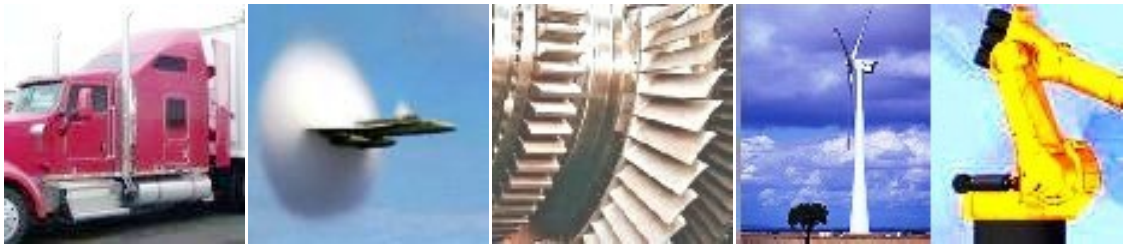
SEATTLE UNIVERSITY MECHANICAL ENGINEERING
UNDERGRADUATE STUDENT HANDBOOK

2021



Department of Mechanical Engineering
College of Science and Engineering
Seattle University
901 12th Avenue
Seattle, Washington 98122

Telephone (206) 296-5540
https://www.seattleu.edu/scieng/mechanical/

The mechanical engineering undergraduate program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

TABLE OF CONTENTS

1. INTRODUCTION 2
2. THE MISSION OF SEATTLE UNIVERSITY AND THE MECHANICAL ENGINEERING DEPARTMENT 2
3. THE MECHANICAL ENGINEERING PROFESSION 3
4. OBJECTIVES OF THE MECHANICAL ENGINEERING UNDERGRADUATE PROGRAM 4
5. ENGINEERING EDUCATION AT SEATTLE UNIVERSITY 5
6. ADMISSIONS 6
7. FINANCIAL AID 8
8. ADVISING AND REGISTRATION 8
9. FACULTY ADVISER 9
10. COMPREHENSIVE EXAM 10
11. REQUIREMENTS TO ENTER THE SENIOR DESIGN SEQUENCE 10
12. SENIOR ELECTIVES 11
13. TRANSFER CREDITS 11
14. MATHEMATICS PLACEMENT 14
15. CREDIT BY EXAMINATION 14
16. GRADING OPTIONS 14
17. REPEATING COURSES 15
18. SATISFACTORY PROGRESS AND ACADEMIC PROBATION 15
19. LEARNING ASSISTANCE PROGRAMS 15
20. CLOSED CLASSES 16
21. STUDENT COURSE EVALUATIONS 16
22. ENGINEERING STUDENT ORGANIZATIONS 17
23. PART-TIME EMPLOYMENT 17
24. COMPUTER ACCESS AND ELECTRONIC MAIL 18
25. BS.MEGR DEGREE PROGRAM 18
26. MINORS AND DOUBLE MAJORS 19
27. CAREER ENGAGEMENT OFFICE 20
28. GRADUATE SCHOOL 20
29. ASME CODE OF ETHICS 21

SEATTLE UNIVERSITY

Department of Mechanical Engineering - Undergraduate Student Handbook

1. INTRODUCTION

The *Mechanical Engineering Undergraduate Student Handbook* was written to assist current and prospective mechanical engineering students in planning their program of study, leading toward the degree of Bachelor of Science in Mechanical Engineering (BS.MEGR) at Seattle University. The handbook is updated periodically to include the latest information on degree requirements and university procedures that are of interest to mechanical engineering students.

The mechanical engineering curriculum emphasizes a four-year integrated scientific, hands-on learning, and design experiences while increasing communication opportunities, mentoring by practicing engineers, encouraging both independent and collaborative learning, fostering an inclusive culture, and developing skills needed to function on multi-disciplinary teams in professional setting. The total number of quarter credit hours required for the degree is 180.

Official academic policies can be found at: https://www.seattleu.edu/redhawk-axis/academic-policies/. This *Mechanical Engineering Student Handbook* is a compact guide to those more detailed and definitive statements of procedure. Whenever a question arises on any point, those documents should be considered the ultimate authoritative sources concerning university policy.

Students may also find valuable information about the mechanical engineering program through the department's web page at https://www.seattleu.edu/scieng/mechanical/.

2. THE MISSION OF SEATTLE UNIVERSITY AND THE MECHANICAL ENGINEERING DEPARTMENT

The following statement expresses the Seattle University mission:

Seattle University is dedicated to educating the whole person, to professional formation, and to empowering leaders for a just and humane world.

Seattle University strives to help its students develop their talents as well-rounded human beings, prepared to meet life's challenges both to their own benefit and that of society. This goal is accomplished within the Jesuit tradition of liberal education. This tradition at Seattle

University is embodied in the Core Curriculum, a course of study shared by all Seattle University students regardless of major. The Department of Mechanical Engineering believes that the Core Curriculum, along with a strong engineering education, provides an excellent basis for a rewarding professional life.

