Technical Electives in the Mechanical Engineering Curriculum

AAE 25100 Introduction to Aerospace Design
AAE 30100 Signal Analysis for Aerospace Engineering
AAE 33400 Aerodynamics
AAE 33800 Thermal Sciences
AAE 33900 Aerospace Propulsion
AAE 34000 Dynamics and Vibrations
AAE 35103 Aerospace Systems Design
AAE 35200 Structural Analysis
AAE 36100 Introduction to Random Variables in Engineering
AAE 36400 Control System Analysis
AAE 37200 Jet Propulsion Power Plants
AAE 41200 Introduction to Computational Fluid Dynamics
AAE 41600 Viscous Flows
AAE 42100 Flight Dynamics and Control
AAE 43900 Rocket Propulsion
AAE 45000 Spacecraft Design
AAE 45100 Aircraft Design
AAE 45300 Matrix Methods in Aerospace Structures
AAE 49000 Special Problems in Aero Engineering* Must have approval from Undergraduate Office prior to registering for course
AAE 51200 Computational Aerodynamics
AAE 51400 Intermediate Aerodynamics
AAE 51500 Rotorcraft Aerodynamics
AAE 51700 Unsteady Aerodynamics
AAE 51900 Hypersonic Aerothermodynamics
AAE 52000 Experimental Aerodynamics
AAE 53200 Orbit Mechanics
AAE 53900 Advanced Rocket Propulsion
AAE 54700 Experimental Stress Analysis
AAE 55000 Multidisciplinary Design Optimization
AAE 55300 Elasticity in Aerospace Engineering
AAE 55400 Fatigue of Structures and Materials
AAE 55500 Mechanics of Composite Materials
AAE 55600 Aeroelasticity
AAE 55800 Finite Element Methods in Aerospace Structures
AAE 56400 Systems Analysis and Synthesis
ABE 33000 Design of Machine Components
ABE 33600 All-Terrain Vehicle Design
ABE 43500 Hydraulic Control Systems for Mobile Equipment
ABE 45000 Finite Element Method in Design and Optimization
ABE 46000 Sensors and process Control
ABE 50100 Welding Engineering
ABE 54500 Design of Off-Highway Vehicles

ABE 55500 Biological and Food Processing Unit Operations
ABE 55600 Biological and Food Process Design
ABE 58000 Process Engineering of Renewable Resources
ASM 34500 Power Units and Power Trains
ASTR 36300 The Solar System
ASTR 36400 Stars and Galaxies
ASTR 37000 Cosmology
BCHM 30700 Biochemistry
BIOL 11000 Fundamentals of Biology I
BIOL 11100 Fundamentals of Biology II
BIOL 12100-12200 Biology I: Diversity, Ecology, and Behavior
BIOL 13100-13200 Biology II: Development, Structure, and Function of Organisms
BIOL 20100 Human Anatomy and Physiology
BIOL 20200 Human Anatomy and Physiology
BIOL 20300 Human Anatomy and Physiology
BIOL 23000 The Biology of the Living Cel
BIOL 23100-23200 Biology II: Cell Structure and Function
BIOL 24100-24200 Biology IV: Genetics and Molecular Biology
BIOL 30100 Human Design: Anatomy and Physiology
BIOL 30200 Human Design: Anatomy and Physiology
BIOL 32800 Principles of Physiology
BIOL 58500 Ecology
BME 20100 Biomolecules: Structure, Function, and Engineering Applications
BME 20400 Biomechanics of Hard and Soft Tissues
BME 54000 Biomechanics
BME 55100 Tissue Engineering
CE 22200 Lifecycle Engineering and Management of Constructed Facilities
CE 31100 Architectural Engineering
CE 32200 Introduction to Construction Engineering
CE 32201 Project Control and Life Cycle Execution of Constructed Facilities
CE 33300 Civil Engineering Materials
CE 34000 Hydraulics
CE 35000 Introduction to Environmental and Ecological Engineering
CE 35200 Biological Principles of Environmental Engineering
CE 35300 Physio-Chemical Principles of Environmental Engineering
CE 35500 Engineering Environmental Sustainability
CE 36100 Transportation Engineering
CE 37100 Structural Analysis I
CE 41300 Building Envelope Design and Thermal Loads
CE 41400 Building Mechanical and Electrical System Design
CE 41800 Hydraulics Engineering
CE 42400 Human Resource Management in Construction
CE 42600 Construction Cost Control Concepts

