

Mechanical Engrg Technology

MET 1540 - Materials Science

Introduction to the fundamentals of materials. Introduces mechanical properties, phase diagrams, thermal processing, alloying, and corrosion. Examines material selection with regard to design considerations.

Credits: 3.0

Lec-Rec-Lab: (0-3-0)

Semesters Offered: Fall, Spring

Pre-Requisite(s): CH 1100 or CH 1110 or (CH 1150 and CH 1151)

MET 2120 - Statics and Strength of Materials

Statics includes the study of forces, analysis of simple structures, equilibrium, moment of inertia, and friction. Materials considers stress and strain under axial, torsional, and bending loads. Laboratory exercises include materials testing and problem solving.

Credits: 4.0

Lec-Rec-Lab: (0-3-2)

Semesters Offered: Fall

Pre-Requisite(s): (MA 1160(C) or MA 1161(C)) and (PH 1140 or PH 1110)

MET 2130 - Dynamics

Particle and rigid plane body kinematics and kinetics covers inertia force, work-energy-power and impulse-momentum methods. Emphasizes development of student skills in problem definition and problem solving.

Credits: 3.0

Lec-Rec-Lab: (0-3-0)

Semesters Offered: Spring

Pre-Requisite(s): MET 2120

MET 2400 - Practical Applications in Parametric Modeling

Intermediate course intended to expand the student's knowledge of computer modeling techniques, introducing advanced assemblies and GD&T concepts. Investigates advanced concepts available to the designer.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Fall, Spring, Summer

Restrictions: Must be enrolled in one of the following Major(s): Mechanical Engineering Tech; Must be enrolled in one of the following Class(es): Sophomore

Pre-Requisite(s): TE 1020

MET 3242 - Machine Design I

An introduction to mechanical design for technology students. The coursework applies principles of statics, dynamics and mechanics of materials to the design of simple mechanical components and systems.

Credits: 3.0

Lec-Rec-Lab: (0-3-0)

Semesters Offered: Fall

Pre-Requisite(s): MA 2160 and MET 2130

MET 3250 - Applied Fluid Mechanics

An introduction to fluid mechanics for technology students. The coursework applies principles of statics and dynamics to the behavior of practical fluid-based components and systems. A laboratory complements the classroom learning.

Credits: 4.0

Lec-Rec-Lab: (0-3-2)

Semesters Offered: Fall

Pre-Requisite(s): MET 2130

MET 3451 - Machine Design II

This course extends the study of mechanical design began in MET3242 and looks at more complex components and systems. Design projects are given special emphasis.

Credits: 3.0

Lec-Rec-Lab: (0-3-0)

Semesters Offered: On Demand

Pre-Requisite(s): MET 3242

MET 3600 - Applied Thermodynamics

Engineering thermodynamics principles including work, heat and temperature, pure substances, closed and open systems, first and second laws of thermodynamics, and power and refrigeration cycles.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Spring

Restrictions: Must be enrolled in one of the following Class(es): Junior, Senior

Pre-Requisite(s): MET 3250

MET 4200 - Design of Experiments

This course provides basic knowledge required to develop statistical experiments to improve quality of process and products. The student will begin designing simple experiments and expand to apply advance principles to study interaction between variables. A strong foundation will be provided allowing the student to progress to Taguchi experimental design techniques.

Credits: 3.0

Lec-Rec-Lab: (3-0-0)

Semesters Offered: Fall, Summer

Restrictions: Must be enrolled in one of the following Class(es): Sophomore, Junior, Senior

Pre-Requisite(s): MA 2710 or MA 2720 or MA 3710 or BA 2100

MET 4300 - Applied Heat Transfer

Heat transfer principles including conduction, convection and radiation heat transfer mechanisms. Practical applications include thermal insulation, heat sink and heat exchanger design.

Credits: 3.0

Lec-Rec-Lab: (0-3-0)

Semesters Offered: Fall

Restrictions: Must be enrolled in one of the following Class(es): Junior, Senior

Pre-Requisite(s): MET 3600

MET 4377 - Applied Fluid Power

An introduction to fluid power components and systems. The course includes component selection, circuit design, electrical interfaces, and system troubleshooting and maintenance. A laboratory exposes students to system hardware and circuit simulation techniques for mobile and industrial applications.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Spring - Offered alternate years beginning with the 2009-2010 academic year

Pre-Requisite(s): MET 3250

MET 4390 - Internal Combustion Engines

An introduction to the basic principles and applications of internal combustion engines. The course covers design, development and testing of engine components and systems. A laboratory exposes students to current industry methods.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Fall - Offered alternate years beginning with the 2009-2010 academic year

Pre-Requisite(s): MET 3600

MET 4400 - Simulation Methods

Introductory course in computer simulation designed to model processes found in the manufacturing or service environment. Computer software will be used to model real life problems, analyze alternative solutions and generate recommendations. Projects involving local manufacturing and service situations will be modeled.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Spring - Offered alternate years beginning with the 2009-2010 academic year

Pre-Requisite(s): MA 2710 or MA 2720 or MA 3710

MET 4460 - Product Design and Development

A treatment of design and development issues such as design for manufacturing, prototyping, industrial design, and customer needs. Presents integrated methodologies that examine marketing, manufacturing, and cross-functional teams. Includes concurrent engineering and projects utilizing CAD systems.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Fall, Spring

Restrictions: Permission of instructor required; Must be enrolled in one of the following Class(es): Junior, Senior

MET 4500 - Lean Manufacturing, Principles, Concepts and Applications

Provides an understanding of current concepts required to implement lean manufacturing in various manufacturing and service sectors. Focus is on the essentials required to provide products and services that meet customer demand with reduced lead times, elimination of waste and safety improvements.

