

NASSAU BOCES - ADULT EVENING PROGRAM
Joseph M. Barry Career & Technical Education Center
1196 Prospect Ave.
Westbury, NY 11590

COURSE OUTLINE

Course Name: **Trade Electric IV – Motor Controls**
Weeks: 9
Sessions: 18
Hours: 54
Days/Time Tue/Thu 7-10pm
Instructor: L. Toyas
Required Textbook: Electrical Motor Controls; Gary Rockis & Glen Mazur
Prerequisites: Trade Electric-III (Student must provide some tools and materials-list provided)
Adult evening Office: (516) 622-6950

Course Overview:

This course leads students through the general principles of electric motor control. Condition of start, stop, manual, remote and automatic controls are covered while student actively construct, energize and troubleshoot the varying control circuits. This course follows the guidelines of the National Electric Code as applied to motors.

Trade Electricity Certificate Program: Trade Electric Theory, Trade Electric I, Trade Electric II, Trade Electric III, Trade Electric IV, Minimum 270 hours. Also see HVRAC Certification.

Course Topics

Session 1 Introduction, working safe, motor design, nameplate Δ , Y connections, locked rotor current, service factor, lubrication.

Session 2-3 Sizing starter and heaters for motors. Analyze and compare a manual and magnetic starter.

Session 4-6 Line diagrams for controlling a starter from single and multiple start/stop stations. Interlocking and sequencing starters, wiring from schematics, device symbols, wiring diagrams for control relays, timing relays, 8 and 11 pin relays.

Session 7 Jogging circuits/hands on.

Session 8-10 Reversing 3-phase motors from one and two locations/hands on. Reversing a 3-phase motor without stopping. Wiring roll-up door, interlocks, limits.

Session 11-13 Electrical, photo eye and ASCO switching. Reading ‘real world’ schematics.

Session 14-15 Article 430. Sizing ground fault, short circuit, over current protection, conductors, feeders and equipment. Transformer calculations and voltage drop.

Session 16 Final Exam

Session 17-18 Residential and commercial AC&R wiring, potential and current relays, defrost timers.