

POWER GENERATION TECHNOLOGY (PWRP)

PWRP 203. Energy Sources and Conversions

Credits: 3

Students enrolled in this course will study the various forms of energy and the processes used to convert chemical and potential energy into thermal, mechanical and in some instances electrical energy. Energy sources that will be studied include fossil fuels (coal, oil and natural gas), hydro, wind, fuel cells, solar, derived fuel, geothermal and nuclear. Combustion and reaction will be discussed in detail for those energy sources that require combustion to convert from one energy form to another.

PWRP 207. Boilers & Environmental Protection

Credits: 3

In this course, students will gain a more thorough understanding of the various types of boilers, systems, components and auxiliary systems associated with steam generation. Topics covered include low/high pressure, fire tube/water tube, negative/positive draft, drum type, supercritical and fluidized bed boilers. Boiler operation, combustion, safety and emission control equipment will be covered along with efficiency measures.

PWRP 210. Turbines and Combined Cycle

Credits: 3

Students enrolled in this course will study all the elements that make up a gas turbine and a combined cycle unit. This course also covers the safe and efficient operation of gas turbines and heat recovery steam generators and their different applications as used in combine cycle and cogeneration configurations.

PWRP 224. Power Generation Components and Protection

Credits: 4

Students enrolled in this course will study the design and construction of large industrial generators used in the production of electricity. Students will study the various exciter designs and operation and the various auxiliary equipment that supports generator operation. Students enrolled in this course will study the electrical systems from the main generator through the switchyard.