

NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY ELE 189 – DATA CABLING COMMUNICATION (3 CR.)

Course Description

Introduces construction, testing, troubleshooting, and repair of a variety of copper cables. Prepares students for the Electronics Technician Association Data Cable Installer Certification (DCIC) necessary to compete for entry-level positions in a wide range of networking, security and video companies. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

General Course Purpose

This course is designed to teach students the techniques of electrical wiring to modern control and power circuits. Students will learn the basics of copper cable termination, testing, and wiring of control system controllers. Students will gain hands-on experience with operational power circuit components and power circuit analysis.

Course Prerequisites/Corequisites

None

Course Objectives

Upon completing the course, the student will be able to:

- Explain the role of chemical and mechanical wire connections
- Determine the loss values in copper wire
- Construct essential control and power circuits using copper wiring techniques
- Label the different electrical components of control circuits
- Test, analyze, install and terminate CAT-6 ethernet cables and connectors
- Explain the different loss values of CAT-6 cables
- Build and arrange human machine interface (HMI) panels, control boxes using PLC, relays, and switches
- Make use of the general guidelines for soldering through hole components using a point-to-point soldering method

Major Topics to be Included

Critical attention will be given to the following topics:

- Introduction to copper cabling
- Losses in copper cables
- Construction of control and power circuits
- Labeling of electrical cables and components
- CAT-6 cable termination
- Testing of CAT-6 cables
- HMI wiring
- Control box wiring
- Wiring PLC, relays, and switches
- Through hole soldering