

Advanced Wastewater Course Listings

Course Title: Advanced Biological Phosphorous Removal

Provider: Op2Myz, LLC

The course is designed to provide operators with the tools necessary to more thoroughly understand the operating principles of a biological phosphorus removal system, with a special emphasis on optimizing the system. The main goal of the course is to provide operators with an in-depth understanding of the workings of a biological phosphorus removal system and have the ability to apply the learned skills to their own treatment facility.

Topics covered in the course include, biology of phosphorus removal, creating the environments for organisms to thrive, detailing fractions of phosphorus in the effluent and the treatment process which remove each fraction, setting phosphorus treatment goals, tools used to measure system performance, benchmarking/analyzing system performance, setting and achieving treatment goals, common problems and case studies.

Format: Classroom

Length: 20 hours – ½ advanced point

Registration: Email: greg@op2myz.com Phone: (608)738-5748

Course Title: Advanced Waste Treatment

Provider: Sacramento State - Office of Water Programs

This correspondence course is designed to train operators to safely and effectively operate advanced wastewater treatment plants. Information presented includes detailed descriptions of the equipment and advanced treatment processes used for odor control, pure oxygen activated sludge treatment, solids removal from secondary effluents, residual solids management, enhanced biological control including nitrogen and phosphorus removal, and wastewater reclamation.

Format: Correspondence

Length: 90 hours – 2 advanced points

Registration: www.owp.csus.edu

Email: wateroffice@owp.csus.edu Phone: (916) 278-6142

Course Title: Industrial Waste Treatment, Vol.1

Provider: Sacramento State - Office of Water Programs

This correspondence course is designed to train operators in the practical aspects of operating and maintaining industrial wastewater treatment plants, emphasizing safe practices and procedures. Operators learn to operate and maintain flow measurement equipment, preliminary treatment processes (equalization, screening, and pH adjustment), physical-chemical treatment processes (coagulation, flocculation, and sedimentation), pressure and gravity filters (including membrane filters), physical treatment processes (air stripping and carbon adsorption), and processes for treatment of metal wastestreams.

Format: Correspondence

Length: 90 hours – 2 advanced points

Registration: www.owp.csus.edu

Email: wateroffice@owp.csus.edu Phone: (916) 278-6142

Course Title: Industrial Waste Treatment, Vol. 2

Provider: Sacramento State - Office of Water Programs

This correspondence course is designed to train operators in the practical aspects of operating and maintaining industrial wastewater treatment plants, emphasizing safe practices and procedures. Topics covered include the importance and responsibilities of an industrial treatment plant operator, fixed growth processes (trickling filters and rotating biological contactors), activated sludge process control, sequencing batch reactors, enhanced biological treatment (including nitrogen and phosphorus removal), anaerobic treatment, residual solids management, and plant and equipment maintenance.

Format: Correspondence

Length: 90 hours – 2 advanced points

Registration: www.owp.csus.edu

Email: wateroffice@owp.csus.edu Phone: (916) 278-6142

Course Title: Pretreatment Facility Inspection

Provider: Sacramento State - Office of Water Programs

The purpose of this correspondence course is to train operators to become pretreatment facility inspectors and to improve the knowledge and skills of current inspectors. Topics covered include development and application of regulations, sources of industrial wastewater, source control processes and procedures, monitoring wastewater flows, and collecting and transporting representative samples.

Format: Correspondence

Length: 90 hours – 2 advanced points

Registration: www.owp.csus.edu

Email: wateroffice@owp.csus.edu Phone: (916) 278-6142

Course Title: Treatment of Metal Wastestreams

Provider: Sacramento State - Office of Water Programs

This correspondence course is designed to train operators in the practical aspects of operating and maintaining treatment plants that receive wastewater from electroplating, metal finishing, and printed circuit board manufacturing facilities. Information is presented on the need for treatment of metal wastestreams, sources of wastewater, safety data sheets (SDSs), and the globally harmonized system of classification and labeling of chemicals (GHS).

Format: Correspondence

Length: 45 hours – 1 advanced point

Registration: www.owp.csus.edu

Email: wateroffice@owp.csus.edu Phone: (916) 278-6142

Course Title: Collection Systems: Methods for Evaluating and Improving Performance

Provider: Sacramento State - Office of Water Programs

This correspondence course can assist collection system agencies in evaluating the adequacy and effectiveness of their O&M program and identifying areas where improvements could be made.

Format: Correspondence

Length: 30 hours – 1/2 advanced points

Registration: www.owp.csus.edu

Email: wateroffice@owp.csus.edu Phone: (916) 278-6142

Course Title: 607-182 Sampling and Testing

Provider: Gateway Technical College

This course presents a variety of sampling and testing methods required by federal and state regulations for wastewater, groundwater and surface water. Sampling and testing methods and equipment are introduced including:

- Use of automatic samplers
- Flow measurement techniques (open channel, closed pipe, volumetric, dilution)
- Field testing (pH, temperature, dissolved oxygen, chlorine, etc.)
- Sample preservation and storage

Principles of safety related to sampling and testing such as confined space entry, personal protective equipment (PPE) and chemical handling will be presented.

