



STARK STATE COLLEGE OF TECHNOLOGY

ENVIRONMENTAL TECHNOLOGY

WATER / WASTEWATER COURSES

ENV163

WATER / WASTEWATER MATH & CHEMISTRY

2 Credit Hours (32 Ohio EPA Approved Contact Hours – B430225)

In this course, students will be introduced to math and chemistry concepts used in water and/or wastewater plant operations. This is a for credit course that can be taken by water and/or wastewater plant operators planning to take a certification exam or seeking post-certification contact hours. This is a half-semester course with two (2) two (2) hour classes each week for eight (8) weeks.

ENV127

WATER CERTIFICATION EXAMINATION PREPARATION

2 Credit Hours (32 Ohio EPA Approved Contact Hours – D430228)

In this course, students will review topics and supporting material that may appear on the Ohio EPA administered certification examinations for Class I, II and/or III Drinking Water Operators. This is a for credit course that can be taken by water and/or wastewater plant operators planning to take a certification exam or seeking post-certification contact hours. This is a half-semester course with two (2) two (2) hour classes each week for eight (8) weeks.

Prerequisites: ENV163

ENV128

WASTEWATER CERTIFICATION EXAMINATION PREPARATION

2 Credit Hours (32 Ohio EPA Approved Contact Hours – S430232)

In this course, students will review topics and supporting material that may appear on the Ohio EPA administered certification examinations for Class I, II and/or III Wastewater Operators. This is a for credit course that can be taken by water and/or wastewater plant operators planning to take a certification exam or seeking post-certification contact hours. This is a half-semester course with two (2) two (2) hour classes each week for eight (8) weeks.

Prerequisites: ENV163

ENV129

BASIC WATER TREATMENT – PERMITS & ADMINISTRATION

1 Credit Hour (16 Ohio EPA Approved Contact Hours – B432388)

Students will become more familiar with safety issues and responsibilities associated with the permitting and certification process as it relates to water and wastewater treatment plant operations. They will also have the opportunity to improve their people skills and operations management techniques as they relate to water and wastewater treatment plant operations. This is a 100% web-based course.

Prerequisites: ENV163

1. Contact Hours for this course are pending approval by the Ohio EPA.



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ENV130

BASIC WATER TREATMENT – PUMPS, MAINTENANCE & SAFETY

3 Credit Hours (48 Ohio EPA Approved Contact Hours – B432299)

Using the Internet, students will cover a very broad range of topics including, centrifugal pumps, selection and replacement of packing, seals, hydraulics, operating conditions, preventative maintenance, motors, plans and specifications, hazard types, plant equipment and procedures, lab safety and fire prevention, and hazard communications.

Prerequisites: ENV163

ENV131

WASTEWATER TREATMENT I

4 Credit Hours (64 Ohio EPA Approved Contact Hours – S432391)

Using the Internet students will explore the rudiments of wastewater treatment. This introductory course includes instruction in water pollution control, preliminary and primary treatment, fixed film processes, and suspended growth systems. Along with reading assignments from the text, the course is enhanced with up-to-date photographs, audio, interactive exercises, and online links. This course contains self-tests, lesson quizzes, unit finals and a proctored comprehensive final as well as a series of assignments that are emailed to the instructor.

Prerequisites: ENV163

ENV132

WASTEWATER TREATMENT II

4 Credit Hours (64 Ohio EPA Approved Contact Hours – S432418)

Using the Internet, students will focus on issues of concern to wastewater treatment facilities. The topics of this course include activated sludge process control, sludge digestion and solids handling, nitrogen and phosphorous removal, and odor control. Along with reading assignments from the text, the course is augmented with audio, photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, unit finals and a proctored comprehensive final as well as a series of assignments that are emailed to the instructor.

Prerequisites: ENV163, ENV131

ENV133

WASTEWATER TREATMENT - INDUSTRIAL

4 Credit Hours (64 Ohio EPA Approved Contact Hours – S432415)

Using the Internet students will focus on issues of concern to industrial wastewater treatment facilities. The topics of this course include regulatory requirements; flow measurement; preliminary, physical and chemical treatment; filtration; and treatment of metal streams. Along with reading assignments from the text, the course is augmented with audio, photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, unit finals

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and a proctored comprehensive final as well as a series of assignments that are emailed to the instructor.

Prerequisites: ENV163

ENV134

WASTEWATER COLLECTION SYSTEMS

4 Credit Hours (64 Ohio EPA Approved Contact Hours – S432394)

Using the Internet students will gain a working knowledge of wastewater collection systems, safety procedures, sewer inspection and testing, pipeline cleaning and maintenance, underground repair, lift stations, equipment maintenance, and sewer rehabilitation. Along with reading assignments from the text, the course is enhanced with up-to-date photographs, audio, interactive exercises, and links. This course contains self-tests, lesson quizzes, unit finals and a proctored comprehensive final as well as a series of assignments that are emailed to the instructor.

