Three Rivers
COMMUNITY COLLEGE

Manufacturing Processes: Spring 2008
Course #MFG K102
Technologies Department

Course Description:

Manufacturing methods of metals and plastics including metal casting, forming, machining, welding, and plastic processing. Through lecture, open discussion and practical hands on experience, this course will develop a working knowledge of machining practices for the manufacturing engineer.

Course Objectives:

- Understand the theory and principles of traditional manufacturing processes used by industry such as metal casting, forming and shaping, material removal and joining
- Describe the advantages, disadvantages, capabilities, and requirements of the dominant modern manufacturing techniques used to produce plastic, metal and composite components, products and assemblies in the manufacturing industry
- To familiarize with engineering materials and their mechanical properties
- To understand the fundamentals of basic forming and machining processes, tooling and machine tools
- To understand the capabilities of modern manufacturing processes, NC machine tools, and computer aided manufacturing technology

Lab Objectives:

- Use hand tools and conduct basic machining operations on conventional lathes and mills
- Demonstrate a basic understanding of engineering blueprint interpretation and reading
- Work as part of a manufacturing team and exhibit appropriate professional traits required for teamwork and project management in the machining and manufacturing environment
- Prepare technical reports and manufacturing specifications and documentation
- Demonstrate the ability to work safely in a machining and manufacturing environment
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Instructor:

PROF Patrick H. Knowles Jr. Room 203B (TV) ph: 885-2379 pknowles@trcc.commnet.edu

Text Book:

1. Manufacturing Processes for Technology (2e) – Fellows, W.

Procedure:

The course will consist of a lecture followed by a lab. Both the lecture and lab will consist of open discussion, which the student is encouraged to ask questions and relate their own experiences. The discussions will be conducted around the reading assignments and the homework problems.

Instructor Assistance:

Seeking help from the instructor outside of class is encouraged if you are having difficulty understanding course material. Feel free to Email/call for an appointment during office hours.

Academic Integrity:

Academic integrity is essential to a useful education. Failure to act with academic integrity severely limits a person's ability to success in the classroom and beyond. Furthermore, academic dishonesty erodes the legitimacy of every degree awarded by the College. In this class and in the course of your academic career, present only your own best work; clearly document the sources of the material you use from others; and act at all times with honor.

Homework:

Homework is not mandatory in the sense that failure to complete will detract from your course average. However, completing homework has been found to be extremely helpful in understanding and reinforcing the concepts covered in class. In addition, homework problems are VERY representative of the types of problems that will appear on the Exams.

Those who attempt and complete (to the best of their ability) the homework can expect to receive up to 5% added to the final average (after exams and the project). Homework is due on the assigned due date at the beginning class. Late homework will not receive credit.

If you cannot attend a lecture due to extraordinary events, notify the instructor in advance of the meeting you will miss. Unless special arrangements have been made with the instructor in advance, the due date for written work will not change. You are responsible for obtaining the information covered at any meeting you miss.

You may work with others on homework assignments to determine analysis methods, but you must indicate on your paper from whom you have received assistance.

Attendance:

Attendance will be taken and although it is not intended to be use for grading purposes, it maybe used for decision on the part of the final grade.

Grading Policy:

Several exams will be given during the semester. The dates of the exams are noted in the Lecture Schedule. Approximately one hour of the class meeting will be devoted for each exam. Final grades will be based on a normal distribution of all students taking the course based on the following weighting:

Exam Average	65%
Web-Based Training Project	35%

Those who attempt and complete (to the best of their ability) the homework **and** have an exemplary attendance record can expect to receive up to 10% added to their final average (after projects, exams and the final exam). The grade will be assigned on a 10 pt. scale. Homework is due on the assigned due date at the beginning class. Late homework will not receive credit.

Withdrawal:

A student who finds it necessary to discontinue a course must complete a "Withdrawal Request Form" available in the Registrar's office within the time limits of the semester calendar. Students who do not withdraw, but stop attending will be assigned an "F" signifying a failing grade. The last day to withdraw from classes is 29April2008.

Disabilities Statement:

If you are a student with a disability and believe you will need accommodations for this class, you must contact the Disabilities Counseling Services at 860/823-2830. To avoid any delay in the receipt of accommodations, you should contact the counselor as soon as possible. The instructor cannot provide accommodations until and accommodation letter from the Disabilities Counselor is received.

Date	Class #	Topic	Reading	Homework
Jan29	1	Introduction; History of Manufacturing; Behavior of Metals	Syllabus; pg. 1-54	1.1.2, 1.1.9, 2.1.1, 2.1.11, 2.1.16
Feb05	2	Behavior of Metals; Measurements	pg. 9-54; 57-74	2.4.1, 2.4.2, 2.4.10, 3.2.1, 3.2.12, 3.2.15, 3.3.1, 3.3.4, 3.3.8, 3.4.9
Feb19	3	Material Removal: Mechanical	pg. 75-119	4.1.1, 4.1.2, 4.1.4, 4.1.5
Feb26	5	Material Removal: Electrical, Chemical, Thermal	pg. 121-145	5.1.4, 5.1.7, 5.1.8, 5.1.12, 6.1.3, 6.1.16, 7.1.4, 7.1.5
Mar04	6	**Exam I** Change of Form: Mechanical	pg. 195-223	
Mar11	7	Change of Form: Thermal, Powder	pg. 163-194	
Mar25	8	Change of Condition; Material Addition	pg 225-248	
Apr01	9	**Exam II** Material Joining: Adhesives, Welding, Mechanical	pg 249-295	
Apr08	10	Surface Finishing: Plastics & Composites	pg 309-335; 337-366	
Apr15	11	Plastics & Composites	pg. 337-366	
Apr22	12	Production Control	pg. 387-431	
Apr29	13			
May06	14	**Exam III**		