

### ABOUT THE PROGRAM

This associate degree program is designed to meet the need for environmental engineering technicians in Northeast Wisconsin. As a program grad, you're equipped with skills to analyze and test water, wastewater, air, and solid waste to ensure environmental protection and compliance while maintaining community health and safety. Typical careers include environmental engineering technician, water and waste water treatment plant and system operator, water resource specialist, environmental lab technician, environment compliance officer, water quality sampler, quality control inspector, and recycling coordinator. Program students have the option to be certified in 40 hour HAZWOPER WDNR Wastewater, Water, and/or Landfill Operator with completion of coursework and independent testing. With additional education, you may become an environmental engineer.

### PROGRAM OUTCOMES

- Identify, monitor, and evaluate environmental hazards.
- Examine the effects of pollution.
- Determine strategies to minimize or prevent waste in order to reduce impact on the environment.
- Create and maintain environmental reports in accordance with applicable standards.
- Utilize applied science and mathematical skills to modify, test, and operate equipment used in the prevention, control, and remediation of environmental issues, including waste and water treatment.
- Perform periodic inspections in compliance with applicable standards.
- Use effective oral and written communication skills.
- Utilize problem solving skills.
- Perform safe work practices.

### PROGRAM ADMISSIONS STEPS

- Work with NWTC Admissions Specialist to:
  - Submit application and \$30 fee to NWTC.
  - Complete an assessment for placement (Accuplacer or ACT).
- Meet with NWTC program advisor to discuss program details.
- Meet with LTC program advisor to discuss program details.

### APPROXIMATE COSTS

- \$142 per credit (resident)
- Other fees vary by program (books, supplies, materials, tools, uniforms, health-related exams, etc.) Visit [gotoltc.edu/financial-aid/tuition-and-fees](http://gotoltc.edu/financial-aid/tuition-and-fees) for details.

### SPECIAL NOTE

This program is shared with Northeast Wisconsin Technical College (NWTC) in Green Bay. LTC students follow NWTC's admission process; however, they are able to attend 29 credits at the LTC Cleveland campus and the remainder of the credits (40) at NWTC Green Bay.

### CAREER & EDUCATION ADVANCEMENT OPPORTUNITIES

LTC credits transfer to over 30 universities. For more information visit [gotoltc.edu/future-students/transfer](http://gotoltc.edu/future-students/transfer).

### CONTACT

NWTC:

Alana Eder, Academic Advisor  
920.498.5616 • [alana.eder@nwtc.edu](mailto:alana.eder@nwtc.edu)

LTC:

Don Geiger, Academic Advisor  
920.693.1378 • [donald.geiger@gotoltc.edu](mailto:donald.geiger@gotoltc.edu)

Catalog No.	Class Title	Credit(s)
<b>Term 1</b>		
10506146	Intro to Environmental Science (Held at NWTC)	3
10506147	Environmental Biology (Held at NWTC)	4
10506165	Intro to GIS (Held at NWTC)	1
10804118	Interm Algebra w Apps	4
10806134	General Chemistry	4
		<b>16</b>
<b>Term 2</b>		
10506148	Environmental Chem Analysis (Held at NWTC)	4
10506149	Intro to Environ. Compliance (Held at NWTC)	3
10607119	Intro to Civil Engineering Technology (Held at NWTC)	2
10620155	Industrial Mntc Hydraulics/Pneumatics	3
10801195	Written Communications	3
10804196	Trigonometry with Applications (Video Conference from NWTC)	3
		<b>18</b>
<b>Term 3</b>		
10506150	Environmental Microbiology (Held at NWTC)	3
10506151	Wastewater Treatment & Analysis (Held at NWTC)	4
10506152	Ind. Safety & Emerg. Response (Held at NWTC)	3
10620220	Pumps: Fluid Moving Devices (Held at NWTC)	1
10606113	CAD (Held at NWTC)	2
10620138	Programmable Contrlr's-Allen Bradley	3
10801197	Technical Reporting	3
		<b>19</b>
<b>Term 4</b>		
10506163	Solid & Hazardous Waste (Held at NWTC)	2
10506164	Air Pollution Control Systems (Held at NWTC)	2
10506166	Ground Water & Distribution (Held at NWTC)	3
10506167	Surface Water & Distribution (Held at NWTC)	3
10809172	Introduction to Diversity Studies	3
10809198	Introduction to Psychology	3
		<b>16</b>
		<b>TOTAL 69</b>

Term 1 & 2: NWTC classes are held on Tuesdays & Thursdays  
Term 3 & 4: NWTC classes are held on Mondays & Wednesdays

Curriculum and Program Acceptance requirements are subject to change. Program start dates vary; check with your advisor for details. The tuition and fees are approximate based on 2017-2018 rates and are subject to change prior to the start of the academic year.



