

EICC COURSE DEVELOPMENT MODEL (CDM)

CATALOG COURSE NUMBER: MFG-111

COURSE TITLE: Machinery's Handbook

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: 1.00 Hours per Week: 0 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: 0 Total Clinical Hrs: 0 Total Coop Hrs: 0

Semester Hours Credit: 1.00 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 studies The Machinery Handbook, the number one reference and application guidebook used by machinists of all levels in modern manufacturing. General information, using math tables, gear and thread information, and speeds and feeds will be covered.

RECOMMENDED ENTRY LEVEL SKILLS/KNOWLEDGE:

PRE-REQUISITE COURSES

CCN#	COURSE TITLE
MAT 734	Math for Technologies B

CO-REQUISITE COURSES

CCN#	COURSE TITLE

PUBLISHED MATERIAL(S) USED FOR CDM DEVELOPMENT: Oberg, Eric. The Machinery Handbook, 29th Edition. New York City: Industrial Press, 2012.

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:

- Use The Machinery's Handbook indexing system.
- Demonstrate the ability to use math tables.
- Demonstrate the ability to use gear information
- Demonstrate the ability to use thread information.
- Demonstrate the ability to use tables for speeds and feeds.

TOPICAL OUTLINE

1. Mechanics
2. Strength of Materials
3. Properties, Treatment and Testing of Materials
4. Dimensioning, Gaging, and Measuring
5. Tool and Toolmaking
6. Machining Operations
7. Manufacturing Processes
8. Fasteners
9. Threads and Threading
10. Gears, Splines and Cams
11. Machine Elements

COURSE OBJECTIVES

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

1. Mechanics
 - a. Identify the proper section to find formulas to solve various mechanical conditions.
 - b. Apply formulas to various mechanical conditions.
2. Strength of Materials
 - a. Identify various material strengths under load conditions.
 - b. Describe formulas to solve load conditions.
3. Properties, Treatment and Testing of Materials
 - a. Describe the proper selection of materials for various applications.
 - b. Identify the various treatments to materials to achieve specifications in a manufacturing process.
 - c. Identify the proper testing procedures for various materials.
4. Dimensioning, Gaging and Measuring
 - a. Identify various dimensioning scenarios.
 - b. Describe gage instruments and their applications.
 - c. Identify various measuring instruments and applications.
5. Tool and Toolmaking
 - a. Identify methods and procedures for various die making applications.
 - b. Describe the proper selection and use of various types of tooling.
6. Machining Operations
 - a. Describe various formulas to obtain correct feeds and speeds for various machine tools.
 - b. Locate in The Machinery Handbook various formulas to obtain correct feeds and speeds for various machine tools.
 - c. Identify proper lubrication for various machining operations.
7. Manufacturing Processes
 - a. Describe the welding symbols for various manufacturing processes.
 - b. Identify various terms used to monitor manufacturing procedures.
8. Fasteners
 - a. Identify the proper selection of fastening devices for a given application.
 - b. Describe proper clearance dimensions for a variety of fasteners.
9. Threads and Threading
 - a. Identify proper formula for determining proper thread engagement.
 - b. Describe the proper hole size for tapping various thread sizes.
 - c. Identify proper lubrication for threading operations.
10. Gears, Splines and Cams
 - a. Identify proper measurements and specifications for gears to function.
 - b. Describe the proper dimensional elements for gears to mesh correctly.
 - c. Identify the various types of gears, splines and cams.

11. Machine Elements

- a. Identify various problems related to the design and building of machine parts and assemblies by utilizing The Machinery Handbook formulas, tables, specifications and factors.
- b. Solve various problems related to the design and building of machine parts and assemblies by utilizing The Machinery Handbook formulas, tables, specifications and factors.

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.

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|--|--|---|
| <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? <input type="checkbox"/> CCC <input type="checkbox"/> MCC <input type="checkbox"/> SCC <input type="checkbox"/> 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: