EICC COURSE DEVELOPMENT MODEL (CDM)

CATALOG COURSE NUMBER: MFG-115
COURSE TITLE: Lathe Work
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:	2.00	Hours per Week:	5.00	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:	39.60	Total Lab Hrs:	99.00	Total Clinical Hrs:	0	Total Coop Hrs:	0

Semester Hours Credit: 4.50 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: In this course students will develop the theoretical and hands-on skills necessary to efficiently and productively operate all types of engine lathes. Students will begin with the basic skills and knowledge development of speeds, feeds, materials, cutting tools and basic turning techniques and will continue to refine their skills to include lathe tooling, facing, aligning lathe centers, turning, grooving and parting, cut radius and external tapers, knurling, boring internal tapers and internal and external threads. Students will progress from the basic manual lathes through the larger industrial digital read-out (DRO) lathes. Various lathe projects will strengthen the student's proper use of this equipment.

RECOMMENDED ENTRY LEVEL SKILLS/KNOWLEDGE: Ability to use measuring tools.

PRE-REQUISITE COURSES

CCN#	COURSE TITLE
MFG 105	Machine Shop Measuring

CO-REQUISITE COURSES

CCN#	COURSE TITLE
MFG 113	Vertical and Horizontal Mills

PUBLISHED MATERIAL(S) USED FOR CDM DEVELOPMENT: Kibbe, Richard, John Neely, Warren White, and Roland Meyer. Machine Tool Practices. Upper Saddle River: Prentice Hall, 2010.

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:

Efficiently and productively operate all types of engine lathes.

TOPICAL OUTLINE

1. Lathe Maintainance
2. Lathe Tooling
3. Lathe Center Alignment
4. Turning
5. Facing
6. Grooving and Parting
7. Cut Radius and External Tapers
8. Boring Internal Tapers
9. Knurling
10. External Threads
11. Internal Threads

COURSE OBJECTIVES

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

1. Maintaining the Lathe
   a. Describe procedures for maintaining the lathe.
   b. Identify lathe parts and procedures to include basic parts, accessories, lathe safety procedures and lathe maintenance.
2. Lathe Tooling
   a. Identify lathe tooling.
   b. Identify the function of chucks, collets, centers, center holes, driving devices mandrels and faceplates.
3. Aligning Lathe Centers
   a. Align lathe centers.
   b. Machine a parallel diameter on work mounted between centers.
   c. Set-up headstock and tailstock centers so they are in a straight line and true to the centerline of the lathe.
4. Turning
   a. Perform turning operations.
   b. Perform turning operations on the lathe to produce rough and finish quality work.
5. Facing
   a. Perform facing operations.
   b. Perform facing operations on the lathe to face the ends of a workpiece to a specified length.
6. Grooving and Parting
   a. Perform grooving and parting operations.
   b. Perform cut-off and grooving operations on the lathe.
7. Cut Radius and External Tapers
   a. Cut radius and external tapers.
   b. Machine an external taper using a taper attachment.
8. Boring Internal Tapers
   a. Bore internal tapers.
   b. Bore and cut a tapered hole on the lathe.
9. Knurling
   a. Perform knurling operations.
10. External Threads
    a. Create external threads.
    b. Identify threads and thread forms.

c. Chase an external thread on the lathe.
11. Internal Threads
a. Create internal threads.
b. Cut internal screw threads.

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): Videotapes, Lathe Project

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): Lab 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: