

Minnesota State

Community and Technical College

Custom Training Services

COURSE SYLLABUS FORM

Title: Electrical Training

Project/Course Number: ELT154

Contact Hours: 28 hours

Project/Course Description:

The 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, Ground Faults and Overcurrent Protection are just a few of the areas covered. Troubleshooting will include Control & Power Circuits, Motors, Variable Frequency Drives (VFD's) and Programmable Logic Controllers (PLC's).

Project/Course Goals:

Upon completion of this course, participants will be able to:

- Explain the basics of electricity and workplace electrical safety
- Use basic electrical test equipment to include multimeters, voltage testers, clamp-on ammeters and megohmmeters
- Follow a basic troubleshooting process using electrical schematics and understanding common types of failures
- Understand the difference between control and power
- Look for 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
- Understand the typical Variable Frequency Drive (VFD) motor arrangement and the pros and cons of using VFD's. This will include VFD terminology and basic operation, set up, parameters and common problems for troubleshooting
- Download and Upload programs, connect to a Programmable Logic Controller (PLC), look at the input/output and step through the logic

Resources:

Instructor: Qualified Instructor

Materials: Handout Materials

Physical Set-Up: Classroom/Meeting room

Product Director/Corporate Academic Dean: G.L. Tucker

Date: 02.09.16