

Washtenaw Community College Comprehensive Report

UAT 244 Fundamentals of Variable Frequency Drives Effective Term: Fall 2020

Course Cover

Division: Advanced Technologies and Public Service Careers

Department: United Association Department

Discipline: United Association Training

Course Number: 244

Org Number: 28200

Full Course Title: Fundamentals of Variable Frequency Drives

Transcript Title: Fund Variable Frequency Drives

Is Consultation with other department(s) required: No

Publish in the Following: College Catalog , Web Page

Reason for Submission: Course Change

Change Information:

Consultation with all departments affected by this course is required.

Course description

Total Contact Hours

Outcomes/Assessment

Objectives/Evaluation

Rationale: Update United Association course

Proposed Start Semester: Fall 2020

Course Description: In this course, students will identify the theory and operation of variable frequency drive (VFD) motors and controllers that can be used for instruction at local Training Centers. Students will review installation and troubleshooting, including complete factory startup on various manufacturers' equipment through classroom and hands-on lab activities. Students will also navigate online UA resources in order to develop their own VFD class at their local Training Center. Limited to United Association program participants.

Course Credit Hours

Variable hours: No

Credits: 1.5

The following Lecture Hour fields are not divisible by 15: Student Min ,Instructor Min

Lecture Hours: Instructor: 22.5 Student: 22.5

The following Lab fields are not divisible by 15: Student Min, Instructor Min

Lab: Instructor: 1.5 Student: 1.5

Clinical: Instructor: 0 Student: 0

Total Contact Hours: Instructor: 24 Student: 24

Repeatable for Credit: NO

Grading Methods: Letter Grades

Audit

Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Requisites

General Education

Degree Attributes

Below College Level Pre-Reqs

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Recognize VFD theory and component layout.

Assessment 1

Assessment Tool: Outcome-related test questions

Assessment Date: Fall 2020

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 80% of the students will score 80% or higher.

Who will score and analyze the data: U.A. instructors

2. Demonstrate basic VFD programming, power and control wiring.

Assessment 1

Assessment Tool: Demonstration

Assessment Date: Fall 2020

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Observational checklist

Standard of success to be used for this assessment: 80% of the students will score 80% or higher.

Who will score and analyze the data: U.A. instructors

3. Prepare and present a VFD lesson plan and activity.

Assessment 1

Assessment Tool: Presentation

Assessment Date: Fall 2020

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Observational checklist

Standard of success to be used for this assessment: 80% of the students will score 80% or higher.

Who will score and analyze the data: U.A. instructors

Course Objectives

1. Identify and define the theory and concepts of VFD motors.
2. Identify field applications and limitations of VFD motors and controllers.
3. Explain electrical safety precautions and personal protective equipment (PPE) when servicing VFDs.
4. Describe the principles of drive theory.
5. Compare and contrast the features and applications of control wiring and power wiring.

6. Identify procedures to perform factory startup.
7. Perform and document factory startup of predetermined manufacturers' components.
8. Discuss course customization for use at local Training Centers.
9. Access, navigate and download online UA resources and materials available for use at local Training Centers.
10. Prepare and present a five-minute lesson plan and activity for peer review.

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Tony Esposito</i>	<i>Faculty Preparer</i>	<i>Aug 25, 2020</i>
Department Chair/Area Director: <i>Marilyn Donham</i>	<i>Recommend Approval</i>	<i>Sep 23, 2020</i>
Dean: <i>Jimmie Baber</i>	<i>Recommend Approval</i>	<i>Oct 01, 2020</i>
Curriculum Committee Chair: <i>Lisa Veasey</i>	<i>Recommend Approval</i>	<i>Oct 30, 2020</i>
Assessment Committee Chair: <i>Shawn Deron</i>	<i>Recommend Approval</i>	<i>Nov 04, 2020</i>
Vice President for Instruction: <i>Kimberly Hurns</i>	<i>Approve</i>	<i>Nov 09, 2020</i>