The mission of the SU Mechanical Engineering Department is to provide a technically rigorous design-focused education in a collaborative environment that emphasizes individual attention and connections to industry, while preparing students to help create a more just and humane world.

3. THE MECHANICAL ENGINEERING PROFESSION

Mechanical Engineering is a vibrant field of engineering with a diverse set of professional objectives aimed at improving our quality of life. Traditionally, mechanical engineers are concerned with advancing the understanding of transportation, energy systems, machine design, and manufacturing. However, due to its broad nature, the focus of mechanical engineering has evolved along with the interests and ambitions of society. Mechanical engineers also work in environmentally conscious technologies, advanced manufacturing, bioengineering, medical device engineering, and micro/nanotechnology.

To work in either a traditional or more contemporary area of mechanical engineering requires a well-developed and practiced understanding of the fundamental principles of math and science. At Seattle University, students can learn the important principles in the classroom, the laboratory, and while working on team projects. Former Seattle University students, now employed as mechanical engineers, often tell us that communications skills are some of the most important skills used in the workplace. We provide numerous opportunities for students to improve their writing and presentation skills throughout the curriculum.

Additionally, the Department of Mechanical Engineering provides our students the opportunity to learn modern engineering tools, which are important for future success upon graduation. In required and elective coursework and through team projects, students have the opportunity to learn and apply engineering analysis, computer modeling, thermal and control systems, automated data acquisition, and computer programming.

Mechanical engineers have numerous career options upon graduation, including product design and testing, systems operation, product management, research and development, and consulting. These broad job descriptions can be realized by working on projects related to pollution prevention and reduction, renewable energy production, engine design, testing the reliability and safety of products, developing advanced control systems, and many more.

At Seattle University, students will obtain a strong technical foundation to be successful

engineers, as well as a well-rounded education in the humanities to develop the critical thinking and ethical standards necessary to apply the technical skills today.

4. OBJECTIVES OF THE MECHANICAL ENGINEERING UNDERGRADUATE PROGRAM

The mechanical engineering undergraduate program at Seattle University, in keeping with the University's Mission, seeks to prepare graduates for productive and fulfilling lifelong careers in the engineering profession. It is one of the two programs offered by the Department of Mechanical Engineering. The other program is Master of Science in Mechanical Engineering.

The mechanical engineering undergraduate program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org, which sets the standards for engineering education in the United States. Consistent with definitions used by ABET, the program educational objectives are statements that describe the expected accomplishments of our graduates during the first few years after graduation. The specific program educational objectives for the Bachelor of Science in Mechanical Engineering (BS.MEGR) are:

Professional: Attain a position solving real-world problems using mechanical engineering skills and principles developed while studying at Seattle University.

Personal: Participate in ongoing personal and professional growth by actively seeking additional skills and experiences, for example engaging in continuing education and/or pursuing advanced degrees.

Societal: Contribute to society through involvement in professional organizations, developing mentorship relationships, taking on leadership roles, and other service activities.

Student outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. At the time of graduation, students from our mechanical engineering program are expected to have:

1.	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2.	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3.	An ability to communicate effectively with a range of audiences.

4.	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5.	An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6.	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7.	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

The typical four-year curriculum to complete the requirements for the Bachelor of Science in Mechanical Engineering is shown on the department's web site.

5. ENGINEERING EDUCATION AT SEATTLE UNIVERSITY

Seattle University (then called Seattle College) was founded by members of the Society of Jesus in 1891. It was not until 1941, however, that the School of Engineering was organized under the leadership of Fr. Edmund McNulty, S.J. The first baccalaureate degrees in engineering were awarded in 1948.

The Bachelor of Science in Mechanical Engineering program was first ABET accredited in 1962 and has remained accredited until today.

In 1972 the School underwent reorganization, joining with the natural sciences to become the School of Science and Engineering. In 2003, the name changed from "School of Science and Engineering" to "College of Science and Engineering" in recognition of the growth and stature of the programs offered. The College is administered by its Dean along with three Associate Deans, one of which serves as Director of the Project Center, and an Assistant Dean. In addition to the three undergraduate engineering departments of civil and environmental, electrical and computer, and mechanical engineering, the College houses programs in the natural sciences, mathematics, and computer science. There are also graduate programs in computer science, data science, and structural engineering.

The College of Science and Engineering also contains within it the Science and Engineering Project Center. Through the Project Center, all senior students in engineering, computer science and environmental science are formed into teams, which are given real-world design

problems to work on during their last year in school. In most cases, the projects are provided and sponsored by companies from local industry. Each company also provides a working engineer/scientist to act as a technical adviser to the student team. A faculty member acts to facilitate the process and to evaluate the students' efforts. This experience gives our students a strong bridge between the academic and working worlds, which goes a long way toward fulfilling the mission of the university.

