



# FAIRFIELD UNIVERSITY GRADUATE PROGRAMS



---

## MECHANICAL ENGINEERING

---

### PROGRAM DESCRIPTION

The Master of Science in Mechanical Engineering (MSME) program is designed to serve the needs of practicing engineers and those aspiring to an advanced degree in mechanical engineering and related specializations. Students gain advanced knowledge and skills by virtue of expert curriculum design, instruction in an effective learning environment, and opportunities for inquiry and professional development. Students will have the option to specialize in one of the following broad Mechanical Engineering concentrations: Thermal Systems and Mechanical Systems.

Students will be able to identify, formulate and solve advanced mechanical engineering problems. They will also use the techniques, skills, and modern analytical and software tools necessary for mechanical engineering practice. Sequences of electives as well as an option for a master's project/thesis assist in achieving the program's learning goals.

### COURSE OF STUDY

Students complete one required course and eleven elective concentration courses based on their interest. MSME students have a great deal of flexibility in completing their elective concentration courses.

The thesis option requires 11 courses including the two-term thesis. The non-thesis option requires 12 courses.

### REQUIRED COURSE

- Engineering Applications of Numerical Methods

### ELECTIVE CONCENTRATION COURSES

Students select courses from the list below based on their interest:

#### THERMAL SYSTEMS

- Turbomachinery
- Energy Conversion
- Heat and Mass Transfer
- Computational Fluid Dynamics (CFD)

#### MECHANICAL SYSTEMS

- Micro-Nano Manufacturing
- Vibration Analysis
- Theory & Application of Robot Kinematics
- Advanced Dynamics
- Design of Mechatronics Systems
- Fracture Mechanics in Engineering Design
- Mechanics of Composite Materials
- Applications of Theory of Elasticity

- Applications of Finite Element Analysis (ANSYS)
- Feedback and Control Systems

### ADDITIONAL COURSES

- Independent Study
- Special Projects
- Thesis I and Thesis II

### MASTER'S THESIS OPTION

The master's thesis tests students' abilities to formulate an original problem, solve it, and communicate and defend the results. Carefully supervised by a faculty member, the thesis involves gathering information, examining it critically, organizing it effectively, designing a solution and writing convincingly. This is a project that permits students to demonstrate skills that are basic to academic and industry work.

### GRADUATE PROGRAM DIRECTOR

**Dr. Shahrokh Etemad**

Phone: 203-254-4000 x3154

E-mail: [setemad@fairfield.edu](mailto:setemad@fairfield.edu)

Dr. Etemad serves as the faculty advisor for students in the Mechanical Engineering program and is the appropriate person to contact with questions, or to learn more.

For a complete faculty listing, see [www.fairfield.edu/soefaculty](http://www.fairfield.edu/soefaculty).

### ADMISSION REQUIREMENTS

Applicants for a master's degree must hold a bachelor's degree from a regionally accredited college or university (or the international equivalent) in science or engineering, or its equivalent, in the general area of mechanical engineering. Those with work experience in a technology environment, whose academic and professional record suggest the likelihood of success in a demanding graduate program will also be considered. Applicants should demonstrate aptitude in the subject matter of Mechanics and Thermofluids or begin their studies by registering for one or more bridge courses judged suitable by the program director.



Fairfield University

School of Engineering

## FORMAL ADMISSION PROCESS

Applications to the graduate program are accepted on a rolling basis. Applications are reviewed by the Graduate Admission Committee. Students seeking admission must complete and submit the following online:

1. A completed application.  
(Apply online at [www.fairfield.edu/soeapp](http://www.fairfield.edu/soeapp).)
2. A non-refundable \$60 application fee.
3. A professional résumé.
4. Personal statement describing intent for studying in the program.
5. Official transcripts from all universities/colleges attended (All foreign transcripts must be evaluated by an approved evaluating service. A list of approved evaluators is available at [www.fairfield.edu/eval](http://www.fairfield.edu/eval).)
6. Two recommendation letters, one of which must be from a current supervisor or professor, completed online.
7. All international students whose native language is not English must demonstrate proficiency in the English language by taking either TOEFL or IELTS exams. For admission to the graduate school, a TOEFL composite score of 550 for the paper test, 213 for the computer-based, 80 on the internet based test or an IELTS score of 6.5 is strongly recommended. Scores must be sent directly from the Educational Testing Service (TOEFL) or [www.IELTS.org](http://www.IELTS.org). Fairfield's ETS code is 3390.

Submit transcripts and any other documents that cannot be uploaded to:

Fairfield University  
Office of Graduate Admission  
Kelley Center  
1073 North Benson Road  
Fairfield, CT 06824

Academically-gifted international applicants with English deficiency will have the opportunity to be conditionally admitted into our graduate program, pending their successful completion of English as Second Language (ESL) summer program at our partner institution. Students will be provided on-campus accommodations and enrollment into the summer ESL program. The TOEFL/IELTS requirement is waived upon written recommendation from the ESL Coordinator, based on successful performance of end-of-session internal assessments.

## TRANSFER STUDENTS

Transfer credit will be considered for graduate coursework earned with a grade of B or better. No more than six credits may be transferred.

## MANDATORY IMMUNIZATIONS

Connecticut State law requires each full-time or matriculated student to provide proof of immunity or screening against measles, mumps, rubella, varicella (chicken pox), meningitis and tuberculosis. Certain exemptions based on age and housing status apply. Matriculating students are defined as those enrolled in a degree seeking program. More detailed information and the required downloadable forms are available online at [www.fairfield.edu/immunization](http://www.fairfield.edu/immunization). Completed forms should be submitted directly to the Student Health Center. Although this is not required to complete an application, you must provide proof of immunity/screening prior to course registration. Please consult your private health care provider to obtain the necessary immunizations. Questions may be directed to the Student Health Center: 203-254-4000 ext. 2241 or e-mail [health@fairfield.edu](mailto:health@fairfield.edu).

## NON-MATRICULATED STUDENT STATUS

Non-matriculated status may be granted to individuals who have not completed the admission process but wish to begin taking courses, or who are not seeking a degree or certification. Individuals wishing to enroll as non-matriculated students must submit:

1. A completed application.  
(Apply online at [www.fairfield.edu/soeapp](http://www.fairfield.edu/soeapp).)
2. A non-refundable \$60 application fee.
3. A written request to the Graduate Program Director, specifying the semester for which this status is requested.
4. Official transcripts verifying that a baccalaureate (or higher) degree with a grade point average of 3.0 or higher has been earned.

Non-matriculated student status is granted for 9 credits only. Students seeking admission must complete the formal application process by the end of their 9 credit limit in order to continue with their studies. Individuals enrolled as non-matriculated students cannot enroll for more than six credits each term, cannot register on a full-time basis, and are not eligible for any tuition aid or financial support. Upon formal admission to the Graduate Program, credits earned while a non-matriculated student will be applied toward the master's degree, provided the courses were approved by the faculty advisor and the grade received in each course was a B or better. Successful completion of coursework does not automatically guarantee formal admission.

## NON-DEGREE STUDENTS

Students who hold master's degrees and who are interested in taking courses for professional and/or personal continuing education may be admitted as non-degree students. Individuals wishing to enroll as non-degree students must submit:

1. A completed application.  
(Apply online at [www.fairfield.edu/soeapp](http://www.fairfield.edu/soeapp).)
2. A non-refundable \$60 application fee.
3. A written request to the Graduate Program Director, specifying the semester for which this status is requested.
4. Official transcripts verifying that a master's degree has been earned.

Courses taken under this status will not be considered toward fulfillment of degree requirements.

## TUITION/FINANCIAL AID

Academic Year 2018-19

Tuition: \$825 per credit hour

A graduate education can provide countless professional and personal rewards in the future. However, the costs associated with earning a master's degree may be challenging. Many students need to look beyond their own financial resources or the resources of their employer for assistance. There are many ways to finance a graduate education, including graduate assistantships, federal direct loan programs and our Veterans Pride Program, which are all discussed at [www.fairfield.edu/gradfa](http://www.fairfield.edu/gradfa).

The School of Engineering provides merit-based, research, and practical experience scholarships for students, based on their academic performance at Fairfield University. Other types of employment, including technology-based, are available on-campus.

## OFFICE OF FINANCIAL AID

Advisors from the Office of Financial Aid are committed to helping students find the options that best suit each of their needs. We encourage all Fairfield University graduate students to contact the Financial Aid office with any questions or to make an appointment to speak with a counselor.

### FINANCIAL AID CONTACT INFORMATION

Phone: 203-254-4125

Fax: 203-254-4008

E-mail: [finaid@fairfield.edu](mailto:finaid@fairfield.edu)

### FINANCIAL AID OFFICE OPERATIONS

Days: Monday-Friday

Hours: 8:30 a.m.-4:30 p.m.

Location: Aloysius P. Kelley, S.J. Center

## MORE INFORMATION

### ADMISSION QUESTIONS

Questions about the application process should be directed to the **Office of Graduate Admission**.

Phone: 203-254-4184

Fax: 203-254-4073

E-mail: [gradadmis@fairfield.edu](mailto:gradadmis@fairfield.edu)

### OFFICE OPERATIONS

Days: Monday-Friday

Hours: 8:30 a.m.-4:30 p.m.

Location: Aloysius P. Kelley, S.J. Center

## SCHOOL OF ENGINEERING WEBSITE

[www.fairfield.edu/engineering](http://www.fairfield.edu/engineering)

## ONLINE CATALOG

For detailed course descriptions and other University information, please refer to our online catalog

[www.fairfield.edu/catalogs](http://www.fairfield.edu/catalogs).