

Area of Emphasis (AOE) Courses

There are a large number of courses that can be used to satisfy the Area of Emphasis (AOE) course requirements in Mechanical Engineering. These courses fall into four categories: (1) ME electives as regular course offering; (2) mathematics courses applicable to ME; (3) select general engineering, business, writing and technology courses; and (4) miscellaneous upper division engineering and science offerings with departmental approval. No online courses may be used as AOE's.

Category 1: Mechanical engineering elective courses (a minimum of 9 cr. hrs must be taken from this category for AOE's)

ME 4020 (5020) – Applied Machine Design

ME 4060 (5060) - Machine Vibrations

ME 4120 (5120) - Intermediate Dynamics

ME 4140 (5140) - Introduction to Robotics and Intelligent Machines Engineering

ME 4160 (5160) - Experimental Stress Analysis

ME 4180 (5180) - Finite Element Methods in Mechanical Design

ME 4190 (5190) - Advanced Mechanics of Materials

ME 4210 (5210) - Refrigeration and Air Conditioning

ME 4220 (5220) - Air Conditioning Design

ME 4260 (5260) - Energy Conversion and Conservation

ME 4310 (5310) - Gas Dynamics

ME 4370 (5370) - Mechatronics and Intelligent Machines Engineering

ME 4460 (5460) - Mechanical Properties of Materials

ME 4470 (5470) - Interdisciplinary Studies in Ceramic Materials Processing

ME 4480 (5480) - Microstructural Analysis

ME 4490 (5490) - Properties and Selection of Engineering Materials

ME 4510 (5510) - Aerodynamics

ME 4610 (5610) - Steam Power Plants

ME 4620 (5620) - Turbomachinery

ME 4630 (5630) - Internal Combustion Engines

ME 4640 (5640) – Dynamics of Machinery II

ME 4720 (5720) – Thermal Design

ME 4730 (5730) - Numerical Heat Transfer

ME 4810 (5810) - Automatic Controls

ME 4900 - Special Topics (maximum of 3 cr. hrs shall be counted as AOE)

ME 4930 (5930) - Noise Control

ME 4990 – Undergraduate Research (maximum of 3 cr. hrs shall be counted as AOE)

Any ME 6000-level courses may be used with prior approval of both the course instructor and the ME department chair/associate chair. The student must be within 18 credit hours of graduation.

Category 2: Mathematics directly applicable to mechanical engineering

MATH 3470 - Introductory Probability and Statistics

MATH 3810 - Complex Variables

MATH 4210 (5210) - Numerical Analysis I

MATH 4220 (5220) - Numerical Analysis II

MATH 4250 (5250) - Advanced Ordinary Differential Equations I

MATH 4510 (5510) – Advanced Mathematics for Engineers

MATH 4530 (5530) - Linear Algebra I

MATH 4710 (5710) - Vector Analysis

Category 3: Select General Engineering, Business, Writing and Technology Courses (maximum of 3 cr. hrs shall be counted as AOE)

BMGT 3510 - Management and Organization Behavior

ENGL 3250 - Professional Communication I

ENGR 4510 – Engineering Management

ENTR 4500 – Innovation and Entrepreneurship through Lean Launchpad

MET 4400 - Geometric Dimensioning and Tolerancing

MET 4450 – Additive Manufacturing

MET 4650 - Lean Six Sigma Manufacturing

Category 4: Miscellaneous Engineering and Science Courses

Other upper division (3000 and 4000-level) engineering and science courses may be used with prior approval of both the course instructor and the ME department.