

Washtenaw Community College Comprehensive Report

NCT 120 Introduction to 2D CAD CAM Programming and Applications Effective Term: Fall 2016

Course Cover

Division: Advanced Technologies and Public Service Careers

Department: Industrial Technology

Discipline: Numerical Control

Course Number: 120

Org Number: 14400

Full Course Title: Introduction to 2D CAD CAM Programming and Applications

Transcript Title: Intro 2D CAD CAM Prog. and App

Is Consultation with other department(s) required: Yes

Please Explain:

Welding and Fabrication will use this course in their revised program.

Publish in the Following: College Catalog , Time Schedule , Web Page

Reason for Submission: New Course

Change Information:

Rationale: This class will support the equipment found in the NCT, WAF, and MEC programs.

Proposed Start Semester: Fall 2016

Course Description: In this course, students will learn CAD/CAM software to design parts for the various CNC manufacturing equipment. Points, lines, circles, view control, layers colors, break and trim functions will be used to create the geometry. Students will create both 2D and 3D geometry. The part geometry will be used to generate output files for various manufacturing equipment. Fundamental G and M codes will be reviewed to address machine specific requirements. This course contains material previously taught in NCT 249.

Course Credit Hours

Variable hours: No

Credits: 2

Lecture Hours: Instructor: 30 **Student:** 30

Lab: Instructor: 30 **Student:** 30

Clinical: Instructor: 0 **Student:** 0

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

Repeatable for Credit: NO

Grading Methods: Letter Grades

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

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

No Level Required

Requisites

General Education

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Apply CAD CAM software to create 2D and 3D part geometry.

Assessment 1

Assessment Tool: Capstone project art to program

Assessment Date: Fall 2017

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: Random sample of all students with a maximum of one full section.

How the assessment will be scored: departmentally-developed rubric

Standard of success to be used for this assessment: 75% of the students will score 75% or greater.

Who will score and analyze the data: Department Faculty

2. Create CAM files for various manufacturing equipment.

Assessment 1

Assessment Tool: Capstone project art to program

Assessment Date: Fall 2017

Assessment Cycle: Every Three Years

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Course Objectives

1. Demonstrate how to open and save files.
2. Demonstrate how to navigate the menu structures.
3. Use view control and layers to organize geometry in the part models.
4. Use the display functions (zoom, pan, rotate, fit, refresh).
5. Manipulate geometry (delete, edit color, move to layers).
6. Create point or points using all options in the "point" and "points" menu structure.
7. Create lines using all options in the menu structure.
8. Create circles using all options in the menu structure.
9. Create and control contour tool path geometry using tool pallet menu structure.
10. Create 2D part geometry for tool paths.
11. Create 3D part geometry.
12. Create specific files needed for various CNC manufacturing equipment.
13. Identify beginning and ending program structures for various equipment

New Resources for Course

Course Textbooks/Resources

Textbooks

Manuals

Periodicals

Software

Equipment/Facilities

Level III classroom

Computer workstations/lab

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Thomas Penird</i>	<i>Faculty Preparer</i>	<i>Aug 29, 2015</i>
Department Chair/Area Director: <i>Thomas Penird</i>	<i>Recommend Approval</i>	<i>Aug 29, 2015</i>
Dean: <i>Brandon Tucker</i>	<i>Recommend Approval</i>	<i>Oct 06, 2015</i>
Curriculum Committee Chair: <i>Kelley Gottschang</i>	<i>Recommend Approval</i>	<i>Nov 30, 2015</i>
Assessment Committee Chair: <i>Michelle Garey</i>	<i>Recommend Approval</i>	<i>Dec 01, 2015</i>
Vice President for Instruction: <i>Michael Nealon</i>	<i>Approve</i>	<i>Dec 14, 2015</i>