NCT 249 CAD/CAM CNC Programming Effective Term: Fall 2014

Course Cover Division: Advanced Technologies and Public Service Careers Department: Industrial Technology Discipline: Numerical Control Course Number: 249 Org Number: 14450 Full Course Title: CAD/CAM CNC Programming Transcript Title: CAD/CAM CNC Programming 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. Outcomes/Assessment Objectives/Evaluation

Rationale: Regular 3-year review. Conditionally approved - seeking full approval. **Proposed Start Semester:** Spring/Summer 2011

Course Description: In this course, students learn to use CAD/CAM software to design parts and generate CNC machine tool programs for part manufacture. Students practice the input of geometry as the basis for tool path generation. Both 2D and 3D wireframe geometry are practiced. Various methods of surface creation are presented and practiced. CNC machine tool programs are created for the manufacture of parts within the software. Drilling pocketing and contour milling are typical 2D machining applications presented. Students are provided time in the CNC machine tool laboratory.

Course Credit Hours

Variable hours: No Credits: 4 Lecture Hours: Instructor: 45 Student: 45 Lab: Instructor: 45 Student: 45 Clinical: Instructor: 0 Student: 0

Total Contact Hours: Instructor: 90 Student: 90 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

Prerequisite

Academic Reading and Writing Levels of 6; NCT 221 minimum grade "C-", may enroll concurrently

General Education

General Education Area 7 - Computer and Information Literacy

Assoc in Arts - Comp Lit Assoc in Applied Sci - Comp Lit Assoc in Science - Comp Lit

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Apply proper methods for 2D geometry creation.

Assessment 1

Assessment Tool: Capstone Project Assessment Date: Spring/Summer 2015 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: 75% of the students will score 70% or higher. Who will score and analyze the data: Department Faculty

2. Apply proper methods for 3D geometry creation.

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3. Apply appropriate tool paths, post and interpret, producing appropriate G & M code for CNC machine tools to cut part(s) to specification.

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Who will score and analyze the data: department faculty

Course Objectives

- 1. Apply View control and geometry creation to manipulate the work view and creation points lines and circles.
 - Matched Outcomes
- 2. Apply Drilling operations to use all functions involving drill control. Matched Outcomes
- 3. Apply Contour and pocketing operations for cut control of contour and pocketing operations.

Matched Outcomes

- Apply Turning and facing operations to lathe parts.
 Matched Outcomes
 Apply three dimensional modeling construction methods
- 5. Apply three-dimensional modeling construction methods. **Matched Outcomes**
- 6. Apply different tools for creation of many various types of single surfaces. Matched Outcomes
- 7. Apply proper methods for machining single and multiple surface features. Matched Outcomes

New Resources for Course Course Textbooks/Resources

Textbooks Manuals Periodicals Software Equipment/Facilities Level III classroom

Computer workstations/lab

Reviewer	Action	<u>Date</u>
Faculty Preparer:		
Thomas Penird	Faculty Preparer	Dec 19, 2013
Department Chair/Area Director:		
Thomas Penird	Recommend Approval	Dec 19, 2013
Dean:		
Marilyn Donham	Recommend Approval	Jan 10, 2014
Vice President for Instruction:		
Bill Abernethy	Approve	Feb 10, 2014