ENGINEERING TECHNOLOGY (ET) SOLANO CAMPUS

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ET Courses

ET 1110 Introduction to Engineering Technology (1 unit)
Term Typically Offered: F

Introduction to the engineering technology profession and curriculum. Engineering education, academic success strategies, and career opportunities. Field trips required. 1 lecture. Formerly ET 110 at Cal Maritime.

ET 2230 Properties of Materials (2 units)
Term Typically Offered: SP
Prerequisite: CHE 110 or CHE 1110; CHE 110L or CHE 1110L; and MTH 210 or MTH 2210.

Examination of the properties of materials from the atomic to the macroscopic levels, looking at crystal structures and the application of materials to engineering systems. Emphasis is on metals, and nonmetals. Mechanical properties, creep, fatigue, corrosion and failure characteristics. Current usage of advanced materials. 2 lectures. Formerly ET 230 at Cal Maritime.

ET 2230L Properties of Materials Laboratory (1 unit)
Term Typically Offered: F
Prerequisite: CHE 110 or CHE 1110; CHE 110L or CHE 1110L; ET 230 or ET 2230; and MTH 210 or MTH 2210.

Investigates the physical characteristics of materials through testing, data acquisition, and calculations. Tests conducted include tensile, fatigue, creep, impact energy, and hardenability. Learn how properties are derived. 1 laboratory. Formerly ET 230L at Cal Maritime.

ET 2232 Statics (3 units)
Term Typically Offered: SP
Prerequisite: MTH 210 or MTH 2210; PHY 200 or PHY 2200; and PHY 200L or PHY 2200L.

Force systems and the conditions of equilibrium for particles and rigid bodies are studied in two and three dimensions. Principles of equilibrium, moments, and dry friction are applied to engineering system components and structures. 3 lectures. Formerly ET 232 at Cal Maritime.

ET 2250 Electrical Circuits (3 units)
Term Typically Offered: F
Prerequisite: MTH 211 or MTH 2211; and PHY 205 or PHY 2205. Concurrent: ET 250L or ET 2250L.

Principles and applications of DC and AC circuit analysis, node and mesh equations, Thevenin equivalent circuits, maximum power transfer, first order transients, simple filters and amplifiers, phasors, power, power factor, and reactive power in single-phase systems. 3 lectures. Formerly ET 250 at Cal Maritime.

ET 2250L Electrical Circuits Laboratory (1 unit)
Term Typically Offered: F
Prerequisite: MTH 211 or MTH 2211; and PHY 205 or PHY 2205. Concurrent: ET 250 or ET 2250.

Application of circuit elements and principles in laboratory measurements and analysis. 1 laboratory. Forrmerly ET 250L at Cal Maritime.

ET 3330 Dynamics (3 units)
Term Typically Offered: F
Prerequisite: ET 232 or ET 2232.

Force systems and motion of particles and rigid bodies are studied in two and three dimensions. Principles of dependent and relative motion, work and energy, conservation of energy, and impulse and momentum are applied to engineering system components. 3 lectures. Formerly ET 330 at Cal Maritime.

ET 3332 Strength of Materials (3 units)
Term Typically Offered: F
Prerequisite: One of the following: ET 232, ET 2232, ME 232, or ME 2232; and MTH 211 or MTH 2211.

Basic concepts in strength of materials: normal, shear, bending, and bearing stress. Stress-strain relation and design properties of materials. Practical application of structure calculations for sizing bolts, rivets, shafts, beams, columns, and pressure vessels. 3 lectures. Formerly ET 332 at Cal Maritime.

ET 3340 Fluid Mechanics (3 units)
Term Typically Offered: SP
Prerequisite: MTH 211 or MTH 2211; and PHY 205 or PHY 2205. Concurrent: ET 340L or ET 3340L.

Application of principles of incompressible fluid flow. Includes forces in static fluids and fluids in motion, applications of Bernoulli's equation, pressure losses in pipe systems, open channel flows, pump selection, and air flow in ducts. 3 lectures. Formerly ET 340 at Cal Maritime.

