

Program Number 31-601-2 Technical Diploma • Two Terms

ABOUT THE PROGRAM

The HVAC & Building Trades Fundamentals Embedded Technical Diploma is a great first step for an entry-level position in the Heating, Ventilation, Air Conditioning, and Refrigeration (HVACR) fields. This training prepares individuals to install residential and light commercial HVACR systems used for the environmental control of buildings and product processes. It also provides instruction in construction trades fundamentals.

PROGRAM OUTCOMES

- Install HVACR (heating, ventilating, air conditioning, refrigeration) systems.
- Troubleshoot HVACR (heating, ventilating, air conditioning, refrigeration) systems.
- Perform HVACR (heating, ventilating, air conditioning, refrigeration) performance tests.

CAREER AND EDUCATION ADVANCEMENT OPPORTUNITIES

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

ADMISSIONS AND FIRST SEMESTER ENROLLMENT STEPS

- Submit online application.
- Complete the online Student Success Questionnaire.
- Schedule a Program Counseling Session with your assigned program counselor to plan your first semester schedule, review your entire plan of study, discuss the results of the Student Success Questionnaire.

**Submit transcripts and test scores (optional, highly recommended): College transcripts, along with high school transcripts and test scores from within the last five years, used for course registration. Official transcripts needed for transferring college credit(s) and for financial aid purposes.*

APPROXIMATE COSTS

- \$141 per credit tuition (WI resident) plus \$8.46 per credit student activity fee. Material fee varies depending on course. Other fees vary by program. Visit gotoltc.edu/financial-aid/tuition-and-fees for details.

FINANCIAL AID

This program is eligible for financial aid. Visit gotoltc.edu/Financial-Aid or talk with your Admissions Advisor about how to apply for aid.

CONTACT

LTC Admissions Advisor
920.693.1162 • Admissions@gotoltc.edu

Catalog No.	Class Title	Credit(s)
Term 1		
10410101	Intro To Construction	2
10413105	Basic Electricity for Construction Trades	2
10410102	Blueprint Reading for Building Construction	2
10804113	College Tech Math 1A	3
10442100	Welding Introduction	1
10410103	OSHA 30 for Construction	2
10601110	Mechanical Service Applications	3
		15
Term 2		
10620105	DC Fundamentals	2
10601121	HVACR Heating Systems	2
10601122	HVACR Air Conditioning Fundamentals	3
10601123	HVACR Intro to Installations	2
10601124	HVACR Principles of Airflow	2
10601125	HVACR Hydronic Heating Systems	2
		13

TOTAL 28

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 2020-2021 rates and are subject to change prior to the start of the academic year.

BASIC ELECTRICITY FOR CONSTRUCTION TRADES...provides practical DC/AC concepts to introduce various components, electrical quantities, and measuring values in DC and AC circuits. Circuit measurement of voltage, current, and resistance will be taken with analog and digital meters applying basic concepts. The student will learn about electrical theory, electrical safety, basic circuit design, measuring equipment, general wiring practices, motors, and transformers.

BLUEPRINT READING FOR BUILDING CONSTRUCTION...provides instruction in reading and interpreting shop drawings, residential drawings, and commercial building plans. Emphasis is placed on building terminology and learning conventional techniques of communicating building methods from the designer to the builder. Students learn to visualize the structure and to interpret elevations, plan views, details, and sections from drawings. They also learn to read and interpret building specifications.

COLLEGE TECHNICAL MATHEMATICS 1A...prepares the student to solve linear, quadratic, and relational equations; graph; formula rearrangement; solve systems of equations; percent; proportions; and operations on polynomials. Emphasis will be on the application of skills to technical problems. PREREQUISITES: 10834110 Elementary Algebra w Apps or 10804107 College Mathematics or 31457318 Ind Mtrc Trades Math or 31420320 Machine Tool Math or math placement assessment equivalent

DC FUNDAMENTALS...prepares the student to convert values to scientific and engineering notations; calculate math quantities; describe basic atomic theory; identify basic electrical terms; use established symbols standards; describe DC voltage characteristics and current sources and electrical resistance; measure and analyze electrical quantities in series and parallel circuits; and desolder/solder single lead components. COREQUISITE: 10804113 College Tech Math 1A or 10804115 College Tech Math 1

HVACR AIR CONDITIONING FUNDAMENTALS...instructs the learner in air conditioning principles and terms, physical principles of air movement, air filtering and humidity, and methods of conditioning air for comfort and health. The proper use of psychrometers, dry bulb thermometers, hygrometers, and reading and interpretation of psychrometric charts and scales are covered, in addition to ASHRAE and BPI ventilation standards for residential units. PREREQUISITE: 10413105 Basic Electricity for Construction Trades

HVACR HEATING SYSTEMS...focuses on the different forms of heat transfer, the types of heat, and how they relate to various HVAC systems. The basic operation of gas, oil, electric and hydronic heating systems are explored and major components and controls are identified. The main objective is understanding the basic functions of heating appliances. PREREQUISITE: 10410101 Intro to Construction

HVACR HYDRONIC HEATING SYSTEMS...explains how heat is transferred from water to air. The course covers system components, boilers, pressure reducing valves, relief valves, expansion and compression tanks, flow checks, integral flow checks, pumps, and circulators. Basic system installation, repair, and troubleshooting will be discussed. COREQUISITE: 10601121 HVACR Heating Systems

HVACR INTRODUCTION TO INSTALLATIONS...instructs the learner in residential and light commercial heating and cooling systems. Emphasizes the diversity of heating and cooling systems and how they operate. Students participate in the installation of a variety of HVACR systems as well as in troubleshooting and servicing systems. PREREQUISITES: 10413105 Basic Electricity for Construction Trades and 10410103 OSHA 30 for Construction and COREQUISITES: 10601122 HVACR Air Cond Fundamentals and 10601121 HVACR Heating Systems

HVACR PRINCIPLES OF AIRFLOW...instructs the learner in evaluating and testing natural gas and propane heating appliances. Major components and controls are identified and the proper methods of troubleshooting and diagnosing are learned and practiced. Evaluating proper airflow patterns, combustion safety, and system performance for systems are emphasized. The main objective is to assist the technician to work on a variety of gas-fired appliances when the course is completed.

INTRODUCTION TO CONSTRUCTION...provides the learner with an overview of the various construction trades including framing, roofing, masonry block work, masonry flat work, electrical, HVAC, plumbing, and finish cabinetry work.

MECHANICAL SERVICE APPLICATIONS-SHEET METAL...introduces the student to copper soldering and brazing, oxy-acetylene torch usage for welding and brazing steel, sheet metal layout and fabrication, press fitting pipe, corrugated stainless steel tubing, PVC, and black iron pipe assembly procedures.

OSHA 30 FOR CONSTRUCTION...is an introductory course designed to provide instruction on general construction safety and health topics. The participant is given an overview of the key components of the Occupation Safety and Health Act of 1970, so they become familiar with the enforcement and compliance efforts. The course is taught by certified OSHA instructors.

WELDING INTRODUCTION...introduces the learner to the world of welding, weld shop safety practices, welding terminology, and welding machine setup to industry standards. Learners will be introduced to the three major welding processes: SMAW, GMAW, and GTAW and will build skills welding with each process in the flat and horizontal positions while using the common welding joints found in industry. The learner will process material using the two major hand-held cutting processes - Oxyfuel and PAC.