Prerequisites: ENV163

ENV135

WASTEWATER ANALYSIS

3 Credit Hours (48 Ohio EPA Approved Contact Hours – S432412)

Using the Internet students will be introduced to basic laboratory safety and gravimetric, spectrophotometric, electrochemical, titrimetric, and microbiological methods. The units include instruction on the laboratory procedures for microscopic, coliform, BOD5, COD, ammonia, grease and oil, chlorine and solids analysis. Along with reading assignments from the text, the course is enhanced with up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, unit finals and a proctored comprehensive final as well as a series of assignments that are emailed to the instructor.

Prerequisites: ENV163

ENV136

WATER TREATMENT I

4 Credit Hours (64 Ohio EPA Approved Contact Hours – D432421)

Using the Internet students will explore the rudiments of water treatment. The topics of this course include regulatory monitoring, iron and manganese removal, filtration, coagulation, flocculation, fluoridation, and disinfection. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, unit finals and a proctored comprehensive final as well as a series of assignments that are emailed to the instructor.

Prerequisites: ENV163

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ENV137

WATER TREATMENT II

4 Credit Hours (64 Ohio EPA Approved Contact Hours – D432406)

Using the Internet students will focus on issues of concern to surface water treatment facilities. The topics of this course include reservoir management, taste and odor control, corrosion management, softening, demineralization, and trihalomethanes. Instrumentation and sludge handling and disposal issues are also addressed. Along with reading assignments from the text, the course is augmented with audio, photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, unit finals and a proctored comprehensive final as well as a series of assignments that are emailed to the instructor.

Prerequisites: ENV163, ENV136

ENV138

WATER DISTRIBUTION SYSTEMS

4 Credit Hours (64 Ohio EPA Approved Contact Hours – D432409)

Using the Internet students will obtain a working knowledge of potable water distribution systems. The topics of this course include water storage facilities, operation and maintenance of water mains, water quality issues, disinfection, and safety. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, unit finals and a proctored comprehensive final as well as a series of assignments that are emailed to the instructor.

Prerequisites: ENV163

ENV139

WATER ANALYSIS

3 Credit Hours (48 Ohio EPA Approved Contact Hours – D432424)

Using the Internet students will be introduced to basic laboratory safety and gravimetric, spectrophotometric, electrochemical, titrimetric and microbiological methods. The units include instruction on the procedures for regulatory sampling and safety, and specific analytical procedures for total residue, fluoride, pH, ammonia, acidity, alkalinity, calcium, chloride, hardness, and coliform analysis. Along with reading assignments from the text, the course is enhanced with up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, unit finals and a proctored comprehensive final as well as a series of assignments that are emailed to the instructor.

Prerequisites: ENV163

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ENV140

BASIC WATER TREATMENT – COAGULATION AND FLOCCULATION

1 Credit Hour (16 Ohio EPA Approved Contact Hours – D432382)

Using the Internet students will explore the rudiments of water treatment. The topics of this course include general issues operators face when dealing with coagulation and flocculation. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV141

BASIC WATER TREATMENT – DISINFECTION

1 Credit Hour (16 Ohio EPA Approved Contact Hours – D432379)

Using the Internet students will explore the rudiments of water treatment. The topics of this course include general issues operators face when dealing with a variety of disinfection processes. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV142

BASIC WATER TREATMENT – FILTRATION

1 Credit Hour (16 Ohio EPA Approved Contact Hours – D432376)

Using the Internet students will explore the rudiments of water treatment. The topics of this course include general issues operators face when dealing with the filtration processes. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV143

BASIC WATER TREATMENT – FLUORIDATION

1 Credit Hour (16 Ohio EPA Approved Contact Hours – D432373)

Using the Internet students will explore the rudiments of water treatment. The topics of this course include general issues operators face when dealing with the fluoridation processes. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

1. Contact Hours for this course are pending approval by the Ohio EPA.



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ENV144

BASIC WATER TREATMENT – IRON AND MANGANESE

1 Credit Hour (12 Ohio EPA Approved Contact Hours – D432370)

Using the Internet students will explore the rudiments of water treatment. The topics of this course include general issues operators face when dealing with iron and manganese levels. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV145

BASIC WATER TREATMENT – QUALITY

1 Credit Hour (16 Ohio EPA Approved Contact Hours – D432367)

Using the Internet students will explore the rudiments of water treatment. The topics of this course include general issues operators face when insuring the quality of the water. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV146

BASIC WATER TREATMENT – SEDIMENTATION

1 Credit Hour (16 Ohio EPA Approved Contact Hours – D432364)

Using the Internet students will explore the rudiments of water treatment. The topics of this course include general issues operators face when dealing with sedimentation basins. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV147

BASIC WATER TREATMENT – WATER SOURCES & TREATMENT

1 Credit Hour (20 Ohio EPA Approved Contact Hours – D432385)

Using the Internet students will explore the rudiments of water treatment. The topics of this course include an overview of water treatment and reservoir management. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

