# Washtenaw Community College Comprehensive Report

# NCT 110 Introduction to Computerized Machining (CNC) - II
# Effective Term: Winter 2020

## Course Cover

**Division:** Advanced Technologies and Public Service Careers
**Department:** Advanced Manufacturing
**Discipline:** Numerical Control
**Course Number:** 110
**Org Number:** 14400
**Full Course Title:** Introduction to Computerized Machining (CNC) - II
**Transcript Title:** Intro Comp Machining(CNC) - II
**Is Consultation with other department(s) required:** No
**Publish in the Following:** College Catalog , Time Schedule , Web Page
**Reason for Submission:** Course Change
**Change Information:**
**Consultation with all departments affected by this course is required.**
**Course description**
**Pre-requisite, co-requisite, or enrollment restrictions**
**Outcomes/Assessment**
**Objectives/Evaluation**
**Other:**
**Rationale:** Conditionally approved course seeking full approval.
**Proposed Start Semester:** Winter 2020
**Course Description:** In this course, students focus on the set-up and operation of Computer Numerical Control (CNC) mills and lathes in the laboratory. Parts will be machined to specification, through variations of set-up and interactions with the machine tool controllers. Students will be able to operate the CNC mills and lathes in the lab after successful completion of this class. This class prepares students for the manual programming and advanced programming classes.

## 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
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**
NCT 101 minimum grade "C"; may enroll concurrently
Academic Reading and Writing Levels of 6;

## General Education

## Request Course Transfer

**Proposed For:**
Eastern Michigan University
Wayne State University

## Student Learning Outcomes

1. Setup and operate Vertical Machining Centers and Turning Centers.
   **Assessment 1**
   Assessment Tool: Outcome-related projects
   Assessment Date: Fall 2021
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Students' projects will be evaluated using a rubric.
   Standard of success to be used for this assessment: 75% of the student projects will score 75% or better.
   Who will score and analyze the data: Department faculty

2. Set machine parameters for machine tool operations at multiple work locations.
   **Assessment 1**
   Assessment Tool: Outcome-related projects
   Assessment Date: Fall 2021
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Students' projects will be evaluated using a rubric.
   Standard of success to be used for this assessment: 75% of the student projects will score 75% or better.
   Who will score and analyze the data: Department faculty

3. Analyze part measurements and derive necessary changes at the machine tool registers to produce parts within specified tolerances.
   **Assessment 1**
   Assessment Tool: Department exams
   Assessment Date: Fall 2021
   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: 75% or more of the questions selected will be correct 75% or greater of the time.
   Who will score and analyze the data: Department faculty

## Course Objectives

1. Manufacture and inspect parts at CNC machining centers given setup instructions and part drawing specifications.
2. Manufacture parts at CNC machine applying work offsets.
3. Manufacture parts at CNC machine applying tool length offsets.

4. Manufacture parts at CNC machine applying cutter diameter offsets.
5. Manufacture parts at CNC machine applying tool geometry offsets.
6. Manufacture parts at CNC machine applying tool wear offsets.
7. Manufacture parts at CNC machine applying multiple fixture locations.
8. Identify and correct machine parameters given data from inspected parts.
9. Create inspection reports identifying part measurements and corrective actions needed for machined parts.
10. Review given part dimensions and machine parameters and identify the correct actions needed at the machine tool for random parts/specifications.

## New Resources for Course

## Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

## Equipment/Facilities

| Reviewer | Action | Date |
|---|---|---|
| **Faculty Preparer:** | | |
| *Thomas Penird* | *Faculty Preparer* | *Jul 22, 2019* |
| **Department Chair/Area Director:** | | |
| *Thomas Penird* | *Recommend Approval* | *Jul 22, 2019* |
| **Dean:** | | |
| *Brandon Tucker* | *Recommend Approval* | *Jul 24, 2019* |
| **Curriculum Committee Chair:** | | |
| *Lisa Veasey* | *Recommend Approval* | *Aug 14, 2019* |
| **Assessment Committee Chair:** | | |
| *Shawn Deron* | *Recommend Approval* | *Aug 29, 2019* |
| **Vice President for Instruction:** | | |
| *Kimberly Hurns* | *Approve* | *Sep 04, 2019* |