MECHANICAL ENGINEERING TECHNOLOGY (MET)

MET 1020 Technical Drawing
[3 credit hours]
Essentials of dimensioning, size, position and form tolerancing and their application in shop processes. Pictorial drawings are created freehand and with the use of drawing instruments.
Term Offered: Spring, Fall

MET 1050 Computers for Engineering Technology
[3 credit hours]
Concepts and techniques on the application of computers to the solution of manufacturing and engineering technology problems. Provides an introduction to computer operating systems, programming language and technical software.
Term Offered: Spring, Fall

MET 1110 Metal Machining And Processes
[3 credit hours]
Material and machining processes dealing with production methods, machining capabilities, tolerances. Metal working with lathe, mill, etc., along with processes such as molding, stamping, forging, etc.
Term Offered: Spring, Fall

MET 1120 Metal Machining & Processes Lab
[1 credit hour]
Provides students with an opportunity to gain hands-on experience with machine tools and gauging measurement instruments.
Prerequisites: MET 1020 with a minimum grade of D- and MET 1110 with a minimum grade of D-
Term Offered: Spring, Fall

MET 1250 Computer Aided Drafting and Design
[3 credit hours]
Introduction to two-dimensional and three-dimensional Computer Aided Drafting. Laboratory based experiences with creating and dimensioning working drawings, part libraries, entity insertion, graphics manipulation and customization.
Prerequisites: MET 1020 with a minimum grade of D- and MET 1050 with a minimum grade of D-
Term Offered: Spring, Fall

MET 2050 Fluid And Hydraulic Mechanics
[0-4 credit hours]
Application of physical principles for the design of systems to transport liquids in closed hydraulic or process piping systems; friction, pumping, flow meters and gauges.
Prerequisites: PHYS 2010 with a minimum grade of D- or PHYS 2070 with a minimum grade of D- or PHYS 2130 with a minimum grade of D-
Term Offered: Spring, Summer, Fall

MET 2100 Statics For Technology
[3 credit hours]
Review and extension of static force analysis: free-body diagrams, forces, moments, dry friction and static equilibrium applied to machines, mechanisms, trusses and frames.
Prerequisites: PHYS 2010 with a minimum grade of D- or PHYS 2070 with a minimum grade of D- or PHYS 2130 with a minimum grade of D-
Term Offered: Spring, Summer, Fall

MET 2120 Strength Of Materials For Technology
[0-4 credit hours]
Introduction to the study of stress distribution and deformation of elastic materials due to applied loads. Consideration of stress, strain, compression, tension, shear, torsion, moments and combined loading in basic machine elements.
Prerequisites: MET 2100 with a minimum grade of D-
Term Offered: Spring, Summer, Fall

MET 2150 Numerical Control Applications
[0-3 credit hours]
Survey of tooling and production activities adaptable to numerical control equipment and processes. Includes terminology, definitions and functions. Students will learn how to create part programs for CNC machinery.
Prerequisites: (MATH 1330 with a minimum grade of D- or MATH 1340 with a minimum grade of D-) and (ENGT 1050 with a minimum grade of D- or MET 1050 with a minimum grade of D-) and MET 1110 with a minimum grade of D- and MET 1120 with a minimum grade of D- and MET 1250 with a minimum grade of D-
Term Offered: Spring

MET 2210 Technical Thermodynamics
[4 credit hours]
Analysis of thermodynamic concepts as they apply to heating and power production; conservation of energy, work and heat, engines and refrigeration.
Prerequisites: (PHYS 2010 with a minimum grade of D- or (PHYS 2070 with a minimum grade of D- or PHYS 2130 with a minimum grade of D-) and MET 1050 with a minimum grade of D- and MATH 2450 with a minimum grade of D-) or (PHYS 2010 with a minimum grade of D- or (PHYS 2070 with a minimum grade of D- or PHYS 2130 with a minimum grade of D-) and MATH 2450 with a minimum grade of D-)
Term Offered: Spring, Summer, Fall

