Department of Mechanical Engineering

Master of Science Curriculum

554010 - Mechanical Engineering (Thesis Option)

Requirements	Credits	Details
Core Courses	9	EML 5060 - Analysis in Mechanical Engineering I (3) AND two core courses in your depth area Dynamics & Controls EGM 5444 - Advanced Dynamics (3) EML 5317 - Advanced Controls (3) EML 5361 - Multivariable Control (3) EML 5930 - Adaptive Controls (3) Fluid Mechanics & Heat Transfer EGM 5152 - Heat Transfer (3) EML 5155 - Convective Heat Transfer (3) EML 5709 - Fluid Mechanics (3) EML 5930 - Advanced Engineering Thermodynamics (3) Mechanics & Materials EGM 5611 - Continuum Mechanics (3) EGM 5653 - Theory of Elasticity (3) EML 5930 - Advanced Materials (3)
Mechanical Engineering Courses	6	Select two Mechanical Engineering courses.
Electives	9	Select three graduate-level, letter-graded courses in engineering, mathematics, and/or any science discipline (e.g. computer science, physics, etc.). Your major professor must approve all electives. You may also take one Directed Individual Study (3) or Supervised Research (3) course as an elective.
Mechanical Engineering Seminar	0	You must register for EML 5935 - Mechanical Engineering Seminar each semester.
Thesis & Thesis Defense	6	You must complete six credit hours of EML 5971 – Thesis (3-6). In your final term you must register for EML 8976 - Thesis Defense (0).
Total	30	You must complete thirty credit hours of graduate-level coursework to satisfy the requirements for a Master's degree in Mechanical Engineering.

554010 - Mechanical Engineering (Non-Thesis Option)

Requirements	Credits	Details
Mechanical Engineering Courses	21	Select seven courses in Mechanical Engineering.
Electives	6	Select two graduate-level, letter-graded courses in engineering, mathematics, and/or any science discipline.
Mechanical Engineering Seminar	0	You must register for EML 5935 - Mechanical Engineering Seminar (0) each semester.
Engineering Design Project	6	You must complete an Engineering Design Project with a final project report OR select two additional electives.
Total	33	You must complete thirty-three credit hours of graduate-level coursework to satisfy the requirements for a Master's degree in Mechanical Engineering.

554010 - Mechanical Engineering (BS-MS Program)

Requirements	Credits	Details
Internship	4	EML 5946 - Professional Internship Experience.
Mechanical Engineering Courses	18	Select six courses in Mechanical Engineering.
Electives	3	Select one graduate-level, letter-graded course in engineering, mathematics, and/or any science discipline.
Mechanical Engineering Seminar	0	You must register for EML 5935 - Mechanical Engineering Seminar (0) each semester.
Engineering Design Project	8	You must complete EML 5930 - Engineering Design Project (3-5) with a final project report.
Total	33	You must complete thirty-three credit hours of graduate-level coursework to satisfy the requirements for a Master's degree in Mechanical Engineering.

554012 - Sustainable Energy

Requirements	Credits	Details
Core Courses	15	EML 5060 - Analysis in Mechanical Engineering I (3) CHM 5153 - Engineering Electrochemistry (3) or an approved equivalent course EML 5451 - Energy Conversion Systems for Sustainability (3) EML 5452 - Sustainable Power Generation (3) EML 5930 - Sustainable Energy Utilization (3)
Electives	9	Select three graduate-level, letter-graded courses in engineering, mathematics, and/or any science discipline (e.g. computer science, physics, etc.). Your major professor must approve all electives. You may also take one Directed Individual Study (3) or Supervised Research (3) course as an elective.
Mechanical Engineering Seminar	0	You must register for EML 5935 - Mechanical Engineering Seminar (0) each semester.
Thesis & Thesis Defense	6	You must complete six credit hours of EML 5971 – Thesis (3-6) In your final term you must register for EML 8976 - Thesis Defense (0).
Total	30	You must complete thirty credit hours of graduate-level coursework to satisfy the requirements for a Master's degree in Mechanical Engineering.

680015 - Interdisciplinary Program in Material Science

Requirements	Credits	Details
Core Courses	12	ECH 5934 - Materials Thermodynamics and Kinetics (3) EMA 5*** - Synthesis and Processing of Advanced Materials (3) EML 5930 - Advanced Materials (3) PHY 6937 - Materials Characterization (3)
Research Methods	3	ECH 5052 – Research Methods (3)
Specialized Courses	9	Select three graduate-level, letter-graded courses from one of the following specialized areas: Nanoscale Materials, Composite Materials and Interfaces, Polymers and Bio-Inspired Materials, Functional Materials, Computational Materials and Mechanics. A complete list of available courses is available online.
Mechanical Engineering Seminar	0	You must register for EML 5935 - Mechanical Engineering Seminar (0) each semester.
Thesis & Thesis Defense	6	You must complete six credit hours of EML 5971 – Thesis (3-6) In your final term you must register for EML 8976 - Thesis Defense (0).
Total	30	You must complete thirty credit hours of graduate-level coursework to satisfy the requirements for a Master's degree in Mechanical Engineering.