6. ADMISSIONS

In the College of Science and Engineering, students apply for entry into their majors of choice at the time of admission and are admitted according to their qualifications and the availability of openings. This section describes the various routes for admission into the mechanical engineering major. More information on the admissions process and the application are available from the Admissions Office (www.seattleu.edu/admission/undergraduate).

Students may apply for admission to the major at any time during the year. Usually the application will be acted upon immediately. Sometimes, though, consideration of an application will be delayed until after a student has completed additional preparation courses. Transfer students wishing to enter the program should apply at least three months prior to the desired quarter so that adequate planning time is available to ensure a smooth transition.

Please consult the Admissions Policy for general admissions rules for the university. Specific minimum admissions criteria for mechanical engineering are contained in Seattle University Policy #81-4, https://www.seattleu.edu/media/redhawk-service-center/registrar/registrar-policies/Performance-Criteria-for-SE-81-4.pdf.

6.1 New Freshmen

If an applicant has no previous college experience, they should submit their application directly to the university's Admissions Office and be sure to specify *mechanical engineering* as the intended major. Freshmen applicants who want to study mechanical engineering must have completed at least four years of high school mathematics, including the equivalent of pre-calculus, and at least two years of laboratory science. Admissions web site is: https://www.seattleu.edu/undergraduate-admissions/.

6.2 Off-Campus Transfers

If an applicant has previous post-secondary educational experience and is not currently enrolled at Seattle University, they may directly enter the Bachelor of Science in Mechanical Engineering program by applying to the Admissions Office and be sure to specify *mechanical engineering* as the intended major.

Minimum qualifications for admission to the program are an overall grade point average (GPA) of 2.5 or better on a scale of 4.0 and a composite average of 2.5 in all technical courses. The decision to admit off-campus transfers directly into any program within the College of Science and Engineering is made by the Associate Dean. If an applicant is denied direct admission to the program, additional coursework may be recommended, or they may be admitted into Pre-Engineering. If they are admitted in Pre-Engineering, they can seek a transfer to mechanical engineering according to the criteria given in Section 6.3.

6.3 On-Campus Transfer

Seattle University students majoring in programs other than mechanical engineering may apply for a change of major into the BS.MEGR program at any time. The decision to admit them will be made by the Chair of the Department of Mechanical Engineering, and a signature will also be needed from the chair of the student's previous department.

6.4 Post-Baccalaureate Students

Students who have completed baccalaureate degrees in fields other than mechanical engineering occasionally apply for admission to the department. The admissions procedures and requirements are the same as for other prospective students. Such students should contact the university Admissions Office, making sure to specify *mechanical engineering* as their intended major. University Core requirements are significantly altered for second degree students, but all other degree requirements must be met.

6.5 Returning Students and Leaves of Absence

Anyone who has previously been a student in the department and who wishes to be readmitted will be considered on his or her merits as they compare with the other current applicants. Students who for personal rather than academic reasons must leave the university for a period should apply for an official leave of absence to reserve a spot upon returning. Four quarters is the maximum period for a leave of absence without readmission being required. The Assistant Dean of Science and Engineering should be consulted prior to taking a leave of absence to ensure a smooth re-entry when returning to school.

If a student fails to register for two consecutive quarters and has not applied for leave of absence, the university will assume that they have left school. Their priority for enrolling in mechanical engineering classes will be lost and they must request readmission to the university. Students who withdraw from the university for one calendar year or more are subject to the degree requirements in effect at the time of their readmission. Readmission decisions are made by the Associate Dean of the College of Science and Engineering.

6.6 Non-Matriculated Students

Occasionally a working professional or a student not in the BS.MEGR program will want to take some mechanical engineering (MEGR) courses without the intention of obtaining a degree. The department is willing to accommodate these individuals on a space available basis. The student must, of course, have the proper background for the desired courses. Such arrangements are at the discretion of the chair of the Department of Mechanical Engineering. In addition to talking to the chair, those not already enrolled at Seattle University must contact the Admissions Office. If a non-matriculated student decides to apply for admission to the program with the intention of earning a BS.MEGR degree, a maximum of 15 credits taken at Seattle University in non- matriculated status may be applied toward the degree.

7. FINANCIAL AID

Financial aid is an important consideration for many of our students. Consult the financial aid web site at https://www.seattleu.edu/undergraduate-admissions/finances/. A student may also wish to contact Student Financial Services directly for specific information regarding application procedures. Many of our students have financial aid packages including scholarships, loans, and work-study opportunities.