Format: Online and Classroom

Length: 45 hours – 1 advanced point

Registration: <https://www.gtc.edu/student-services/registrar/registration-information>

Email: schuckm@gtc.edu Phone: (262)353-8500

Course Title: 607-185 Waste Water Treatment

Provider: Gateway Technical College

This course reviews waste water characteristics, receiving water and effluent standards. Basic design methodology and operational features of common physical, chemical and biological processes for the treatment of municipal and industrial waste water. In addition the course will provide an introduction to waste water collection systems (sewers), pumps and the processing and disposal of sludges and other treatment plant residues. Will provide the operator with an understanding of how industrial wastewater discharges can affect POTWs. This course includes hands-on training with treatment of industrial waste water (e.g. jar testing and system design). In addition the treatment of a broad spectrum of industrial and municipal wastewater discharges will be covered.

Format: Online and Classroom

Length: 60 hours – 1 1/2 advanced points

Registration: <https://www.gtc.edu/student-services/registrar/registration-information>

Email: schuckm@gtc.edu Phone: (262)353-8500

Course Title: 607-154 Sewer and Water Systems

Provider: Gateway Technical College

Using the latest hydraulic software, students will learn the basic applications of hydrology and hydraulics for various applications including run off calculations and design of culverts, storm sewers, detention basins, etc. Students will also be acquainted with the principles and software applications in designing water and sewer lines. Course covers the equations and principles for designing and evaluating the performance of sanitary sewers, storm sewers, culverts and detention basins. Students design/verify the design of various sanitary and storm sewers.

Format: Online and Classroom

Length: 30 hours – 1/2 advanced point

Registration: <https://www.gtc.edu/student-services/registrar/registration-information>

Email: schuckm@gtc.edu phone: (262)353-8500

Course Title: 527-511 Water Chemistry

Provider: Gateway Technical College

Explores basic chemical concepts and principles such as elements, compounds, states of matter, and reactions that are applicable to evaluating and regulating water quality and applies them to water and wastewater treatment. Learners also examine laboratory techniques, equipment, quality assurance, and record keeping and reporting.

Format: Classroom

Length: 72 hours – 1 1/2 advanced points

Registration: <https://www.gtc.edu/student-services/registrar/registration-information>

Email: schuckm@gtc.edu Phone: (262) 564-2952

Course Title: Nutrient Removal Engineering: Phosphorous and Nitrogen in Wastewater Treatment

Provider: University of Wisconsin-Madison Dept. of Engineering Professional Development

Phosphorous and nitrogen present significant issues for today's wastewater treatment engineers, operators, and regulators. With new and revised regulations, many treatment plants need to further reduce the discharge of effluent nutrients to surface waters to limit the growth of algae and other aquatic vegetation. This course will teach you the principles and the latest technologies to help you manage nutrients in your own system and projects. Topics include: New nutrient regulations and discharge permits, nitrogen and phosphorus principles, detailed technologies and processes, BNR process models, extractive phosphorus recovery, adaptive management and pollutant trading, plant upgrades and retrofits, case studies and costs, design exercises, site visit to a state-of-the-art nutrient recovery facility

Format: Classroom

Length: 20 hours – 1/2 advanced point

Registration: epd.wisc.edu/RA01245

Email: ned.paschke@wisc.edu

Phone: (800) 462-0876

Course Title: Wastewater Treatment Processes and Technologies

Provider: University of Wisconsin-Madison Dept. of Engineering Professional Development

Well-designed and operated wastewater treatment facilities are essential for the protection of public health and the environment in every city and community. This course will cover the key processes, latest technologies and current regulations to help you design, manage and improve your current and future wastewater facilities and projects. Course topics include: Wastewater characteristics and regulations, headworks, grit removal, flow measurement, screening, primary treatment, activated sludge, biological processes, nutrient removal, membrane bioreactors (MBRs), effluent disinfection, chlorine, UV, ozone, bio-solids treatment, aerobic and anaerobic digestion, treatment costs: capital, operating, and maintenance, comparison of industrial and municipal treatment, treatment plant operations and management, class exercises and sample problems, onsite plant visit

Format: Classroom

Length: 20 hours – 1/2 advanced points

Registration: epd.wisc.edu/RA01043

Email: ned.paschke@wisc.edu

Phone: (800) 462-0876

Course Title: AW101-Advanced Automated Water Treatment Systems

Provider: New Works

Automated Water Treatment Fundamentals for water management is designed to simulate the entire cycle of human water use.

This class will cover all aspects of water catchment, treatment, delivery, and waste water management.

The water catchment will include: pumping from groundwater, springs or surface water and includes the subsequent storage and purification. It also covers the distribution of water to consumers and its use – which results in water to becoming wastewater.

