



COURSE OUTLINE

MCH0244

Prepared: Howard Gray Approved: Corey Meunier

Course Code: Title	MCH0244: MANUFACTURING PROCESS						
Program Number: Name	1120: COMMUNITY INTEGRATN						
Department:	C.I.C.E.						
Semester/Term:	18W						
Course Description:	The general objective of this course is to give students a basic introduction to manufacturing processes, process sequences and an introduction to the 5Ms of industrial processing. The course centers on the steel production and steel manufacturing industries, but the concepts introduced are applicable to most manufacturing environments.						
Total Credits:	4						
Hours/Week:	3						
Total Hours:	45						
Course Evaluation:	Passing Grade: 50%, D						
Evaluation Process and Grading System:	<table border="1"> <thead> <tr> <th>Evaluation Type</th> <th>Evaluation Weight</th> </tr> </thead> <tbody> <tr> <td>Assignments/Reports</td> <td>40%</td> </tr> <tr> <td>Tests</td> <td>60%</td> </tr> </tbody> </table>	Evaluation Type	Evaluation Weight	Assignments/Reports	40%	Tests	60%
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Assignments/Reports	40%						
Tests	60%						
Books and Required Resources:	Manufacturing Processes Handout provided						
Course Outcomes and Learning Objectives:	<p>Upon successful completion of this course, the CICE student, with the assistance of a Learning Specialist will acquire varying levels of skill development relevant to the following learning outcomes:</p> <p>Course Outcome 1.</p> <p>Upon successful completion of this course, the student will distinguish the various processes:</p>						



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Learning Objectives 1.

- Give the definitions of process and process sequence.
- Describe linear processes.
- Describe parallel processes.

Course Outcome 2.

Upon successful completion of this course, the student will be able Explain The 5Ms of Manufacturing Systems:

Learning Objectives 2.

- Describe each of the 5M elements in manufacturing processes and how they interrelate in a total quality management system.

i. Man

ii. Material

iii. Machines

iv. Methods

v. Measurement

Relationship to Quality Management System

Course Outcome 3.

Upon successful completion of this course, the student will be able to describe the Steel Production processes:

Learning Objectives 3.

- Describe the production flow through an integrated steel plant from incoming raw materials to shipped product.

- Describe the various steel production processes work.

- Explain how the various processes work.

- Where alternate processes are available, explain the technical and economic advantages and disadvantage of each alternate

i. Cokemaking



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- ii. Ironmaking
- iii. Steelmaking
- iv. Casting
- v. Hot Rolling
- vi. Pickling
- vii. Cold Rolling
- viii. Annealing
- Shipping

Course Outcome 4.

Upon successful completion of this course, the student will be able to describe the Steel Manufacturing processes

Learning Objectives 4.

- Recognize and describe various manufacturing processes used for the production of goods made from steel.
 - Describe the demands made on the material in each of the various processes covered.
 - Explain in technical and economic terms why one process may be used as opposed to a possible alternate process
- i. Cutting:
 - a. Shearing
 - b. Flame cutting
 - c. Plasma Cutting
 - d. Laser cutting
 - ii. Metal forming:
 - a. Punching
 - b. Blanking
 - c. Bending
 - d. Press forming
 - e. Roll forming
 - f. Drawing
 - g. Hydroforming
 - iii. Joining:
 - a. Bolting b. Riveting
 - c. Arc welding
 - d. Resistant spot welding
 - e. Seam welding



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- f. Friction Welding
- g. Laser welding
- h. Brazing
- i. Soldering
- iv. Machining:
 - a. Milling and Drilling
 - b. Turning
 - c. Grinding
- v. Casting:
 - a. Sand casting
 - b. Permanent mould casting
 - c. Lost wax casting

CICE Modifications:

Preparation and Participation

1. A Learning Specialist will attend class with the student(s) to assist with inclusion in the class and to take notes.
2. Students will receive support in and outside of the classroom (i.e. tutoring, assistance with homework and assignments, preparation for exams, tests and quizzes.)
3. Study notes will be geared to test content and style which will match with modified learning outcomes.
4. Although the Learning Specialist may not attend all classes with the student(s), support will always be available. When the Learning Specialist does attend classes he/she will remain as inconspicuous as possible.

A. Further modifications may be required as needed as the semester progresses based on individual student(s) abilities and must be discussed with and agreed upon by the instructor.

B. Tests may be modified in the following ways:

1. Tests, which require essay answers, may be modified to short answers.
2. Short answer questions may be changed to multiple choice or the question may be simplified so the answer will reflect a basic understanding.
3. Tests, which use fill in the blank format, may be modified to include a few choices for each question, or a list of choices for all questions. This will allow the student to match or use visual clues.
4. Tests in the T/F or multiple choice format may be modified by rewording or clarifying statements into layman's or simplified terms. Multiple choice questions may have a reduced number of choices.

C. Tests will be written in CICE office with assistance from a Learning Specialist.



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The Learning Specialist may:

1. Read the test question to the student.
2. Paraphrase the test question without revealing any key words or definitions.
3. Transcribe the student's verbal answer.
4. Test length may be reduced and time allowed to complete test may be increased.

D. Assignments may be modified in the following ways:

1. Assignments may be modified by reducing the amount of information required while maintaining general concepts.
2. Some assignments may be eliminated depending on the number of assignments required in the particular course.

The Learning Specialist may:

1. Use a question/answer format instead of essay/research format
2. Propose a reduction in the number of references required for an assignment
3. Assist with groups to ensure that student comprehends his/her role within the group
4. Require an extension on due dates due to the fact that some students may require additional time to process information
5. Formally summarize articles and assigned readings to isolate main points for the student
6. Use questioning techniques and paraphrasing to assist in student comprehension of an assignment

E. Evaluation:

Is reflective of modified learning outcomes.

NOTE: Due to the possibility of documented medical issues, CICE students may require alternate methods of evaluation to be able to acquire and demonstrate the modified learning outcomes

Date:

Wednesday, September 6, 2017

Please refer to the course outline addendum on the Learning Management System for further information.