

## **Mechanical Engineering Technical Electives**

(12 credits required starting in 2019-2020 catalog)

Students can focus in a concentration area or take electives from multiple areas

### **All Mechanical Engineering Technical Electives**

ME 320 Dynamics of Machines (if not used for Dynamics requirement)  
ME 345 Safety Engineering I  
ME 400 Intermediate Fluid Mechanics  
ME 409 Turbomachinery  
ME 412 Sizing Solar Energy Systems  
ME 415 Design of Thermal Systems  
ME 416 Introduction to Biomechanical Engineering  
ME 417 Fuel Cell Fundamentals  
ME 418 Air Conditioning Engineering Systems  
ME 419 Advanced HVAC and Energy Conservation Systems  
ME 421 Automatic Controls (if not used for Dynamics requirement)  
ME 425 Robotics  
ME 426 Manufacturing Processes  
ME 427 Manufacturing Systems  
ME 429 Computer Control of Machines and Processes  
ME 430 Corrosion Engineering  
ME 434 Noise Control  
ME 441 Advanced Mechanical Engineering Design  
ME 442 Advanced Mechanism Design  
ME 443 Design Techniques in Mechanical Engineering  
ME 446 Composite Materials  
ME 453 Mechanical Vibrations (if not used for Dynamics requirement)  
ME 454 Physical Metallurgy  
ME 455 Fundamentals of Nuclear Engineering  
ME 460 High School Mentoring for Engineering Design  
ME 462 Vehicle Design Projects  
ME 470 Experimental Mechanics of Materials  
ME 477 Solar and Renewable Energy Utilization  
ME 480 Gas Dynamics  
ME 482 Aerodynamics  
ME 491 Independent Study (3 credits maximum)  
ME 495 Special Topics in Engineering

### **All Mechanical Engineering Technical Electives (Approved Courses from other Departments)**

Students can request approval from the ME Department Chair for Courses not on this list.

BIO 350 Comparative Vertebrate Anatomy  
BIO 473 Advanced Topics in Cell and Molecular Biology  
BIO 480 Introduction to Biological Modeling  
CEE 452 Air Pollution Control Fundamentals CEM 480 Sustainable Construction  
KIN 346 Biomechanics  
KIN 446 Sport and Exercise Biomechanics  
KIN 492 Clinical Exercise Physiology

**All Mechanical Engineering Technical Electives (Approved Courses from other Departments) Continued.**

EKG 300 Quality Control and Quality Improvement Engineering  
EKG 370 UAS Design and Applications  
EKG 412 Engineering Law  
EKG 417 Mold Making and Casting  
EKG 451 Ergonomics  
EKG 460 Technology Commercialization  
EKG 470 UAS Simulation and Testing  
MGT 493 Seminar in Entrepreneurship  
MGT 494 Seminar in Management  
MGT 497 Business Plan Creation  
HMD 445 Hospitality Innovation Lab  
MATH 432 Mathematics for Engineers and Scientists II  
MATH 488 Partial Differential Equations  
STAT 463 Applied Statistics for Engineers

**Aerospace Engineering Technical Electives**

ME 320 Dynamics of Machines (if not used for Dynamics requirement)  
ME 400 Intermediate Fluid Mechanics  
ME 409 Turbomachinery  
ME 421 Automatic Controls (if not used for Dynamics requirement)  
ME 443 Design Techniques in Mechanical Engineering  
ME 446 Composite Materials  
ME 470 Experimental Mechanics of Materials  
ME 480 Gas Dynamics  
ME 482 Aerodynamics  
ME 491 Independent Study (3 credits maximum)  
ME 495 Special Topics in Engineering  
EKG 300 Quality Control and Quality Improvement Engineering  
EKG 370 UAS Design and Applications  
EKG 470 UAS Simulation and Testing  
MATH 432 Mathematics for Engineers and Scientists II  
MATH 488 Partial Differential Equations  
STAT 463 Applied Statistics for Engineers

**Biomedical Engineering Technical Electives**

ME 416 Introduction to Biomechanical Engineering  
ME 491 Independent Study (3 credits maximum)  
ME 495 Special Topics in Engineering  
BIO 350 Comparative Vertebrate Anatomy  
BIO 473 Advanced Topics in Cell and Molecular Biology  
BIO 480 Introduction to Biological Modeling  
KIN 346 Biomechanics  
KIN 446 Sport and Exercise Biomechanics  
KIN 492 Clinical Exercise Physiology  
MATH 432 Mathematics for Engineers and Scientists II  
MATH 488 Partial Differential Equations  
STAT 463 Applied Statistics for Engineers

### **Management and Entrepreneurship Technical Electives**

EGG 300 Quality Control and Quality Improvement Engineering  
EGG 412 Engineering Law  
EGG 460 Technology Commercialization  
MGT 493 Seminar in Entrepreneurship  
MGT 494 Seminar in Management  
MGT 497 Business Plan Creation  
HMD 445 Hospitality Innovation Lab

### **Materials and Manufacturing Technical Electives**

ME 426 Manufacturing Processes  
ME 427 Manufacturing Systems  
ME 430 Corrosion Engineering  
ME 446 Composite Materials  
ME 454 Physical Metallurgy  
ME 470 Experimental Mechanics of Materials  
ME 491 Independent Study (3 credits maximum)  
ME 495 Special Topics in Engineering  
EGG 300 Quality Control and Quality Improvement Engineering  
EGG 370 UAS Design and Applications  
EGG 417 Mold Making and Casting

### **Mechanical Design Technical Electives**

ME 320 Dynamics of Machines (if not used for Dynamics requirement)  
ME 345 Safety Engineering I  
ME 417 Fuel Cell Fundamentals  
ME 421 Automatic Controls (if not used for Dynamics requirement)  
ME 425 Robotics  
ME 441 Advanced Mechanical Engineering Design  
ME 442 Advanced Mechanism Design  
ME 443 Design Techniques in Mechanical Engineering  
ME 446 Composite Materials  
ME 453 Mechanical Vibrations (if not used for Dynamics requirement)  
ME 460 High School Mentoring for Engineering Design  
ME 462 Vehicle Design Projects  
ME 491 Independent Study (3 credits maximum)  
ME 495 Special Topics in Engineering  
EGG 300 Quality Control and Quality Improvement Engineering  
EGG 370 UAS Design and Applications  
EGG 417 Mold Making and Casting  
EGG 451 Ergonomics  
HMD 445 Hospitality Innovation Lab

### **Mechanical, Environmental and HVAC Systems Technical Electives**

ME 345 Safety Engineering I  
ME 418 Air Conditioning Engineering Systems  
ME 419 Advanced HVAC and Energy Conservation Systems  
ME 434 Noise Control  
ME 453 Mechanical Vibrations (if not used for Dynamics requirement)