

## PROCESS TECHNOLOGY (PTEC)

**101. Introduction to Process Technology.** Credit 3 hours. An introduction to the field of Process Technology and the role of process operators within the plant. Major topics to be studied include operator performance and responsibilities, employer expectations, plant safety, responsible care and compliance with regulations, instrumentation, plant equipment and processes, and industrial process control.

**131. Instrumentation I.** Credit 3 hours. An introduction to the common instrumentation components and their operation and their function within a control loop. Students will be introduced to pressure, temperature, level and flow measurement as well as controllers, valve positioners and relays. Two hours of lecture and two hours of laboratory per week. Laboratory fee required.

**132. Instrumentation II.** Credit 3 hours. Prerequisites: Process Technology 131 and Computer Science 110. A detailed study of instrumentation as applied to industrial process control. Major topics to be studied include control concepts, functional structure of feedback control, sensors and transmission systems, controllers, process dynamics and tuning control systems. Two hours of lecture and two hours of laboratory per week. Laboratory fee required.

**161. Plant Equipment.** Credit 3 hours. A study of industrial plant equipment, including their construction, principles of operation, and utilization within process systems. Equipment to be studied includes pumps, compressors, valves, instruments, boilers, furnaces, turbines, heat exchangers, and cooling towers. Two hours of lecture and two hours of laboratory per week. Laboratory fee required.

**207. Statistical Quality Control.** Credit 3 hours. Prerequisites: Process Technology 242 and Mathematics 161. A study of the statistical quality control requirement of process industries. Major topics include internal and external customer/supplier relationship, total quality management, statistical methods of quality control, and computer software SPC/SQC programs.

**242. Unit Operations.** Credit 3 hours. Prerequisites: Process Technology 101 and 161. A functional examination of the general types of processes found in the chemical and refining industries, including distillation and fractionation, reaction, absorptions, adsorption, extraction, stripping, cracking, alkylation, hydroprocessing, clarification and water treatment. Two hours of lecture and two hours of laboratory per week. Laboratory fee required.

**243. Industrial Process Control.** Credit 4 hours. Prerequisites: Process Technology 132 and 242 and Chemistry 101 and 103. An advanced study of the design and control of industrial processes. Students will be required to operate and monitor process plant simulators and troubleshoot system upsets. Two hours of lecture and four hours of laboratory per week. Laboratory fee required.

**263. Fluid Mechanics.** Credit 3 hours. Prerequisites: Process Technology 132 and Physics 191 and 193. A study of the principles of fluid mechanics which provide the theoretical foundation required for the design, construction, installation and operation of plant equipment and process units.