



COURSE SYLLABUS

**DIVISION:** Workforce Services

**Revised:** January 2015

**CURRICULUM IN WHICH COURSE IS TAUGHT:** Integrated Systems Technology

**COURSE NUMBER AND TITLE:** ETR 246, Electronic Motor Drives Systems

**CREDIT HOURS:** 2-3

**HOURS/WEEK LECTURE:** 1-2

**HOURS/WEEK LAB:** 2

**LECTURE/LAB COMBINATION:** 3-4

The OEE classes are self-paced study classes in which a student has 16 weeks to complete once enrolled. Students will complete all lab and bookwork before doing the end of chapter tests. All end of chapter tests and final exams are closed book. Upon completion of the lab, all tools, components, and supplies shall be returned to their proper location.

**I. CATALOG DESCRIPTION:** Introduces advanced operations, setup, programming and troubleshooting of electronic motor drives that are used for the control of industrial AC motors.

**II. RELATIONSHIP OF THE COURSE TO CURRICULUM OBJECTIVES IN WHICH IT IS TAUGHT:**  
This course offers the basic fundamentals of electronic motor drives and is necessary for today's industrial maintenance technicians.

**III. REQUIRED BACKGROUND:** This course is intended for those individuals with no prior experience in electronic motor drives. Prerequisite: ETR 115 and ELE 147 or equivalent.

- IV. COURSE CONTENT**
- Variable Frequency Drives (VFD)
  - Drive Categories and Levels
  - Allen-Bradley Powerflex 70 Drive
  - Allen-Bradley Powerflex 70 Drive Configuration
  - Drive Faults
  - VFD Troubleshooting
  - Troubleshooting inputs
  - Allen – Bradley Powerflex 40
  - Servo Drives

**V. Learner Outcomes**

**VI. Evaluation**

Demonstrate an understanding of the theory of operation, maintenance procedures, and safety concerns related to Variable Frequency Drives (VFD)	Class participation, homework, quizzes, and final exam
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Demonstrate an understanding of the theory of operation, maintenance procedures, and safety concerns related to Drive Categories and Levels	Class participation, homework, quizzes, and final exam
Demonstrate an understanding of the theory of operation, maintenance procedures, and safety concerns related to Allen-Bradley Powerflex 70 Drive	Class participation, homework, quizzes, and final exam
Demonstrate an understanding of the theory of operation, maintenance procedures, and safety concerns related to Allen-Bradley Powerflex 70 Drive Configuration	Class participation, homework, quizzes, and final exam
Demonstrate an understanding of the theory of operation, maintenance procedures, and safety concerns related to Drive Faults	Class participation, homework, quizzes, and final exam
Demonstrate an understanding of the theory of operation, maintenance procedures, and safety concerns related to VFD Troubleshooting	Class participation, homework, quizzes, and final exam
Demonstrate an understanding of the theory of operation, maintenance procedures, and safety concerns related to Troubleshooting inputs	Class participation, homework, quizzes, and final exam
Demonstrate an understanding of the theory of operation, maintenance procedures, and safety concerns related to Allen – Bradley Powerflex 40	Class participation, homework, quizzes, and final exam
Demonstrate an understanding of the theory of operation, maintenance procedures, and safety concerns related to Servo Drives	Class participation, homework, quizzes, and final exam

**VII. The course supports the following general education goals/objectives:**

DCC Educational Objectives

- Communication
- Critical Thinking
- Information Literacy
- Quantitative Reasoning