

# Process Technology (PRT)

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## Courses

### **PRT A101 Introduction to Process Technology 3 Credits**

Introduces industrial process operations through an overview of general information, processes, procedures and equipment.

### **PRT A110 Introduction to Process Safety, Health and Environmental Awareness 3 Credits**

Introduces safety, health and environmental awareness within the process industry. Examines types of hazards, applicable government regulations, and current industry standards and practices. Analyzes the potential for harm to an individual and to the environment due to unsafe conditions. Covers various types of preventative procedures, systems and equipment.

### **PRT A130 Process Technology I: Equipment 4 Credits**

Examines various types of process equipment through an in-depth analysis of construction, components and operation. Covers process flows, piping diagrams, economic impact, plus safety and environmental aspects. Surveys preventative maintenance and troubleshooting procedures.

**Registration Restrictions:** Admission to the Associate of Applied Science in Industrial Process Instrumentation, Associate of Applied Science in Process Technology or Undergraduate Certificate in Petroleum Technology

**Prerequisites:** MATH A105 with a minimum grade of C or concurrent enrollment and PRT A101 with a minimum grade of C.

### **PRT A140 Industrial Process Instrumentation I 3 Credits**

Introduces the terminology and symbolism encountered in process instrumentation. Explores common process variable measurement tools.

**Registration Restrictions:** Admission to the Associate of Applied Science in Process Technology, Associate of Applied Science in Industrial Process Instrumentation or Undergraduate Certificate in Petroleum Technology

**Prerequisites:** MATH A105 with a minimum grade of C or concurrent enrollment.

### **PRT A144 Industrial Process Instrumentation II 3 Credits**

Examines continuous control strategies and final control elements, discrete-type alarm, annunciator, and shutdown systems utilized for process control. Reviews computerized control systems. Analyzes instrument calibration and troubleshooting procedures. Utilizes a variety of instrument projects to increase practical knowledge through troubleshooting, repair, instrument calibration and functional check-out (FCO) procedures.

**Registration Restrictions:** Admission to the Associate of Applied Science in Industrial Process Instrumentation or Associate of Applied Science in Process Technology

**Prerequisites:** PRT A140 with a minimum grade of C.

### **PRT A160 Oil and Gas Exploration and Production I 3 Credits**

Examines oil and gas history, exploration, reservoir geology and aspects of petroleum mineral leasing. Covers drilling and completion techniques, production systems, methods of petroleum delivery and emulsion hazards and treatment. Surveys alternate petroleum sources, the theory of peak oil and reviews current petroleum marketing strategies.

**Registration Restrictions:** Admission to the Associate of Applied Science in Process Technology or the Undergraduate Certificate in Petroleum Technology

### **PRT A230 Process Technology II: Systems 4 Credits**

Examines how individual components interact as part of a specific process system. Covers how specific process systems integrate and function within a process facility. Reviews the scientific principles incorporated in the proper working of process systems. Surveys a selection of process industries with emphasis directed toward those located in Alaska.

**Registration Restrictions:** Admission to the Associate of Applied Science in Industrial Process Instrumentation, Associate of Applied Science in Process Technology or Undergraduate Certificate in Petroleum Technology

**Prerequisites:** PRT A130 with a minimum grade of C and PRT A140 with a minimum grade of C.

**Corequisites:** PRT A230L.

### **PRT A231 Process Technology III: Operations 4 Credits**

Analyzes the operator duties and responsibilities that occur in a process operation with emphasis focused on the unit (outside) operator position. Examines the different operational phases found in a process operation. Covers the operation of a variety of Alaska process industries and an overview of their operator duties.

**Registration Restrictions:** Admission to the Associate of Applied Science in Process Technology or Undergraduate Certificate in Petroleum Technology

**Prerequisites:** PRT A144 with a minimum grade of C and PRT A230 with a minimum grade of C and PRT A250 with a minimum grade of C or concurrent enrollment.

**Corequisites:** PRT A231L.

### **PRT A250 Process Troubleshooting 3 Credits**

Introduces the concept of troubleshooting and analyzes how instrumentation such as indicators, variables and controllers can be used for effective troubleshooting. Develops troubleshooting skills that can be used effectively throughout the process industry.

**Registration Restrictions:** Admission to the Associate of Applied Science in Industrial Process Instrumentation, Associate of Applied Science in Process Technology or Undergraduate Certificate in Petroleum Technology

**Prerequisites:** PRT A144 with a minimum grade of C or concurrent enrollment and PRT A230 with a minimum grade of C.

**PRT A255 Quality Concepts for the Process Industry 1 Credit**

Examines quality concepts, tools, and methods used in the process industry. Covers the effectiveness of their implementation and continued use. Investigates root cause analysis problem-solving techniques.

**Registration Restrictions:** Admission to the Associate of Applied Science in Process Technology

**Prerequisites:** PRT A230 with a minimum grade of C or concurrent enrollment.

**PRT A260 Oil and Gas Exploration and Production II 3 Credits**

Analyzes operator duties and responsibilities in oil and gas production facilities; oil and gas well production; well pad operations; drill site operations; and oil and gas transportation methods. Covers both on-shore and off-shore producing areas.

**Registration Restrictions:** Admission to the Undergraduate Certificate in Petroleum Technology or Associate of Applied Science in Process Technology

**Prerequisites:** MATH A105 with a minimum grade of C or concurrent enrollment and PRT A160 with a minimum grade of C.

**PRT A280 Industrial Petrochemical Processes 3 Credits**

Surveys industrial petrochemical reaction processes, catalysis and aspects of petrochemical productions. Covers industrial start-up and production technologies, shared systems and methods of industrial chemical processes, safety hazards and environmental impacts. Covers natural gas reforming and chemical reaction processes, and examines current marketing and shipping strategies.

**Registration Restrictions:** Admission to the Associate of Applied Science in Industrial Process Instrumentation, Associate of Applied Science in Process Technology or Undergraduate Certificate in Petroleum Technology

**Prerequisites:** PRT A230 with a minimum grade of C.