Water Treatment Technology Learning Outcomes

WT 110	Water Treatment Plant Operator I	1. Develop knowledge on the physical, chemical, and biological principles of unit processes and operations commonly used in water treatment. (IL02,IL03,IL04)
		2. Identify the importance of the acquisition of knowledge and skills to required to provide the public with a reliable, and safe water supply.(IL02,IL03,IL04,IL05)
		3. Correctly identify the origins, risks and assesments of contaminants in water. (IL01,IL02,IL03,IL04)
		4. Recognize the risks associated with chemicals and equipment used in water treatment and will be able to demonstrate the ability to use proper techniques and procedures necessary to protect themselves, co-workers and the public.(IL01,IL02,IL03,IL04,IL05)
WT 120	Computational Procedures Operator I	1. Correctly calculate water treatment plant math problems including chemical dosages, flow rates, volumes, detention times, horsepower and energy costs. (IL02,IL03,IL04)
		2. Demonstrate basic abilities to identify, troubleshoot and resolve treatment process problems that could compromise the proper water treatment processes as well as involved water related regulations. (IL01,IL02,IL03,IL04,IL0)
		3. Identify mathemathical methods that can be used to improve the performance of the water treatment plant. (IL02, IL03, IL04)
WT 130	Wastewater Treatment Operator I	1. Apply scientific methods for the proper wastewater treatment process. (IL02, IL03, IL04)
		2. Describe fundamental concepts in physics,and microbiology involved in the wastewater treatment process. (IL01,IL02, IL04)
		3. Interpret and use analytical data to performed operational adjustments as required in the wastewater treatment. (IL01, IL02, IL03, IL04)
		4. Use legal/ethical principles in wastewater treatment operational adjustments to satisfy involved regulations. (IL01, IL02, IL03, IL04, IL05)
WT 140	Water Distribution Systems	1. correctly perform basic operational adjustments and calculations for the operation of a water distribution system. (ILO2, ILO3, ILO4)
		2. state and observe the implied responsibilities related to the operation of the water distribution system. (ILO2, ILO3, ILO4, ILO5)
		3. analyze water samples laboratory data to perform operational adjustments in the water distribution system. (ILO1, ILO2, ILO3, ILO4)
		4. feel more confident about their ability to identify cross connections. (ILO1, ILO2, ILO3, ILO4, ILO5)
WT 150	Wastewater Collection Systems	1. Identify and properly operate each component of a wastewater collection system. (ILO2, ILO3, ILO4)
		2. Describe and understand importance of standard operating procedures within a wastewater collection system. (ILO2, ILO3, ILO4)
		3. Describe and correctly restore abnormal conditions in a wastewater collection system. (ILO2, ILO3, ILO4)
		4. Identify equipment used during maintenance of wastewater collection system. (ILO4)
WT 210	Water Treatment Plant Operator II	1. Understand and evaluate issues concerning effective treatment of water. (ILO2, ILO3, ILO4)
		2. Assume responsibility for water treatment operational changes and work effectively as an individual and as a member of a group. (ILO1, ILO2, ILO3, ILO4)
		3. Apply ethics and principles to address involved drinking water regulations. (ILO2, ILO3, ILO4, ILO5)
		4. Analyze, understand, and evaluate diverse ideas, beliefs, and behaviors to develop responsible managerial aptitudes. (ILO2, ILO3)
WT 220	Computational Procedures Operator II	1. Apply mathematical principles to address and solve problems related to water and wastewater treatment technologies. (IL02, IL03, IL04)
		2. Enhance treatment systems by interpretation of hydraulic volumes, dimensional analysis, primary and secondary sewage treatment, calculations and chemical dose rates as it relates to water/wastewater technology. (IL02, IL03, IL04)
		3. Understand and evaluate issues concerning the proper use and distribution of the water natural resources. (IL01, IL02, IL03, IL04, IL05)
		4. Effectively attain grades III/IV/V in both water and wastewater State certifications. (IL02, IL04)

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WT 230	Wastewater Treatment Operator II	1. Gather and interpret data, using microbiology knowledge and other scientific methods, to address and solve both practical and theoretical problems in the wastewater treatment. (ILO2, ILO3, ILO4)
		2. Access, interpret, evaluate and apply information using multiple resources, including current information technology for proper wastewater treatment plant operation and maintenance. (ILO1, ILO2, ILO3, ILO4)
		3. Display and follow safety procedures in the practical aspects of operating and maintaining wastewater treatment plants. (ILO1, ILO2, ILO3, ILO4)
		4. Analyze and apply mathematical principles to address and solve wastewater operational issues. (ILO2, ILO3, ILO4)