

# WATER TREATMENT PLANT OPERATIONS, STACKABLE CERTIFICATES OF SPECIALIZATION



## Water & Wastewater Fundamentals

### Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Water Treatment Plant Operator-1
  - Identify in detail characteristics and sources of ground water and surface water supplies including the chemical, physical and bacterial characteristics, and explain the effects on quality of geological formations, stratifications, and watershed management.
- Water Treatment Plant Operator-10
  - Perform basic mathematical calculations and conversions relating to water flow, pressure, volume, velocity, chemical dosage, and hydraulic and organic loading.
- Water Treatment Plant Operator-11
  - Determine appropriate safety procedures applicable to service and operation of water treatment and distribution systems including potential problems.

### Certificate Requirements

Code	Title	Units
CWS-100	Career Pathways in Water & Wastewater	3
CWS-101	Fundamentals of Water & Wastewater	3
CWS-102	Calculations in Water & Wastewater	3
CWS-107	Safety in Water & Wastewater	3
<b>Total Units</b>		<b>12</b>

## Water Treatment Plant Operations

### Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Water Treatment Plant Operator-2
  - Compare the basic principles of each water treatment process and list them in order performed.
- Water Treatment Plant Operator-5
  - Compare and contrast the basic principles of each water treatment process and list them in order performed.
- Water Treatment Plant Operator-9
  - Demonstrate through testing basic knowledge of the regulations for monitoring water quality and performing water treatment.

### Certificate Requirements

Code	Title	Units
CWS-106	Electrical & Instrumentation Processes	3
CWS-110	Laboratory Analysis for Water & Wastewater	3
CWS-112	Water Treatment Plant Operations	3
<b>Total Units</b>		<b>9</b>

## Advanced Water Treatment Plant Operations

### Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Water Treatment Plant Operator-5
  - Compare and contrast the basic principles of each water treatment process and list them in order performed.
- Water Treatment Plant Operator-6
  - Explain and prepare a plan for the use of chlorine including the characteristics of and methods for storing, feeding and measuring chlorine including the effects of moisture, pH and temperature on feed rate, and the health and safety effects, procedures and personal protective requirements.
- Water Treatment Plant Operator-7
  - Determine the methods used for coagulation, flocculation and sedimentation including common chemicals used, feed systems, effects of time temperature, turbidity and pH, and the measurement of turbidity and color.
- Water Treatment Plant Operator-9
  - Demonstrate through testing basic knowledge of the regulations for monitoring water quality and performing water treatment.

### Certificate Requirements

Code	Title	Units
CWS-134	Pumps, Motors & Valves	3
CWS-204	Applied Hydraulics	3
CWS-212	Advanced Water Treatment Plant Operations	3
<b>Total Units</b>		<b>9</b>

## Certificates of Specialization

Students who complete the requirements above qualify for a certificate in that area of emphasis. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.