# MECHANICAL ENGINEERING TECHNICAL ELECTIVES

**Wichita State University - College of Engineering**

***Updated April 2019***

| Thermal Electives (3 credits) | |
|---|---|
| **ME 469** | Energy Conversion |
| **ME 502** | Thermodynamics 2 |
| **ME 702** | Energy and Sustainability |
| **ME 719** | Basic Combustion Theory |

| Thermal Design Electives (3 credits) | |
|---|---|
| **ME 644** | Design of HVAC Systems |
| **ME 731** | Advanced Design of Heat Exchangers |
| **ME 745** | Design of Thermal Systems |

| Mechanical Design Electives (3 credits | |
|---|---|
| **ME 541** | Mechanical Engineering Design 2 |
| **ME 637** | Computer – Aided Engineering |
| **ME 729** | Computer- Aided Analysis of Mech Systs |
| **ME 749** | Applications of Finite Element Methods in ME |

| Mechanical Electives (3 credits) | |
|---|---|
| **ME 469** | Energy Conversion |
| **ME 502** | Thermodynamics 2 |
| **ME 541** | Mechanical Engineering Design 2 |
| **ME 581** | Intro of Corrosion |
| **ME 602** | Engineering for the Environment |
| **ME 637** | Computer – Aided Engineering |
| **ME 644** | Design of HVAC Systems |
| **ME 650V** | Conduction of Heat Transfer |
| **ME 650W** | Intro to Micro-electro-mech Sysytems |
| **ME 651** | Biomaterials |
| **ME 660** | Polymer Material and Engineering |
| **ME 664** | Introduction to Fatigue and Fracture |
| **ME 665** | Selection Mats Design/ Manufacturing |
| **ME 667** | Mech Props of Materials |
| **ME 670** | Intro to Nano Tech |
| **ME 672** | Manufacturing of Composites |
| **ME 673** | Recovery of Engineering Materials |
| **ME 680** | Laser Applications in Manufacturing |
| **ME 702** | Energy and Sustainability |
| **ME 709** | Injury Biomechanics |
| **ME 719** | Basic Combustion Theory |

# MECHANICAL ENGINEERING TECHNICAL ELECTIVES

| Mechanical Electives - Continued | |
|---|---|
| **ME 725** | Mechanical Vibrations and Acoustics |
| **ME 728** | Advanced Electronic Materials |
| **ME 729** | Computer – Aided Analysis of Mech Systs |
| **ME 730** | Appl Finite Element Methods |
| **ME 731** | Advanced Design of Heat Exchangers |
| **ME 737** | Robotics and Control |
| **ME 739** | Advanced Machine Design |
| **ME 745** | Design of Thermal Systems |
| **ME 747** | Microcomputer Based Mechanical Systems |
| **ME 749** | Applications of Finite Element Methods in ME |
| **ME 750K** | Six Sigma Engineering |
| **ME 752** | Failure Analysis Methods and Tools |
| **ME 753** | Advanced Materials for Energy Systems |
| **ME 755** | Intermediate Thermodynamics |
| **ME 758** | Non Linear Ctrl Electro- Mech Systems |
| **ME 759** | Neural Networks for Control |
| **ME 760** | Fracture Mechanics |
| **ME 762** | Polymeric Composite Materials |
| **ME 764** | Thermodynamics of Solids |
| **ME 766** | SEM and EDAX |
| **ME 767** | X-Ray Diffraction |
| **ME 769** | Impact Dynamics |
| **ME 782** | Engineering Appl of Computational Fluid Dynamics and Heat Transfer |

| Open Electives (3 credits) | |
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| **ME 469** | Energy Conversion |
| **ME 502** | Thermodynamics 2 |
| **ME 541** | Mechanical Engineering Design 2 |
| **ME 581** | Intro of Corrosion |
| **ME 602** | Engineering for the Environment |
| **ME 637** | Computer – Aided Engineering |
| **ME 644** | Design of HVAC Systems |
| **ME 650V** | Conduction of Heat Transfer |
| **ME 651** | Biomaterials |
| **ME 660** | Polymer Material and Engineering |
| **ME 664** | Introduction to Fatigue and Fracture |
| **ME 665** | Selection Mats Design/ Manufacturing |
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| **ME 670** | Intro to Nano Tech |
| **ME 672** | Manufacturing of Composites |
| **ME 673** | Recovery of Engineering Materials |
| **ME 680** | Laser Applications in Manufacturing |
| **ME 702** | Energy and Sustainability |