The College of Science and Engineering awards additional scholarships. Information concerning qualifications and application procedures for Bannan and other scholarships specifically aimed at Science and Engineering students can be obtained from the web site https://www.seattleu.edu/scieng/scholarships/.

Information on other scholarships are e-mailed to students if received by the department faculty and staff.

8. ADVISING AND REGISTRATION

Seattle University uses an on-line registration system. Students are advised to consult undergraduate Catalog of courses to learn when each course is offered and to find course pre- and co-requisites. The BS.MEGR degree catalog is located at: https://catalog.seattleu.edu/preview_program.php?catoid=43&poid=8873.

New freshmen admitted will be registered through New Student Registration for their first quarter. They will meet with their mechanical engineering faculty advisers during fall quarter advising period, which begins in October.

All new off-campus transfer students should meet initially with a professional adviser for the

College of Science and Engineering to review their transfer credits. As soon as they are admitted, the Science and Engineering Advising Center will contact admitted students to guide them through the transfer process. The process includes confirming the admission offer, completing a tutorial and registering for mandatory on-campus student orientation. The Advising Center sets up a preliminary course schedule and registers students for their first quarter. Students will meet with their mechanical engineering faculty advisers during next quarter's advising period, which begins in the third week of the quarter.

Continuing students normally register for classes during the registration period. This is a period (usually about the seventh week of every quarter) during which student's register for the following quarter. The three weeks before advance registration is the advising period. It is our department's policy that all students must make an appointment to see their advisers during the advising period. Faculty will post sign-up sheets on an on-line site. Student may find their faculty adviser's name on my.seattleu.edu.

To make the most effective use of an advising appointment students need to review the BS.MEGR four-year plan (on ME web site) prior to the appointment. Their adviser will discuss their academic progress and career plans with them, assist in selection of classes, and will make notes of these decisions.

It is the student's responsibility to meet with his or her adviser each quarter. It is to their advantage to sign up for classes during their assigned registration appointment time, which is in the first week of the registration period. If they wait to register, classes may fill up. If they change their schedule, they should inform their adviser so that a note of the changes may be made in their file.

There is an official add/drop period for about one week at the beginning of every quarter. Beyond this period, a student may not add classes, but may withdraw from classes per the rules of the university. However, the tuition for classes withdrawn beyond the official add/drop period will not be refunded in whole. Withdrawal from a class requires instructor's signatures. A student needs to inform his/her adviser so that a note of the changes may be made in their file.

9. FACULTY ADVISER

Students' primary source for career advising at Seattle University is their departmental faculty adviser. A list of all mechanical engineering students and their advisers is maintained by the departmental administrative assistant. Student may request to change their adviser with the department's administrative assistant using e-mail and at any time and without any explanation.

Science and Engineering Advising Center, https://www.seattleu.edu/scieng/advising/, and the SU Student Academic Services, https://www.seattleu.edu/sas/, provide additional resources that can enhance students' academic performance and help achieve student's potential for academic success.

10. COMPREHENSIVE EXAM

All students take the department's mid-program comprehensive exam at the beginning of the senior year. The exam provides a direct measure of a student's knowledge of basic mechanical engineering subjects. The exam format parallels the Fundamentals of Engineering (FE) exam. The only reference material to be allowed in the exam is the latest edition of the NCEES Fundamentals of Engineering Supplied- Reference Handbook.

The comprehensive exam consists of questions like questions on the FE exam. The exam is divided into nine sections covering all the major mechanical engineering topics which include Mathematics, Statics, Dynamics, Mechanics of Materials, Materials Science, Thermodynamics, Fluid Mechanics, Electric Circuits, Engineering Economy, Engineering Ethics and Computers. Students are given two chances to pass each section.

Since the comprehensive exam is like the FE exam, the exam helps prepare students for the FE exam taken during the senior year. Each section of the exam is graded on a Pass/Fail basis. Student's final grade in MEGR 4870 and MEGR 4880 is based upon the results of the mid-program comprehensive exam.

11. REQUIREMENTS TO ENTER THE SENIOR DESIGN SEQUENCE

Students who wish to enter the senior design sequence, MEGR 4870, 4880, and 4890 must satisfy the following two criteria:

1) The student must have completed all the classes listed below:

MATH 2340 (Differential Equations)
MEGR 2810 (Engineering Methods)
MEGR 3210 (Thermodynamics)
MEGR 3240 (Heat Transfer)
MEGR 3360 (Instrumentation and Data Acquisition 1)
MEGR 3370 (Instrumentation and Data Acquisition 2)
MEGR 3500 (Materials Science)
MEGR 3710 (Machine Design I)
MEGR 3890 (Integrated Engineering Design Project 3)
CEEGR 3310 (Fluid Mechanics)

Because many of our classes are taught only once a year, sometimes meeting this criterion might mean that a student must spend an extra year at Seattle University. The department realizes this and will allow a student to be deficient in at most two of the above courses. If a student is missing more than two required courses, admission is at the chair's discretion.

