REGULAR COURSE SYLLABUS

School of: Professional Studies

Department: Engineering Technology

Prefix & Course Number: MET 4010 Crosslisted With*: ___

Course Title: Advanced Manufacturing Technology

Banner course title (30 characters): Advanced Manufacturing Tech

Check All That Apply: Required for Major: ___ Required for Minor: ___ Specified Elective: ___

Required for Concentration: ___ Elective: X Service Course: ___

To receive Title IV financial aid funds, all institutions of higher education must comply with the federal definition of a credit hour. The Higher Learning Commission requires institutions to maintain policies and procedures for verifying compliance with this definition.

**Federal Credit Hour Definition:** A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than:

1. One hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time; or

2. At least an equivalent amount of work as required in paragraph (1) of this definition for other activities as established by an institution, including laboratory work, internships, practica, studio work, and other academic work leading toward the award of credit hours. 34CFR 600.2 (11/1/2010)

Credit Hours: 3 (3+0)

**Face-to-Face or Equivalent Hours per course:**

- Lecture 45 Lab ___ Internship ___ Practicum ___ Other (please specify type and hours): ___

**Additional Student Work Hours per course:** 90

Schedule Type: L Grade Mode: __

Variable topics umbrella course: No X Yes ___ If Yes, number of credit hours allowed ___

Specified repeatable course: No X Yes ___

APPROVED: [Signature]

Department Chair OR Program Director [Signature] Date: 01/29/2014

Dean OR Associate Dean [Signature] Date: 03/13/14

Associate VP, Academic and Student Affairs [Signature] Date: 03/13/14

*If crosslisted, attach completed Course Crosslisting Agreement Form
Prefix and Course Number: MET 4010

Prerequisite(s): MET 3000 and EET 2000, with grades of "C" or better
Corequisite(s): ______
Prerequisite(s) or Corequisite(s): ______

Banner Enforced:
Prerequisite(s): MET 3000 and EET 2000, with grades of "C" or better
Corequisite(s): ______
Prerequisite(s) or Corequisite(s): ______

Registration restrictions: Level ______ Class ______ Program/Major ______ Student attribute ______

Catalog Course Description:
In the course, students will study micro monitor process control analysis, fiber optics technology, CMOS technology, ultra precision-controlled devices with artificial intelligence systems, industrial robots, fiber optics and Imagineering future applications.

Specific Variable Topics Course Description (if applicable, umbrella course description included above):

Required Reading and Other Materials will be equivalent to:

Specific, Measurable Student Behavioral Learning Objectives:
Upon completion of this course the student should be able to:
1. Design computer control programming for applications in electro-mechanical, pneumatic-mechanical and hydraulic-mechanical machine elements.
2. Apply the logistics associated with the total micro monitor process control system.
3. Use the computer and control programming language developed exclusively for industrial control applications.
4. Inspect design through computer technique and object identification technique.
5. Interface robots to the types of industrial applications they are capable of performing.
6. Relate the basics of fiber optics and its application in industrial process.
7. Integrate robotics design concepts as applicable to various manufacturing process and process control systems.

Detailed Outline of Course Content (Major Topics and Subtopics) or Outline of Field Experience/Internship (experience, responsibilities and supervision):

I. Introduction: The Genesis of an Industrial Process
   A. The Micro Monitor Process Control System
   B. The Micro Monitor Process Control Analysis

II. Hostile Environments Computer Control Operations
   A. Peripheral and Shielded Data Links
   B. Fiber Optics Technology

III. CMOS Technology
   A. The P2CMOS Process
   B. The P2CMOS Performance

IV. Control Devices, Interfaces, and Machine Computers
Prefix and Course Number: MET 4010

A. Basic Operation Requirements
B. Control and Measuring Devices

V. Artificial Intelligence
   A. Machine and Computer Vision
   B. Fiber Optics for Computer Interfacing

VI. Electromechanical Engineering Applications
   A. Industrial Robots
   B. Fiber Optics for Computer Interfacing

VII. Imagineering: The Future Applications
   A. Computer Integrated Manufacturing
   B. The Factory of the Future

Evaluation of Student Performance:
1. Quizzes
2. Tests
3. Homework
4. Group Project
REQUEST FOR REMOVAL OF SENIOR EXPERIENCE DESIGNATION

(To accompany old and new regular syllabus form and Curriculum Change Proposal forms)

Date: 10/4/2013
School: Professional Studies
Department: Engineering Technology

<table>
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<tr>
<th>Prefix</th>
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<th>Credit Hours</th>
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Title: Computer Aided Design

Prerequisite(s): MET 3000, MET 3330 and EET 2000, all with grades of "C" or better, satisfaction of all Level 1 and Level 1 General Studies course requirements and senior standing

Corequisite(s): ___

Prerequisite(s) and/or corequisite(s): ___

Effective Term for Removal: 201450

Reason for Removal of Designation:
The Goal A of Strategic Theme 1 student and academic success of 2012-17 MSU Strategic Plan indicates: MSU Denver facilitates and enhances students success though the implementation of research-based, best-practices degree-completion strategies. In order to align MET curriculum with the University’s goal, a new set of capstone classes are to be proposed in the same packet. The new series of MET senior experience classes are also in agreement with CET and EET newly design senior experience classes so that cross disciplinary collaboration will be conducted more easily.

Approvals:

Department Curriculum Committee / Date 01/29/14

Department Chair OR Program Director / Date 01/29/2014

School Curriculum Committee / Date 1/29/2014

Dean or Associate Dean / Date 1/30/14

Chair, Faculty Senate Curriculum Committee / Date 03/13/2014

Associate Vice President, Academic Affairs / Date 03/13/14