CE 44000 Urban Hydraulics
CE 44200 Introduction to Hydrology
CE 45600 Water and Wastewater Treatment
CE 45700 Air Pollution Control and Design
CE 46300 Highway Transportation Characteristics
CE 47000 Structural Steele Design
CE 47300 Reinforced Concrete Design
CE 47400 Structural Analysis II
CE 47900 Design of Building Components and Systems
CE 48500 Environmental Law and Public Policy
CE 49700 Civil Engineering Projects*
CE 51300 Lighting of Buildings
CE 51401 Building Controls
CE 51501 Building Energy Audits
CE 52000 Construction Project Control Systems
CE 52400 Legal Aspects in Engineering Practice
CE 54000 Open Channel Hydraulics
CE 54200 Hydrology
CE 55700 Air Quality Management
CE 56000 Public Mass Transportation
CE 56300 Airport Design
CE 57000 Advanced Structural Mechanics
CE 57300 Structural Dynamics
CE 59500 Finite Elements in Elasticity
CHE 20500 Chemical Engineering Calculations
CHE 46100 Biomedical Engineering
CHM 25500 Organic Chemistry
CHM 25501 Organic Chemistry Lab
CHM 25600 Organic Chemistry
CHM 25601 Organic Chemistry Lab
CHM 26100 Organic Chemistry I
CHM 26200 Organic Chemistry
CHM 26505 Organic Chemistry
CHM 26605 Organic Chemistry II
CHM 37300 Physical Chemistry
CHM 37400 Biochemistry: A Molecular Approach
CS 24000 Programming in C
CS 25000 Computer Architecture
CS 25100 Data Structures and Algorithms
CS 25200 Systems Programming
CS 30700 Software Engineering I
CS 31400 Numerical Methods
CS 33400 Fundamentals of Computer Graphics

CS 34800 Information Systems
CS 35200 Compilers: Principles and Practice
CS 35400 Operating Systems
CS 35500 Introduction to Cryptography
CS 38100 Introduction to the Analysis of Algorithms
CS 40800 Software Testing
CS 44800 Introduction to Relational Databases Systems
CS 47100 Introduction to Artificial Intelligence
CS 51400 Numerical Analysis
CS 51500 Numerical Analysis of Linear Systems
CS 56500 Programming Languages
EAPS 40300 Physical Oceanography
EAPS 42100 Atmospheric Thermodynamics
EAPS 42200 Atmospheric Dynamics I
EAPS 42300 Atmospheric Dynamics II
ECE 20200 Linear Circuit Analysis II
ECE 25500 Introduction to Electronics Analysis and Design
ECE 26400 Advanced C Programming
ECE 26600 Digital Logic Design
ECE 27000 Introduction to Digital System Design
ECE 30010 Introduction to Machine Learning and Pattern Recognition
ECE 30100 Signals and Systems
ECE 30200 Probabilistic Methods in Electrical Engineering
ECE 30500 Semiconductor Devices
ECE 31100 Electric and Magnetic Fields
ECE 32100 Electromechanical Motion Devices
ECE 36200 Microprocessor Systems and Interfacing
ECE 37300 Numerical Methods for Engineers
ECE 38200 Feedback System Analysis and Design
ECE 39000 DMO: Data Mining & Machine Learning
ECE 42300 Electromechanical Motion Control
ECE 42500 Electric Machines
ECE 43200 Elements of Power System Engineering
ECE 43300 Power Electronics
ECE 48300 Digital Control Systems - Analysis and Design
ECE 53200 Computational Methods for Power System Analysis
ECE 55400 Electronic Instrumentation and Control Circuits
ECE 56200 Artificial Intelligence
ECE 56900 Introduction to Robotic Systems
ECON 45100 Gaming Theory (may not be used for general education elective credit)
EEE 35000 Introduction to Environmental and Ecological Engineering
EEE 43000 Industrial Ecology and Life Cycle Analysis
EEE 49500 Environmental and Ecological Engineering Projects* Must have approval from Undergraduate Office prior to registering for course

