a BS degree and diploma in both disciplines and is expected to have enhanced employment opportunities in the Biomedical Engineering and Mechanical Engineering industry, where there is overlap between the two disciplines. Students interested in the BME/ME concurrent majors must first be admitted into BME, and then add ME as a second major. Prospective students are encouraged to plan their entry to Biomedical Engineering in their first year since the second-year life science courses are not part of the common engineering curriculum. Further information about the concurrent majors program in BME and ME, can be found at <http://www.me.psu.edu/students/undergraduate/curriculum.aspx>.

Apply for the Concurrent Majors in Biomedical Engineering and Mechanical Engineering on LionPath.

### **Concurrent Degrees Program in Liberal Arts and Engineering**

The Concurrent Degrees Program in Liberal Arts and Engineering requires 10 semesters of study. During the first six (6) semesters 70 credits of General Education and Bachelor of Arts degree requirements are completed in addition to 30-34 credits of basic Engineering requirements. During the final 4 semesters, 12 Liberal Arts credits are completed as well as the remaining requirements for the selected College of Engineering major.

Upon completion of the program, the degree of Bachelor of Arts in General Arts and Sciences will be awarded by the College of the Liberal Arts and the Bachelor of Science by the College of Engineering. To be eligible, the student must file an application for entrance with the Assistant Dean for Student Services, College of Engineering, by the published deadline during the student's 3rd semester and with the Associate Dean for Undergraduate Studies, the College of the Liberal Arts. Consult your adviser or the Assistant Dean for Student Services (208 Hammond Building) for additional information.

## Sequential Degree (Senate Policy 60-20)

A PSU student who has graduated from Mechanical Engineering desiring a second BS degree must request enrollment. Students must complete their first BS degree before applying for a second BS degree. Due to restrictions in engineering enrollments, preference is granted to students pursuing their first engineering degree and there is a low probability of being able to pursue a second BS degree in engineering. Restrictions may apply to admission to a major that is under enrollment control. (See Policy

60-20 for more details <http://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-20>)

## Petitions and Course Substitutions

The standard curriculum for each major is given in the online Baccalaureate Degree Programs Bulletin. Substitutions for the required courses may be permitted when the subject matter is equivalent in content, level, and credits. The evaluation of work done at other institutions or in other programs is made by the department when the student enters Mechanical Engineering and substitutions are evaluated at that time. Students enrolled in the program must request substitutions on a standard petition form BEFORE the substitute courses are taken. The petition must be approved by the Adviser, the Professor-In-Charge of Undergraduate Programs, and the Associate Dean. Petitions from students wishing to graduate must be submitted prior to their graduating semester. College petitions will not be considered from students wishing to graduate, once their graduating semester begins. Petition forms can be obtained in 140 Reber or from the ME undergraduate website. <http://coursesub.psu.edu>

If students wish to take courses at another university (for example, during the summer) as substitutes for required Penn State courses, they must receive approval from Penn State Admissions and possibly the Professor-In-Charge of Undergraduate Programs before the course is taken. Students can access the Admissions web site <http://admissions.psu.edu/academics/credit/transfer/>, choose "transfer credits tool". If the course in question appears here, it may transfer with a PSU course number or may transfer as general credits. If the course transfers as general credits, an online e-petition can be filed through the college of engineering. This petition will request to use general credits towards degree requirements. If the course does not appear in the transfer course list, the student must print a "Transfer Course Evaluation Form" and submit it along with the course description to the University Admissions Office, 201 Shields. Admissions will evaluate the course, returning the evaluation to the student, who in turn should take a copy to the department undergraduate programs office. If the course in question is to fulfill a major requirement it will also need to be approved by the Professor-in-Charge of ME Undergraduate Programs. Do not assume that any course will be accepted until these forms have been completed and approved.

There are two types of petitions students may wish to use:

- **Department Petitions:** If a student seeks permission to waive any Department or College requirement described in this manual, i.e.,
  - a) substitution of required courses with other courses or transfer courses; or
  - b) use a course for AHS or US/IL requirement; or
  - c) use of Technical Electives other than any 400-level engineering course; they must apply formally on a petition application that can be obtained in Room 139/140 Reber Bldg. The purpose of the petition is to document the issue for the student's records:
- **Senate Petitions:** Requests to waive any of the University procedures described in the "Policies and Rules for Students" require students to petition the University Senate for approval. The most common circumstances are:
  - a) dropping or adding a course retroactively;
  - b) withdrawing from the University retroactively;
  - c) late registration

The Senate petition requires the student to submit a petition in the form of a personal letter and supporting documents addressed to the Senate Committee on Undergraduate Education. For specific information on

submitting this type of petition, a student should see directions on the web at:

<http://www.engr.psu.edu/forms/SenatePetitionsInstructions.pdf>.

**NOTE REGARDING THE SUBMISSION OF SENATE PETITIONS:** Students submitting petitions for late drops/late adds will not be required to pay the \$6.00 charge before their petition is reviewed. The \$6.00 fee will be charged to their Penn State account if the petition is granted. Thus, the fee receipt will not be part of the petition.