Washtenaw Community College Comprehensive Report

WAF 229 Shape Cutting Operations
Effective Term: Fall 2014

Course Cover

Division: Advanced Technologies and Public Service Careers
Department: Welding and Fabrication
Discipline: Welding and Fabrication
Course Number: 229
Org Number: 14610
Full Course Title: Shape Cutting Operations
Transcript Title: Shape Cutting Operations
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: Three Year Review / Assessment Report
Change Information:
Consultation with all departments affected by this course is required.
Course description
Outcomes/Assessment
Objectives/Evaluation
Rationale: Course content needs to be updated to reflect the new objectives being used in the course.
Proposed Start Semester: Winter 2014
Course Description: In this course, students will be introduced to basic numerical control software and programming languages used by a Burny 10 PC based controller. Students will write in several programming languages, along with CAD, to communicate with the plasma cutting system. Students will program and cut two-dimensional parts and learn how to troubleshoot the equipment for problems dealing with cut quality and cut sequencing.

Course Credit Hours

Variable hours: No
Credits: 3
Lecture Hours: Instructor: 45 **Student:** 45
Lab: Instructor: 15 **Student:** 15
Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 60 **Student:** 60
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

Level 1

Requisites

Prerequisite
WAF 105 minimum grade "C"

and
Prerequisite
WAF 106 minimum grade "C"
and
Prerequisite
WAF 111 minimum grade "C"
and
Prerequisite
WAF 200 minimum grade "C"; may enroll concurrently

General Education

Request Course Transfer

Proposed For:
Eastern Michigan University
Ferris State University
Other : Pennsylvania College of Technology

Student Learning Outcomes

1. Recognize and apply standard safety operating procedures when dealing with the CNC equipment.
   Assessment 1
   Assessment Tool: Laboratory exercise
   Assessment Date: Winter 2017
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: 70% of students will score 80% or higher.
   Who will score and analyze the data: Departmental faculty

2. Identify and differentiate between incremental, absolute, and CAD programs.
   Assessment 1
   Assessment Tool: Project
   Assessment Date: Winter 2017
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: 70% of students will score 70% or higher.
   Who will score and analyze the data: Departmental faculty

3. Identify and troubleshoot numerical control software programs and plasma cutting equipment.
   Assessment 1
   Assessment Tool: Laboratory exercise
   Assessment Date: Winter 2017
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: 70% of students will score 70% or higher.
   Who will score and analyze the data: Departmental faculty

4. Recognize and write several types of nesting programs.
    Assessment 1
        Assessment Tool: Project
        Assessment Date: Winter 2017
        Assessment Cycle: Every Three Years
        Course section(s)/other population: All
        Number students to be assessed: All
        How the assessment will be scored: Departmentally-developed rubric
        Standard of success to be used for this assessment: 70% of students will score 70% or higher.
        Who will score and analyze the data: Departmental faculty

5. Write and run a shape cutting program and equipment to create the specified part.
    Assessment 1
        Assessment Tool: Laboratory exercise
        Assessment Date: Winter 2017
        Assessment Cycle: Every Three Years
        Course section(s)/other population: All
        Number students to be assessed: All
        How the assessment will be scored: Departmentally-developed rubric
        Standard of success to be used for this assessment: 70% of students will score 70% or higher.
        Who will score and analyze the data: Departmental faculty
    Assessment 2
        Assessment Tool: Exam
        Assessment Date: Winter 2017
        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 and departmentmentally-developed rubric
        Standard of success to be used for this assessment: 70% of students will score 70% or higher.
        Who will score and analyze the data: department faculty

Course Objectives

1. Write an incremental and absolute language program from a 2-dimensional drawing.
    Matched Outcomes
        3. Identify and troubleshoot numerical control software programs and plasma cutting equipment.

2. Create a CAD drawing from an existing blueprint for cutting.

    Matched Outcomes
        3. Identify and troubleshoot numerical control software programs and plasma cutting equipment.
3. Write and run a nesting program using manufacturer's software.
    Matched Outcomes
4. Perform plasma cutting using the numerical control equipment.
    Matched Outcomes
        1. Recognize and apply standard safety operating procedures when dealing with the CNC equipment.
5. Troubleshoot the numerical control and plasma equipment using manufacturer's inspection sequencing.
    Matched Outcomes
        1. Recognize and apply standard safety operating procedures when dealing with the CNC equipment.

3. Identify and troubleshoot numerical control software programs and plasma cutting equipment.

6. Determine proper safety and set-up procedures on the numerical controller and plasma equipment.
   Matched Outcomes
   1. Recognize and apply standard safety operating procedures when dealing with the CNC equipment.
   3. Identify and troubleshoot numerical control software programs and plasma cutting equipment.
7. Determine proper cut sequencing for a part program.
   Matched Outcomes
8. Perform plasma cuts using standard shape programming.
   Matched Outcomes

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom
Computer workstations/lab

Reviewer	Action	Date
Faculty Preparer:		
Coley McLean	*Faculty Preparer*	*Nov 03, 2013*
Department Chair/Area Director:		
Default Washtenaw	*Default*	*Dec 18, 2013*
Dean:		
Marilyn Donham	*Recommend Approval*	*Jan 10, 2014*
Vice President for Instruction:		
Bill Abernethy	*Approve*	*Mar 06, 2014*