

Department:

Construction Technology

Course Description:

This course includes a study of the basic principles and practices of the electrical, HVAC and plumbing trades. It will serve as an introduction the various materials, tools and techniques used in these trades.

Course Competencies:

Upon completion of the course, the student should be able to:

1. Electrical
 - a. Identify electrical hazards and explain various safety issues
 - b. Explain the role of the National Electrical Code
 - c. Determine the service and grounding requirements of a residential electric service
 - d. Select proper wiring methods and compute branch circuit loads
 - e. Explain the types and purposes of grounding conductors and GFCI's
 - f. Explain how outlet boxes, wiring devices and lighting control devices are selected and installed
2. HVAC
 - a. Explain the basic principles of heating, ventilation, air conditioning & refrigeration
 - b. Describe the principles that guide HVAC/R installation and service techniques
 - c. Identify career paths available in the HVAC/R trade
3. Plumbing
 - a. Explain how waste moves from a fixture through the drain system
 - b. Identify the major components of a drainage system and describe their functions
 - c. Identify the different types and function of traps
 - d. Identify code and health issues, violations and consequences related to DWV systems
 - e. Identify the various types of plastic pipe, their material properties and handling/storage requirements
 - f. Identify types and uses of fittings and valves used with plastic pipe
 - g. Properly measure, cut and join plastic piping
 - h. Identify various types of copper tube, and their material properties and storage/handling requirements
 - i. Identify types and uses of fittings and valves used with copper tube
 - j. Properly measure, cut and join copper tube

Course Content:

- A. Electrical
 1. Safety
 2. Sizing

3. Grounding
4. Installation
- B. Introduction to HVAC
 1. HVAC/R Principles
 2. Guiding Principles for Technicians
 3. Careers in HVAC/R
- C. Plumbing
 1. Introduction to Drain, Waste and Vent Systems
 2. Plastic Pipe & Fittings
 3. Copper Tube & Fittings

Learning Assessments:

Competencies may be evaluated by multiple measures, including quizzes, exams, and projects.

Instructional Materials:

Textbook: NCCER. (2016). Construction Technology Trainee Guide (4th ed.). Alachua, FL: Pearson. ISBN-13: 978-0-13-413039-2

Modules: 26102, 26111, 03101, 02111, 02106, & 02107

Guidelines for Requesting Accommodations Based on Documented Disability or Medical Condition

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.

Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

In order to begin the process all students **must** complete the “Disabilities Self-Identification Form” on our [Disability Services website](#).

This form can also be accessed at the Highland Community College homepage under Students Services/Student Resources/Disability Service or by contacting the Disabilities Coordinator.

A Note on Harassment, Discrimination and Sexual Misconduct

Highland Community College seeks to assure all community members learn and work in a welcoming and inclusive environment. Title VII, Title IX, and College policy prohibit harassment, discrimination and sexual misconduct. Highland Community College encourages anyone experiencing harassment, discrimination or sexual misconduct to talk to report to the Vice President for Student Services, the Human Resources Director or complete an [online report](#) about what happened so that they can get the support they need and Highland Community College can respond appropriately.

There are both confidential and non-confidential resources and reporting options available to you. Highland Community College is legally obligated to respond to reports of sexual misconduct, and therefore we cannot guarantee the confidentiality of a report, unless made to a confidential resource. Responses may vary from support services to formal investigations. As a faculty member, I am required to report incidents of sexual misconduct and thus cannot guarantee confidentiality. I must provide our Title IX coordinator with relevant details such as the names of those involved in the incident. For more information about policies and resources or reporting options, please review our [Equity Grievance Policy](#).