EICC COURSE DEVELOPMENT MODEL (CDM)

CATALOG COURSE NUMBER: MFG-223
COURSE TITLE: CAD/CAM
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: Keeping course updated.

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 is designed for students to develop the skills necessary to create geometry in 2-D for machining processes. The student will also create tool paths from the geometry for both Computer Numerical Contolled lathes and Computer Numerical Controlled milling machines. Design and tool path creations will progress from rudimentary to advanced applications.

RECOMMENDED ENTRY LEVEL SKILLS/KNOWLEDGE:

PRE-REQUISITE COURSES

CCN#	COURSE TITLE
MFG 192	Blueprint Reading

CO-REQUISITE COURSES

CCN#	COURSE TITLE
MAT 734	Math for Technologies B

PUBLISHED MATERIAL(S) USED FOR CDM DEVELOPMENT: Manton, Matthew, and Duane Weidinger. MasterCam Training Guide/Mill 2D/Lathe Combo. CamInstructor, Inc., 330 Chandos Crt. Kitchener, Ontario 2013. Print.

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:

Create parts in a 2-dimensional isometric projection view.
Create tool paths from geometry creations.

TOPICAL OUTLINE

1. Mill
2. Lathe

COURSE OBJECTIVES

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

1. Mill
   a. Describe setting the Mastercam environment for mills.
   b. Identify geometry creation.
   c. Describe line creation endpoints.
   d. Identify save and load functions.
   e. Identify arc creation.
   f. Describe X-axis applications.
   g. Identify material selection.
   h. Describe how to make basic modifications to the Mastercam properties.
   i. Identify rectangle creation.
   j. Identify stock size.
   k. Describe drilling operations.
   l. Identify X-axis mirror to copy entities.
   m. Describe trimming geometry methods.
   n. Describe bolt-hole creation.
   o. Describe pocket milling operations.
   p. Identify editing of tool-paths.
   q. Describe tool selection process.
   r. Identify contour milling operations.
   s. Identify and create CNC code file.
2. Lathe
   a. Describe setting the Mastercam environment for lathes.
   b. Identify geometry creation.
   c. Describe line creation.
   d. Identify the construction planes.
   e. Describe geometry trimming operations.
   f. Identify stock and chuck parameters.
   g. Identify material selection.
   h. Describe roughing and finishing operations.
   i. Identify drilling operations.
   j. Identify cutoff procedures.
   k. Describe facing procedures.
   l. Describe quick rough and finish operations.
   m. Identify angular geometry creation.
   n. Describe fillet creation.
   o. Use Mastercam to verify tool paths.
   p. Post and create the numerical control code file.

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

❑ Case Studies	❑ Class Discussions
☑ Computer lab work	❑ Computer-assisted tools
❑ Computer-assisted writing	❑ Conducting experiments
❑ Demonstration or modeling	❑ Electronic interaction
❑ Field observation	❑ Field trips

❑Guest speaker	☑Guided practice
❑In-class writing or editing workshops	❑Journals
☑Lecture	❑Library instruction and resources
❑Model building	❑Peer review
❑Readings	❑Role play
❑Service learning	❑Simulation
☑Student and instructor conferences	❑Student collaborative learning
❑Student presentation	☑Student projects
❑Tests or quizzes	❑Worksheets/surveys
❑Writing assignments/exercises (graded or not)	
❑Other (please list specifics):	

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

❑Class workshops	❑Classroom discussions/participation
❑Collaborative work	☑Demonstration of skill(s)
☑Individual conferences	❑Journals
☑Laboratory reports	❑Oral presentations
❑Portfolios	❑Pretest/Posttest
❑Quizzes	❑Reading responses
☑Student presentations	☑Student projects
❑Tests	❑Writing Assignments
❑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: