

# Minnesota State

## Community and Technical College

### Workforce Development Solutions

#### COURSE SYLLABUS FORM

**Title:** Electrical Training

**Project/Course Number:** ELT156

**Contact Hours:** 9 hours

**Category:** Trades & Industry

**Sub-Category:** Electrical

**Project/Course Description:**

This course will prepare maintenance personnel with the fundamentals of basic electricity and workplace electrical safety and will include the use of various meters and troubleshooting processes. Schematics, Branch Circuit Problems, Opens, Shorts, Overcurrent Protection and Industrial Control Panel Standards are just a few of the areas covered. Troubleshooting will include Control & Power Circuits, Motors, and Programmable Logic Controllers (PLC) inputs/outputs.

**Project/Course Outcomes - Participants Will Learn To:**

- Explain the basics of electricity and workplace electrical safety
- Use basic electrical test equipment to include multimeters, voltage testers, clamp-on ammeters and mega ohmmeters
- Follow a basic troubleshooting process using electrical schematics and understanding common types of failures
- Explain basic UL 508A standards including color codes, cabinet layout and various components
- Understand the difference between control and power
- Identify overcurrent protection and GFCI as well as understand Relays, Motor Starters and Control Devices
- Troubleshoot Motors and common motor problems to include testing windings for shorts, opens and ground faults and phase rotation testing

**Resources:**

Instructor: Qualified Instructor  
Materials: Handout Materials  
Physical Set-Up: Classroom/Meeting room

**Product Director/Corporate Academic Dean:** G.L. Tucker, Executive Director, Workforce Development Solutions

**Date:** January 3, 2018