MOHAWK VALLEY COMMUNITY COLLEGE

UTICA-ROME, NY

COURSE OUTLINE

INTRODUCTION TO CNC MILLING MT 292

1. CATALOG DESCRIPTION

**MT 292 Introduction to CNC Milling C-2, P-6, Cr-4**

This course introduces fundamental concepts of CNC milling centers. Topics include safety, blueprint reading, shop math, machining a work piece to drawing specification, introduction to CNC programming, set-up for milling machines, use of CNC milling machines, proper tooling and work-holding methods, and how to determine sequential machining operations of complex parts.

Corequisite: MT 291 Introduction to Machining

### MATERIAL

Scientific Calculator

Industrial grade safety glasses or goggles (for use in lab)

1. STUDENT LEARNING OUTCOMES:
2. The students will demonstrate working knowledge of blueprint reading.

1. The student will demonstrate the understanding of cutting speeds and feed rates.
2. The student will demonstrate the ability to complete a CNC milling Project to blueprint specifications.
3. The student will demonstrate the difference between Least Material Condition(LMC) and Maximum Material Condition (MMC).

##### The student will demonstrate the understanding of machine coordinate systems for CNC Vertical Milling Machines.

##### The student will demonstrate the understanding of Absolute vs. Incremental programming methods.

1. The student will demonstrate the understanding of cutter compensation and its purpose in CNC programming for milling machines.

##### The student will demonstrate the ability to write a simple program for a CNC Vertical Milling Machine.

##### The student will demonstrate machine setup on a CNC Vertical Milling Machine.

##### The student will demonstrate the selection and calibration of all tooling required for different types of machining operations.

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##### The student will demonstrate how to establish Part-Tool Zeros.

##### The student will demonstrate the safety procedures required to use both machine tools and hand tools.

##### The student will demonstrate his/her overall knowledge and ability in CNC Vertical Milling Machining, programming, set-up, and safe operation.

##### The student will demonstrate his/her knowledge and ability in the use of measuring and inspection tools.

##### The student will demonstrate the ability to complete the Group Project to blueprint specifications.

# IV MAJOR COURSE TOPICS:

# Shop safety

# Blueprint reading

# Shop math

# Measurement & Inspection

# Bench work

# Metal cutting theory

# CNC Milling

# CNC Milling Machine Programming

# CNC Milling machine set-up and operations

# Machining Project

# **COURSE NAME:\_\_\_\_\_MT 292 Introduction to CNC Milling \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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## **DATE DATE FACULTY NAME CHANGE INPUT MEASUREMENT ASSESSMENT ACTION**

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| **1/11/11** | **B.Alguire** | **Eliminated header, disability statement, and grading policies per Middle States** | **MVCC faculty** | **Standardize outlines college wide** |  | **None** |
| **1/27/14** | **B.Alguire** | **Update Course Outline** | **MVCC faculty** | **Standardize outlines**  **College wide** |  | **None** |
| **10/9/19** | **B. Alguire** | **Changed credit hours from 5 to 4** | **MVCC faculty** | **Update outline** |  | **None** |
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