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 5228 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

<u>Recommended for Mechanics Interest</u>
MCEN 5183 Mechanics of Composites
CVEN-5161 Advanced Mechanics of Materials I
CVEN-6161 Advanced Mechanics of Materials 2
CVEN 7161 Fracture Mechanics
PHYS 5210 Theoretical Mechanics
MCEN 5228 Thin Film Materials
MCEN 5228 Mechanics of Soft Materials

<u>Recommended for Design Mechanics Interest</u>
MCEN 5248 Microsystems Design
MCEN 5125 Optimal Design
ASEN 5519 Design Optimization
ASEN 5218 Large Space Structure Design
ASEN 5148 Spacecraft Design

<u>Recommended for Micro/Nanomechanics Interest</u>
MCEN 5636 MEMS 1
MCEN 5248 MEMS 2
MCEN 5228 Materials Chemistry & Structure
PHYS 5250 Intro Quantum Mechanics 1
PHYS 3220 Quantum Mech/Atomic Phys 1
PHYS 4410 Quantum Mech/Atomic Phys 2
PHYS 4230 Thermodynamics/Stat. Mech.
PHYS 4340 Solid-State Physics
CHEM 5571 Surface Science

<u>Recommended for Computational Mechanics Interest</u>
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

<u>Recommended for Materials Interest</u>
MCEN 5228 Materials Chemistry & Structure
MCEN 5044 Mechanical Behavior of Materials
MCEN 5034 Thermodynamics & Kinetics of Materials
MCEN 5228 Introduction to Polymers
MCEN 5228 Mechanics of Soft Materials
MCEN 6184 Structure & Properties of Polymers
ASEN 5519 Advances in Materials Processing
MCEN 5228 Thin Film Materials

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