1. Contact Hours for this course are pending approval by the Ohio EPA.



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ENV148

WATER DISTRIBUTION SYSTEMS – DISTRIBUTION FACILITIES

1 Credit Hour (12 Ohio EPA Approved Contact Hours – D432361)

Using the Internet students will obtain a working knowledge of potable water distribution systems. The specific topics of this course involve the issues of water distribution systems and facilities. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV149

WATER DISTRIBUTION SYSTEMS – STORAGE SYSTEMS

1 Credit Hour (16 Ohio EPA Approved Contact Hours – D432296)

Using the Internet students will obtain a working knowledge of potable water distribution systems. The specific topic of this course is that of water storage facilities. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV150

WATER DISTRIBUTION SYSTEMS – SYSTEM DISINFECTION

1 Credit Hour (16 Ohio EPA Approved Contact Hours – D432358)

Using the Internet students will obtain a working knowledge of potable water distribution systems. The specific topic of this course is that of water disinfection systems. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV151

WATER DISTRIBUTION SYSTEMS – SYSTEM OPERATIONS & MAINTENANCE

1 Credit Hour (16 Ohio EPA Approved Contact Hours – D432355)

Using the Internet students will obtain a working knowledge of potable water distribution systems. The specific topic of this course is that of the needs for proper operations and maintenance of water distribution systems. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

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ENV152

WATER DISTRIBUTION SYSTEMS – SYSTEM SAFETY

1 Credit Hour (16 Ohio EPA Approved Contact Hours – D432352)

Using the Internet students will obtain a working knowledge of potable water distribution systems. The specific topic of this course is that of safety issues confronting water distribution systems. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV153

WATER DISTRIBUTION SYSTEMS – VALVES, MAINS & METERS

1 Credit Hour (16 Ohio EPA Approved Contact Hours – D432349)

Using the Internet students will obtain a working knowledge of potable water distribution systems. The specific topics of this course are that of proper maintenance and operations of the valves, mains, and meters found in water distribution systems. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV154

WATER DISTRIBUTION SYSTEMS – WATER MAINS

1 Credit Hour (16 Ohio EPA Approved Contact Hours – D432346)

Using the Internet students will obtain a working knowledge of potable water distribution systems. The specific topic of this course is that of water mains for distribution systems. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV155

WATER DISTRIBUTION SYSTEMS – WATER QUALITY

1 Credit Hour (12 Ohio EPA Approved Contact Hours – D432343)

Using the Internet students will obtain a working knowledge of potable water distribution systems. The specific topic of this course is that of water quality for distribution systems. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

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ENV156

BASIC WASTEWATER TREATMENT – DISINFECTION & CHLORINATION

1 Credit Hour (16 Ohio EPA Approved Contact Hours – S432340)

Using the Internet students will explore the rudiments of wastewater treatment. The topics of this course include general issues operators face when disinfecting wastewater. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV157

BASIC WASTEWATER TREATMENT – FIXED FILM PROCESS

1 Credit Hour (16 Ohio EPA Approved Contact Hours – S432337)

Using the Internet students will explore the rudiments of wastewater treatment. The topics of this course include general issues regarding the trickling filter process when treating wastewater. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV158

BASIC WASTEWATER TREATMENT – POLLUTION CONTROL

1 Credit Hour (16 Ohio EPA Approved Contact Hours – S432334)

Using the Internet students will explore the rudiments of wastewater treatment. The topics of this course include general issues regarding what is meant by the term *water pollution*, the steps needed to treat it and the math used. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV159

BASIC WASTEWATER TREATMENT – POND SYSTEMS

1 Credit Hour (16 Ohio EPA Approved Contact Hours - S432397)

Using the Internet students will explore the rudiments of wastewater treatment. The topics of this course include general issues regarding use of wastewater ponds as a treatment method. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

1. Contact Hours for this course are pending approval by the Ohio EPA.



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ENV160

BASIC WASTEWATER TREATMENT – PRELIMINARY TREATMENT

1 Credit Hour (16 Contact Hours¹)

Using the Internet students will explore the rudiments of wastewater treatment. The topics of this course include general issues regarding the steps in preliminary treatment of wastewater. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV161

BASIC WASTEWATER TREATMENT – PRIMARY TREATMENT

1 Credit Hour (16 Ohio EPA Approved Contact Hours – S432400)

Using the Internet students will explore the rudiments of wastewater treatment. The topics of this course include general issues regarding the steps in primary treatment of wastewater. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

ENV162

BASIC WASTEWATER TREATMENT – SUSPENDED GROWTH SYSTEMS

1 Credit Hour (16 Ohio EPA Approved Contact Hours – S432403)

Using the Internet students will explore the rudiments of wastewater treatment. The topics of this course include general issues regarding suspended growth systems. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. This course contains self-tests, lesson quizzes, and a final.

Prerequisites: ENV163

1. Contact Hours for this course are pending approval by the Ohio EPA.