The wastewater transport together with rain runoffs and the entire treatment process including primary, secondary and tertiary treatment to final recovery are covered. In a real wastewater treatment plant the final effluent is discharged into surface water, normally rivers. Direct reuse is not common, but the effluent now is part of natural water bodies which again feeds the sources of water extraction.

Training will be delivered through online theory classes and then lab classes with direct application utilizing an automated water catchment and treatment simulator (FESTO).

Format: Online and Classroom

Length: 40 hours – 1 advanced points

Registration: ThinkNewWorks.com

Email: learn@thinknewworks.com Phone: (262) 671-4291

Course Title: AW202-Advanced Optimization of Controls and Energy for Water and Waste Water Treatment Plants

Provider: New Works

Water and waste water treatment plants are energy intensive and account for up to 35% or more of municipal energy consumption. Control technology is becoming extremely important in all areas, because its use can help to reduce the consumption of energy and resources. In an effort to make the operation of water or wastewater treatment plants more efficient, individual steps must be planned and sequences must be understood and double checked. Students learn strategies to optimize systems that consume less electrical power, which results in reduced maintenance work, and increases the life of the operational units. There will be a special focus on aeration.

Training will be delivered through online theory classes and then lab classes with direct application utilizing an automated water catchment and treatment simulator (FESTO).

Format: Online and Classroom

Length: 40 hours – 1 advanced point

Registration: ThinkNewWorks.com

Email: learn@thinknewworks.com Phone: (262) 671-4291

Course Title: Advanced Wastewater Treatment Processes

Provider: Moraine Park Technical College

Develops competence in management of wastewater treatment processes including disinfection treatment of wastewater, basic and advanced phosphorus removal, tertiary filtration, mechanical sludge handling, sludge dewatering, and sludge disposal. Use the Internet to locate resources useful in managing wastewater treatment processes.

Format: Online

Length: 72 hours – 1 1/2 advanced points

Registration: www.morainepark.edu

Email: recruitment@morainepark.edu Phone: (920) 924-3207

Course Title: Conventional Wastewater Treatment

Provider: Moraine Park Technical College

Covers the basic biology, chemistry and operational controls of wastewater treatment processes: pre- and primary treatment of wastewater, activated sludge, trickling filters and RBCs (Rotating Biological Contactors). The structure and function of major equipment is explained. Various lab tests and the calculations associated with them are presented.

Format: Online

Length: 54 hours – 1 advanced point

Registration: www.morainepark.edu

Email: recruitment@morainepark.edu

Phone: (920) 924-3207

Course Title: Equipment Maintenance and Instrumentation

Provider: Moraine Park Technical College

Develops skills in the identification and application of tools, correcting facility and system mechanical problems, and understanding the complete concept of preventative and predictive maintenance. Students will research preventative and predictive maintenance systems. Skills will be developed using instrumentation for process control. Supervisory Control and Data Acquisition (SCADA), including control diagrams, designs and applications will be studied.

Format: Online

Length: 72 hours – 1 ½ advanced points

Registration: www.morainepark.edu

Email: recruitment@morainepark.edu

Phone: (920) 924-3207

Course Title: Hydraulics of Water and Wastewater

Provider: Moraine Park Technical College

Provides information and procedures necessary to predict and manipulate the hydraulics of water transmission and collection. The primary work assignments involve the reading and use of hydraulic principles and then applying them in a real-life case analysis as a laboratory project.

Format: Online

Length: 54 hours – 1 advanced point

Registration: www.morainepark.edu

Email: recruitment@morainepark.edu

Phone: (920) 924-3207

Course Title: Industrial Wastes

Provider: Moraine Park Technical College

Focuses on the control of wastewater resulting from the processing of a variety of industrial materials. Methods of waste initiation; impact; minimization; and the treatment of waste process streams of metal, pulp and paper, and food and beverage industry operations are emphasized and analyzed.

Format: Online

Length: 54 hours – 1 advanced point

Registration: www.morainepark.edu

Email: recruitment@morainepark.edu

Phone: (920) 924-3207

Course Title: Utility Management

Provider: Moraine Park Technical College

Provides students, utility and industry personnel with concepts and insight into management practices. Fundamentals of managing people in the workplace, budgeting and financial management, legal issues, communication, utility functions, and public relations will be explored. Examining an actual management team and utility will be a part of the student's learning experience during the progression through the course competencies.

Format: Online

Length: 54 hours – 1 advanced point

Registration: www.morainepark.edu

Email: recruitment@morainepark.edu

Phone: (920) 924-3207

Course Title: Water Chemistry

Provider: Moraine Park Technical College

Explores basic chemical concepts and principles such as elements, compounds, states of matter, and reactions that are applicable to evaluating and regulating water quality and applies them to water and wastewater treatment. Learners also examine laboratory techniques, equipment, quality assurance, and record keeping and reporting.

Format: Online

Length: 72 hours – 1 ½ advanced points

Registration: www.morainepark.edu

Email: recruitment@morainepark.edu

Phone: (920) 924-3207