Ohio Articulation Number (OAN)  
Course Submission Form  
2005-2006

College/University  Stark State College of Technology

Course(s) Submitted [Title & Course #]  Manufacturing Processes - MET225

Ohio Articulation Number  Manufacturing Processes - OET 010

Date  8-22-06  Course  one  of a  one  Course OAN mapping.

Name and title of individual submitting on behalf of the college/university

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Credit Hours  3  qtr  ____  sem  x

Lecture Hours  2

Laboratory Hours  2  (if applicable)

Pre-Requisites(s) Course work (if applicable)

Placement Score (if applicable)

[Name of test]

(Domain)  (Score)

Catalog/Course Description (Includes Course Title and Course #)

Manufacturing Processes - MET225

Students will investigate a variety of manufacturing techniques including casting, powder metallurgy, metal forming, hot and cold working, arc and gas flame welding, rapid prototyping, microelectronic manufacturing, and chip-type machining processes. Scheduled tours of
local industry and/or guest speakers augment the material.

Texts/Outside Readings/Ancillary Materials


Course Objectives and/or Plan of Work

The student is exposed to a variety of manufacturing processes and is expected to differentiate between these processes in terms of application, operation, function, advantages, and disadvantages. The student will complete design projects based on a part or a product to determine the best process to use in terms of tolerances, cost, strength, and other factors. This project incorporates teamwork and oral presentation skills.

Description of Assessment and/or Evaluation of Student Learning

Critical Thinking Skills: The student will intelligently differentiate between each manufacturing process studied. Practical applications of each process as they relate to the material are presented and openly discussed during the lecture, lab and the student presentations.

Communication Skills: Students will be responsible to present one formal oral presentation to the class. Classroom discussion and formal presentation of assigned topics to the class are an integral part of this course.

Master Syllabi and Working Syllabi (if both are used)

Additional Documentation

See attached.

OBR Use | Action
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Approved | 
Additional Information | 
Requested | 
Rejected | 
Date |
STARK STATE COLLEGE OF TECHNOLOGY
MECHANICAL ENGINEERING TECHNOLOGY
COURSE SYLLABUS

COURSE DESCRIPTION:
Students will investigate a variety of manufacturing techniques including casting, powder metallurgy, metal forming, hot and cold working, arc and gas flame welding, rapid prototyping, microelectronic manufacturing, and chip-type machining processes. Scheduled tours of local industry and/or guest speakers augment the material.

COURSE OBJECTIVES:
The student is exposed to a variety of manufacturing processes and is expected to differentiate between these processes in terms of application, operation, function, advantages, and disadvantages. The student will complete design projects based on a part or a product to determine the best process to use in terms of tolerances, cost, strength, and other factors. This project incorporates teamwork and oral presentation skills.

COMMUNICATION SKILLS:
Students will be responsible to present one formal oral presentation to the class.

COMPUTATIONAL SKILLS:
The subject matter of this course is predominantly qualitative.

COMPUTER APPLICATIONS:
Non-CADD computer software packages may be used in the formal oral presentation. These packages include word processing and presentation software.

CRITICAL THINKING SKILLS:
The student will intelligently differentiate between each process discussed. Practical applications of each process as they relate to the material are presented and openly discussed during the lecture and the student presentations.

INTERPERSONAL SKILLS:
Classroom discussion and formal presentation of assigned topics to the class are an integral part of this course.

TEXTBOOK:
NOTE: The student is responsible for lecture material and material in the text. The syllabus is subject to change based upon the individual needs of the class.
Supporting Documents

The following is a detailed cross-reference of how Stark State addresses the essential learning outcomes as listed by in the Ohio TAGS.

Essential Outcomes:

Demonstrate an understanding of the interrelationships between material properties and manufacturing processes.

1. Distinguish between different manufacturing processes such as forgings, extrusions, castings, forming, and finishing.
   1.1 The student will demonstrate an ability to compare/contrast between the major manufacturing processes. The class is divided into the following five comprehensive functions: Casting, forming, machining, joining and non-traditional/other.
   1.2 The student will understand the economic and engineering trade-offs between the various manufacturing processes.

2. Distinguish between different fabrication processes such as welding, fasteners, and adhesives.
   2.1 The student will demonstrate a thorough understanding of the various joining processes including permanent fasteners such as adhesives, welding (and the associated methods), brazing, soldering and the removable methods such as threaded fasteners.

3. Apply empirical data to determine speeds and feeds to optimize production efficiencies.
   3.1 The student is introduced to basic industrial shop practices and safety.
   3.2 The student performs or observes basic machining operations.
   3.3 The student performs studies to examine production practices and efficiencies including developing speed and feed data for simple machining operations.

4. Demonstrate appropriate safety procedures and methods in a manufacturing setting.
   4.1 See 3.1 above
   4.1 The student tours several local industrial facilities (see 6.1 below) where safety orientations are stressed.

5. Demonstrate proficiency in the use of measurement instruments.
   5.1 ANSI measuring and inspection equipment is discussed and used in in-class activities.
5.2 The student will demonstrate a working knowledge of the standards of measurements, allowance/tolerance, vision systems and inspection methods of measurements.

6. Tour local manufacturing facilities.
   6.1 The students tour local manufacturing which in the past has included: Canton Drop Forge, Timken Faircrest, Timken Steel, the Hoover Company, the Diebold Company, American Steel, Ashland Refinery and numerous others.