**AIR POLLUTION CONTROL SYSTEMS...**air quality problems, federal and state regulatory mechanisms, and the types of emission control technology currently available. Monitoring emissions and ambient air quality are addressed. Course typically offered: Spring

**CAD (COMPUTER AIDED DRAFTING) ...**computer aided drafting using AutoCAD software focusing on template settings; creating and manipulating layers; basic drawing, editing, and inquiry commands; blocks and attributes; and plotting. COREQUISITES: 10607119 Intro to Civil Engineering Technology OR 10606119 Technical Sketching OR 10614113 2D Essentials. Course typically offered: Fall/Spring

**ENVIRONMENTAL BIOLOGY...**environmental problems are examined from scientific, ethical, economic and sociological perspectives. Emphasis is placed on protection of the human environment with discussion of environmental issues and environmentally related public health concerns. PREREQUISITE: accepted into Environmental Engineering program or preprogram. Course typically offered: Fall

**ENVIRONMENTAL CHEMICAL ANALYSIS...**laboratory techniques are performed to determine the suitability of supply sources and purification processes in the water and wastewater industries. PREREQUISITES: 10806134 General Chemistry with a "C" or better; 10804118 Interm Algebra w/Apps with a "C" or better. Course typically offered: Spring

**ENVIRONMENTAL MICROBIOLOGY...**a study of the background and role of bacterial analysis. Sampling and analytic methods including quality control procedures and environmental parameters are studied and related to applicable standards. PREREQUISITE: 10506147 Environmental Biology. Course typically offered: Fall

**GENERAL CHEMISTRY...**covers chemistry fundamentals. Topics: metric system, problem-solving, periodic relationships, chemical reactions, chemical equilibrium, properties of water; acids, bases, and salts; and gas laws. PREREQUISITES: Accuplacer Elem Algebra=61 or ACT-Math score=21 or 10834110 Elementary Algebra w/Apps with "C" or better AND Accuplacer Reading=80 or ACT-Reading=17 or 10831103 Intro to College Writing or 10831107 College Reading and Writing 1 with "B" or better OR equiv

**GROUND WATER & DISTRIBUTION...**physical, chemical, and biological principles of operation of groundwater and distribution systems. The basic unit processes, control parameters, and mathematical problem-solving related to groundwater facilities and distribution systems are introduced. Laboratory procedures and practices involved with operation of water analysis and treatment. PREREQUISITES: 10506148 Environmental Chem Analysis; 10804118 Interm Algebra w/Apps. Course typically offered: Spring

**INDUSTRIAL MAINTENANCE HYDRAULICS/PNEUMATICS...**prepares the learner to identify hydraulic and pneumatic component symbols and terms, adjust a pressure relief valve, analyze the operation of a pilot operated relief valve; analyze Pascal's law; evaluate flow, velocity, work and power in industrial hydraulic and pneumatic circuits; analyze meter-in, meter-out, and bypass flow control circuits; identify basic hydraulic and pneumatic control valves; and assemble hydraulic circuits. PREREQUISITE: 31457318 Trades Math IM or 10804118 Intermed College Algebra or 10804115 College Tech Math

**INDUSTRIAL SAFETY & EMERGENCY RESPONSE...**state and federal regulations related to worker safety, industrial hygiene, and response to emergency situations. Emphasis is placed on response to releases of hazardous materials. Course typically offered: Fall

**INTERMEDIATE ALGEBRA WITH APPLICATIONS...**algebra content with applications. Topics include properties of real numbers, order of operations, algebraic solution for linear equations and inequalities, operations with polynomial and rational expressions, operations with rational exponents and radicals, algebra of inverse, logarithmic and exponential functions. PREREQUISITES: Accuplacer Elementary Algebra=61 or ACT-Math =21 or 10834109 Pre Algebra AND Accuplacer Reading=55 or ACT-Reading=15 or 10831107 College Reading and Writing 1 or Intro to College Writing with "B" or better OR equivalent

**INTRO TO CIVIL ENGINEERING TECHNOLOGY ...**portfolio preparation, lettering and printing, chart plotting, resume creation, library research methods, measurement and scaling, drawing techniques, sheet format and layout, dimensioning, line work, orthographic projection, isometric drawings, and construction print reading. Course typically offered: Fall/Spring

**INTRO TO ENVIRONMENTAL COMPLIANCE...**an introduction to regulatory concepts and requirements for compliance with environmental regulations by governmental and non-governmental entities. Course typically offered: Spring