2) The student must have a minimum major GPA of 2.5

Students who do not meet this criterion need to show that they could raise their major GPA to at least a 2.5 if they averaged a 2.7 GPA in all their remaining engineering courses. "F" grades must be included in this calculation even though the university Registrar will replace that grade once the course has been retaken.

It is important for students to realize that even if they have not completed all their junior course work, they have a responsibility toward their fellow senior project team members to have a basic knowledge of the material covered in junior courses they may not yet have completed.

12. SENIOR ELECTIVES

The mechanical engineering program requires that all students take at least *two* mechanical engineering electives which total to a minimum of *six* credits. All courses counted toward fulfilling the mechanical engineering elective requirement must be 3000-level or above. The mechanical engineering department changes their elective offerings every year and strives to provide a range of both contemporary and relevant topics to supplement the major program requirements. Students should work closely with their faculty advisor to discuss upcoming offerings to learn when different electives will be offered.

13. TRANSFER CREDITS

If students have attended schools other than Seattle University, they will naturally want previous pertinent work to apply toward their SU degree. Being properly credited for such work is usually straightforward. It is their responsibility to have complete, official transcripts sent to the Admissions Office (if they are a new transfer student) or the evaluations unit of the Registrar's Office (if they are already enrolled). If they are enrolled in another school at the time they apply for admission to Seattle University, they must be sure to have updated, complete transcripts sent when they complete their last term's work in order to have their courses transferred. Specialists will evaluate the transcript(s) and indicate which course requirements for their Seattle University degree has been satisfied.

Upon admission, and whenever they submit transcripts from other schools, students should study their Program Evaluation carefully to make certain that all transfer credit has been

correctly applied. If they think there are discrepancies, they need to discuss them with the transfer evaluator in the Registrar's Office to whom they have been assigned and with their departmental adviser. When they are admitted to Seattle University, they should begin working with the department chair and their adviser to make sure that they understand exactly how much of their previous work has been credited and what degree requirements remain to be completed.

Transfer guides and processes to the College of Science and Engineering are at: https://www.seattleu.edu/scieng/advising/transfer-students/transfer-course-requirements/.

Mathematics: The BS.MEGR curriculum requires three quarters (15 credits) of basic calculus (MATH 1334, 1335, 1336), 3 credits of multivariable (advanced) calculus (MATH 2330), 3 credits of linear algebra (MATH 2320), and 4 credits of differential equations (MATH 2340).

Physics: The BS.MEGR curriculum requires three quarters of physics courses and laboratories (PHYS 1210, 1211, 1220, 1221, 1230, and 1231).

Chemistry: The required engineering-oriented chemistry course (CHEM 1500) contains a laboratory component (CHEM 1501). Students transferring chemistry without laboratories will be required to take the one-credit laboratory CHEM 1501.

CAD: The engineering graphics course (MEGR 1050) includes sketching, tolerancing, 3D parametric modeling, and GD&T.

Integrated Engineering Design Project Courses 1, 2, and 3: Three new Integrated Design Projects (IDP) courses, MEGR 1890, 2890, and 3890, are offered in 1st, 2nd and 3rd year of the BS.MEGR studies, respectively. These courses, which are required for the BSME degree, greatly increase the amount and frequency of the design experiences, and provide curricular-based opportunities for increasing the number of interactions students have with other more experienced engineers, both in the form of professional engineers from the local industry and engineering students from different class years. Transfer students can fulfill MEGR 1890 and 2890 requirement with an approved elective course.

Mechanics: Statics (MEGR 2100), Dynamics (MEGR 2300) and Mechanics of Materials (CEEGR 2210) provide the foundation for many mechanical engineering upper division courses. Most courses taught as part of the engineering transfer tracks of the Washington State Community and Technical College system meet the transfer requirements for these courses.

Programming: No transferable courses are currently taught in the community college system for the department's programming and numerical analysis course (MEGR 2810). The department does encourage transfer students to take a programming course prior to attending Seattle University, but it will typically not satisfy the department's programming and numerical

analysis requirements.

Materials Science: This course is taught in the 3rd year at Seattle University. Some colleges offer transferable courses.

Thermodynamics, and Instrumentation and Data Acquisition: These three courses are taught in the 3rd year at Seattle University. They each contain labs and have no equivalent courses in the community college system. Approval of the department chair is required on a case-by-case basis to receive transfer credit for these courses.