# MECHANICAL ENGINEERING TECHNICAL ELECTIVES

| Open Electives - Continued | |
|---|---|
| **ME 709** | Injury Biomechanics |
| **ME 719** | Basic Combustion Theory |
| **ME 725** | Mechanical Vibrations and Acoustics |
| **ME 728** | Advanced Electronic Materials |
| **ME 729** | Computer – Aided Analysis of Mech Systs |
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| **ME 766** | SEM and EDAX |
| **ME 767** | X-Ray Diffraction |
| **ME 769** | Impact Dynamics |
| **ME 782** | Engineering Appl of Computational Fluid Dynamics and Heat Transfer |
| **BIOL 418** | General Ecology |
| **CHEM 514** | Inorganic Chemistry |
| **CHEM 523** | Analytical Chemistry |
| **CHEM 524** | Instrumental Methods of Chemical Analys |
| **CHEM 531** | rganic Chemistry I |
| **CHEM 532** | Organic Chemistry II |
| **CHEM 545** | Physical Chemistry I |
| **CHEM 603** | Industrial & Polymer Chemistry |
| **CHEM 661** | Introductory Biochemistry |
| **PHYS 551** | Topics in Modern Physics |
| **PHYS 621** | Analytical Mechanics |
| **PHYS 623** | Advanced Mechanics |
| **PHYS 641** | Thermo physics |
| **PHYS 651** | Quantum Mechanics I |
| **PHYS 661** | Introduction to Atomic Physics |
| **PHYS 681** | Solid State Physics |
| **AE 415** | Intro to Space Dynamics |
| **AE 424** | Aerodynamics I |
| **AE 502** | Aerospace Propulsion I |

# MECHANICAL ENGINEERING TECHNICAL ELECTIVES

| Open Electives - Continued | |
|---|---|
| **AE 508** | Systems Dynamics |
| **AE 525** | Flight Structures I |
| **AE 527** | Numerical Methods in Engineering |
| **AE 716** | Compressible Fluid Flow |
| **AE 719** | Computational Fluid Dynamics |
| **AE 722** | Finite Element Analys of Structures I |
| **AE 731** | Theory of Elasticity |
| **AE 733** | Advanced Mechanics of Materials |
| **AE 737** | Mechanics of Damage Tolerance |
| **AE 753** | Mech Laminated Composites |
| **AE 773** | Intermediate Dynamics |
| **AE 777** | Vibration Analysis |
| **EE 383** | Signals and Systems |
| **EE 463** | Appl Engr Electromagnetics |
| **EE 488** | Electric Machines/Transformers |
| **EE 492** | Electron Circuits I |
| **EE 493** | Electron Circuits II |
| **EE 588** | Advanced Electric Motors |
| **EE 598** | Electric Power Systems Analysis |
| **EE 784** | Digital Controls Systems |
| **IME 524** | Engr Probability/ Statistics I |
| **IME 556** | Information Systems |
| **IME 557** | Safety Engineering |
| IME 558 | Manuf Methods/ Materials 2 |
| **IME 658** | Forming Process |
| **IME 664** | Engineering Management |
| **IME 676** | Aircraft Manufacturing & Assembly |
| **IME 724** | Statistical Methods for Engineers |
| **IME 754** | Reliability/ Maintainability |
| **IME 755** | Design of Experiments |
| **IME 768** | Metal Machining: Theory & Applications |
| **IME 775** | Computer Integrated Manufacturing |
| **IME 778** | Computer Integrated Manufacturing |
| **BME 335** | Biomedical Computer Apps |
| **BME 452** | Biomechanics |
| **BME 462** | Intro to Bio fluids |
| **BME 477** | Introduction to Biomaterials |
| **BME 480** | Bioinstrumentation |
| **BME 482** | Design of Bio devices |
| **BME 779** | Tissue Engineering |