

ABOUT THE PROGRAM

The Environmental Engineering—Waste & Water Technology program prepares learners to maintain the quality of water, air, waste, and other materials through testing, analysis, and monitoring to keep the environment and community healthy and safe. This program will meet a need for environmental engineering technicians in northeast Wisconsin.

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 Career Coach 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.

APPROXIMATE COSTS

- \$140 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 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 34 credits at the LTC Cleveland campus and the remainder of the credits (37) at NWTC Green Bay.

CAREER & EDUCATION ADVANCEMENT OPPORTUNITIES

LTC credits transfer to over 30 universities. For more information visit gotoltc.edu/future-students/transfer.

CONTACT

NWTC:
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LTC:
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Catalog No.	Class Title	Credit(s)
Term 1		
10403100	Blueprint Reading Intro**	1
10506146	Intro to Environmental Science **	3
10506147	Environmental Biology **	4
10804118	Intermediate Algebra with Apps	4
10806134	General Chemistry	4
10606101	Basic Mechanical Drafting	2
		18
Term 2		
10506148	Environmental Chem Analysis **	4
10506149	Intro to Environ. Compliance **	3
10606103	Intermediate Mechanical Drafting	2
10620155	Industrial Maintenance Hydraulics/Pneumatics	3
10801195	Written Communications	3
10804196	Trigonometry with Applications ***	3
		18
Term 3		
10506150	Environmental Microbiology **	3
10506151	Wastewater Treatment & Analysis **	4
10506152	Ind. Safety & Emerg. Response **	3
10620130	Mechanisms, Mechanics Intro	3
10620138	Programmable Controllers-Allen Bradley	3
10801197	Technical Reporting	3
		19
Term 4		
10506154	Air Pollution Control Systems **	3
10506155	Water Treatment & Analysis **	4
10506156	Solid and Hazardous Waste **	3
10809172	Introduction to Diversity Studies	3
10809198	Introduction to Psychology	3
		16
		TOTAL 71

** = Classes held at NWTC

*** = Class can be taken via ITV at LTC or in person at NWTC

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

All other classes are scheduled at LTC

Curriculum and Program Acceptance requirements are subject to change.
Program start dates vary; check with your advisor for details.



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.

BASIC MECHANICAL DRAFTING USING AUTOCAD...provides the learner with the skills to utilize AutoCAD's drawing editor, viewing commands; apply coordinate entry methods, AutoCAD file commands; utilize draw commands, modify commands; create and edit text, prints & plots; apply geometric construction to solve a drawing problem; utilize selection sets, duplicating modify commands, layers & objects properties, blocks; apply principles of orthographic and multi view projection.

BLUE PRINT READING INTRO...develop the knowledge skills process and understanding of site plans, footings and foundations, floor plans, elevations, below-grade piping, above-grade piping, isometric piping diagrams, schedules and details.

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

ENVIRONMENTAL CHEMICAL ANALYSIS...laboratory techniques are performed to determine the suitability of supply sources and purification processes in the water and wastewater industries. PREREQUISITE: 10-806-134, General Chemistry

ENVIRONMENTAL MICROBIOLOGY...is 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: 10-506-174 Environmental Biology

GENERAL CHEMISTRY...covers the fundamentals of chemistry. Topics include the metric system, problem-solving, periodic relationships, chemical reactions, chemical equilibrium, properties of water; acids, bases, and salts; and gas laws. PREREQUISITE: 10834110 Elem Algebra or equivalent and COREQUISITE: 10838105 Intro Rdg & Study Skills or equivalent

INDUSTRIAL MAINTENANCE HYDRAULICS AND 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 or 10804118OL Intermed College Algebra or COREQUISITE: 31457318T1 Trades Math IM 1 and 31457318T2 Trades Math IM 2 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.

INTERMEDIATE ALGEBRA WITH APPLICATIONS...offers the learner 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: 10834110 Elementary Algebra w Apps or equivalent

INTERMEDIATE MECHANICAL DRAFTING...provides the learner with the skills to create two dimensional section views, create two-dimensional auxiliary views, create prints/plots from paper space, modify and set dimension attributes, apply dimensioning symbols, and apply ASME Y14.5M standards for dimensioning and tolerancing. COREQUISITE: 10606101 Basic Mechanical Drafting

INTRO TO ENVIRONMENTAL COMPLIANCE...is an introduction to regulatory concepts and requirements for compliance with environmental regulations by governmental and non-governmental entities.

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

INTRODUCTION TO DIVERSITY STUDIES...introduces learners to the study of diversity from a local to a global environment using a holistic, interdisciplinary approach. Encourages self-exploration and prepares the learner to work in a diverse environment. In addition to an analysis of majority/minority relations in a multicultural context, the primary topics of race, ethnicity, age, gender, class, sexual orientation, disability, religion are explored. COREQUISITE: 10838105 Intro Reading and Study Skills or equivalent

INTRODUCTION TO PSYCHOLOGY...introduces students to a survey of the multiple aspects of human behavior. It involves a survey of the theoretical foundations of human functioning in such areas as learning, motivation, emotions, personality, deviance and pathology, physiological factors, and social influences. It directs the student to an insightful understanding of the complexities of human relationships in personal, social, and vocational settings. COREQUISITE: 10838105 Intro Reading and Study Skills or equivalent

MECHANISMS MECHANICS INTRODUCTION TO...prepares the learner to use tools and fasteners safely; identify belt and chain drive components; install and adjust belt and chain drives; apply bearing and lubrication information; perform coupling alignment using straight edge, feeler gauge, and dial indicator and laser methods; identify various gear drives; calculate gear ratios; and analyze first-, second-, and third-class levers.

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.

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.

TECHNICAL REPORTING...provides students with the skills to prepare and present oral and written technical reports. Types of reports may include lab and field reports, proposals, technical letters and memos, technical research reports, and case studies. PREREQUISITE: 10831103 Intro to College Wrtg or equivalent and COREQUISITE: 10838105 Intro Rdg & Study Skills or equivalent

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. PREREQUISITE: Accuplacer-CM=63 or ACT-Math 24 or 10-804-118, Intermediate Alg w/ Apps with "C" or better AND Accuplacer Reading=55 or ACT Reading=15 or 10-838-105, Introduction to Reading & Study Skills with "C" or better OR equivalent 3 cr.

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: 10-506-148 Environmental Chem Analysis

WATER TREATMENT & ANALYSIS...Physical, chemical, and biological principles of operation of water treatment systems. The basic unit processes, control parameters, and mathematical problem-solving related to treatment facilities and distribution systems are introduced. Laboratory procedures and practices involved with operation of water analysis and treatment. PREREQUISITE: 10-506-148 Environmental Chem Analysis

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