**INTRO TO ENVIRONMENTAL SCIENCE...**an introduction to the basic principles of environmental science including ecology, energy, resources, waste management, air, water, and soil pollution. Course typically offered: Fall

**INTRO TO GIS...**terminology, software operation and interface, creation and analysis of digital maps, and exploring the data behind the maps in Geographic Information Systems. GIS is used to visualize real-world features, obtain information, and communicate the information to others. Course typically offered: Fall

**INTRODUCTION TO DIVERSITY STUDIES...**basic American values of justice and equality by teaching vocabulary, history of immigration/conquest, transcultural communication, legal liability, multicultural majority/minority relations, ageism, sexism, gender, sexual orientation, the disabled/ADA. PREREQUISITES: Accuplacer Sentence Skills=60 AND Accuplacer Reading=55 OR ACT-English=16 AND ACT Reading=15 OR 10831103 Intro to College Writing or 10831107 College Reading and Writing 1 with "B" or better OR equivalent

**INTRODUCTION TO PSYCHOLOGY...**survey of theoretical foundations of human behavior such as sensation and perception, motivation, emotions, learning, personality, psychological disorders, therapy, stress, and human diversity in personal, social and vocational settings. PREREQUISITES: Accuplacer Sentence Skills=60 AND Accuplacer Reading=55 OR ACT-English=16 AND ACT Reading=15 OR 10831103 Intro to College Writing or 10831107 College Reading and Writing 1 with "B" or better OR equivalent. Course typically offered: Summer/Fall/J-Session/Spring

**PROGRAMMABLE CONTROLLERS-ALLEN BRADLEY ...**prepares the student to understand basic PLC structure and terminology; learn to create and troubleshoot basic PLC programs using the RSLOGIX 500 software and the RSLINX communication software; become familiar with communicating with programming SLC-500 and Micrologix PLCs. This course is highly computer based. CONDITION: 196202 Industrial Technician Industry Automation Certificate entrance requirements met

**PUMPS: INTRO TO FLUID MOVING DEVICES...**this course provides the opportunity for the learner to develop the knowledge, skills, and understanding of pumps, the different classifications of pumps, the inner workings, general maintenance and pumping theory. Course typically offered: Fall

**SOLID & HAZARDOUS WASTE...**identify the hierarchy of and regulations related to solid and hazardous waste, the waste stream, pollution prevention and disposal strategies. Learn detection techniques and proper transporting and handling methods. Course typically offered: Spring

**SURFACE WATER & DISTRIBUTION...**physical, chemical, and biological principles of operation of surface water treatment and distribution systems. The basic unit processes, control parameters, and mathematical problem-solving related to surface water treatment facilities and distribution systems are introduced. Laboratory procedures and practices involved with operation of water analysis and treatment. PREREQUISITES: 10506148 Environmental Chem Analysis; 10804118 Interm Algebra w/Apps. Course typically offered: Spring

**TECHNICAL REPORTING...**principles of report writing and correspondence, proposals, feasibility reports, progress reports, investigation reports, evaluation reports, meeting reports, memos, and correspondence. PREREQUISITE: 10801136 English Composition I OR 10801195 Written Communication with "C" or better 3cr. Course typically offered: Summer/Fall/Spring

**TRIGONOMETRY WITH APPLICATIONS...**topics include circular functions, graphing of trigonometry functions, identities, equations, trigonometric functions of angles, inverse functions, solutions of triangles complex numbers, DeMoivre's Theorem, polar coordinates, and vectors. PREREQUISITES: Accuplacer College Level Math=63 or ACT-Math=24 or 10804118 Intermediate Alg w/ Apps with "C" or better AND Accuplacer Reading=55 or ACT-Reading=15 or 10831107 College Reading and Writing 1 or Intro to College Writing with "B" or better OR equivalent 3cr. Course typically offered: Summer/Fall/Spring

**WASTEWATER TREATMENT & ANALYSIS...**physical, chemical, and biological principles of operation of wastewater treatment systems. The basic unit processes, control parameters, and mathematical problem-solving related to collection systems and treatment facilities are introduced. Laboratory procedures and practices involved with operation of wastewater analysis and treatment including industrial waste treatment technologies. PREREQUISITE: 10506148 Environmental Chem Analysis. Course typically offered: Fall

**WRITTEN COMMUNICATION...**teaches the writing process, which includes prewriting, drafting, revising, and editing. Through a variety of writing assignments, the student will analyze audience and purpose, research and organize ideas, and format and design documents based on subject matter and content. Keyboarding skills are required for this course. It also develops critical reading and thinking skills through the analysis of a variety of written documents. PREREQUISITE: 10831103 Intro to College Wrtg equivalent and COREQUISITE: 10838105 Intro Rdg & Study Skills or equivalent