Specific rules governing the transfer of credit to Seattle University from other institutions include the following:

a. Credit can be transferred only for courses whose content is substantially equivalent to those within the curriculum of the Department of Mechanical Engineering at Seattle University. Students must have earned at least a grade of C or better (2.0 on a scale of 4.0) for each course to be transferred.

b. If a course is transferred and it is of fewer credits than the equivalent course at Seattle University, the shortfall in credits must be made up with courses in the same general area so that students graduate with the proper number of total credits (180 credits). Note: To be considered equivalent, the transfer course must be within one credit of the corresponding course at Seattle University.

c. A maximum of 90 lower-division and 45 upper-division quarter credit hours can be transferred to Seattle University. (Two semester hours are equivalent to three quarter hours.)

d. ***Recognition of content:*** Once students have transferred 90 lower division credits they can no longer transfer lower division credits-only content. Once they have transferred 45 upper division credits they can no longer transfer upper division credits-only content. The number of total completed credits is only a factor when they have 45 or fewer total credits remaining. If coursework is taken for content only they may be required to make up the credits so that they graduate with the correct total (180).

e. Any transferrable lower division credits beyond 90 counts as content only.

f. No course work from engineering technology programs can be transferred. No work-related experience can be counted toward degree requirements. (See Section 14 for rules governing credit by examination.)

g. Students may not simultaneously take courses at Seattle University and another school and

expect them to count toward their SU degree without **prior permission**. Except during summer quarter, permission is normally granted only to relieve scheduling conflicts that would impede students' progress in their degree program and delay their graduation. To request simultaneous enrollment, complete a Transfer Verification Form and a Dual Enrollment Request form, available at the Registrar's Office (https://www.seattleu.edu/media/redhawk-service-center/registrar/registrar-forms/Dual-Enrollment-Request.pdf), **well in advance** of the quarter for which the simultaneous enrollment is planned. Their adviser must sign the form. Final approval is determined by the Associate Dean of the College of Science and Engineering.

h. The final 45 credits counted toward BS.MEGR degree must be taken at Seattle University.

i. Students transferring into BS.MEGR program should consult university Core Curriculum Policy to plan their transfer process. There are some advantages in transferring with a WA state transferable AA or AST or equivalent.

j. Students with Advance Placement scores of 4 or higher from high school calculus, English, chemistry, etc. may receive credit for courses according to Seattle University Policy #75-16.

14. MATHEMATICS PLACEMENT

It is important that new freshmen and transfer students with no previous college-level mathematics be placed in mathematics courses appropriate to their mathematics background and level of accomplishment. Initial placement is made by SAT/ACT score. Students who have no test scores or who think they should place higher can take the SU Math Placement Exam. Seattle University's Mathematics Department tables posted at: https://www.seattleu.edu/scieng/math/math-placement/. Other students may place higher based on AP/IB exam scores or transfer credit.

15. CREDIT BY EXAMINATION

If students' think that they have mastered a subject through personal study or work experience they may receive credit and a grade for the course(s) by examination.

16. GRADING OPTIONS

All courses to be counted toward the BS.MEGR degree must be taken for letter grades.

Electives not to be counted toward a BS.MEGR degree may be taken under one of the alternative grading modes, such as credit/fail.

Officially withdrawing from a course is an action initiated by the student. This will result in a grade of 'W' which will not affect their GPA. If the course is required for graduation, they must enroll in it again and complete it.

Students who, for reasons beyond their control, are unable to complete their coursework during the quarter may receive a grade of Incomplete (I). Incompletes are intended for students experiencing illness or a family emergency. Students must have a passing grade at the time they are given the Incomplete. They must complete the work during the following quarter to have the Incomplete changed to a letter grade. Otherwise, the grade will convert to grade determined by instructor by using a 0 for any missing work.

17. REPEATING COURSES

The university's policy on repeating courses is located at:
https://www.seattleu.edu/media/redhawk-axis/registrar/registrar-policies/Repeated-courses-77-02.pdf .

18. SATISFACTORY PROGRESS AND ACADEMIC PROBATION

Once admitted to the BS.MEGR program, a full-time student is guaranteed entry to BS.MEGR courses in the normal sequence to complete the degree program. The student must maintain both his overall and science/mathematics/engineering GPAs at 2.5 or better. Students who fail to maintain satisfactory progress may lose priority for entrance into mechanical engineering courses. Academic difficulties can lead to probation and ultimately dismissal from the department, college, and university.

Students on probation or in danger of dismissal will receive notification from the Associate Dean of Science and Engineering so that they can correct the problem.
Please refer to Policy #81-4 for details, https://www.seattleu.edu/redhawk-axis/academic-policies/

19. LEARNING ASSISTANCE PROGRAMS

The Learning Assistance Programs at Seattle University provide additional support to students who wish to strengthen their learning skills. The Learning Assistance Programs offer the

following services: tutoring, study skills development, personalized academic assistance, handouts and reference materials, and learning assessments. By using these services, students can improve their skills in note- taking, time management, study strategies, and test-taking.