ET 3340L Fluid Mechanics Laboratory (1 unit)
Term Typically Offered: SP
Prerequisite: MTH 211 or MTH 2211; and PHY 205 or PHY 2205. Concurrent: ET 340 or ET 3340.

Laboratory supporting Fluid Mechanics. 1 laboratory. Formerly ET 340L at Cal Maritime.

ET 3342 Refrigeration and Air Conditioning (2 units)
Term Typically Offered: SP
Prerequisite: One of the following: ET 344, ET 3344, ME 240, or ME 2240. Concurrent: ET 342L or ET 3342L.

Introduction to basic refrigeration and air conditioning principles and equipment. Theory and application of direct and indirect refrigeration cycles commonly found on merchant ships and ashore including main cargo freezers, air conditional systems, chill water systems, absorption systems, refrigerated vans, and ice machines. 2 lectures. Formerly ET 342 at Cal Maritime.

ET 3342L Refrigeration and Air Conditioning Laboratory (1 unit)
Term Typically Offered: SP
Prerequisite: ET 344 or ET 3344. Concurrent: ET 342 or ET 3342.

Refrigeration and air conditioning laboratory. 1 laboratory. Formerly ET 342L at Cal Maritime.

ET 3344 Thermodynamics (3 units)
Term Typically Offered: F
Prerequisite: PHY 200 or PHY 2200; and PHY 200L or PHY 2200L.

Basic laws of thermodynamics and their applications to heat-power machinery applied on shipboard heat-power plants, steam and gas turbines, internal combustion engines, and vapor-compression refrigeration systems. 3 lectures. Formerly ET 344 at Cal Maritime.

ET 3350 Electrical Machinery (3 units)
Term Typically Offered: F
Prerequisite: ET 250 or ET 2250, and ET 250L or ET 2250L; or ENG 250 or ENG 2250, and ENG 250L or ENG 2250L. Concurrent: ET 350L or ET 3350L.

Principles and application of magnetic circuits and transformers, three phase power, power factor correction, DC motors and generators, three phase AC motors and alternators, single-phase motors, stepper motors, electronic motor control, and circuit protection devices. 3 lectures. Formerly ET 350 at Cal Maritime.

ET 3350L Electrical Machinery Laboratory (1 unit)
Term Typically Offered: F
Prerequisite: Prerequisite: ET 250 or ET 2250, and ET 250L or ET 2250L; or ENG 250 or ENG 2250, and ENG 250L or ENG 2250L. Concurrent: ET 350 or ET 3350.

Application of the principles from electrical machinery in laboratory measurements and analysis. 1 laboratory. Formerly ET 350L at Cal Maritime.

ET 3370 Electronics (3 units)
Term Typically Offered: SP
Prerequisite: COM 220L or COM 2220L; ET 250 or ET 2250; and ET 250L or 2250L. Concurrent: ET 370L or ET 3370L.

Principles and application of electronic circuits and components, microcontrollers, operational amplifiers, comparators, peak detectors, active filters, timer circuits, AD conversion, serial communication, and micro electro-mechanical systems. 3 lectures. Formerly ET 370 at Cal Maritime.

ET 3370L Electronics Laboratory (1 unit)
Term Typically Offered: SP
Prerequisite: COM 220L or COM 2220L; ET 250 or ET 2250; and ET 250L or 2250L. Concurrent: ET 370 or ET 3370.

Application of the principles from Electronics in laboratory measurements and analysis, followed by a comprehensive team project. 1 laboratory. Formerly ET 370L at Cal Maritime.

ET 4400 Instrumentation and Measurement (3 units)
Term Typically Offered: F
Prerequisite: ET 370 or ET 3370; and ET 370L or ET 3370L. Concurrent: ET 400L or ET 4400L.

Instrumentation devices and their uses in monitoring processes. Instrumentation used for measuring temperature, pressure, level, flow, position and motion as well as other types of analytical measurement are studied. Principles of signal conditioning including op-amp applications, filtering, applications to pneumatic systems, and digital signal conditioning. Relationship to modern data acquisition systems and how to optimize measurements and effectively analyze measured signals. 3 lectures. Formerly ET 400 at Cal Maritime.

