



PAUL M. RADY MECHANICAL ENGINEERING UNDERGRADUATE PROGRAM HANDBOOK

UNIVERSITY OF COLORADO, BOULDER

2021-2022 ACADEMIC YEAR



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Undergraduate Program Overview

1.1 Paul M. Rady Mechanical Engineering Department

More than 1,200 students and over 60 faculty in the Paul M. Rady Department of Mechanical Engineering form an innovative and nurturing community in the foothills of the Rocky Mountains. Students work together to learn the fundamentals of the field and engage in rigorous, team-based experiences addressing real-world problems. The dedication to professional development extends beyond graduation, with an alumni network of 5,000+ professionals of which more than 200 volunteer with the department annually. The department's award-winning faculty tackle societal challenges through technological innovation impacting the environment, security, and human health.

We are committed to:

- **High-impact research addressing real-world problems**

Our faculty are internationally known for research and innovation in biomedical, air quality, energy systems, functional materials, robotics, imaging complex media, and quantum technologies. We publish in high-impact journals, graduate future research leaders, and serve on national advisory boards. Our department embraces entrepreneurship and celebrates the **companies founded** by our faculty, students, and alumni.

- **Active learning and experiential engineering education**

Active learning **prepares students for the practice of engineering** in the classroom and in the field. Classroom activities and project-based learning encourage students to think, collaborate, and connect their education with real-world problems and their future careers. This learning is integrated across the student experience, from first-year undergraduates to doctoral candidates.

- **An inclusive community bringing together students, faculty, staff, and alumni**

We believe a commitment to diversity and inclusivity is fundamental to both education and scientific innovation. We value a spirit of collaboration which we have integrated throughout our community, from international and interdisciplinary research efforts to student design teams. Those values also inform our recruitment of students and faculty, classroom teaching efforts and the way we engage daily with one another.

1.2 Undergraduate Program

The Paul M. Rady Department of Mechanical Engineering undergraduate program is ranked No.18 among public university peers by the U.S. News & World Report (2020 ranking). This makes it one of the top-ranked mechanical engineering programs in the nation.

Our mechanical engineering undergraduate curriculum provides students with opportunities to prepare for the next step in their career, including options to specialize in biomedical engineering or environmental engineering, the ability to extend their undergraduate education into a concurrent Bachelor's-Accelerated Master's, complementary minors and certificates, and an array of exciting ways to engage outside of the classroom.

Graduates of our mechanical engineering undergraduate program go on to work in aerospace, bioengineering and biomedical devices, design, consulting, manufacturing, plant operations, power generation, alternative energy and conservation, petroleum, and transportation.

1.3 Program Educational Objectives and Student Outcomes

Mechanical engineering is a broad engineering discipline incorporating skills and expertise in the areas of design, manufacturing, mechanics, and thermal sciences essential to most sectors of industry. Within the first three years after graduation, our alumni build on the educational foundation gained through our program by establishing themselves in professional careers and/or pursuing a graduate degree. Additionally, alumni should have begun to generate new knowledge and exercise leadership in their positions. Each graduate of the mechanical engineering program is expected to:

- Apply knowledge of mathematics, science and engineering
- Design and conduct experiments, including the use of probability and statistics
- Analyze and interpret data
- Design systems, components or processes to meet desired needs
- Function effectively on multidisciplinary teams
- Identify, formulate and solve engineering problems
- Demonstrate professional conduct in academic and workplace environment
- Understand professional and ethical responsibility
- Demonstrate effective oral and written communication skills
- Understand the impact of engineering in a global and societal context
- Engage in lifelong learning
- Understand contemporary issues in mechanical engineering
- Use computers to solve engineering problems
- Use modern instrumentation
- Understand the processes used to manufacture products

1.4 Accreditation and Assessment

The Bachelor of Science degree in Mechanical Engineering is **accredited** by the Engineering Accreditation Commission of **ABET**. Accreditation involves a process of continuous improvement using a series of assessment tools measuring how well the program is achieving its stated outcomes and objectives. Students take part in the following evaluations during (and after) their academic career at CU Boulder:

- **Faculty Course Questionnaire (FCQ)** - Students will evaluate and provide feedback in every course taken at CU Boulder at the end of every semester.
- **Course Interviews** - Provides an opportunity to evaluate student attitudes and perceptions of core undergraduate mechanical engineering courses. Courses will be evaluated every third academic year by a minimum of one faculty member, who is not teaching the course within the semester of evaluation, and one undergraduate advisor staff member.
- **Task Forces** - Evaluates core undergraduate mechanical engineering courses every third academic year to ensure that the course is meeting the learning objectives and student outcomes set by the department and reported to ABET. Review previous assessment results and develop new strategies for continuous improvement of core undergraduate mechanical engineering courses.
- **Fundamentals of Engineering (FE) Exam** - This national exam is the first step toward professional registration as an engineer. All MCEN students are required to take the exam prior to graduation, with the

exception of those who have taken the GRE, LSAT, MCAT or other professional exam. Most students take the FE exam during their last semester at CU.

- **Senior Exit Survey** - The College of Engineering and Applied Science distributes a survey to all graduating students during their final semester asking how well the outcomes listed above were met, and overall satisfaction with the program, department, faculty, etc.
- **Alumni Survey** - The department sends a survey to alumni five years after graduation to evaluate if the program's educational objectives have been met.

1.5 Using this Handbook

This handbook is intended to provide information, policies, and procedures for students enrolled in the mechanical engineering undergraduate program at The University of Colorado Boulder. Students will use this handbook in conjunction with department and university communications to build a plan towards graduation with their academic advisor.

The purpose of this handbook is to assist undergraduate students majoring in mechanical engineering (MCEN) to fulfill the curriculum requirements for the Bachelor of Science (BS) degree. These requirements are structured to comply with College of Engineering and Applied Science rules and to maintain accreditation, in compliance with the rules of the Engineering Accreditation Commission of ABET (www.abet.org).

The undergraduate program handbook is available online through the department website. Students are responsible for reading, understanding, and complying with the policies covered in this document. Students are expected to be familiar with and abide by the practices and policies. Questions or concerns regarding policies and information in the handbook should be brought to the student's academic advisor for further clarification.

A revised copy of this document will be posted to the department website annually. The Paul M. Rady Department of Mechanical Engineering, with consultation from other university staff and administration, will address issues not explicitly covered within this document as needed.

The student is responsible for adherence to the mechanical engineering (MCEN) curriculum rules and requirements and should be aware deviation from the planned sequence of courses may result in delayed graduation.

Students can access the curriculum list and a graphical curriculum plan [here](#). Alternatively, students may elect to follow a personalized revision to the curriculum in its entirety. When creating a revised or customized degree plan, students are encouraged to work with their academic advisor.

The University of Colorado Boulder, the College of Engineering and Applied Science, and the Paul M. Rady Department of Mechanical Engineering reserve the right to revise information, requirements, policies, rules, and regulations at any time. Whenever changes occur, every effort will be made to notify students who may be impacted.

Overall administration of the undergraduate program is managed by the academic advising team. Decisions pertaining the undergraduate program are made by the undergraduate committee. The committee comprised of both faculty and staff from the department.

1.6 Contact Information

The Paul M. Rady Department of Mechanical Engineering is located in the Engineering Center at CU Boulder, with the following physical and mailing addresses:

Physical address ([map](#)):

1111 Engineering Drive
Boulder, CO 80309

Mailing address:

427 UCB
Boulder, CO 80309-0427

1.7 Academic Advisors

Academic advisors work with students to help them navigate their academic experience at the University. They work with students in collaborative process in which an academic advisor works with students to set goals for their academic, professional, and personal life.