20. CLOSED CLASSES

During registration, if a class that a student wishes to take is closed, they may be permitted to enroll in the class, depending on the type of class. For closed non-MEGR courses, students are advised to consult with the Science and Engineering Advising Center. For closed MEGR courses students are advised to contact the department's administrative assistant.

In the Department of Mechanical Engineering, it is our policy to set section sizes at their projected enrollments. This sometimes means that classes are closed when several students still need to enroll. If they have the necessary prerequisites, they will be permitted to take required classes, but we cannot guarantee enrollment in a specific laboratory section, if another section is not yet closed.

21. STUDENT COURSE EVALUATIONS

The department and the university strive to provide students with an educational experience of high quality. Several components go into making up this experience; the most obvious to students will be the courses that they take. As an aid in improving the quality of the teaching in its courses, the department asks students to fill out end-of-quarter evaluations for all the courses that they take. These will generally be done sometime during the last week of every quarter.

The purpose of seeking this information is two-fold. First, it acts as feedback to instructors so that they might identify and respond to areas that students feel are in need of attention. Secondly, the university uses the information as one of several measures of the work performance of its faculty. Teaching is only one of several dimensions to a faculty member's job, but at Seattle University it is by far the most important. Student feedback is the primary method that the university has for evaluating the effectiveness of its faculty about teaching, and it places great importance on them.

The university is quite serious about the evaluation process, and we ask students to be equally sincere. Students should feel free to state any negative impressions that they have. It is through this feedback that improvements can be made. They should also feel free also to express positive observations. Instructors, like students, are always pleased to know when their efforts are well received. We do ask students to avoid personal or humorous remarks because these can be easily misinterpreted when read by anyone other than the instructor.

22. ENGINEERING STUDENT ORGANIZATIONS

Seattle University has a student section of the American Society of Mechanical Engineers (ASME). This organization sponsors conferences and publications as well as many professional subgroups that cover the broad range of mechanical engineering. It also sponsors student chapters at colleges and universities as a way of developing professional awareness among those planning to make mechanical engineering their career.

For a modest annual fee, students can become a student member of ASME. Applications are available from the department and student chapter president. All mechanical engineering students are encouraged to become members of ASME. Members will receive several ASME publications. They will also be eligible to attend chapter-sponsored activities of both a social and professional nature.

There are many other student clubs within the college and beyond. Depending on students' interests, they might also wish to associate with those groups. Sense of community and belonging are important for students' success and many students find clubs to serve that purpose.

Seattle University has a chapter of Tau Beta Pi, the national engineering honor society. Tau Beta Pi was established to recognize engineering students with outstanding academic records. Membership is by invitation. If students are eligible, they will be contacted by student officers of the society.

The Society of Women Engineers (SWE) also has a student chapter at Seattle University. Membership is open to all engineering and science students.

Students' education extends beyond the walls of the classroom and the topics of textbooks. Participation in student organizations provides students with opportunities to develop their social and leadership skills. We encourage students to be active participants.

23. PART-TIME EMPLOYMENT

With the high costs associated with going to school, many students find it necessary to work part time. This can be a valuable experience, particularly if students can find employment in a technical area. Many companies in the Puget Sound region have employment opportunities available for students while they are attending school. These can be thought of as an extension of their engineering education. Positions such as these are often the first step toward securing permanent employment upon graduation.

Although part-time employment while attending school has some obvious benefits, it can also detract from a student's education. Engineering is a demanding course of study that requires a considerable degree of attention. Time spent on the job is time not devoted to studies. Most students can handle ten hours of work per week without it affecting their performance in school. Strong students can work up to twenty hours per week and still perform well in their studies. Beyond that, however, compromises must be made.

The department and individual faculty sometimes become aware of job openings for engineering students. These are usually announced through the email form the department. In addition, interested students can also check for job postings at Redhawk Network, posted by the Career Services in the Piggott Pavilion.

The department and university offer some part-time student employment opportunities. Students grade papers for classes, assist in the laboratories, and work in computer labs. Inquire with faculty and in departmental offices to learn about these opportunities.

24. COMPUTER ACCESS AND ELECTRONIC MAIL

Students have access to engineering software in two computer laboratories on campus and through virtual desktop on and off campus.

The Department of Mechanical Engineering makes extensive use of e-mail for communication among students and faculty. All e-mail will be sent to students' Seattle University e-mail account and students are advised to check their e-mail regularly.

25. BS.MEGR DEGREE PROGRAM

25.1 Degree Requirements

To graduate with a BS.MEGR degree, students must complete all required courses shown on their academic evaluation. Students may review their own Program Evaluation at any time using the https://my.seattleu.edu/Student/Account/Login?ReturnUrl=%2fStudent web site. Students must have GPAs of 2.5 or better based both on their science and engineering courses alone and also on all courses taken at Seattle University.

