

EICC COURSE DEVELOPMENT MODEL (CDM)

CATALOG COURSE NUMBER: MFG-221

COURSE TITLE: CNC Milling Operator

Originating College: CCC MCC SCC

Effective Term/Year: Fall 2015

Initiating Faculty Member: Kenneth Darmody

Initiating Department Coordinator: Ben Kettering

Reason for submission: Check all that apply

New Course If yes, type of course:

A&S

To be considered for General Education? Yes No Category:

To be part of an A & S Concentration? Yes No Concentration:

CTE Program Title: Required Elective

General Education or Program Review Reactivation of an inactive course Making course inactive

Changing course; please explain:

Other; please explain:

Contact Hours/Distribution of Contact Hours

Lecture Hours

Lab Hours

Clinical Hours

Coop Hours

Hours per Week: 1.00 Hours per Week: 2.00 Hours per Week: 0 Hours per Week: 0

Number of Weeks: 16.50 Number of Weeks: 16.50 Number of Weeks: 16.50 Number of Weeks: 16.50

***Note: If offering a course for the full fall or spring semester, the number of weeks is 16.5*

Total Lecture Hrs: 19.80 Total Lab Hrs: 39.60 Total Clinical Hrs: 0 Total Coop Hrs: 0

Semester Hours Credit: 2.00 if variable credit, give range:

Allow repeat* for credit: Yes No

If yes, total course repeats allowed: If yes, total credits:

*Note that repeat for credit means a student can pass the course and then repeat it for additional credit. An internship course is an example of a course that could be set up as repeatable for additional credit

Course or courses this CDM replaces, if any:

CATALOG COURSE DESCRIPTION: This course will introduce students to Computer Numeric Control (CNC) milling centers in the manufacturing setting. Various projects will strengthen the student's proper use and troubleshooting of this equipment.

RECOMMENDED ENTRY LEVEL SKILLS/KNOWLEDGE:

PRE-REQUISITE COURSES

CCN#	COURSE TITLE
MFG 151	CNC Fundamentals

CO-REQUISITE COURSES

CCN#	COURSE TITLE

PUBLISHED MATERIAL(S) USED FOR CDM DEVELOPMENT: Amatrol. CNC Operator Program: HAAS Based Interface. Amatrol, 2009. Web.

In general it is expected that source material will be dated within 5 years of this CDM date. If all materials/ textbooks cited above are older than this, please explain:

GENERAL COURSE GOALS

Upon successful completion of this course the student should be able to:

- Power machine up and home machine.
- Load and unload part.
- Locate part zero and tool offsets.
- Load, store and activate part programs.
- Load and unload proper tooling.
- Run parts and check dimensions.

TOPICAL OUTLINE

1. Machine Introduction Vertical Machining Center
2. Machining Area
3. Chip Removal and Coolant Systems
4. Air and Lube Systems
5. Machine Operations Part 1
6. Machine Operations Part 2
7. Machine Maintenance
8. Machine Introduction Tool Room Milling Machine Center
9. Coolant and Air Systems

COURSE OBJECTIVES

Upon successful completion of the course, a student should be able to:

1. Machine Introduction Vertical Machining Center
 - a. Identify the major components of the VF Series machine.
 - b. Describe the basic functions of the Haas VF Series major components.
2. Machining Area
 - a. Identify the machining area components.
 - b. Describe the operator access doors' construction and function.
 - c. Describe the table assembly's construction and function.
 - d. Describe the spindle assembly's construction and function.
 - e. Describe the automatic tool changing system's construction and function.
 - f. Describe the tool holder's construction and function.
3. Chip Removal and Coolant Systems
 - a. Identify the major components of the chip removal system.
 - b. Describe the function of the chip removal system.
 - c. Identify the major components of the coolant system.
 - d. Describe the function of the coolant system.
4. Air and Lube Systems
 - a. Identify the major components of the air system.
 - b. Describe the function of the air system.
 - c. Identify the major components of the lubrication system.
 - d. Describe the function of the lubrication system.
5. Machine Operations Part 1
 - a. Power up the machine.
 - b. Load selected tools into the machine.
 - c. Set X and Y part zero.
 - d. Load a program into memory.
 - e. View and select programs in memory to run.
 - f. Run a program in graphics mode.
 - g. Run a part program in single block mode.
 - h. Run the machine automatically.
6. Machine Operations Part 2
 - a. Stop automatic operation.
 - b. Recover from a fault condition.
 - c. Recover from tool changer jam.
 - d. Operate jog handle.
 - e. Operate in handle control feed rate override.
7. Machine Maintenance
 - a. Perform daily maintenance.

