

Course Objectives/Course Outline
Spokane Community College

Course Title: Pumps, Pipes, Hydrants, and Valves
Prefix and Course Number: Water 135

Course Learning Outcomes:

By the end of this course, a student should be able to:

- Develop basic working knowledge of the most common pumps, pipes, hydrants, and valves in the water and wastewater industry.
- Perform basic material selection and understand installation/maintenance procedures.
- Understand basic design concepts of water and wastewater distribution and collection systems.
- Develop the ability to interpret basic scientific graphical information and use applied mathematics for conversions and problem solving.
- Develop skills of technical description through verbal and written communication

Course Outline:

- I. Distribution & collection system design
 - A. Layout
- II. Introduction to pipes
 - A. Sizing requirements
 - B. Pipe selection
 - C. Pipe service
 - D. Pipe materials
- III. Valves
 - A. Types of valves
 - B. Valve operation and installation
- IV. Hydrants
 - A. Hydrant uses
 - B. Fire hydrants
 - C. Hydrant maintenance
- V. Pumps
 - A. Types of pumps
 - B. Pump operation and maintenance
 - C. Motors & motor control equipment
 - D. Pump, motor, and engine records
- VI. Instrumentation and control
 - A. Monitoring sensors
 - B. Secondary instrumentation
 - C. Control systems
- VII. Distribution mathematics
 - A. Working with numbers
 - B. Conversion of US to customary units
 - C. The metric system