

IPOP 2650-ELECTRIC POWER GENERATION 4 CREDITS

SYLLABUS

CATALOG DESCRIPTION

An introduction to the process of generating electricity. Students will summarize electrical distribution systems, power generation, boiler operation and combustion control, fuel systems and fuel preparation equipment as well as the process and support flows related to large industrial turbines, generators, exciters, boilers, water and steam, flue gases and environmental control equipment. The student will also measure process and component efficiencies and heat rate.

Prerequisites: IPOP 2640

Semester Offered: All

Common Student Learning Outcomes

Upon successful completion of San Juan College programs and degrees, the student will demonstrate competency in...

BROAD AND SPECIALIZED LEARNING

Students will actively and independently acquire, apply, and adapt skills and knowledge with an awareness of global contexts.

CRITICAL THINKING

Students will think analytically and creatively to explore ideas, make connections, draw conclusions and solve problems.

CULTURAL AND CIVIC ENGAGEMENT

Students will act purposefully, reflectively, and ethically in diverse and complex environments.

EFFECTIVE COMMUNICATION

Students will exchange ideas and information with clarity in multiple contexts.

INFORMATION LITERACY

Students will be able to recognize when information is needed and have the ability to locate, evaluate, and use it effectively.

INTEGRATING TECHNOLOGIES

Students will demonstrate fluency in the application and use of technologies in multiple contexts.

Student work from this class may be randomly selected and used anonymously for assessment of course, program, and/or institutional learning outcomes. For more information, please refer to the Dean of the appropriate School.

Course Learning Outcomes

Upon successful completion of the course, the student will be able to...

1. Identify normal and abnormal operations at a power plant or other industrial facility.
2. Explain Hampden BTG operation, including gas water and steam flows.

3. Identify the types of power generation and ways power is distributed and transmitted.
4. Describe the water to steam cycle and name main components of these systems along with their function.
5. Describe steam turbine operation.
6. Explain generator operation that produces electricity.
7. Identify common boiler and turbine protection devices or techniques to address associated problems with operation.