Washtenaw Community College Comprehensive Report

UAT 113 Safe Bolting Practices (UA 2154)
Effective Term: Fall 2020

Course Cover

Division: Advanced Technologies and Public Service Careers
Department: United Association Department
Discipline: United Association Training
Course Number: 113
Org Number: 28200
Full Course Title: Safe Bolting Practices (UA 2154)
Transcript Title: Safe Bolting Practices (2154)
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
Outcomes/Assessment
Objectives/Evaluation
Rationale: Update United Association course
Proposed Start Semester: Fall 2020
Course Description: In this course, students will identify and perform bolted joint assembly in accordance with American Society of Mechanical Engineers (ASME PCC-1) standards. Topics include torque, tension and friction, and their effect on the bolted joint. Students will use classroom theory and hands-on demonstrations for bolted joint components, including the factors of torque control by the assembler. In addition, students will demonstrate safe operation of powered torque and tension equipment. 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. Identify the three major component groups of bolted joint connections and assembly.
   Assessment 1
   Assessment Tool: Outcome-related written exam 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. Identify the factors required to achieve tension using controlled torque by the assembler.
   Assessment 1
   Assessment Tool: Outcome-related written exam 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

3. Demonstrate safe and proper assembly of a bolted joint using powered equipment in accordance with ASME PCC-1 standards.
   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

Course Objectives

1. Identify Hooke's Law and the concept of preload pressure of pipe flanges in the construction industry.
2. Compare and contrast the relationship between torque and load.
3. Identify the three types of industrial bolting, including pressure container joints.
4. Distinguish proper terminology used for effective communication while performing activities.
5. Compare and contrast the different types of flanges current in the industry.

6. Identify the gaskets used while making bolted connections.
7. Compare and contrast the different types of washers, bolts, and hardware associated with flanged connections and tensile strength needed.
8. Describe how factors that affect friction are controlled by the assembler.
9. Compare and contrast the types of lubricants used in bolt connections.
10. Demonstrate how to safely operate powered torque and tension equipment.
11. Review safety hazards and Personal Protection Equipment (PPE) for operating bolting equipment.
12. Demonstrate how to align bolted joints according to ASME PCC-1 guidelines.

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Reviewer	Action	Date
Faculty Preparer:		
Tony Esposito	*Faculty Preparer*	*Apr 27, 2020*
Department Chair/Area Director:		
Marilyn Donham	*Recommend Approval*	*Apr 28, 2020*
Dean:		
Jimmie Baber	*Recommend Approval*	*May 27, 2020*
Curriculum Committee Chair:		
Lisa Veasey	*Recommend Approval*	*Jun 19, 2020*
Assessment Committee Chair:		
Shawn Deron	*Recommend Approval*	*Jun 23, 2020*
Vice President for Instruction:		
Kimberly Hurns	*Approve*	*Jul 06, 2020*