- b. Perform weekly maintenance.
- c. Perform monthly maintenance.
- d. Perform semi-annual maintenance.
- e. Perform annual maintenance.
- 8. Machine Introduction Tool Room Milling Machine Center
 - a. Identify the major components of the TM series machine.
 - b. Describe the basic functions of the major machine components.
- 9. Coolant and Air Systems
 - a. Identify the major components of the coolant system.
 - b. Describe the function of the coolant system.
 - c. Identify the major components of the air system.
 - d. Describe the function of the air system.

RECOMMENDED METHODS OF INSTRUCTION: Check all appropriate methods of instruction to facilitate student learning of course objectives.

- | | |
|---|---|
| <input type="checkbox"/> Case Studies | <input type="checkbox"/> Class Discussions |
| <input type="checkbox"/> Computer lab work | <input checked="" type="checkbox"/> Computer-assisted tools |
| <input type="checkbox"/> Computer-assisted writing | <input type="checkbox"/> Conducting experiments |
| <input checked="" type="checkbox"/> Demonstration or modeling | <input type="checkbox"/> Electronic interaction |
| <input type="checkbox"/> Field observation | <input type="checkbox"/> Field trips |
| <input type="checkbox"/> Guest speaker | <input checked="" type="checkbox"/> Guided practice |
| <input type="checkbox"/> In-class writing or editing workshops | <input type="checkbox"/> Journals |
| <input checked="" type="checkbox"/> Lecture | <input type="checkbox"/> Library instruction and resources |
| <input type="checkbox"/> Model building | <input type="checkbox"/> Peer review |
| <input type="checkbox"/> Readings | <input type="checkbox"/> Role play |
| <input type="checkbox"/> Service learning | <input type="checkbox"/> Simulation |
| <input checked="" type="checkbox"/> Student and instructor conferences | <input type="checkbox"/> Student collaborative learning |
| <input type="checkbox"/> Student presentation | <input checked="" type="checkbox"/> Student projects |
| <input type="checkbox"/> Tests or quizzes | <input type="checkbox"/> Worksheets/surveys |
| <input type="checkbox"/> Writing assignments/exercises (graded or not) | |
| <input checked="" type="checkbox"/> Other (please list specifics): Videotapes, Mill Project | |

RECOMMENDED EVALUATION METHODS: Check all appropriate methods of evaluation to assess student achievement of course objectives.

- | | |
|--|---|
| <input type="checkbox"/> Class workshops | <input type="checkbox"/> Classroom discussions/participation |
| <input type="checkbox"/> Collaborative work | <input checked="" type="checkbox"/> Demonstration of skill(s) |
| <input checked="" type="checkbox"/> Individual conferences | <input type="checkbox"/> Journals |
| <input type="checkbox"/> Laboratory reports | <input type="checkbox"/> Oral presentations |
| <input type="checkbox"/> Portfolios | <input type="checkbox"/> Pretest/Posttest |
| <input checked="" type="checkbox"/> Quizzes | <input type="checkbox"/> Reading responses |
| <input type="checkbox"/> Student presentations | <input checked="" type="checkbox"/> Student projects |
| <input checked="" type="checkbox"/> Tests | <input type="checkbox"/> Writing Assignments |
| <input type="checkbox"/> Other (please list specifics): | |

ATTENDANCE: Policies on attendance will be formulated by the instructor and communicated to the students on the course syllabus.

ACADEMIC DISHONESTY: Policies on academic dishonesty can be found in the EICC student code of conduct published in the student handbook.

CDM CREATION/REVIEW/REVISION INFORMATION

Originally Written by: _____ Date: _____

Department Chair, Comments, & Date: _____

Does similar curriculum exist at other EICC Colleges? CCC MCC SCC No

If yes, Counterparts Consulted, College, Comments & Date: _____

CDM Review or Revision Date:

Faculty member(s) & College: _____

Does similar curriculum exist at other EICC Colleges? CCC MCC SCC No

Changes made to course which will require further review steps:

Making course inactive Credit hours Contact hours Course Description

25% or more of course objectives Other minor revisions or no revisions

Dean Review, Comments & Date: _____

If changes made require further review and approval:

College Curriculum Committee Sign-off & Date: _____

IC Review Subcommittee Sign-off & Date: _____

Instructional Council Approval: _____