

Washtenaw Community College Comprehensive Report

UAT 254 Centrifugal Water Chiller Controls

Effective Term: Spring/Summer 2014

Course Cover

Division: Advanced Technologies and Public Service Careers

Department: United Association Department

Discipline: United Association Training

Course Number: 254

Org Number: 28200

Full Course Title: Centrifugal Water Chiller Controls

Transcript Title: Centrifugal Water Chill Contrl

Is Consultation with other department(s) required: No

Publish in the Following: College Catalog , Web Page

Reason for Submission: Three Year Review / Assessment Report

Change Information:

Credit hours

Total Contact Hours

Outcomes/Assessment

Objectives/Evaluation

Rationale: Course update

Proposed Start Semester: Spring/Summer 2014

Course Description: In this course, students will learn methods of teaching the maintenance and repair of centrifugal water chiller controls, including electrical and electronic applications. Fundamentals of microprocessors in relation to control of solid state starters, frequency drives and control systems associated with centrifugal water chillers are covered. Carrier, Trane, and York demonstrator panels and labs will be utilized for hands-on training. Those attending should have knowledge of refrigeration principles. Limited to United Association program participants.

Course Credit Hours

Variable hours: No

Credits: 1

Lecture Hours: Instructor: 15 Student: 15

Lab: Instructor: 0 Student: 0

Clinical: Instructor: 0 Student: 0

Other: Instructor: 5 Student: 5

Total Contact Hours: Instructor: 20 Student: 20

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

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Demonstrate methods of teaching on the central concepts of centrifugal water chiller controls utilizing UA approved materials.

Assessment 1

Assessment Tool: Presentation

Assessment Date: Spring/Summer 2014

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Skill checklist with rubric

Standard of success to be used for this assessment: 75% of students will achieve 75% or above.

Who will score and analyze the data: Departmental faculty

2. Demonstrate teaching practicum on the proper maintenance and repair procedures related to centrifugal water chiller controls.

Assessment 1

Assessment Tool: Skill assessment

Assessment Date: Spring/Summer 2014

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Performance parameters with rubric

Standard of success to be used for this assessment: 75% of students will achieve 75% or above.

Who will score and analyze the data: Departmental faculty

Course Objectives

1. Identify the application of York micro-panel, Carrier PIC, and full-wave rectifiers.

Matched Outcomes

2. Recognize the usage of transducers and thermistors.

Matched Outcomes

3. Distinguish key functions of equipment, such as York Optiview panel, Lab-Triac, and GH530 panel.

Matched Outcomes

4. Demonstrate competencies in IGBT testing, digital input board, and fluke meters.

Matched Outcomes

5. Demonstrate appropriate use and knowledge of course materials.

Matched Outcomes

6. Describe the fundamentals of microprocessor controls and how they interact with mechanical equipment as they would be presented in a class.

Matched Outcomes

7. Troubleshoot a transducer connected to the OptiView panel utilizing test equipment and manufacturer literature.

Matched Outcomes

8. Reconfigure the OptiView processor in order to control a centrifugal or rotary screw chiller with various starter options.

Matched Outcomes

9. Explain the differences between various motor starters (Electro-Mechanical, Soft Starters and Variable Speed Drives) and how they are operated in regard to centrifugal or rotary screw compressors.

Matched Outcomes

10. Demonstrate how to connect to a DynaView controller in order to view parameters, reconfigure options, troubleshoot and replace components connected to the device.

Matched Outcomes

11. Demonstrate how to use Constructor Software for creating dynamic wiring diagrams for simulated testing and troubleshooting.

Matched Outcomes

12. Apply new technologies relating to magnetic bearing centrifugal compressors.

Matched Outcomes

13. Identify safety requirements in NFPA 70E for awareness of potential hazards and safety precautions.

Matched Outcomes

14. While using appropriate personal protection equipment, demonstrate the result of an MOV being hit by a high voltage surge.

Matched Outcomes

15. Use various resources available to demonstrate control panel operation in a virtual manner in the classroom.

Matched Outcomes

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Level I classroom
Data projector/computer

Reviewer

Action

Date

Faculty Preparer:

Amanda Scheffler

Faculty Preparer

Jun 27, 2013

Department Chair/Area Director:

Scott Klapper

Recommend Approval

Feb 03, 2014

Dean:

Marilyn Donham

Recommend Approval

Feb 05, 2014

Vice President for Instruction:

Bill Abernethy

Approve

Apr 21, 2014