Jerry Nguyen

Undergraduate Academic Advisor

Email: jerry.nguyen@colorado.edu

Telephone: 303-735-2949

ECME 114 and [Zoom](#)



Kate Seppala

Senior Undergraduate Academic Advisor

Email: kate.seppala@colorado.edu

Telephone: 303-735-5784

ECME 120 and [Zoom](#)



Debbie Yeh

Area Director and Undergraduate Academic Advisor

Email: debbie.yeh@colorado.edu

Telephone: 303-492-9180

ECME 112A and [Zoom](#)



Justin Thayer

Undergraduate Academic Advisor

Email: justin.thayer@colorado.edu

Telephone: 303-492-9024

ECME 112D and [Zoom](#)

1.8 Professional Development Advisor

The Professional Development Advisor within the department manages the *Design Your Career* experience and works with both alumni and current students on topics related to career and professional development. Topics the Professional Development Advisor can assist with include applying for internships, seeking out undergraduate research experience, and connecting with student organizations and other forms of experiential learning.



Katherine McConnell

Senior Professional Development Advisor

Email: katherine.mcconnell@colorado.edu

Telephone: 303-492-8483

Room: ECME 133



Academic Advising

2.1 Overview

Academic advising is the process in which an academic advisor collaborates with students to set goals for their academic, professional, and personal life. Students in the College of Engineering and Applied Science are required to meet with their academic advisor once a semester. Students can schedule an individual appointment with their assigned academic advisor through [Buff Portal Advising](#). Students are assigned an academic advisor according to their last name, and the advisor assignments are visible in [Buff Portal Advising](#).

Academic advisors within the department, as well as across the university, are available for one-on-one appointments as well as drop-in hours. In [Buff Portal Advising](#), students can find more information regarding advising availability.

The College of Engineering and Applied Science publishes academic advising expectations [here](#). This handbook is intended to help inform students throughout their experience in the mechanical engineering program and used in coordination with communication with their academic advisor.

2.2 Student Responsibilities

Academic advising is a collaborative process and ultimately students are responsible for their educational experience. Higher education has the potential to change lives for the better. With intentional goal-setting and a focus on the future, students can realize their potential while at CU Boulder. Earning a bachelor's in mechanical engineering is an important and challenging part of lifelong learning. Academic advisors want to help students set goals and provide the support, resources, and guidance to meet them. Students determine their trajectory for their time at CU Boulder, and academic advisors are here to help. Students are expected to:

- Check their colorado.edu email regularly. All official university communication, including contact from academic advisors, will be sent to colorado.edu accounts.
- Keep a record of their academic progress and goals.
- Be familiar with the course sequencing and requirements in the academic program.
- Bring a list of courses for the upcoming semester to your advising appointment each semester.
- Arrive on time for advising appointments. If they can no longer attend, they are expected to cancel their appointment in a timely manner.
- Understand they are in charge of their actions and decisions.
- Be open to developing and clarifying personal values and goals.
- Familiarize themselves with the academic calendar and deadlines.

- Ask questions when needing additional information or if something is unclear.
- Understand accuracy for academic plans as this is ultimately their responsibility.

2.3 Academic Advisor Responsibilities

Students meet at least once a semester with their academic advisor to discuss academic progress, general well-being, and to remove their academic advising hold. The academic advising hold may be one of multiple holds which would prevent students from registering for classes in the upcoming semester. Thus, it is important for students to be aware of additional holds and work to manage and resolve them before their enrollment date arrives.

Students can schedule an appointment with their academic advisor using [Buff Portal Advising](#) throughout the year, including the summer semester.

The academic advisor will:

- Understand and communicate curriculum, requirements, policies, and procedures.
- Assist students in making course decisions.
- Assist students in understanding the purposes and goals of higher education.
- Be accessible during posted appointment times and by email and/or phone.
- Provide a safe place where students can share thoughts, aspirations, concerns, and interests.
- Provide resources, referrals, and strategies to help students.
- Listen to student concerns and respect a student's individual values and choices.
- Encourage and support students as they gain the skills and knowledge necessary for success.
- Assist students in creating an educational plan consistent with those goals.
- Help students find balance with academic, social, and personal activities.

2.4 Degree Planning Considerations

Many, but not all mechanical engineering courses are offered every semester. Courses offered once per year are indicated as either *Fall only* or *Spring only* on the [curriculum plans](#). For example, MCEN 2000 is only offered in the fall semester and is a prerequisite to MCEN 4045, ME Design Project I. The first semester of the senior design sequence, MCEN 4045, is only offered during the fall semester and the second semester, MCEN 4085, is only offered in the spring semester.

The minimum course load for full-time enrollment is 12 credit hours during the fall and spring semesters and 6 credit hours during the summer semester. The maximum course load is 19 credit hours. Students planning to exceed the maximum credit hours per semester must submit a [petition](#) to the College. After 18 credit hours, a tuition surcharge is applied.

Students need to be familiar with the pre-requisites and co-requisites within the mechanical engineering program. The [degree audit](#) as well as the [curriculum plans](#) ([Blue Plan](#) and [Green Plan](#)) can help students learn about the academic requirements of the program and make plans for future semesters. Academic advisors will work with students to help them plan pathways towards graduation, taking into account students' individual goals and priorities for their educational experience.

Students interested in a minor, certificate, option, or studying abroad should discuss this with their academic advisors early in the program, when possible. Students may have more flexibility in meeting these academic goals if they start planning early in their undergraduate career.

2.5 Transfer Students

The university and college have established procedures for admission of transfer students and evaluation of transfer credits. These policies are described on the [undergraduate admissions website](#). However, once a student is admitted and transfer credits have been evaluated by the university, the department is responsible for the final evaluation of the application of transfer credits to degree requirements and not all credits that transfer

to the university are transferable into the mechanical engineering degree. Thus, previous coursework from a different institutions may be transferable but not *applicable* towards degree requirements.

It is the student's responsibility to ensure transfer credits have been evaluated and approved by the Office of Admissions as well as the department.

Newly admitted transfer students should schedule an appointment with their respective mechanical engineering academic advisor as soon as possible to review their transfer credits. If the transfer credits are not initially found to be equivalencies, and thus not applicable towards the degree, the student may be eligible for a secondary review within the department **petition**. If so, the petition process will evaluate individual transfer credits which did not initially apply to their degree through the review of appropriate documentation in a timely manner. Academic advisors may be able to assist students with questions regarding the petition process, but it is the student's responsibility to complete and submit the petition for review.

Transfer credit issues may also arise for current students who take one or more courses at another institution during their academic career, e.g., study abroad programs or summer school at a local community college. Current students who are planning to take courses at another institution should seek preliminary **approval** of the transfer credits before taking the courses, as the petition and approval process can take a few weeks to fully complete. The last 45 credit hours of the 128 required for the BS degree must be earned via CU Boulder coursework only and while rostered in the College of Engineering and Applied Science. Thus, none of the last 45 hours towards the degree can include coursework taken elsewhere.

2.6 Change of Major

Degree seeking BS students within the College of Engineering and Applied Science can change majors within the college if they are in good academic standing. Students considering a change of major should first meet with their current academic advisor, and then schedule another meeting with an academic advisor in their desired major. Student will complete the **Change of Major Form** which requires signatures from both academic advisors. The change can be initiated at any time throughout the semester, though students are encouraged to keep enrollment and registration dates in mind. Many courses within the College of Engineering and Applied Science will have enrollment restrictions subject to major, so it benefits the students to change majors as soon as they have made the decision.

2.7 Intra-University Transfer

Students outside of the College of Engineering and Applied Science interested in studying engineering can transfer into the college via the Intra-University Transfer (IUT) process. Students meeting all IUT requirements are guaranteed transfer into CEAS.

The online IUT application, current application deadlines and more information, can be found **here**.



Curriculum

3.1 Degree Planning & Tools

The BS in Mechanical Engineering at CU Boulder is a 128-hour degree. As with any engineering degree, the program requires careful planning due to the numerous pre-requisite requirements built into the curriculum. Thus, students need to be active and attentive in planning for future semesters and additional educational experiences they may want to incorporate into their time at CU Boulder. In addition to consultation with their academic advisors, students have multiple tools, discussed below, to help them plan successful pathways towards graduation.

3.1.1 Mechanical Engineering Curriculum Plans

The department provides curriculum plans to help students chart their pathway towards graduation. The [blue curriculum plan](#) and the [green curriculum plan](#) provide sample plans towards degree completion. Many students do not follow these curriculum plans exactly. The curriculum plans help to demonstrate the pre-requisite and co-requisite requirements within the degree. Student will work with their academic advisor to determine what courses are best for them each semester.

3.1.2 Degree Audit

The degree audit is a tool students can use to monitor their degree progress. The degree audit outlines what courses are needed for the degree, as well as detailing college-specific degree requirements. From [Buff Portal](#), students can access their degree audit. *Requirements* are specific areas of coursework comprising the degree. Three different indicators appear on these sections for requirements: complete, in progress, or incomplete. Clicking on a requirement expands the view to display its sub-requirements.

Completed sub-requirements show a summary of the class(es) used to fulfilled them, including the term taken, course number, credits earned, grade received, course title and where/how it was taken (if not at CU Boulder). Most incomplete sub-requirements show a "select from" list of all CU Boulder courses meeting the sub-requirement. Click on a linked course number to view the catalog description. The list can help during enrollment to choose courses meeting the requirement(s).

Students should contact their academic advisor with questions regarding the accuracy or function of their degree audit.

3.1.3 Course Catalog

The [course catalog](#) is updated every academic year and provides a summary of campus offerings, policies and requirements; descriptions of colleges, schools and departments; and degree requirements, course descrip-

tions and faculty listings. Students should refer to the degree, major, minor and certificate requirements listed at the time they formally enter a program.

3.2 Pre-requisites, Co-requisites, and Passing Grades

The minimum passing grade for a prerequisite or co-requisite course within the mechanical engineering curriculum is C. This includes courses completed outside the department (APPM, PHYS, etc.). The minimum passing grade for standalone classes (humanities & social sciences, math/science foundation) is a D-. If the minimum required grade in a prerequisite course is not achieved, the student is required to repeat the course until the minimum acceptable grade has been earned (maximum of 3 attempts total). If a student takes the advanced (post-requisite) course, it does not remove the obligation to meet the prerequisite course minimum grade requirement, even if the grade earned in the advanced course is acceptable.

**The department approved temporary modifications to this policy during the Spring 2020, Fall 2020, and Spring 2021 semesters due to the impact of COVID-19. Grades of C- or higher will satisfy degree requirements for the Spring 2020, Fall 2020, and Spring 2021 semesters only. Students enrolled during the impacted semesters should contact their academic advisor if they have questions.*

3.3 Course Repetition

A student is permitted a maximum of three attempts to demonstrate sufficient proficiency in a particular subject area (such as Calculus 1, Physics 2, etc.), including attempts at CU Boulder or other collegiate institutions. A successful attempt means earning the minimum grade needed for a pre-requisite course or earning D- or higher if the course is not a pre-requisite. Students may not register for courses (or course equivalents) in which they already have a successful attempt.

An unsuccessful attempt means failing to earn the minimum grade needed for a pre-requisite course or earning a grade below D- for standalone courses. If a student receives a W for a class, this is considered an unsuccessful attempt as well. After the third unsuccessful attempt, a student may not be able to retake the course or substitute it with a course in the same subject area from CU Boulder or another institution.

The department will apply the grade a student earned in their most recent course attempt to determine if the student meets the grade required for a pre-requisite course. If a student has already earned AP, IB, or transfer college credit for a course, the letter grade from a subsequent attempt of the class through CU Boulder will become part of the student's CU cumulative GPA. Students cannot retroactively claim AP or earlier earned credit for a course after a subsequent unsuccessful attempt of the class.

Students who fail to successfully complete a course with a grade of C or higher after three attempts will be required to change their major from mechanical engineering.

**The department approved temporary modifications to this policy during the Spring 2020, Fall 2020, and Spring 2021 semesters due to the impact of COVID-19. Unsuccessful attempts completed during the Spring 2020 semester will not count as an attempt of a course. Students enrolled during this semester should contact their academic advisor if they have questions.*

3.4 Grade Replacement

A student who receives a grade of C- or lower can request to retake the course for grade replacement through a **formal process**. Full details and requirements are available on the **registrar website**. This does not impact department policy regarding the number of course attempts permitted.

3.5 "Incomplete" Grades

To receive a grade of I, or incomplete, the student must receive the consent of the instructor and be able to demonstrate for documented reasons beyond the student's control, the student was unable to complete course requirements during the semester enrolled. Students must submit a **CEAS Incomplete Grade Form**. Students are given one academic year to complete the requirements for the course and receive a letter grade. After one

academic year, the incomplete grade automatically changes to an F.

3.6 Graduation Requirements

Failure to complete the requirements listed below will postpone graduation. Any exceptions will require authorization from the department and the Dean's Office. Students should continue meeting with their advisor at least once a semester, including the semester they intend to graduate, to review their academic record and progress. It is the student's responsibility to be certain all degree requirements have been met, apply to graduate, complete the online diploma card, and to keep their advisor and the Dean's Office informed of any changes in graduation plans.

To be eligible to graduate, students must meet the following minimum requirements:

- The satisfactory completion of the prescribed and elective work in the MCEN BS curriculum. A student must complete a minimum number of 128 credit hours. The last 45 credit hours of the 128 credit hours required for the BS degree must be earned via CU Boulder coursework only and while rostered in the College of Engineering and Applied Science.
- Maintain minimum Cumulative GPA and Major GPA of 2.25 for all courses attempted and for all courses counting toward graduation requirements, excluding P grades for courses taken Pass/Fail. (Pass/Fail courses do not count for graduation credit*). Beginning with the incoming class of Fall 2015, the minimum passing grade for prerequisite and co-requisite classes in the mechanical engineering curriculum is a C. This includes courses completed outside the department (APPM, PHYS, etc.). The minimum passing grade for standalone courses is a D-.
- Successful completion of all Minimum Academic Preparation Standards (MAPS) requirements.
- Complete the Fundamentals of Engineering (FE) Examination (or approved professional exam) prior to graduation. Students are eligible to register for the exam within a year of their expected graduation. Graduation is not contingent upon passing the FE exam. However, it is beneficial to do so because the FE exam is the first step toward professional engineering registration.
- Complete the Professionalism Requirement as dictated by student's requirement term.
- Submission of a completed online Application for Diploma Form.
- Complete the College of Engineering and Applied Sciences Senior Survey.

Double degree students must obtain approval of both designated departments and colleges. The university requires a minimum of 30 additional credit hours be earned for the second degree outside of engineering or 15 credits for a second degree within engineering. Both degree requirements must be completed.

**Restrictions on the applicability of pass/fail grades to undergraduate degree requirements were modified for the Spring 2020, Fall 2020, and Spring 2021 semesters. Thus students utilizing the pass/fail grading during these semesters (dependent of particular semester policy) can apply P and P+ respective to the minimum grade required for courses within the degree. For questions regarding the modified pass/fail policy, please contact your academic advisor*

3.6.1 Fundamentals of Engineering Exam

All mechanical engineering students are required to complete the FE exam as a graduation requirement. The exam is graded as "pass/no pass". Students are not required to pass the FE exam as part of the graduation requirement, though proper preparation and study for the exam is highly encouraged as it can be the first step in an important professional process for engineers.

The National Council for Examiners for Engineering and Surveying (NCEES) administers the FE exam via computer only at approved Pearson Vue testing centers nationwide. Registration is always open, and students are encouraged to register as far in advance as possible. To find a testing center locations, visit the [NCEES directory](#) for an up-to-date listing. Each exam consists of 110 multiple-choice, knowledge-based questions, and students will have a total of 5 hours and 20 minutes to complete the exam. After passing the FE exam, students must

obtain at least 4 years of experience deemed acceptable to their licensing board and successfully pass a Principles and Practice of Engineering (PE) exam. The PE exams go beyond testing academic knowledge and require knowledge gained in engineering practice.

3.7 ME & Gen Tech Electives

Students must complete four technical electives, a total of 12 hours, to meet degree requirements. Technical electives allow students to explore advanced concepts within the engineering discipline as preparation for their future career. A technical elective is usually a course in engineering or science with technical content selected using the approved courses list at the upper (3000+) level. Consult the list of electives approved by the department for **Gen Tech Electives** (general technical electives) and **ME Tech Electives**. If students are interested in taking a course not already approved, they may submit a **petition** for the course to be reviewed by the department's undergraduate committee.

Junior, senior or graduate level standing in mechanical engineering is required to enroll in the ME Tech Electives. Some courses may require prerequisites not already met through the standard mechanical engineering curriculum. Not every elective is offered every semester. Many courses are offered only in the fall or the spring.

The goal of the requirement is to allow students to expand their field of knowledge and complement their degree. Students are encouraged to be strategic when selecting technical electives. For example, a student might choose to satisfy their Gen Tech Electives with courses in a specific subject like applied math or computer science.

3.8 Independent Study

Independent Study is an opportunity to earn academic credit for learning outside the formal class structure, under the individual direction of a faculty member. Independent Study is provided to fill an academic need of importance to the student that cannot be filled by the regular curriculum. An Independent Study requires a high level of self-directed learning.

Undergraduate students can apply up to 6 hours of Independent Study towards their degree. Student may use approved Independent Study credit towards ME Tech Electives, Gen Tech Electives, or Free Electives. If an Independent Study is supervised by a faculty member outside of the department, then the course would apply to the degree as a Gen Tech Elective.

To pursue an Independent Study, an **Independent Study Agreement Form** must be completed and signed by both the student and the sponsor of the Independent Study. Students should be familiar with the policies associated with the Independent Study Agreement.

3.8.1 Guidelines for Independent Study

A number of activities are specifically prohibited as Independent Study work. Included here are such activities as internships, volunteer or paid work in a university department, volunteer work of other kinds, work in a business, extra work in a class, and work completed elsewhere. Independent Study cannot substitute for a regular course offering. Independent Study will normally consist of directed research which leads to the preparation of a substantive presentation of findings, usually in the form of a written paper or report. Any variation on this format must be approved by the department's undergraduate committee.

3.8.2 Requirements

The following minimum criteria must be met to ensure the overall outcomes of the educational experience, the success of the student, and compliance with accreditation standards. The Independent Study must:

- include comprehensive objectives in a written form.
- demonstrate the relevance and appropriateness to the program outcomes.
- promote a high level of self-directed learning.
- engage students to interact with the instructor throughout the course.

3.8.3 Enrollment Procedure

The student will develop a plan or idea for the Independent Study and will work with the supervising faculty member to determine the feasibility of the proposed course. The Independent Study may not be done retroactively. The agreement for Independent Study is to be completed, signed, and approved by all parties prior to the initiation of the project, and no later than one week prior to the end of the registration period.

The student and the faculty member will complete the **Independent Study Agreement Form** including, but not limited to, the following information:

- Course description and area of study, including number of credits to be issued (1 credit hour is approximately equal to 40 clock hours of proposed independent study activity per semester).
- Learning objectives and outcomes.
- Approach to be used (directed reading, instructions and supervision, and/or lab experience, exercises and projects, etc.)
- Information on textbooks, references, and reading materials.
- Means of communication between student and faculty member throughout the course of independent study.
- Means of evaluation (one or more), typically consisting of a tangible product such as a project, presentation, written review of the literature, homework assignments or exams.
- Guidelines, schedules, benchmarks and/or milestones, or weekly task breakdowns throughout the semester.

Upon approval of the Independent Study by the department's undergraduate committee, the undergraduate advisor or administration support will help the student add the course to their schedule.

3.9 Bachelor's-Accelerated Master's (BAM) Program

Mechanical engineering students who plan to continue their education to obtain a graduate degree after completing the requirements for their BS will usually find it advantageous to apply for admission to the Bachelor's Accelerated Master's, or BAM, program. This program allows accepted students to start planning a graduate program in their junior year. Up to six credit hours of appropriate 5000 level technical elective courses may be applied to both the BS and MS degree.

Interested students should discuss this option with their academic advisor and obtain additional information from the MS program graduate advisor.

Current mechanical engineering undergraduate students who meet the following criteria are eligible for admission to the BAM degree program in mechanical engineering:

- Must have a cumulative GPA of 3.25 or higher
- Must have no Minimum Academic Preparation Standards (MAPS) deficiencies
- Must have at least junior class standing
- Must have completed four of the following six courses:
 - MCEN 3012: Thermodynamics
 - MCEN 3021: Fluid Mechanics
 - MCEN 3022: Heat Transfer
 - MCEN 3025: Component Design
 - MCEN 3030: Computational Methods
 - MCEN 3032: Thermodynamics 2

Students who plan to complete a double major(s) and/or minor(s) are also eligible for admission to the BAM program. In such cases, in addition to the **BAM Intent Form**, students must submit the BAM Double Major/Minor Certification form to the MS program graduate advisor. Students can find more information [here](#). Students can contact their academic advisor to learn more about the process.

3.10 General Education Requirements

In addition to the math, physics, and engineering courses comprising the undergraduate degree in mechanical engineering, students must fulfill additional requirements intended to provide a holistic education. Student may benefit by creating a cohesive plan for these requirements combining both breadth and depth. Students are advised to consider their interests. They may decide to concentrate many of their general education requirements in one external department or decide to work towards a certificate or minor.

3.10.1 Humanities & Social Science Requirements

Students are required to complete 18 hours of humanities, social science, and writing as part of the general education requirements within the college. Students require three lower-division humanities & social science courses (or 9 hours) in addition to two upper-division humanities & social science courses (or 6 hours). Students have multiple course options to fulfill these requirements. Details regarding qualifying classes and how to search for them when enrolling can be found [here](#).

Students with AP/IB credit or community college transfer credit may satisfy lower-division requirements for humanities & social science credit, but will need to fulfill the remaining upper-division credit.

3.10.2 Writing Requirement

The college has the following options to fulfill writing requirements:

- HUEN/ENES 1010 (first-year engineering students only)
- ENLP 3100, HUEN/ENES 3100, WRTG 3030, WRTG 3035, or PHYS 3050
- WRTG 3020 Topics in Writing [Irish Odysseys] topic only

3.10.3 Free Electives

Free elective credit can be met a number of different ways to satisfy degree requirements. If a student has transfer credit not applied elsewhere in the degree, either from another institution or from AP/IB credit, these credit hours can meet requirements for free electives. A student may have additional hours which can be applied from course substitutions or seminars. Students can also enroll in any kind of course to fulfill free elective requirements. Students should talk with their academic advisor to discuss the most efficient way to meet free elective requirements.

3.10.4 Math/Science Foundations

As part of ABET accreditation standards, the mechanical engineering degree requires students to complete additional hours in a math or basic science course. Basic sciences, as defined by ABET, consist of chemistry and physics and other natural sciences including life, earth, and space sciences. The department's undergraduate committee determines which basic science courses meet the level of rigor required for the degree. Options for approved math/science foundation courses can be found on the undergraduate curriculum [undergraduate curriculum page](#).

3.10.5 MAPS Requirements

Minimum Academic Preparation Standards, or **MAPS**, are required for all domestic students and any international students who have completed more than four semesters of U.S. schooling. MAPS content areas are usually fulfilled by high school coursework, but sometimes students have to address "MAPS deficiencies" with their college coursework. Typically, one unit equals one year of high school study or one semester of college course work (see specifications for MAPS Foreign Language category below).

For engineering students, those who experience a MAPS deficiency most often need to take additional foreign language courses and/or social science courses. These courses can do "double duty" by fulfilling MAPS as well as humanities & social sciences requirements.

Students should talk with their academic advisor about MAPS and develop a plan early to remedy any deficiencies. Courses taken to fulfill a MAPS requirement may not be taken on a Pass/Fail basis per [campus MAPS policies](#).

For **foreign language MAPS requirements**, students are required to have 3 units in a single foreign language or 2 units in each of 2 separate foreign languages.

Students must demonstrate written and oral language proficiency through the third-level of a single foreign language, where third-level means third full year of high school or third semester college course (e.g., SPAN 2110 Second-Year Spanish 1). Alternatively, a student must demonstrate second-level proficiency in two different foreign languages (e.g., complete 2 years of high school French + SPAN 1020 Beginning Spanish 2).

For students working on a sequence of foreign language courses to satisfy MAPS, the courses must be taken for a letter grade. The minimum grade for pre-requisite courses is C-, but the terminal course (e.g., SPAN 2120, which is third semester Spanish at CU Boulder) can be a grade of D-. If a student petitions and is approved to complete their MAPS coursework elsewhere, the terminal course (e.g., SPA 211 at Front Range Community College) grade may be D-. The course would not transfer in if grade is lower than C-, but student can send official transcript to CU Boulder Admissions Office for the purposes of satisfying MAPS foreign language requirement.

3.11 Options, Certificates, Minors

Students may utilize elective space in the degree to work towards options, certificates, and minors. For additional guidance, students can speak to their academic advisor and faculty working in their area of interest.

3.11.1 Options

Within the department, *options* are a curricular means for students to enhance their BS degree within a specialized area of interest. Options are not required to be completed by students, but provide guidance for the Gen and ME Tech Electives.

Biomedical Engineering Option

Biomedical engineering is the application of engineering technology to medical research and equipment. Contributions to this important and growing area by mechanical engineers include the design and manufacture of biomedical devices ranging from prostheses to micromechanical blood flow sensors and artificial heart valves. Application of mechanical engineering fundamentals to questions in biophysics also contributes to improvements in medical diagnosis and treatment.

The biomedical option consists of the standard requirements for BS degree in mechanical engineering, with the four technical electives focused in biomedical engineering. Students interested in pursuing the biomedical option must submit a **Change of Major form** to add this option to their plan of study. Students who successfully complete the requirements of the biomedical option will receive a notation on their transcript. Courses not listed on the **approved course list** may be reviewed by the department.

Environmental Engineering Option

The environmental option within the department focuses on pollution detection/control/prevention and environmental aspects of energy conversion. Potential applications of a degree emphasizing both environmental and mechanical engineering include designing detection equipment, devising clean-up strategies, and improving manufacturing processes.

The environmental option consists of the normal requirements for BS degree in mechanical engineering, with organic chemistry as the math/science foundation course and the four technical electives selected to focus specifically on environmental engineering. Students interested in pursuing the Environmental Option must submit a **Change of Major form** to add this option to their plan of study. Students who successfully complete the requirements of the environmental engineering option will receive a notation on their transcript. Courses not listed on the **approved course list** may be brought to **Professor Jana Milford** for consideration.

3.11.2 Certificates

Earning a certificate in a specialized area of engineering or a related topic allows students to broaden their knowledge base beyond their primary area of study. Certificates may be a more time-efficient way to gain specialization in place of a minor, depending on area of interest. Several of the certificates listed can be obtained

via remote learning as well. Current offerings for certificates include, but are not limited to:

- [Engineering Leadership](#)
- [Engineering Management](#)
- [Engineering, Ethics & Society](#)
- [Social Innovation](#)

3.11.3 Minors

Mechanical engineering students have access to multiple minors which align well with the required curriculum. Numerous minor opportunities exist satisfying humanities/social science electives and/or technical electives. Many minors require few additional courses beyond the standard BS requirements. Common minors completed by mechanical engineers students are listed below.

- [Applied Math Minor](#)
- [Biomedical Engineering Minor](#)
- [Business Minor](#)
- [Computer Science Minor](#)
- [Creative Technology and Design](#)
- [Energy Minor](#)
- [Engineering Entrepreneurship Minor](#)
- [Engineering Management Minor](#)
- [Electrical Engineering Minor](#)
- [Global Engineering Minor](#)
- [Space Minor](#)

Information regarding specifics for each minor within the college can be found [here](#). Students may choose to complete a minor offered outside of the College of Engineering and Applied Science, though it will likely have less coursework overlap with the mechanical engineering major. In order to declare a minor, students must meet with their academic advisor, the academic advisor for the minor, and complete the [Change of Major form](#) for minors within the College of Engineering and Applied Science.

3.12 Course Substitutions

In some situations, students may consider a course substitution from another department to satisfy degree requirements. The preference is always for students to take courses through mechanical engineering, though these alternatives may help students in difficult scheduling and long-term planning situations. Please consult with an advisor before enrolling in a [substitute course](#). While some substitutes are almost identical to the MCEN version, others are only appropriate for students pursuing a specific minor or option track.

Core Class: CSCI 1300

Accepted Substitutes: ECEN 1310, ASEN 1320, CSCI 1320 (last offered spring 2020), CHEN 1310 APPM 2460 (this combination of courses is pre-approved to satisfy CSCI 1300, for students who originally took CHEN 1310 as a CHEN/CBEN/EVEN major; submission of a formal petition is required)

Core Class: ECEN 3010

Accepted Substitutes: GEEN 3010

Core Class: GEEN 1400

Accepted Substitutes: ASEN 1400, ASEN 1403, COEN 1400, ECEN 1400, GEEN 1410, GEEN 2400 (sophomores or juniors), GEEN 3400 (juniors or seniors)

Core Class: MCEN 1024

Accepted Substitutes: CHEM 1113, CHEN 1201, CHEN 1211

Core Class: MCEN 2023

Accepted Substitutes: GEEN 2851, CVEN 2121, ASEN 2001

Core Class: MCEN 2024

Accepted Substitutes: GEEN 3024, ASEN 1022

Core Class: MCEN 2043

Accepted Substitutes: CVEN 3111

Core Class: MCEN 2063

Accepted Substitutes: CVEN 3161

Core Class: MCEN 3012

Accepted Substitutes: GEEN 3852, AREN 2110, EVEN 3012, CHEN 3320

Core Class: MCEN 3021

Accepted Substitutes: CHEN 3200, CVEN 3313

Core Class: MCEN 3022

Accepted Substitutes: CHEN 3210

Core Class: MCEN 3030

Accepted Substitutes: APPM 4650, CSCI 3656

Core Class: MCEN 4043

Accepted Substitutes: ECEN 3300 + ECEN 4138

Note: In addition to receiving MCEN 4043 credit, ECEN 3300 + ECEN 4138 will also give students credit for MCEN 4228 Feedback Control, which could be used as a ME Tech or Gen Tech elective

3.13 AP & IB Credit

For most students, the allocation of their AP (Advanced Placement) & IB (International Baccalaureate) credit is available in the degree audit after CU Boulder has received their test scores. Within the degree audit, students may see their AP & IB credit applied to sections within the degree such as "Humanities & Social Sciences" or "Mathematics". AP & IB credit cannot satisfy the upper-division humanities & social sciences credit for the degree. A more comprehensive list of AP & IB credit can be found at the bottom of the degree audit in "Coursework History" or in the "Transfer Evaluations" tab at the top of the degree audit. If a student does not see a particular AP & IB credit applied in the degree audit, although other AP & IB credit is applied, this may indicate the student did not receive a high enough score on the exam. Scores for each AP & IB course received by the university are available in the "Transfer Evaluations" tab. If a student has questions or concerns regarding their AP & IB credit, they can discuss this with their academic advisor. For more information regarding AP & IB credit, please review the university [course catalog](#).

3.14 Transfer Credit

Students may enter the department with transfer credit or have an interest in taking summer courses at a different institution. Regardless, it is important to understand the difference between *transferability* and *applicability*. Due to the specialized nature of an engineering degree, some credit may transfer to the university and be accepted as credit, but may not apply to the degree requirements.

The initial transfer credit evaluation is performed by the Office of Admissions upon receiving an official transcript directly from the institution where the credit was earned. After the Office of Admissions has completed their evaluation, the student's major department can indicate the specific courses applying to the student's major. The Office of Admissions may accept credits, though this does not mean the major department will utilize that credit towards degree requirements. The Office of Admissions will not accept coursework in which the student received a non-letter grade or a grade lower than a C-*. Credits from an Engineering Technology program will not transfer. It is the academic policy of this college that credits accrued in the official records of a student awarded for work or co-op experience do not apply toward degree requirements.

Accepted transfer students are advised to contact their major department about applicability of their transfer credits towards degree requirements before registering for courses. Students can use [Buff Portal](#) to run a degree audit and review their transfer coursework and to guide their conversation with their academic advisor.

Students may use [Transferology](#) as a resource when determining applicability of transfer credit. This resource can also be helpful for students planning to take a course outside of CU Boulder.

If [Transferology](#) does not provide equivalency information for a particular course, the student can submit a request for review through the [CEAS Transfer Credit Review Form](#). For courses offered outside of the College of Engineering and Applied Science (math, physics, chemistry, etc.), student can submit a request [Transfer Credit Review](#) through the College of Arts & Sciences.

Due to the [In-Residence Credit Requirement](#), students are not permitted to take a course outside the university within 45 credit hours of graduation. If a student seeks to take a course outside CU Boulder within the last 45 credit hours of their degree, the student should consult with their academic advisor to see if other options exist or if they should submit a petition.

Credit hours required for graduation that were earned more than ten years prior to transferring into an undergraduate degree program at CU Boulder may not apply to the completion of the student's graduation requirements; students should consult with their academic advisor about such courses. Students can consult with their academic advisor to discuss options.

**Due to the impact of COVID-19 on grading at some institutions, students may need to provide additional grading information for courses taken for a non-letter grade (pass/fail or satisfactory/unsatisfactory). Students with transfer credit lacking a letter grade from the Spring 2020 semester, or subsequent semesters due to COVID-19 policy changes, should contact their academic advisor.*

3.15 Petitions

Any exceptions or waivers to department or college policies must have prior approval by petition. Petitions must be completed [online](#) and will be reviewed by the department. Some petitions may need to be sent to the Dean's Office for additional review. Petitions may be used for the following:

- Requests for course substitutions for a major, minor, or certificate
- Approving a non-CU Boulder course to transfer in and apply towards degree requirements in a specific wa
- Requesting exceptions to course pre-requisite or co-requisite requirements
- Allowing courses older than 10 years to apply towards degree requirements
- Taking a class on Pass/Fail grading basis
- Taking a class on NC grading basis (No Credit, also known as formally auditing a class)
- Enrolling in a course overload (more credit hours than are typically allowed in a given term)
- Enrolling in a course for the degree (or equivalent) more than 3 times
- Requesting an exception to the CEAS 45-hour residency requirement (that last 45 hours earned for the degree is CU Boulder coursework only)
- Requesting to drop a class after the 10-week final drop deadline each semester (or prorated summer session deadline)

For more information about department or college policies and procedures, student can contact their academic advisor. After consulting with their academic advisor, students can access the online petition form [here](#).



Professional Development

Professional development is a hallmark of the mechanical engineering program at CU Boulder. The department believes in providing students with training and opportunities helping them to excel both in the classroom and professionally.

Undergraduate students must fulfill professional development requirements in order to graduate. These requirements are meant to prepare students for a successful career by providing opportunities to explore mechanical engineering as a field and build skills related to searching for a job, teamwork, communication, networking and professional and ethical responsibility.

Kat McConnell, Senior Professional Development Advisor, supports and manages numerous initiatives with the department. Students can stay informed of professional development opportunities and job postings by subscribing [here](mailto:mcen-prof@lists.colorado.edu) to mcen-prof@lists.colorado.edu.

4.1 Design Your Career (DYC)

Design Your Career (DYC) provides a framework for undergraduate students to navigate their career development using the same design fundamentals that they apply in their coursework. This program prepares students to take ownership of their own professional development, effectively engage with industry, and navigate the job search process.

DYC is required for all students completing a BS in mechanical engineering who enrolled in mechanical engineering starting Fall 2018 or later.

Through participating in DYC, students will explore career paths in both traditional and non-traditional areas of mechanical engineering. Students will interact with upper-division students, alumni and industry professionals during each year of the program. Students will take ownership for their own professional growth by seeking out opportunities unique to their interests.

The DYC curriculum guides students through each of their fourth years within the department.

DYC First Year: Ideate The ideation phase is about coming up with ideas and trying new things. It's a time to explore interests and start getting involved. Students learn about involvement opportunities at CU Boulder and how to navigate those opportunities. They also start to explore career paths available to mechanical engineers. Students work towards these goals through the completion of the following requirements:

- *Student Group Participation*
- *Explore ME Dinner*

DYC Second Year: Prototype The prototyping phase is about trying out ideas. A test run can provide valuable insights for the final design. Students develop job search skills, explore industry connections, see what engineering looks like in a real-world context, and make a summer plan to support career goals. Students also enroll in a one-hour seminar, MCEN 2000 - Mechanical Engineering as a Profession, during the fall semester. Students work towards these goals through the completion of the following requirements:

- *Two Career Credits*
- *Industry Tour*

DYC Third Year: Iterate The iteration phase is about refining a proof of concept. Students pursue existing interests while keeping an eye out for new opportunities and honing their skills. Students continue to build connections within and beyond the mechanical engineering community, seek projects and experiences fitting personal career goals, and receive advice on next steps.

- *Goal Setting Exercise*
- *Two Career Credits*
- *Career Check-In*

DYC Fourth and/or Fifth Year: Implement Students have ideated, prototyped and iterated. Senior Design provides an opportunity to build new skills, connections, and confidence. Students refine job search materials and reconnect with established contacts. It's time to launch a career!

- *Goal Setting Exercise*
- *Fundamentals of Engineering (FE) Exam*

4.2 ME Buffs Pro

Applicable to students enrolled before Fall 2018

The ME Buffs Pro requirement intends to prepare students for a successful career by providing opportunities for exploration of mechanical engineering and building skills related to the job search, teamwork, communication, networking and professional/ethical responsibility.

In addition to successfully completing MCEN 2000, students are required to participate in four supplemental activities prior to graduation.

- **Industry Connections (2)** - Events in this category specifically involve interaction with representatives from industry. The goal of the events is to familiarize participants with a variety of different companies/career fields, as well as with the etiquette involved with professional interactions. Examples of approved events would be career fairs, networking nights, and select company info sessions.
- **Professional Development (2)** - These events focus on any of a wide range of topics related to professional development. Examples could include presentations related to the environmental impact of technology, workshops focused on developing an effective team, and entrepreneurship events. Because basic job search topics like resume and cover letter writing are already covered in MCEN2000, events focused on those topics will generally not be approved for credit.

In addition to the options posted on [Canvas](#), students can request professionalism credit for non-department events by submitting a description to the professional development advisor for review. The specific events likely to be approved include:

- Professional Conferences – presenting a poster/paper, serving on a panel, or attending a professionalism related seminar or networking event
- Engineering Student Group Involvement – substantive leadership role
- New Venture Challenge – present a business idea at pitch night
- ROTC – summer training can substitute for both of your industry connections events
- Other events unique to your interests that focus on the topics described above

4.3 Career Services

Students in the department have access to career services at three different levels: university career services, CEAS career services, and mechanical engineering's professional development advisor. Career Services can help students and alumni clarify career interests, values and work-related skills; explore potential careers and employers; and refine job seeking, interviewing, and resume preparation skills. They host Career Fairs and Internship Fairs, sponsor resume writing workshops, and hold mock interview sessions. Career Services is located in the Center for Community (C4C). More information regarding access to Engineering Career Services can be found [here](#).

4.4 Internships

Internships play a significant role in linking students with prospective employers, with as many as half of the internships held by senior engineering students leading to job offers. Internships enhance academic studies and/or career interests. Internships are promoted throughout the year, with a specific push toward summer work experience. Internship fairs are usually held in mid-October and mid-March every year.

4.5 Co-ops

The Engineering Cooperative Education (Co-op) Program at CU Boulder, a professional development program, allows undergraduates to have a year-round schedule alternating professional work experiences with classroom coursework. The Co-op Program can provide as much as two years of direct professional development within a five-year bachelor's degree program. Students who participate in co-ops are better prepared to enter the work force and often continue their employment with their co-op employer after graduation. Co-op experiences are paid and result in academic credit. A maximum of 3 credits from a registered co-op experience can be applied to the degree as free elective credit. Co-op students receive an official entry on their transcript for each co-op experience.

4.6 ProReady

The goal of the ProReady initiative is to provide CU Boulder engineering students with an easy and flexible formula for career success. The ProReady [website](#) connects students to resources, experiences, networks, and events from across the college. Students are encouraged to chart their career path, gain relevant experience, and grow their professional network.



Student Experience

5.1 Educational Opportunities

Students are encouraged to consider a number of unique and rewarding educational experiences to complement their mechanical engineering degree. With proper planning, many opportunities can be included with a student's original pathway towards graduation. Students are encouraged to work with their academic advisor to understand their options and make an effective plan. The earlier a student expresses interest in additional educational experiences, the better these opportunities can be incorporated into their time at CU Boulder.

5.2 Student Organizations

Students have excellent opportunities to participate in discipline-related activities outside of the classroom. The college as well as the department have active student chapters in a number of societies including American Society of Mechanical Engineers (ASME) and Engineers without Borders (EWB-CU). Engineering student organizations can be found [here](#). Engineering Immersion, an event hosted by the College of Engineering and Applied Science, provides a great opportunity for students to learn about student organizations and societies.

Students are also encouraged to explore the hundreds of student organizations across campus. A directory of student organizations within the college can be found [here](#). Student can also access the university student organization directory [here](#).

5.3 Center for Student Involvement

The [Center for Student Involvement](#) (CSI) is a service department of the University of Colorado Boulder Student Government (CUSG) within the Division of Student Affairs. They cultivate an environment for building vibrant, engaging and safe communities through programming, leadership development, cultural awareness and learning opportunities. CSI aims to connect all CU Boulder students with experiences promoting student success, personal growth, and a vibrant campus community.

Every fall semester, the [Be Involved Fair](#) is a great way for student to learn about clubs, organizations, and departments in the CU Boulder community.

5.4 Undergraduate Research

Undergraduates can participate in ongoing research through independent study projects, the [Undergraduate Research Opportunities Program](#) (UROP), and as research assistants for sponsored projects. These opportunities promote individual contact with faculty and graduate students, and provide a novel educational experience beyond the normal classroom setting. More information regarding undergraduate research opportunities with

the college can be found [here](#).

5.5 Discovery Learning Apprenticeships

Undergraduate engineering students have the opportunity to engage in and experience research through **Discovery Learning Apprenticeships** (DLA). As an undergraduate discovery learning apprentice, students earn an hourly wage while working alongside graduate students, post-doctoral fellows and faculty as collaborative partners on original research. Undergraduate students often bring a fresh perspective to the research team while also learning from their more experienced partners. Positions are announced in April for the following fall term and spring term.

5.6 Double Degrees

It is possible to obtain double degrees in two engineering disciplines or one degree in engineering and a second degree from a department in another college or school of the university. Students must satisfy curricula for both programs in order to graduate. In some cases, it may be preferable to pursue an MS degree rather than two undergraduate degrees. Students are encouraged to talk to their academic advisors in both areas of study to better understand the feasibility of a double degrees.

5.7 Education Abroad

Studying abroad can often be integrated into the mechanical engineering degree plan. The enriching experience can range from a two-week summer program to a semester overseas. Students who want to study abroad should start planning early with their academic advisor and save as many electives and humanities & social science courses as possible. These are often the most flexible options for transferring back to the degree. Many students in mechanical engineering can find programs abroad already affiliated with CU Boulder and can choose from a [list](#) of pre-approved courses. In order to guarantee the courses taken abroad will count toward their degree, students must submit proposed courses for evaluation before enrollment at the partner institution.



Policies & Resources

6.1 Student Expectations and Policies

Students should review college expectations and policies [here](#). Students can consult their academic advisor if they have questions or concerns about policies within the college.