EEE 59500 Environmental and Ecological Engineering Projects* Must have approval from Undergraduate Office prior to registering for course
ENGL 42100 Technical Writing (may not be used for general-education elective credit)
ENTR 31000 Marketing and Management for New Ventures
EPCS 30100 Jr. Participation in Engineering Projects in Community Service (EPICS) - 1 Credit
EPCS 30200 Jr. Participation in Engineering Projects in Community Service (EPICS) - 2 Credits
EPCS 40100 Sr. Participation in Engineering Projects in Community Service (EPICS) - 1 Credit
EPCS 40200 Sr. Participation in Engineering Projects in Community Service (EPICS) - 2 Credits
GEP 30000 Global Design Team III
GEP 40000 Global Design Team IV
HSCI 31200 Radiation Science Fundamentals
IE 33500 Operations Research - Optimization
IE 34300 Engineering Economics
IE 37000 Manufacturing Processes I (IE 370 and ME 363 cannot both be taken for Technical Elective Credit)
IE 47000 Manufacturing Processes II
IE 38300 Integrated Production System
IE 49000 Special Topics in IE* Must have approval from Undergraduate Office prior to registering for course
IE 53000 Quality Control
IE 53500 Linear Programming
IE 53700 Discrete Optimization Models and Algorithms
IE 55600 Job Design
IE 55800 Safety Engineering
IE 55900 Cognitive Engineering of Interactive Software
IE 57000 Manufacturing Process Engineering
IE 57400 Industrial Robotics and Flexible Assembly
IE 57500 Computer-Aided Manufacturing
IE 57700 Human Factors in Engineering
MA 30100 Introduction to Proof Through Real Analysis
MA 34100 Foundations Through Analysis
MA 35100 Elementary Linear Algebra
MA 35300 Linear Algebra II with Applications
MA 36200 Topics in Vector Calculus
MA 36600 Ordinary Differential Equations
MA 37500 Introduction to Discrete Mathematics
MA 41600 Probability
MA 42100 Linear Programming and Optimization Techniques
MA 42500 Elements of Complex Analysis
MA 42800 Introduction to Fourier Analysis
MA 44000 Real Analysis (Honors)
MA 44200 Multivariate Analysis (Honors)
MA 45000 Algebra (Honors)
MA 45300 Elements of Algebra I
MA 45400 Galois Theory (Honors)
MA 46000 Geometry

MA 46200 Elementary Differential Equations
MA 47400 Methods of Random Modeling
MA 51000 Vector Calculus
MA 51100 Linear Algebra
MA 51500 Mathematics of Finance
MA 52000 Boundary Value Problems of Differential Equations
MA 52300 Introduction to Partial Differential Equations
MA 52700 Advanced Mathematics for Engineers and Physicists I
ME 36300 Principles and Practices of Manufacturing Processes (IE 370 and ME 363 cannot both be taken for Technical Elective Credit)
ME 41300 Noise Control
ME 43000 Power Engineering
ME 43300 Principles of Turbomachinery
ME 43400 Gas Turbines for Power and Propulsion
ME 44000 Automotive Prime Movers: Green Engines and Clean Fuel
ME 44400 Computer Aided Design and Prototyping
ME 45500 Vehicle Design and Fabrication
ME 46000 Power Engineering
ME 48900 Introduction to Finite Element Analysis
ME 49200 Technology and Values
ME 49700 Mechanical Engineering Projects* Must have approval from Undergraduate Office prior to registering for course
ME 49800 Research in Mechanical Engineering
ME 49900 Research in Mechanical Engineering
ME 50000 Advanced Thermodynamics
ME 50100 Statistical Thermodynamics
ME 50300 Micro-and-Nano Scale Energy Transfer Process
ME 50500 Intermediate Heat Transfer
ME 50600 Two-Phase Flow and Heat Transfer
ME 50700 Laser Processing
ME 50800 Heat Transfer in Biomedical Systems
ME 50900 Intermediate Fluid Mechanics
ME 51000 Gas Dynamics
ME 51300 Engineering Acoustics
ME 51400 Fundamentals of Wind Energy
ME 51700 Micro/Nano Scale Physical Processes
ME 51800 Analysis of Thermal Systems
ME 52200 Indoor Environmental Analysis and Design
ME 52500 Combustion
ME 52600 Spray Applications and Theory
ME 53300 Turbomachinery II
ME 53800 Air Breathing Propulsion
ME 54000 Internal Combustion Engines
ME 55300 Product And Process Design
ME 55400 Intellectual Property (1 credit)

ME 55600 Lubrication, Friction, and Wear
ME 55700 Design for Manufacturability
ME 55900 Micromechanics of Materials
ME 56200 Advanced Dynamics
ME 56300 Mechanical Vibrations
ME 56500 Vehicle Dynamics
ME 57000 Machine Design
ME 57200 Analysis and Design of Robotic Manipulators
ME 57500 Theory and Design of Control Systems
ME 57600 Computer Control of Manufacturing Processes
ME 57700 Human Motion Kinetics
ME 57800 Digital Control
ME 57900 Digital Signal Processing
ME 58000 Nonlinear Engineering Systems
ME 58100 Numerical Methods in Mechanical Engineering
ME 58200 Thermal Stress Analysis
ME 58400 System Identification
ME 58600 Microprocessors in Electromechanical Systems
ME 58700 Engineering Optics
ME 58800 Mechatronics
ME 59200 Integrated Design of Electro-Mechanical Systems
ME 59700 Advanced Mechanical Engineering Projects I* Must have approval from Undergraduate Office prior to registering for course
MFET 30000 Applications of Automation in Manufacturing
MGMT 20100 Management Accounting I
MGMT 30400 Introduction to Financial Management
MGMT 30500 Business Statistics
MGMT 30600 Management Science
MGMT 31000 Financial Management
MGMT 32300 Introduction to Market Analysis
MGMT 32400 Marketing Management
MGMT 35000 Intermediate Accounting I
MGMT 35100 Intermediate Accounting II
MGMT 35200 Strategic Management
MGMT 35400 Legal Foundations of Business I
MGMT 36100 Operations Management
MGMT 38200 Management Information Systems
MGMT 44301 Management of Human Resources
MGMT 45500 Legal Background of Business I
MGMT 45600 Legal Background of Business II
MSE 24000 Processing and Properties of Materials
MSE 25000 Physical Properties in Engineering Systems
MSE 26000 Thermodynamics of Materials
MSE 27000 Atomistic Materials Science

MSE 33000 Processing and Properties of Materials
MSE 33500 Materials Characterization Laboratory
MSE 37000 Electrical, Optical, & Magnetic Properties of Materials
MSE 38200 Mechanical Response of Materials
MSE 54000 High Temperature Alloys
NS 21200 Naval Weapon Systems
NS 35000 Naval Ship Systems
NUCL 20000 Introduction to Nuclear Engineering
NUCL 30000 Nuclear Structure of Radiation Interactions
NUCL 31000 Introduction to Neutron Physics
NUCL 32000 Introduction to Materials for Nuclear Applications
NUCL 40200 Engineering of Nuclear Power Plants
NUCL 46000 Introduction to Controlled Thermonuclear Fusion
NUCL 47000 Fuel Cell Engineering
NUCL 50100 Nuclear Engineering Principles
NUCL 50300 Radioactive Waste Management
NUCL 50400 Nuclear Engineering Experiments
NUCL 51000 Nuclear Reactor Theory I
NUCL 56000 Introduction to Fusion Technology
OBHR 33000 Introduction to Organizational Behavior
OBHR 42800 Human Resource Management
PHYS 31000 Intermediate Mechanics
PHYS 32200 Intermediate Optics
PHYS 33000 Intermediate Electricity and Magnetism
PHYS 34200 Modern Physics
PHYS 34400 Modern Physics
PHYS 36000 Quantum Mechanics
PHYS 41500 Heat and Thermodynamics
PHYS 41700 Thermal and Statistical Physics
PHYS 42200 Waves and Oscillations
PHYS 51500 Thermal and Statistical Physics
PHYS 56000 Stellar Evolution
STAT 35000 Introduction to Statistics
STAT 41600 Probability
STAT 41700 Statistical Theory
STAT 51100 Statistical Methods
STAT 51200 Applied Regression Analysis
STAT 51300 Statistical Quality Control
STAT 51400 Design of Experiments