

MECHANICAL ENGINEERING PROGRAM

ABET COURSE SYLLABUS

ME 426 – Manufacturing Processes (3 credit): Elective Course

Course Description (2008-2010 Catalog):

Survey of the principal processes used to cast, form, machine, and join material. Tolerances, statistical quality control, costs, operation sequencing, and design for productivity covered. Research paper on related topic required.

Prerequisite Course: Senior standing in engineering or architecture.

Textbook: Mikell P. Groover, Fundamentals of Modern Manufacturing, Materials, Processes, and Systems, Prentice Hall Inc.

Other Reference Material: N/A

Course Coordinator: Z.Y. Wang, Associate Professor

Course learning outcomes:

- 1) Understanding the fundamentals of machining, NC Control and CAD/CAPP/CAM, Hot and Cold Forming and Sheet Metalworking, Casting/Molding, Joining and Assembly Processes, and Finishing;
- 2) Be able to conduct Measurement and Quality Assurance activities with knowledge on Inspection by variables, Inspection by attributes, gage blocks, Surface plate, Caliper, Micrometer, Master gage, Master gage, Process Capability, Taguchi Method for Robust Design, etc;

Relationship of Course to Mechanical Engineering Program Educational Outcomes:

Goal1: Provide mechanical engineering graduates with technical capabilities.					Goal 2: Prepare the mechanical engineering graduates to have effective workplace skills.				Goal 3: Instilling a sense of responsibility as a professional member of society.			
1.a	1.b	1.c	1.d	1.e	2.a	2.b	2.c	2.d	3.a	3.b	3.c	3.d
H	M	L	L	M	M	L	L	M	M	L	M	L

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Topics Covered:

- 1) Machining;
- 2) NC Control and CAD/CAPP/CAM;

- 3) Hot and Cold Forming and Sheet Metalworking;
- 4) Casting/Molding;
- 5) Joining and Assembly Processes;
- 6) Finishing;
- 7) Measurement and Quality Assurance;
- 8) operation sequencing;
- 9) design for productivity;

Laboratory Projects: A student project is assigned in the 10th week to all students, team effort is required.

Assessment of Student Progress toward Course Objectives

Ten homework are assigned in the semester, projects are given in the tenth week, and two mid-terms exams and one final exam are given during the semester.

Class/Laboratory Schedule: MW 11:00-11:45 AM (Spring Semester)

Contribution of Course for meeting Professional Component:

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| (a) Mathematics and basic sciences: | 0 credit |
| (b) Engineering Topics (Design/Science): | 3 credit |
| (c) General Education: | 0 credit |
| (d) Others: | 0 credits |

Prepared By:

Z.Y. Wang

Date:

10/22/2009