ET - ENGINEERING TECHNOLOGY

ET 1500 Engineering Technology Trades Internship Cr. 1-6
Industrial practice dealing with specific skill trades in engineering technology, under supervision in cooperative internship program. Offered Irregularly.

ET 2140 Computer Graphics Cr. 3
Solution of drafting problems and development of graphic presentations using computer-assisted drafting techniques. Use of programming techniques for direct solution of drafting/graphic problems and available software routines. Introduction to the use of computer plotters, CRTs, digitizers. Offered Fall, Winter.
Prerequisites: ([CSC 1050 with a minimum grade of D-])
Course Material Fees: $15

ET 2160 Computer Applications for Engineering Technology Cr. 2
Various software programming environments and programming skills for engineering technology applications, including programming logic, file I/O, data acquisition and processing, computer simulation, and communication protocols. Offered Fall, Winter.
Prerequisites: ([EET 2000 with a minimum grade of D-] OR [ET 2140 with a minimum grade of D-])
Restriction(s): Enrollment is limited to Undergraduate level students.

ET 2200 Engineering Materials Cr. 3
Application and characteristics, both physical and chemical, of metallic and nonmetallic materials, polymers, and composites used in industry. The primary process involved in producing these materials. Offered Yearly.
Prerequisites: ([CHM 1020 with a minimum grade of D-])

ET 2500 Co-op Experience Cr. 1-4
Industrial practice under supervision in cooperative education. Work-study program. Report required. Offered Every Term.
Repeatable for 4 Credits

ET 3030 Statics Cr. 3
The analytical and graphic techniques for determining the forces acting upon and within a body or structural component under static load. Centroids and center of gravity. Moments of inertia. Offered Fall, Winter.
Prerequisites: ([CSC 1050 with a minimum grade of D-] OR [ET 2140 with a minimum grade of D-] OR [PHY 2130 with a minimum grade of D-])

ET 3050 Dynamics Cr. 3
Kinematics; kinetics of particles; kinetics of translation and rotation of a rigid body; relative motion; use of equations of plane motion. Application of impulse and momentum principles; work and efficiency. Offered Yearly.
Prerequisites: ([ET 3030 with a minimum grade of D-])

ET 3430 Applied Differential and Integral Calculus Cr. 4
Limits, derivatives, applications of derivatives, definite integrals and their applications, and trigonometric functions. No degree credit in Colleges of Liberal Arts and Sciences. Offered Fall, Winter.
Prerequisites: ([MAT 1800 with a minimum grade of D-])
Equivalent: MAT 3430

ET 3450 Applied Calculus and Differential Equations Cr. 4
A continuation of ET 3430, including logarithmic and exponential functions, first and second order ordinary differential equations, vectors, polar coordinates, Laplace transforms, Taylor series, and Fourier series. No degree credit in Colleges of Liberal Arts and Sciences. Offered Fall, Winter.
Prerequisites: ([ET 3430 with a minimum grade of D-])
Equivalent: MAT 3450

ET 3850 Reliability and Engineering Statistics Cr. 3
Probability, hypergeometric, binomial, Poisson, and normal probability distribution; confidence intervals; inferences concerning means; linear regression; introduction to statistical quality control and reliability; use of computers. Offered Fall, Winter.
Prerequisites: ([MAT 1800 with a minimum grade of D-])

ET 3870 Engineering Economic Analysis Cr. 3
Techniques to economically evaluate major technical projects, rate of return and present worth, interest formulae, federal taxes, risk, inflation, and non-economic constraints. Offered Every Term.
Prerequisites: ([MAT 1800 with a minimum grade of D-])

ET 4999 Guided Study Cr. 1-6
Supervised study and instruction in field selected by student. Offered Irregularly.
Repeatable for 6 Credits

ET 4999 (WI) Senior Project Cr. 3
Student designs, builds, and tests product; philosophy of design. Project proposal to be submitted by second week, final outcome to be completed by thirteenth week; progress reports, and oral presentation required. Offered Fall, Winter.

ET 5100 Fundamentals of Mechatronics and Industrial Applications Cr. 3
Fundamentals of mechatronics and their applications in industry; building blocks of mechatronic products including sensors, proximity, displacement and rotational measurement sensors, force and torque measurement sensors, pressure sensors, accelerometers, and actuators; introduction of closed-loop control, electrohydraulic motion control, PLC mechatronics design by embedding sensors, actuators and controllers into mechanical components. Offered Winter.
Prerequisites: ([ET 3180 with a minimum grade of D-] OR [MCT 3010 with a minimum grade of D-])

ET 5500 Graduate Industrial Internship Cr. 1-4
Industrial practice under supervision in cooperative education. Oral presentation and written report describing professional experience required. Offered for graduate credit only. Offered Every Term.
Restriction(s): Enrollment is limited to Graduate level students.
Repeatable for 4 Credits

ET 5870 Engineering Project Management Cr. 3
Insights into human and organizational behavior affecting products; quantitative tools for successful management of engineering projects. A variety of product types are addressed. How to select, initiate, operate and control as well as terminate a project. Offered Fall, Winter.
Prerequisites: ([MAT 1800 with a minimum grade of D-])

ET 5995 Special Topics in Engineering Technology I Cr. 1-4
Topics to be announced in Schedule of Classes. Offered Irregularly.
Repeatable for 8 Credits
ET 7300 Advanced Battery Systems for Electric-drive Vehicles Cr. 4
Aims to familiarize students with advanced battery technologies and their applications in hybrid and electric vehicles. Contents include: a descriptive overview of energy sources and conversions, HEV/PHEV/EV technology, hybrid powertrain configuration and components, in-vehicle energy storage systems, electrochemistry fundamentals, battery power and capacity/energy, battery system design (cell, module and pack), Battery Management System (BMS), cell monitoring and balancing, thermal management, on-board diagnostics, battery charging schemes and systems. Offered Fall, Winter.
Restriction(s): Enrollment is limited to Graduate level students.
Equivalent: EVE 7300

ET 7430 Methods of Engineering Analysis I Cr. 4
Restriction(s): Enrollment is limited to Graduate level students.

ET 7450 Methods of Engineering Analysis II Cr. 4
Computer applications and numerical methods of solving differential and integral equations, fast Fourier transforms, spectrum analysis, curve fitting, approximation of function. Offered Winter.
Prerequisite: CSC 1050 with a minimum grade of D- and ET 7430 (may be taken concurrently) with a minimum grade of C
Restriction(s): Enrollment is limited to Graduate level students.

ET 7850 Statistical Methods and Applications Cr. 4
Sampling techniques in production data analysis, correlation coefficients, regression analysis, control charts, design of experiments, analysis of variance, Factor analysis. Offered Winter.
Corequisite: ET 7430
Restriction(s): Enrollment is limited to Graduate level students.

ET 7990 Directed Study Cr. 1-8
Supervised study and instruction in an advanced topic. Outline of proposed study and petition must be submitted to graduate committee in advance of registration for approval. Offered Every Term.
Restriction(s): Enrollment is limited to Graduate level students.
Repeatable for 8 Credits

ET 7995 Special Topics in Engineering Technology II Cr. 1-4
Topics to be announced in Schedule of Classes. Offered Irregularly.
Restriction(s): Enrollment is limited to Graduate level students.
Repeatable for 8 Credits

ET 7999 Master's Project Cr. 1-6
Design, fabrication, system optimization, and applications of graduate level material. Offered Every Term.
Restriction(s): Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.
Repeatable for 6 Credits