Credits: 3.0

Lec-Rec-Lab: (2-0-2)

Semesters Offered: Spring

Restrictions: Must be enrolled in one of the following Class(es): Junior, Senior

MET 4550 - Computer Aided Manufacturing

Course is designed to apply techniques used in parametric modeling (CAD) and convert this information to all phases of production planning, machining, scheduling and quality control.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Fall - Offered alternate years beginning with the 2011-2012 academic year

Restrictions: Must be enrolled in one of the following Class(es): Junior, Senior

Pre-Requisite(s): MEEM 2500 and MET 2400

MET 4660 - Applied Finite Element Analysis

Comprehensive use of both computer derived solutions and experimental validation of analytical and finite element solutions using methods such as strain gage testing.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Fall - Offered alternate years beginning with the 2010-2011 academic year

Restrictions: Must be enrolled in one of the following Class(es): Junior, Senior

Pre-Requisite(s): MET 2400 and MET 3451

MET 4670 - Senior Project

Completion and evaluation of design projects using computer-aided engineering methods, physical models, and/or prototypes. Evaluation and design optimization methods for efficient and cost-effective designs. Oral/written report and comprehensive exam.

Credits: 3.0

Lec-Rec-Lab: (0-0-6)

Semesters Offered: Fall, Spring, Summer

Restrictions: Permission of instructor required; Must be enrolled in one of the following Class(es): Senior

Pre-Requisite(s): MET 4460

MET 4780 - Advanced Manufacturing

An introduction to advanced manufacturing processes, both traditional and nontraditional. Study of both theory and practice will be tied to laboratory experiments utilizing a spectrum of unique materials and methods.

Credits: 3.0

Lec-Rec-Lab: (0-2-3)

Semesters Offered: Spring, Summer - Offered alternate years beginning with the 2008-2009 academic year

Restrictions: Must be enrolled in one of the following Class(es): Junior, Senior

Pre-Requisite(s): MEEM 2500

MET 4900 - Alternative Energy Systems

Presents an overview of world energy resources and energy consumption trends. Conventional and emerging energy sources and conversion methods are discussed in terms of their long term viability, based on technical and political factors.

Credits: 3.0

Lec-Rec-Lab: (0-3-0)

Semesters Offered: Spring - Offered alternate years beginning with the 2006-2007 academic year

Restrictions: Must be enrolled in one of the following Class(es): Junior, Senior

Pre-Requisite(s): MET 3600

MET 4996 - Special Topics in Mechanical Engineering Technology

Selected additional topics of interest in Mechanical Engineering Technology based on student and faculty demand and interest. May be a tutorial, seminar, workshop, project, or class study.

Credits: variable to 3.0; Repeatable to a Max of 6

Semesters Offered: On Demand

Restrictions: Permission of instructor required; Must be enrolled in one of the following Major(s): Mechanical Engineering Tech; Must be enrolled in one of the following Class(es): Senior

MET 4997 - Independent Study in Mechanical Engineering Technology

Independent study of an approved topic under the guidance of a Mechanical Engineering Technology faculty member. May be either an academic, design, or research problem/project.

Credits: variable to 3.0; Repeatable to a Max of 6

Semesters Offered: On Demand

Restrictions: Permission of instructor required; Must be enrolled in one of the following Major(s): Mechanical Engineering Tech; Must be enrolled in one of the following Class(es): Senior

MET 4998 - Undergraduate Research in Mechanical Engineering Technology

An undergraduate research experience in Mechanical Engineering Technology. Under the guidance of a Mechanical Engineering Technology faculty member, students work on a selected/approved research problem or work directly with faculty on active research projects/grants. May require more than one semester to complete.

Credits: variable to 6.0; Repeatable to a Max of 6

Semesters Offered: On Demand

Restrictions: Permission of instructor required; Must be enrolled in one of the following Major(s): Mechanical Engineering Tech; Must be enrolled in one of the following Class(es): Senior

MET 4999 - Professional Practice Seminar

Course designed to review and evaluate the program objectives linked with industrial partners and accreditation body. Focus given to preparing the student to take the CMfgT (Certified Manufacturing Technologist) exam.

Credits: 1.0; Graded Pass/Fail Only

Lec-Rec-Lab: (0-1-0)

Semesters Offered: Fall, Spring

Restrictions: Must be enrolled in one of the following Class(es): Senior