

# APPLIED PROCESS TECHNOLOGY (APT)

## APT 102 (4 credit hours)

### Process Fundamentals

Presents fundamental knowledge necessary for process operations. Develops an understanding of the basic principles of process operations. Covers the fundamental areas of physics, chemistry, and mathematics necessary to understand their complex relationship in industry. Includes topics on fluid behavior, fluid in motion, piping and valves, and the laws and nature of heat. Lecture: 2 credits (30 contact hours). Laboratory: 2 credits (120 contact hours).

**Pre-requisite:** Test at MAT126 eligible or MAT 65 or Consent of Instructor.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## APT 104 (3 credit hours)

### Rotating and Reciprocating Equipment

Presents fundamental knowledge necessary for process operations and entry-level maintenance personnel. Develops an understanding of mechanical energy and the way it is put to use in industrial applications. Covers various forms of energy and how this energy can be converted to perform work. Includes topics on operating instructions, basic troubleshooting skills, and basic maintenance skills typically performed by personnel on pumps, compressors, and prime movers. Lecture: 1.0 credit (15 contact hours). Laboratory: 2.0 credits (120 contact hours).

**Pre-requisite:** Test at MAT126 eligible or MAT 65 or Consent of Instructor.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## APT 106 (2 credit hours)

### Process Chemistry

Presents fundamental knowledge of chemistry necessary for process operations. Focuses on the basics of chemistry as they apply to water treatment and hydrocarbon processing. Includes, but are not limited to: basic chemical terminology, molecular formulas, structural formulas, common chemical symbols, and the chemical nature of the operator's job, work environment, and products. Lecture: 2 credits (30 contact hours).

**Pre-requisite:** Test at MAT126 eligible or MAT 65 or Consent of Instructor.

**Attributes:** Technical

**Components:** LEC: Lecture

## APT 108 (2 credit hours)

### Stationary Equipment

Presents fundamental knowledge in the operation and troubleshooting of stationary equipment. Provides a solid foundation on which to build sound maintenance and operations programs. Covers common equipment designs, operating instructions, troubleshooting aids to help identify malfunctions, guides to handling emergency situations and routine scheduled maintenance tasks. Includes topics on heat exchangers, heat transfer, cooling towers, and refrigeration. Lecture: 1.0 credit (15 contact hours). Lab: 1.0 credit (30 contact hours).

**Pre-requisite:** Test at MAT126 eligible or MAT 65 or Consent of Instructor.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## APT 142 (4 credit hours)

### Instrumentation

Develops an understanding of how to control and operate processes. Involves work on real life simulators to ensure an understanding of process operations has been achieved. Includes measurement fundamentals and control strategies as applied to unit operations, industrial chemical operations, and operating tactics and strategies.

Provides basic instruction in process control instrumentation as it relates to the manufacturing operations and will promote smoother, more efficient control of automated systems. Lecture/Lab: 4.0 credits (105 contact hours).

**Pre-requisite:** APT 108 with a grade of "C" or greater OR Instructor Consent.

**Attributes:** Technical

**Components:** LEC: Lecture

## APT 144 (4 credit hours)

### Process Operations

Develops an understanding of modern processing techniques, practical examples of normal and abnormal operating situations, and advanced training in enhancing productivity while cutting operating costs. Provides maintenance personnel and technicians an understanding of the overall process and their roles in maintaining efficient production rates. Involves work on real life simulators to insure an understanding of process operations. Includes unit operations, industrial chemical operations, and a variety of equipment used in industrial processes. Lecture: 2 credits (30 contact hours). Laboratory: 2 credits (120 contact hours).

**Pre-requisite:** APT 108 with a grade of C or greater or Permission of Instructor.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## APT 146 (2 credit hours)

### Process Applications

Develops an understanding of how to control and operate processes. Involves work on real life simulators to insure an understanding of process operations. Includes a study of interactive control strategies in unit operations, industrial chemical operations, and compressor operations and applications. Lecture: 2 credits (30 contact hours).

**Pre-requisite:** APT 108 with a grade of C or greater or Permission of Instructor.

**Attributes:** Technical

**Components:** LEC: Lecture

## APT 148 (2 credit hours)

### Process Operation Safety

Develops an understanding of how to safely start-up, shutdown, control and operate industrial processes. Includes safe operating tactics and strategies, and procedures as they apply to unit operations and industrial chemical operations. Lecture: 2 credits (30 contact hours).

**Pre-requisite:** APT 108 with a grade of C or greater or Permission of Instructor.

**Attributes:** Technical

**Components:** LEC: Lecture

**APT 154 (6 credit hours)****Power Plant Practice**

Develops an understanding of power plant basics, systems, and equipment and how they are utilized to safely start-up, shutdown, control, and operate a power generation unit. Includes safe operating tactics, strategies, and procedures as they apply to normal and abnormal unit operations. Applies various safety and protection equipment and procedures to unit operations. Lecture: 4 credits (60 contact hours). Laboratory: 2 credits (120 contact hours).