ET 4400L Instrumentation and Measurement Laboratory (1 unit)
Term Typically Offered: F
Prerequisite: ET 370 or ET 3370; and ET 370L or ET 3370L. Concurrent: ET 400 or ET 4400.

Lab designed to introduce instrumentation and measurement. Includes studies involving signal conditioning, Wheatstone bridge applications, use of operational amplifiers for signal conditioning, Boolean logic, thermal transducers, strain gage measurements, variable capacitance transducers, and optical transducers. Computer-based data acquisition. 1 laboratory. Formerly ET 400L at Cal Maritime.

ET 4442 Heating, Ventilation, and Air Conditioning (2 units)
Term Typically Offered: F
Prerequisite: ET 342 or ET 3342; and ET 342L or ET 3342L. Concurrent: ET 442L or ET 4442L.

Application of thermodynamics with regard to refrigeration/air conditioning cycle. Focus on the HVAC requirements of facilities with application to ships as well as any facility. Examination of design of HVAC systems, including heat balance, duct design and fan selection. 2 lectures. Formerly ET 442 at Cal Maritime.

ET 4442L Heating, Ventilation, and Air Conditioning Laboratory (1 unit)
Term Typically Offered: F
Prerequisite: ET 342 or ET 3342; and ET 342L or ET 3342L. Concurrent: ET 442 or ET 4442.

Laboratory supporting Heating, Ventilation, and Air Conditioning course. 1 laboratory. Formerly ET 442L at Cal Maritime.

ET 4460 Automation (3 units)
Term Typically Offered: SP
Prerequisite: ET 400 or ET 4400; and ET 400L or ET 4400L. Concurrent: ET 460L or ET 4460L.

Automation in power plants, engineering processes, and manufacturing processes leading to an understanding of modern control systems. Principles of analog and digital control systems as well as measurement methods and final control valves and actuators. PID (proportional plus integral plus derivative) control applications and programmable logic controllers. Investigate modeling, measurement and control of mechanical, thermal, fluid, and electrical systems. 3 lectures. Formerly ET 460 at Cal Maritime.

ET 4460L Automation Laboratory (1 unit)
Term Typically Offered: SP
Prerequisite: ET 400 or ET 4400; and ET 400L or ET 4400L. Concurrent: ET 460 or ET 4460.

Principles introduced and discussed in Automation. Introduction to the concepts of closed loop control, PLC (programmable logic controllers) programming, pneumatic logic and control applications, frequency response in systems (Bode plots), and process loop tuning methods. 1 laboratory. Formerly ET 460L at Cal Maritime.

ET 4470 Engineering Management (3 units)
Term Typically Offered: F
Prerequisite: Junior standing; EGL 220 or EGL 2220.

Introduction to the engineering profession with a focus on total quality management, personnel management, project management, legal concerns, professional liability, and ethics. 3 lectures. Formerly ET 470 at Cal Maritime.

ET 4490 Power Engineering Technology (3 units)
Term Typically Offered: SP
Prerequisite: ET 344 or ET 3344; ET 350 or ET 3350; and ET 350L or ET 3350L. Concurrent: ET 490L or ET 4490L.

Capstone course in engineering technology. Apply the engineering fundamentals of previous thermodynamics and electrical machinery to studies of combustion processes, combustion by-products and emission abatement and electrical distribution and transmissions systems commonly found in modern marine propulsion plants and the power industry. Familiarization with renewable energy resources. Field trip may be required. 3 lectures. Formerly ET 490 at Cal Maritime.

ET 4490L Power Engineering Technology Laboratory (1 unit)
Term Typically Offered: SP
Prerequisite: ET 344 or ET 3344; ET 350 or ET 3350; and ET 350L or ET 3350L. Concurrent: ET 490 or ET 4490.

Perform thermodynamic analyses of operating power generation equipment. 1 laboratory. Formerly ET 490L at Cal Maritime.