

WASTEWATER COLLECTION SYSTEMS, STACKABLE CERTIFICATES OF SPECIALIZATION



Water & Wastewater Fundamentals

Program Learning Outcomes

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

- Wastewater Collection Systems-1
 - Define common terminology pertaining to collections system components, design, and management as well as inspection and quality control.
- Wastewater Collection Systems-3
 - Given a wastewater collection map book, identify pipeline dimensions, pipe construction materials, direction of flow, and location of valves, services and lift stations.
- Wastewater Collection Systems-7
 - Perform basic mathematical computations and conversions relating to wastewater collection systems, pressure, volume, velocity, chemical dosage, and hydraulic and organic loading.

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
Total Units		12

Wastewater Collection Systems

Program Learning Outcomes

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

- Wastewater Collection Systems-4
 - Describe in detail basic underground location and leak detection, trenching and shoring, and backfill and compaction methods of construction used in the field.
- Wastewater Collection Systems-5
 - Describe the nine basic cleaning methods and basic principles involved in hydraulic and mechanical cleaning methods.
- Wastewater Collection Systems-6
 - List and describe the operation of common valves used in a wastewater collection system.

Certificate Requirements

Code	Title	Units
CWS-132	Wastewater Collection Systems	3
CWS-134	Pumps, Motors & Valves	3
CWS-282	Cross-Connection Control Specialist	3
Total Units		9

Advanced Wastewater Collection Systems Program Learning Outcomes

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

- Wastewater Collection Systems-7
 - Perform basic mathematical computations and conversions relating to wastewater collection systems, pressure, volume, velocity, chemical dosage, and hydraulic and organic loading.
- Wastewater Collection Systems-5
 - Describe the nine basic cleaning methods and basic principles involved in hydraulic and mechanical cleaning methods.
- Wastewater Collection Systems-2
 - Identify the types and functions of pipes and fittings used in wastewater collection system design and management.
- Wastewater Collection Systems-4
 - Describe in detail basic underground location and leak detection, trenching and shoring, and backfill and compaction methods of construction used in the field.

Certificate Requirements

Code	Title	Units
CWS-106	Electrical & Instrumentation Processes	3
CWS-204	Applied Hydraulics	3
CWS-232	Advanced Wastewater Collection Systems	3
Total Units		9

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.