M.S. in Mechanical Engineering
Mechanics of Materials Track

Course	Semester	MCEN credits	Out of Dept Credit	Total
Core Courses (15 hours)				
MCEN 5020 Methods of Eng Anal (3)				
MCEN 5023 Solid Mechanics (3) or CVEN 5131 Continuum Mechanics & Elasticity (3)				
MCEN 5173, ASEN 5007 or CVEN 5511 Finite Element Analysis (3)				
Choose **two** of the following **four**:				
MCEN 5021 Fluid Dynamics (3)				
MCEN 5024 Materials Chemistry & Structure (3)				
MCEN 5044 Mechanical Behavior of Materials (3)				
MCEN 5034 Thermodynamics & Kinetics of Materials (3)				
MCEN 5027 Graduate Seminar				P/F
MCEN 5027 Graduate Seminar				P/F
Enrichment Courses (min 6 hours)				
Elective Courses				
Thesis Requirements (Optional)				
MCEN 5208 Intro to Research (1)				P/F
MCEN 6959 Masters Thesis (3)				
MCEN 6959 Masters Thesis (3)				
(One elective hour above instead of three)				
30 hours are required for the M.S. degree. At least 18 must be in MCEN courses, or 15 must be in MCEN courses in addition to 6 MCEN thesis hours.		*(min. 18)*	*(max 9 with thesis, 12 without thesis)*	**30**
P/F courses are not included in the 30 credit requirement. The Graduate Seminar is a MCEN Department requirement for graduation.				

Enrichment Courses:
Additional courses may be approved on a petition basis. Some courses may have prerequisites.

Recommended for Mechanics Interest

MCEN 5228	Mechanics of Composite Materials
MCEN 5228	Mechanics of Soft Materials
MCEN 5228	Soft Machines
MCEN 5228	Thin Film Materials
CVEN 5161	Advanced Mechanics of Materials I
CVEN 6161	Advanced Mechanics of Materials 2
CVEN 7161	Fracture Mechanics
PHYS 5210	Theoretical Mechanics

Recommended for Computational Mechanics Interest

MCEN 6228	Numerical Methods
CVEN 7511	Computational Mechanics of Solids and Structures
ASEN 6367	Advanced Finite Element Meth.
ASEN 5417	Numerical Methods for Differential Equations
ASEN 6107	Nonlinear Finite Element Methods

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Recommended for Materials Interest

MCEN 5044	Mechanical Behavior of Materials
MCEN 5034	Thermodynamics & Kinetics of Materials
MCEN 5228	Biomimetic Materials
MCEN 5228	Ceramics
MCEN 5228	Introduction to Polymers
MCEN 5228	Materials Chemistry & Structure
MCEN 5228	Mechanics of Soft Materials
MCEN 5228	Thin Film Materials
MCEN 6184	Structure & Properties of Polymers
ASEN 5519	Advances in Materials Processing

Recommended for Design Mechanics Interest

MCEN 5248	Microsystems Design
MCEN 5125	Optimal Design
ASEN 5519	Design Optimization
ASEN 5218	Large Space Structure Design
ASEN 5148	Spacecraft Design

Recommended for Micro/Nanomechanics Interest

MCEN 5228	Materials Chemistry & Structure
MCEN 5636	MEMS 1
MCEN 5248	MEMS 2
PHYS 3220	Quantum Mech & Atomic Physics 1
PHYS 4410	Quantum Mech & Atomic Physics 2
PHYS 4230	Thermodynamics & Statistical Dynamics
PHYS 4340	Solid-State Physics
PHYS 5250	Intro Quantum Mechanics 1
CHEM 557	Surface Science