**Pre-requisite:** APT 108 with a grade of C or greater.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**APT 156 (2 credit hours)****Power Plant Protection**

Develops an understanding of how to safely start-up, shutdown, control and operate a power generation unit. Includes safe operating tactics, strategies, and procedures as they apply to unit operations and various safety and protection equipment incorporated into unit operations. Lecture: 1 credit (15 contact hours). Laboratory: 1 credit (60 contact hours).

**Pre-requisite:** APT 108 with a grade of C or greater.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**APT 158 (3 credit hours)****Lineman Technology I**

Trains the student in the use of and/or assembly of materials, tools, and equipment common to the electric utility industry. Provides an overview of the energy delivery system, personal responsibility in regard to safety and job requirements, qualifies the student to climb poles, and trains the student to perform tasks typically required of entry-level apprentices. Lecture: 3 credits (45 contact hours).

**Pre-requisite:** APT 108 or Consent of Instructor.

**Co-requisite:** APT 159, EET 150, EET 151.

**Attributes:** Technical

**Components:** LEC: Lecture

**APT 159 (4 credit hours)****Lineman Technology I Lab**

Provides hands on experience in the use of and/or assembly of materials, tools, and equipment common to the electric utility industry. Provides an opportunity for the student to climb poles and perform tasks typically required of entry-level apprentices. Laboratory: 4 credits (240 contact hours).

**Pre-requisite:** APT 108 or Consent of Instructor.

**Co-requisite:** APT 158, EET 150, EET 151.

**Attributes:** Technical

**Components:** LAB: Laboratory

**APT 202 (3 credit hours)****Federally Mandated Training**

Presents a fundamental knowledge of OSHA, EPA and DOT regulations as concerned with hazardous waste generators and the fundamental knowledge necessary for process operations to qualify for hazardous response to incidents. Covers the required skills to qualify them for HAZWOPER Operations level response. Includes, but are not limited to: HAZCOM, HAZWOPER Operations level, personal protective equipment, working at elevated heights, respirators, SCBAs, and specific hazardous materials. Lecture/Lab: 3.0 credits (90 contact hours).

**Pre-requisite:** Consent of Instructor.

**Attributes:** Technical

**Components:** LEC: Lecture

**APT 204 (1 credit hours)****Safety Skills Training**

Presents a fundamental knowledge of OSHA, EPA and DOT regulations as concerned with hazardous waste generators. This fundamental knowledge is necessary for process operations to qualify for hazardous response to incidents. The student will be trained in the required skills to qualify them for HAZWOPER Operations level response. The course studies include, but are not limited to: Hazcom, Hazwoper Operations level, personal protective equipment, working at elevated heights, respirators, SCBAs, and specific hazardous materials. (This course will be presented in a semester format.) Laboratory: 1 credit (60 contact hours).

**Pre-requisite:** APT 148 with a grade of C or greater.

**Co-requisite:** APT 202.

**Attributes:** Technical

**Components:** LAB: Laboratory

**APT 251 (2 credit hours)****Application of Process Operations**

Prepares the student to demonstrate a working knowledge of the application of the various components involved in process operations. Lecture/Lab: 2.0 credits (75 contact hours).

**Pre-requisite:** Instructor Consent.

**Attributes:** Technical

**Components:** LEC: Lecture

**APT 258 (3 credit hours)****Lineman Technology II**

Expands training in the use of and/or assembly of materials, tools, and operation of equipment common to the electric utility industry. Provides pole top rescue techniques, Kilo-Watt Hour (KWH) meter reading, installation of overhead service, voltage testing, operation of bucket truck, splicing and other knowledge and skills typically required of intermediate-level apprentices. Lecture: 3 credits (45 contact hours).

**Pre-requisite:** APT 158, APT 159, EET 150, EET 151, OR EGY 170.

**Co-requisite:** APT 259.

**Attributes:** Technical

**Components:** LEC: Lecture

**APT 259 (4 credit hours)****Lineman Technology II Lab**

Provides hands on experience in the use of and/or assembly of intermediate materials, tools, and equipment common to the electric utility industry. Provides an opportunity for the student to load/unload and set poles, operate bucket truck and other hydraulic equipment, and perform tasks typically required of intermediate-level apprentices. Laboratory: 4 credits (240 contact hours).

**Pre-requisite:** APT 158, APT 159, EET 150, EET 151.

**Co-requisite:** APT 258.

**Attributes:** Technical

**Components:** LAB: Laboratory

**APT 291 (2-3 credit hours)****Special Problems in Applied Process Technologies**

Provides additional experience in identified areas of student's need. The subject area and/or tasks must be approved by an assigned instructor. Must also have a component where the student is evaluated by an industry professional. Discussion: 2-3 credits (45-135 contact hours).

**Pre-requisite:** Consent of Instructor.

**Attributes:** Technical

**Components:** DIS: Discussion

**APT 299 (1-6 credit hours)****Cooperative Education Program**

For students approaching the major career transition from college to work as a co-op student. Provides supervised on-the-job work experience related to the student's educational objectives. Students participating in the Co-op Education program receive compensation for their work. Co-Op: 1-6 credits (75-450 contact hours).

**Pre-requisite:** Consent of Instructor.

**Attributes:** Technical

**Components:** COP, Co-op