6.2 Mental Health and Other Resources

Students with a variety of concerns, such as academics, anxiety, body image, depression, relationships, substance use and more, should contact [Counseling & Psychiatric Services \(CAPS\)](#), which is a confidential, on-campus mental health and psychiatric service. The College of Engineering and Applied Science has an embedded CAPS counselor working specifically with the engineering student population. Engineering students may work with the embedded CAPS counselor or a counselor in the central office.

Counseling & Psychiatric Services (CAPS)

Website: <https://www.colorado.edu/counseling/>

Phone: 303-492-2277 (24/7 phone)

Location: Center for Community, N352

Office Hours: <https://www.colorado.edu/counseling/hours-and-contact>

The [Office of Victim Assistance \(OVA\)](#) also provides free and confidential information, consultation, support, advocacy, and short term counseling services to CU Boulder students, graduate students, faculty and staff who have experienced a traumatic, disturbing or life disruptive event.

Office of Victim Assistance (OVA)

Website: <https://www.colorado.edu/ova/>

Email: assist@colorado.edu

Phone: 303-492-8855 (24/7 phone); after hours press 2 to talk to a counselor

Location: Center for Community, N450

Office Hours: Monday-Friday 8am–5pm (summer 8:30am–4:30pm)

Additional campus resources can be found [here](#) and more general health resources are available [here](#).

6.3 Problematic Language, Behavior, and Discrimination

The department holds students, faculty, and staff accountable for racist, sexist, ableist, classist, heterosexist, ageist and other types of prejudiced comments and behavior, whether intentional or unintentional. The department expects members of the community to recognize and speak up when witnessing comments and ac-

tions that may be discriminatory to others. The mechanical engineering community strives to actively eliminate language and behaviors perpetuating inequities and bias towards marginalized populations. More information and resources are available at [An Antiracist CU](#) and the [campus IDEA Plan](#).

6.4 Discrimination and Harassment Policy

CU Boulder is committed to providing an inclusive environment where all individuals can achieve their academic and professional aspirations free from discrimination, harassment, and/or related retaliation based upon protected classes.

CU Boulder prohibits discrimination and harassment on the basis of protected-class status in admission and access to, and treatment and employment in, its educational programs and activities. For purposes of this CU Boulder policy, “protected classes” refers to race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation, and political philosophy.

CU Boulder takes prompt and effective steps reasonably intended to stop any form of protected-class discrimination and harassment, and related violations, to eliminate any hostile environment, to prevent its recurrence, and as appropriate, to remedy its effects.

At CU Boulder, the [Office of Institutional Equity and Compliance](#) (OIEC) implements this policy and administers related campus procedures. Anyone who encounters an issue or seeks guidance related to this policy should consult with the OIEC. CU Boulder employees who are mandatory reporters (i.e., “Responsible Employees”), including faculty and advisors, must promptly report allegations of protected-class discrimination and harassment, and related violations, as further outlined in the policy.

The full university Discrimination and Harassment Policy can be viewed [here](#).

Instructors are required to observe religious holidays for absences from class and exams, according to the policies outlined [here](#).

Students with concerns about discrimination or harassment actions should immediately contact the instructor, the department chair, their academic advisor, or [Office of Institutional Equity and Compliance](#) (OIEC).

6.5 Academic Integrity & Honor Code Policy

All students of CU Boulder are responsible for knowing and adhering to the academic integrity policy of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. Specific examples of actions that are considered to be cheating and therefore violations of academic integrity: plagiarizing a homework, lab report, or problem set. Any activity that could give a student an unfair advantage over other students may be cheating.

On assignments requiring a student to use supplemental materials, the student must properly document the sources of information used. If a student is uncertain about allowable reference materials or how to document sources, ask the instructor in advance.

All incidents of academic misconduct shall be reported to the Honor Code Council (honor@colorado.edu; 303-735-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). The University Honor Code and Procedures are accessible via the Student Conduct and Conflict Resolution website and can be found [here](#).

6.6 Student Conduct

Students are required to abide by the University’s [Code of Conduct](#). Resources and information are available to help students navigate conduct issues.

6.7 Classroom Behavior Policy

Students and faculty each have a responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veteran status, sexual orientation, gender, gender identity and gender expression, age, disability, and nationalities. Class rosters are provided to instructors with the student's legal name, but instructors will honor student requests to address them by an alternate name or gender pronoun. Students should advise instructors of this preference early in the semester so that they may make appropriate changes to their records. Additional policy details are available at [here](#).

6.8 Academic Calendar and Registration Deadlines

Details on the 2021-2022 academic calendar can be found [here](#). Student can view academic calendar by specific topics such as course add/drop, tuition/fees, and registration deadlines, final exams, and graduation. Students are expected to be aware of any add/drop deadlines and tuition/fees impacts of their enrollment decisions. If students are unsure of the consequences of adding/dropping a course (especially outside of your university designated enrollment window), they should contact their academic advisor.

6.9 Deadlines

The department adheres to the deadlines and calendar established by the Office of the Registrar. Students can find these dates for the current and future semesters [here](#). The primary deadlines to be aware of, with dates varying by semester, are as follows:

- **Last day to add a class:** After this date, students can only be enrolled pending a petition to the Office of the Registrar, submitted by the department on behalf of the student. Such requests will only be entertained in exceptional circumstances. This date is typically during the second week of the semester.
- **Tuition and fees payment due:** Students must pay tuition and fees, or enroll in a payment plan, by this date. This date is typically the day following the deadline for the last day to add a class.
- **Last day to drop a class:** After this date, students choosing to drop a course will receive a withdrawal (i.e., grade of W) on their transcripts; tuition for dropped courses will not be refunded. This date is typically during the third week of the semester.

Students should familiarize themselves with these dates, since it can be difficult or impossible to add/drop classes after the deadlines.

6.10 Adding and Dropping Courses

Students should be aware of their enrollment dates and ensure all holds are removed before their enrollment date starts. Enrollment dates are determined by the Office of the Registrar and are visible to students in [Buff Portal Advising](#). For instructions on adding, swapping, editing, and dropping courses, please view the resources [here](#) provided by the Office of the Registrar.

Students who want to drop a course after the drop deadline should meet with their academic advisor to assess what options may be available.

Students who want to withdraw from all classes should consult the Office of the Registrar's [website](#) and schedule a meeting with their academic advisor.

6.11 Helpful Links

Additional resources and information of relevance to prospective and current mechanical engineering undergraduate students can be found at:

- **University Home Page:** <https://www.colorado.edu/>
- **College of Engineering and Applied Science:** <https://www.colorado.edu/engineering/>
- **Department of Mechanical Engineering:** <https://www.colorado.edu/mechanical/>

- **Buff OneCard:** <https://www.colorado.edu/buffonecard/>
- **Bursar's Office:** <https://www.colorado.edu/bursar/>
- **Campus Policies:** <https://www.colorado.edu/policies/>
- **Undergraduate Catalog:** <https://catalog.colorado.edu/undergraduate/>
- **Medical Services:** <https://www.colorado.edu/healthcenter/>
- **Office of Information Technology:** <https://oit.colorado.edu>
- **Office of Institutional Equity and Compliance:** <https://www.colorado.edu/oiec/>
- **Office of the Registrar:** <https://www.colorado.edu/registrar/>
- **Parking and Transportation:** <https://www.colorado.edu/pts/>
- **Recreation Services:** <https://www.colorado.edu/recreation/>
- **Athletics:** <https://cubuffs.com>
- **Local News:** <https://www.dailycamera.com>
- **Elevations Credit Union:** <https://www.elevationscu.com>
- **Regional Transportation District (RTD):** <https://www.rtd-denver.com>