EICC COURSE DEVELOPMENT MODEL (CDM)

CATALOG COURSE NUMBER: MFG-229
COURSE TITLE: CNC Project
Originating College: ☐CCC ☐MCC ☑SCC Effective Term/Year: Spring 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:	0	Hours per Week:	8.00	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:	0	Total Lab Hrs:	158.40	Total Clinical Hrs:	0	Total Coop Hrs:	0

Semester Hours Credit: 4.00 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 capstone course will provide the student with the opportunity to integrate all skills gained in CNC programming and machining courses to design, build and produce an instructor approved project. Special attention and emphasis will be placed on accuracy and the proper use of equipment and tools following safe work practices in the lab situation.

RECOMMENDED ENTRY LEVEL SKILLS/KNOWLEDGE:

PRE-REQUISITE COURSES

CCN#	COURSE TITLE
MFG 111	Machinery's Handbook
MFG 118	Machine Tool Project
MFG 140	Geometric Dimensioning and Tolerance
MFG 190	Metallurgy
MFG 223	CAD/CAM
MFG 239	Lathe Programming

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: This is the editor's current version of the web based course.

GENERAL COURSE GOALS

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

Design a product that incorpates CAD/CAM skills and CNC machining skills.
Utilize CAD/CAM skills and CNC machining skills to produce the product to meet design specifications.
Inspect, measure, and test completed product against design specifications.

TOPICAL OUTLINE

1. Propose a CNC programming project for a product which incorporates CAD/CAM skills and CNC machining skills.
2. Design a project plan for a product which incorporates CAD/CAM skills and CNC machining skills.
3. Produce a product which incorporates CAD/CAM skills and CNC machining skills
4. Complete project to design specifications.

COURSE OBJECTIVES

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

1. Propose a CNC programming project for a product which incorporates CAD/CAM skills and CNC machining skills.
   a. Compile list of potential projects.
   b. Identify level of complexity of skills learned from prerequisite coursework (including the operation of CNC Lathes and CNC Mills) for each potential project.
   c. Apply skills learned from prerequisite coursework (including the operation of CNC Lathes and CNC Mills) for each potential project.
   d. Evaluate potential projects ideas for top choice
   e. Discuss top choice with instructor.
   f. Select project with approval from instructor before moving to design phase.
2. Design a project plan for a product which incorporates CAD/CAM skills and CNC machining skills.
   a. Produce working drawings.
   b. Construct a project plan using Mastercam.
   c. Create tool paths using Mastercam.
   d. Defend project plan to instructor for project approval.
3. Produce a product which incorporates CAD/CAM skills and CNC machining skills
   a. Operate CNC Lathes and CNC Mills.
   b. Demonstrate safe practices when working with tools and equipment.
   c. Troubleshoot project issues as they develop.
   d. Show timely progress on project deadlines assigned.
4. Complete project to design specifications.
   a. Test product for specification requirements.
   b. Inspect product for quality.
   c. Measure product for specifications.

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

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

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

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: