

Washtenaw Community College Comprehensive Report

MEC 100 Materials and Processes

Effective Term: Fall 2014

Course Cover

Division: Advanced Technologies and Public Service Careers

Department: Industrial Technology

Discipline: Mechatronics

Course Number: 100

Org Number: 14400

Full Course Title: Materials and Processes

Transcript Title: Materials and Processes

Is Consultation with other department(s) required: No

Publish in the Following: College Catalog , Time Schedule , Web Page

Reason for Submission: New Course

Change Information:

Consultation with all departments affected by this course is required.

Rationale: Change course discipline for new Mechatronics program.

Proposed Start Semester: Spring/Summer 2014

Course Description: In this course, students receive an introduction to basic terms, mechanical and physical properties, and characteristics and structures of materials. Heat treatment of ferrous and non-ferrous metals and the effect on tensile, torsion, and impact will be investigated. The study of common consumer products will identify material types and processes used in manufacturing. In a capstone project, students will associate two different materials to a product identifying the advantages and disadvantages for both. Mechanical and physical properties, characteristics, ease of manufacturing, cost, environmental impact, and life cycle will be compared. This course was previously AMS 103.

Course Credit Hours

Variable hours: No

Credits: 3

Lecture Hours: Instructor: 45 Student: 45

Lab: Instructor: 15 Student: 15

Clinical: Instructor: 0 Student: 0

Total Contact Hours: Instructor: 60 Student: 60

Repeatable for Credit: NO

Grading Methods: Letter Grades

Audit

Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

No Level Required

Requisites

General Education

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Identify general mechanical and physical properties for an array of materials.

Assessment 1

Assessment Tool: Written test

Assessment Date: Fall 2015

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections

Number students to be assessed: All students

How the assessment will be scored: Answer Key

Standard of success to be used for this assessment: 75% of the students will score 75% or higher

Who will score and analyze the data: Departmental Faculty

2. Identify manufacturing processes used in manufacturing.

Assessment 1

Assessment Tool: Written test

Assessment Date: Fall 2015

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections

Number students to be assessed: All students

How the assessment will be scored: Answer Key

Standard of success to be used for this assessment: 75% of the students will score 75% or higher

Who will score and analyze the data: Departmental Faculty

3. Measure and evaluate mechanical and physical properties of various materials.

Assessment 1

Assessment Tool: Written test

Assessment Date: Fall 2015

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections

Number students to be assessed: All students

How the assessment will be scored: Answer Key

Standard of success to be used for this assessment: 75% of the students will score 75% or higher

Who will score and analyze the data: Departmental Faculty

Course Objectives

1. Identify the history of materials.

Matched Outcomes

2. Identify the structure of materials.

Matched Outcomes

3. Identify the properties of materials.

Matched Outcomes

4. Identify metals (ferrous, nonferrous, heat treatment: effects and processes).

Matched Outcomes

5. Identify wood, paper, lubricants and adhesives.

Matched Outcomes

6. Identify surface engineering (mechanical surface finishing, coatings, platings, hardening).

Matched Outcomes

7. Identify metal fabrication processes.

Matched Outcomes

2. Identify manufacturing processes used in manufacturing.

8. Identify plastics and composites (thermoset, thermoplastics).

Matched Outcomes

- 2. Identify manufacturing processes used in manufacturing.
- 9. Identify plastic fabrication processes.
 - Matched Outcomes**
 - 2. Identify manufacturing processes used in manufacturing.
- 10. Identify concretes, glasses and ceramics.
 - Matched Outcomes**
 - 2. Identify manufacturing processes used in manufacturing.
- 11. Identify concretes, glasses and ceramics fabrication processes.
 - Matched Outcomes**
 - 2. Identify manufacturing processes used in manufacturing.
- 12. Identify mechanical and physical properties, characteristics, environmental requirement, ease of manufacturing and cost.
 - Matched Outcomes**
- 13. Evaluate the life cycle of materials.
 - Matched Outcomes**

New Resources for Course

Course Textbooks/Resources

Textbooks
 Manuals
 Periodicals
 Software

Equipment/Facilities

Level III classroom

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Thomas Penird</i>	<i>Faculty Preparer</i>	<i>Dec 19, 2013</i>
Department Chair/Area Director: <i>Thomas Penird</i>	<i>Recommend Approval</i>	<i>Dec 19, 2013</i>
Dean: <i>Marilyn Donham</i>	<i>Recommend Approval</i>	<i>Jan 10, 2014</i>
Vice President for Instruction: <i>Bill Abernethy</i>	<i>Approve</i>	<i>Jan 29, 2014</i>