

Washtenaw Community College Comprehensive Report

UAT 283 Art of Tube Bending Effective Term: Spring/Summer 2020

Course Cover

Division: Advanced Technologies and Public Service Careers

Department: United Association Department

Discipline: United Association Training

Course Number: 283

Org Number: 28200

Full Course Title: Art of Tube Bending

Transcript Title: Art of Tube Bending

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: Revise course for UA

Proposed Start Semester: Spring/Summer 2020

Course Description: In this course, students will demonstrate both the simple and Set Back, Advance and Gain (SAG) measurement method of tube bending. Students will identify the bender procedure while using trigonometry as it relates to degree bends and layout. Discussions, explanations and hands-on demonstrations will allow students to layout multiple parallel offsets, along with lineup/leveling of tubing in the bending process. An emphasis will be placed on the reading of isometric drawings, wire templates, and numbering of the bending order. 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. Demonstrate the “simple method” of bending.

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 students will score 80% or higher.

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

2. Calculate the Set Back, Advance and Gain (SAG) measurement using the formulas identified in the Tube Bending Manual.

Assessment 1

Assessment Tool: Outcome-related 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. Calculate equal spread offsets using the Set Back formula.

Assessment 1

Assessment Tool: Outcome-related 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

Course Objectives

1. Identify bending terminology, tools, and issues, such as setbacks, advance and gain.
2. Recognize the parts of a bender.
3. Compare and contrast the types of tubing needed for bending.
4. Explain how to solve for unknown angles used in piping systems.
5. Identify the use of various props and tools used for bending pipe.
6. Explain how to solve angles for a rolling offset bend.

7. Describe the process of bending right and left-hand 90-degree and 45-degree bends using marks from a bender.
8. Practice the SAG method to calculate measurements of any angle for any radius of bender.
9. Lay out four bends on one piece of tubing using the SAG method.
10. Calculate the steps for equal spread offsets of any angle and spread using the Set Back formula.
11. Calculate, mark, and bend two equal spread offsets.

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Tony Esposito</i>	<i>Faculty Preparer</i>	<i>Apr 15, 2020</i>
Department Chair/Area Director: <i>Marilyn Donham</i>	<i>Recommend Approval</i>	<i>Apr 16, 2020</i>
Dean: <i>Jimmie Baber</i>	<i>Recommend Approval</i>	<i>Apr 21, 2020</i>
Curriculum Committee Chair: <i>Lisa Veasey</i>	<i>Recommend Approval</i>	<i>May 07, 2020</i>
Assessment Committee Chair: <i>Shawn Deron</i>	<i>Recommend Approval</i>	<i>May 10, 2020</i>
Vice President for Instruction: <i>Kimberly Hurns</i>	<i>Approve</i>	<i>May 12, 2020</i>