

Degree Requirements - MS in Mechanical Engineering

The M.S. program in Mechanical Engineering offers thesis and non-thesis options. The program requirements are intended to provide students with both depth and breadth of knowledge in Mechanical Engineering while being flexible enough to allow students the opportunity to explore non-traditional and emerging areas in which Mechanical Engineering plays a central role. Course work plans must be prepared in consultation with the student's academic advisor and should be submitted to the Graduate Program Director (GPD) for approval during the first semester of study. Changes in the plan are permitted, but must be approved prior to implementation.

MINIMUM PROGRAM REQUIREMENTS¹

MS THESIS OPTION	MS NON-THESIS OPTION
Core curriculum – 12 credits	Core curriculum – 12 credits
Supplementary courses – 12 credits (9 credits or more at 600 level or above)	Supplementary courses – 18 credits (15 credits or more at 600 level or above)
Master's Thesis Research (ENME799) – 6 credits minimum	Master's Thesis Research (ENME799) – 1 credit
Thesis	Written scholarly report
Thesis defense	Comprehensive examination

All full-time² graduate students pursuing the M.S. degree in Mechanical Engineering at UMBC are required to successfully complete the designated Core Curriculum within their first year of study. Supplementary courses should be primarily from one of the four technical areas within the Mechanical Engineering Department. However, courses from other departments in the College of Engineering and from other branches of the physical, mathematical, or biological sciences may also be included to round out a student's overall program of study. All courses from outside the Mechanical Engineering Department must have prior approval of the student's academic advisor and the Graduate Program Director (GPD).

CORE CURRICULUM³

THEMATIC AREA	COURSES
Mathematics	MATH404 Partial Differential Equations
Thermal-Fluid Sciences	ENME640 Fluid Mechanics or ENME631 Conduction and Radiation Heat Transfer
Design, Manufacturing, and Engineering Systems	ENME662 Vibrations or ENME664 Advanced Dynamics
Solid Mechanics and Materials	ENME677 Applied Elasticity or ENME670 Continuum Mechanics

¹ Graduate students must maintain a minimum GPA of 3.0. No more than two (2) courses with a grade of C may be counted toward credit for an advanced degree. If a student falls below a 3.0 GPA, he/she must raise the GPA to a 3.0 by the end of the following semester or risk termination of his/her program. Graduate students may repeat only two courses (once each course) for the purpose of raising their grades. No financial aid tuition credits may be used to repeat a course so the student must pay for a repeat of a course.

² Graduate students receiving any departmental financial support are considered full-time students. Self-supported part-time students will be given additional time for completion of the core course requirements.

³ MATH 404 is usually offered by the Department of Mathematics and Statistics during the Fall semester. The Mechanical Engineering core courses will be offered once per academic year.