MECHANICAL ENGINEERING (MS)

The School of Mechanical, Aerospace and Manufacturing Engineering offers degree programs leading to Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees. Students in the M.S. and Ph.D. programs may elect to complete their degree with a concentration in Systems and Mechanics or Thermal and Fluid Sciences.

Location

- Storrs Campus

Modality

- In Person

Requirements

Concentration Requirements

Systems and Mechanics Core Course Requirements

Course	Title	Credits
ME 5105	Basic Concepts of Continuum Mechanics	3
ME 5150	Analytical and Applied Kinematics	3
ME 5160	Theory and Design of Automatic Control Systems	3
ME 5180	Dynamics	3
ME 5190	Advanced Solid Mechanics	3
ME 5420	Mechanical Vibrations I	3
Total Credits		**18**

Thermal and Fluid Sciences Core Course Requirements

Course	Title	Credits
ME 5110	Advanced Thermodynamics	3
ME 5120	Advanced Thermo-Fluids I	3
ME 5130	Advanced Heat and Mass Transfer	3
ME 5311	Computational Fluid Dynamics	3
ME 6170	Combustion and Air Pollution Engineering	3
Total Credits		**15**

M.S. Degree Requirements

The M.S. degree may be earned under either Plan A (thesis option) or Plan B (non-thesis option). Plan A emphasizes problem-solving through research, and involves close interactions with mechanical engineering faculty members, while Plan B focuses on graduate-level coursework in mechanical engineering topics. The plan of study must be approved by the advisory committee, the Director of Graduate Studies, and the Executive Committee of the Graduate Council. Students in either plan may take the courses specified above to graduate with a concentration in Systems and Mechanics or Thermal and Fluid Sciences.

M.S. Plan A Requirements (30 credits): 21 credits of coursework, nine credits of GRAD 5950 Master's Thesis Research, ME 6340 Graduate Seminar (two semesters, 0 credits), and successful completion of a Master's thesis, with an oral defense. ME 5507 Engineering Analysis I (or a similar course in mathematics, computer science, engineering analysis, or statistics, approved by the advisory committee) is required. At least 18 of the coursework credits must be in Mechanical Engineering courses (including ME 5507 Engineering Analysis I if taken). A maximum of nine credits of independent study may count toward course requirements and only six credits can be taken with the student's major advisor as the instructor. The student's advisory committee must approve any additional courses beyond the required number of credits and any transfer credits that must be replaced with other UConn ME courses. With approval from the student's advisory committee, at most three credits of non-SEMS (science, engineering, mathematics, or statistics) courses and at most three credits of 3000/4000-level courses can be taken. Courses specific to the Master of Engineering (MENG) program, including ENGR 5311 Professional Communication and Information Management, ENGR 5312 Engineering Project Planning and Management, and ENGR 5314 Advanced Engineering Mathematics, may not be used toward the M.S. degree.

M.S. Plan B Requirements (30 credits): 30 credits of coursework, ME 6340 Graduate Seminar (two semesters, 0 credits), and successful completion of a final examination. ME 5507 Engineering Analysis I (or a similar course in mathematics, computer science, engineering analysis, or statistics, approved by the advisory committee) is required. At least 24 of the coursework credits must be in Mechanical Engineering courses. The final examination must be taken after the completion of at least 24 credits. A maximum of six credits of independent study may count toward course requirements. The student's advisory committee must approve any additional courses beyond the required number of credits and any transfer credits that must be replaced with other UConn ME courses. With approval from the student's advisory committee, at most three credits of non-SEMS (science, engineering, mathematics, or statistics) courses and at most three credits of 3000/4000-level courses can be taken. Courses specific to the Master of Engineering (MENG) program, including ENGR 5311 Professional Communication and Information Management, ENGR 5312 Engineering Project Planning and Management, and ENGR 5314 Advanced Engineering Mathematics, may not be used toward the M.S. degree.

Learning Objectives

1. Knowledge: Demonstrate appropriate breadth and depth of disciplinary knowledge and comprehension of the major topics, theories, and issues of the discipline.
2. Applied skills: Use, disaggregate, reformulate and/or adapt principal ideas, techniques or methods of the field of study ethically, professionally, and based on best practices of the discipline.
3. Communication: Communicate proficiently and effectively to a specialist or non-specialist audience, verbally and in writing, a coherent argument or explanation summarizing aspects of the discipline.

Accelerated Mechanical Engineering MS

The Accelerated Mechanical Engineering MS is a program available to ME undergraduate students that allows them to complete a significant portion of their Master of Science degree during their undergraduate studies. Upon graduation from their Bachelor's degree, students enroll in the MS program to complete the requirements. The Accelerated Mechanical Engineering MS program is a Plan-A program; therefore, all the corresponding requirements apply. As such, our Accelerated program is a research-centered degree. Seniors enrolled in the program conduct research under the supervision of their future MS major advisor, typically as their Senior Design Project; it is possible (but less common) for students to participate in a regular Senior Design Project and conduct separately their research work, contingent on approval from the faculty

advisor. This research continues after graduation from the Bachelor's degree into the Master's degree studies and forms the basis for the student's Master's thesis.

In addition to conducting research during the senior year, undergraduate students enrolled in the program take graduate-level courses that satisfy the requirements of the MS degree to make progress towards the MS coursework requirements. Up to 12 credits of these graduate-level courses may be used to satisfy the requirements of both the undergraduate degree and the MS degree (for example, to be used as ME electives for the undergraduate degree).

The ability to conduct a significant portion of the research and coursework required for the MS degree during their undergraduate studies allows students enrolled in the program to complete the MS degree in a shorter time (typically one year) than the regular degree. Since this is a Plan-A MS, students must write a Master's thesis and defend it to graduate from the program.