In addition to the course requirements, all students must take the Washington State Fundamentals of Engineering (FE) examination (previously called the EIT). Students may, if they prefer, take the FE examination in another state. It is not necessary to pass the examination to graduate. Additional details regarding the FE examination can be found in Section 27.

Detailed degree requirements and course descriptions are contained at:
http://catalog.seattleu.edu/

25.2 Curriculum Changes

The curriculum of the Department of Mechanical Engineering is under constant review by the faculty and Industry Advisory Board (https://www.seattleu.edu/scieng/mechanical/industry-advisory-board/) to enhance and improve our course offerings. From time to time, changes are made in the degree requirements. Students entering the program after such a change will be subject to the new degree requirements, which will be published in the Undergraduate Catalog. Students already enrolled will be allowed to complete the degree program under the requirements that existed when they entered, provided they are full-time students following the suggested sequence of courses and maintaining satisfactory progress. Part-time students or others who have not followed the suggested sequence of courses will have individual assessments of the courses needed for graduation. Such students will be provided an accredited program of study that may include courses from both the old and new curricula.

25.3 Laboratory Program

The Department of Mechanical Engineering has a major commitment to the important "hands-on" experience provided by laboratory courses. There is an additional fee for laboratory courses.

Eleven engineering laboratory courses are provided for the students. These include:

MEGR 1050 (Engineering Graphics and Design)
MEGR 1060 (Machine Shop)
MEGR 1890 (Integrated Engineering Design Project 1)
MEGR 2810 (Engineering Methods)
MEGR 2890 (Integrated Engineering Design Project 2)
MEGR 3210 (Thermodynamics)
MEGR 3360 (Instrumentation and Data Acquisition 1)
MEGR 3370 (Instrumentation and Data Acquisition 2)
MEGR 3500 (Materials Science)
MEGR 3890 (Integrated Engineering Design Project 3)
MEGR 4350 (Dynamic Systems)

26. MINORS AND DOUBLE MAJORS

The Seattle University's policy regarding undergraduate minors and the specific requirements for each discipline are described in the Undergraduate Catalog. Many mechanical engineering students take an additional math course to meet the thirty-credit requirement for the mathematics minor. Specific requirements for a minor in mathematics are outlined in the

Undergraduate Catalog. Minors must be applied for.

Over the years, mechanical engineering students have obtained minors and second majors in a wide variety of fields. If students wish to obtain a minor in a discipline, they must talk to the chair of that department and to their academic advisor. Then, inform the departmental administrative assistant who will assist them in preparing the necessary paperwork for the minor to be listed on their transcript.

27. CAREER ENGAGEMENT OFFICE

The goal of most mechanical engineering students is to work as a practicing mechanical engineer. Seeking their first job is a process that should begin up to a year prior to graduation. To aid in this process, the university has a Career Engagement Office. Professionals there can help students develop a good resume and give them tips on how best to present themselves in interviews. The center is the focal point on campus for recruiters from companies.

The department tries to help in this process also. Students should talk to faculty members who are most familiar with a their background and interests. Sometimes they might have contacts in local industry and know of companies that are hiring. Job notices are sometimes sent electronically via e-mail. The job search should begin early in the year in which a student intends to graduate. In times when jobs are scarce, much time may be needed in order to secure a position. Even when jobs are more plentiful, sufficient time should be given to find the best possible situation.

The department can be thought to be a success only when its graduates are successful in establishing professional careers.

28. GRADUATE SCHOOL

Undergraduate programs in engineering provide a broad-based general education to those wishing to enter the engineering profession. Elective courses allow for a certain amount of specialization. It is expected that practicing engineers will be life-long self-learners to keep abreast of new developments and to gain the level of expertise required of particular job assignments. Graduate school provides a formal way of obtaining expert status in mechanical engineering. Some students enter graduate school directly upon finishing their undergraduate studies. Others may wait until they have gained a few years' experience in the workplace. If students have an interest in continuing their studies at the graduate level, they can speak to their adviser and other faculty. All can talk to students about what to expect and help them with strategies for selecting and applying to graduate schools appropriate for their goals.

Several SU engineering graduates have attended and completed MSME studies at Seattle University. That program is designed so that SU undergraduate students can take up to two graduate courses in place of senior electives, which can enable them to complete the MSME degree in one year.

Some engineering graduates go on to studies in other professional areas such as business, law, or medicine. If interested in these fields, they can find resources at Seattle University to help guide them through the application process.

29. ASME CODE OF ETHICS

Engineering is not merely a job, it is a profession. This implies that engineers have a responsibility to society and should strive to increase the competence and prestige of the engineering profession. This sense of ethical behavior should be a part of a student's conduct. Please consult the ASME Code of Ethics.