MET 2310 Materials Science
[3 credit hours]
Study of the relationships between structures and properties for common engineering materials, including metals, polymers, ceramics and composites. Mechanical behavior, temperature effects, heat treatment, corrosion and electrical properties are covered.
Prerequisites: ENGT 3010 with a minimum grade of D- and CHEM 1230 with a minimum grade of D- and CHEM 1280 with a minimum grade of D-
Corequisites: MET 2320

MET 2320 Materials Science Laboratory
[0-1 credit hours]
Laboratory based study of the relationships between structures and properties for common engineering materials, including metals, polymers, ceramics and composites. Mechanical behavior, temperature effects, heat treatment, corrosion and electrical properties are covered.
Prerequisites: ENGT 3010 with a minimum grade of D- and CHEM 1230 with a minimum grade of D- and CHEM 1280 with a minimum grade of D-
Corequisites: MET 2310

MET 2350 Advanced Computer Aided Drafting and Design
[3 credit hours]
Continuation of MET 1250. Topics covered include attributes, with attention to geometric tolerancing and true dimensioning. Application of three-dimensional modeling techniques and the preparation of detail drawings from the model.
Prerequisites: MET 1250 with a minimum grade of D-
Term Offered: Spring, Fall

MET 2980 Special Topics
[1-4 credit hours]
Student performs work on a specialized project of an advanced nature under the supervision of a Mechanical Engineering Technology faculty member.
Term Offered: Spring, Summer, Fall

MET 3100 Applied Thermodynamics
[0-4 credit hours]
Basic principles and laws of classical thermodynamics, equations of state, reversibility and entropy applied to processes and cycles for ideal and non-ideal substances. Special attention will be given to gas power cycles, vapor and combined power cycles, refrigeration cycle. Air conditioning processes. Mechanics of heat transfer.
Prerequisites: MET 2210 with a minimum grade of D- and (MATH 1860 with a minimum grade of D- or MATH 2460 with a minimum grade of D-)
Term Offered: Spring, Summer, Fall

MET 3200 Mechanical Design I
[3 credit hours]
Introduction to the engineering design process. Analysis of stress, strain, deflection and fatigue in mechanical design. Design of beams, columns, springs and machine elements.
Prerequisites: (MET 3400 with a minimum grade of D- and MET 2120 with a minimum grade of D-)
Term Offered: Spring, Summer, Fall

MET 3400 Applied Dynamics
[3 credit hours]
Static force and moment analysis using vector methods. Applications of dry friction. Analysis of structures and machines. Dynamic analysis using force and acceleration, energy and momentum methods.
Prerequisites: (MATH 1860 with a minimum grade of D- or MATH 2460 with a minimum grade of D-) and MET 2100 with a minimum grade of D-
Term Offered: Spring, Summer, Fall

MET 4100 Applied Fluid Mechanics
[0-4 credit hours]
Fundamentals of fluid statics and dynamics including differential analysis, dimensional analysis and similitude, laminar and turbulent flow, viscosity and boundary layer concepts, and compressible flow. Application of these principles to practical, applied problems. Flow of fluids in pipes and conduits. Pump selection and application. The design and analysis of HVAC ducts. Drag and Lift.
Prerequisites: MET 2050 with a minimum grade of D- and (MATH 1860 with a minimum grade of D- or MATH 2460 with a minimum grade of D-)
Term Offered: Spring, Summer, Fall

MET 4200 Mechanical Design II
[3 credit hours]
Design and application of mechanical components and machine elements including shafts, gears, gear drives, belt drives, chain drives, fasteners, power screws, clutches, brakes and machine frames.
Prerequisites: MET 3200 with a minimum grade of D- and MET 2310 with a minimum grade of D- and MET 2320 with a minimum grade of D-
Term Offered: Spring, Summer, Fall

MET 4400 Applied Heat Transfer
[3 credit hours]
Fundamentals of applied heat transfer by conduction, laminar and turbulent convection, condensation and boiling, radiation exchange between surfaces, and heat exchangers.
Prerequisites: MET 3100 with a minimum grade of D-

MET 4600 Engineering Safety
[3 credit hours]
Application of human factors and engineering practices toward accident prevention and elimination of hazards. Topics include liability, standards, OSHA, hazard control, accident investigation and safety management.
Term Offered: Fall