ENGINEERING TECHNOLOGY: POWER

ETP 1410C, Solar Energy Solar Energy
4 hrs., 3 crs.,
Prerequisite: *EET1084C. This course provides students with the basic principles of photovoltaic and solar heating systems design and installation. The course will discuss evolving policies, technologies, and career areas. Students will analyze a site or location and evaluate it for solar applications and be able to describe passive heating and cooling building designs; design a solar water heating system, a solar cooking device, and a solar energy efficiency mode; diagram a solar thermal electric system, analyze solar manufacturing issues including equipment evaluation and types of collectors and filters; create a cost analysis for a solar powered project; and complete a solar energy project.

ETP 1500, Alternative Energy Inventory And Analysis Alternative Energy Inventory And Analysis
3 hrs., 3 crs.,
This course provides students with basic principles of: conversion of energy into electricity; the requirements and conditions of power electronics converters; economics and tradition of green electricity. The course will discuss evolving alternative energy policies, technologies, and career areas. Alternative Energy and Analysis provides a global vision of available and potential energy sources, discusses their particular advantages and drawbacks and helps prepare current and future generations to use energy differently and exploit new energy sources.

ETP 1500L, Alternative Energy Inventory And Analysis Lab Alternative Energy Inventory And Analysis Lab
3 hrs., 3 crs.,
This course provides students with the basic principles of: building science and residential energy; the procedures used to assess the performance of new and existing buildings. The lab provides specific instructions on identifying the most effective energy conservation procedures.

ETP 1501, Introduction To Energy, Environment, Society Introduction To Energy, Environment, Society
3 hrs., 3 crs.,
This course provides students with the basic principles and history of traditional and alternative energy sources; current industry and government status of geothermal, wind, solar, biomass, fuel cells and other traditional energy sources. The course will discuss evolving alternative energy policies, technologies, and career areas.

ETP 1510, Biofuels & Biomass Biofuels & Biomass
3 hrs., 3 crs.,
Prerequisite: ETP1500. This course provides students with the basic principles of biofuels and biomass systems design and installation. Students in this course will identify biofuels and biomass fuel sources (organic matter); describe biofuels and biomass technologies, applications and efficiency; analyze biofuels and biomass manufacturing, distribution and integration issues; evaluation biogas and its sources and site location; design a biofuels and biomass system and its related components; and identify various microturbines and their components.

ETP 1520, Geothermal Energy Geothermal Energy
3 hrs., 3 crs.,
Prerequisite: ETP1500. This course provides students with the basic principles of geothermal systems design and installation. The course will discuss evolving policies, technologies, and career areas. Students will analyze a site or location and evaluate it for geothermal applications and be able to describe passive heating and cooling building designs; design a geothermal system, geothermal efficiency model; analyze geothermal manufacturing issues including equipment evaluation; create a cost analysis for a geothermal project; and complete a geothermal project.

ETP 1550, Alternative Fuels And Electric Vehicle Technologies Alternative Fuels And Electric Vehicle Technologies
3 hrs., 3 crs.,
Prerequisite: *EET1084C. An overview of alternative fuels technology related to automobiles and the infrastructure that supports them. Technologies addressed in the course will include compressed natural gas, liquid petroleum gas, methanol, ethanol, electric, fuel cell, and hybrid electric. The description, application, and characteristics of alternative fuels will be covered. The course presents the history, legislation, regulations, safety, environmental impact, vehicle design, manufacturing, processing, and storage of the major alternative fuel technologies available today and those anticipated in the near future.

ETP 2322, Distributed Electrical Power Generation and Storage Distributed Electrical Power Generation and Storage
3 hrs., 3 crs.,
A study of the electrical distribution grid and emerging Smart Grid technologies including: grid architecture, functionality, equipment, smart meters, data capabilities, and energy storage technologies. Topics such as: interconnection of various electrical power sources to the grid, the flow of power, outage monitoring and handling, and security are covered.