

Course Description Sheet

COURSE TITLE

Introduction to Pumps and Motors

COURSE DURATION

1 Hour

OVERVIEW

Pumps and motors are mainstays of the water industry as almost every water system has them. In a water operator's career, either at a treatment plant or in distribution, pumps, and motors will be experienced and, in some cases, operated and maintained. This course introduces and provides general information on pumps and motors. The course is not intended to provide how to operate or maintain pumps, as these efforts require more details, knowledge, training, and experience than this course offers. Electrical and mechanical skills and abilities are needed, along with the safety proficiencies to work on pumps, which are outside of this course.

PREREQUISITES

No prior knowledge is required.

BEHAVIORAL OBJECTIVES

After successfully completing this course, you will be able to:

- Know about what type of pumps are primarily used in water systems
- Know general pump characteristics, terms, and their definitions
- Distinguish the basic components of a centrifugal pump
- Identify pump curves and their information
- Understand the general maintenance practices of pumps and types of maintenance

COURSE OUTLINE

Chapter	Minutes
Introduction	2
Pumps	11
Motors and Drives	7
Valves and Appurtenances	2
Useful Terms and Concepts Relating to Pumps and Motors	18
Pump Controls	2
General Pump Maintenance	10
Motor Maintenance	1
Safety	3
Conclusion	2
Summary	2
Course Total	60

AVAILABILITY

This course is offered online and is available 24 hours a day, 7 days a week, 365 days a year.

TRAINING METHODOLOGY & EVALUATION

This course is self-paced online training. Review exercises reinforce the content, and students are evaluated with a multiple-choice exam. Upon completion, students are prompted to submit a course evaluation.

REFERENCES

American Water Works Association and Association of Boards of Certification, 2016. Water Treatment, Grades 1 and 2, Revised 2016.

American Water Works Association and Association of Boards of Certification, 2016. Water Distribution, Grades 3 and 4, Revised 2016.

California State University and EPA, 2005. Water Distribution System Operation and Maintenance, Fifth Edition, Office of Water Programs California State University and USEPA.

California State University and EPA, 2004, Water Treatment Plant Operations, Fifth Edition, Office of Water Programs California State University and USEPA.

Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers. 2022 Edition. Ten State Standards - Recommended Standards for Water Works.

Grundfos – What is a Pump Curve, 2023, Ecademy, (webpage).

Intro to Pumps, Pumps 101 An Introduction to Centrifugal Pump Fundamentals, Pump Education, 2023, (webpage).

McGraw-Hill, 1992, Water Resource Engineering, 4th Edition, Linsley, Franzini, Freyberg, and Tchobanoglous.

U.S. Environmental Protection Agency, June 2020. Asset Management Plan Components and Implementation Tools for Small and Medium Sized Drinking Water and Wastewater Systems. EPA 816-B-20-001.

WSDOH, 2020, Water System Design Manual, Washington State Department of Health, DOH Publication 331-123, Revised June 2020.