Bergen Community College
Division of Math, Science and Technology
Department of Industrial & Design Technology

Course Syllabus
MFG-229 Materials Processing and Fabrication

Semester and year:
Course Number:
Meeting Times and Locations:

Instructor:
Office Location:
Phone:
Office Hours:
Email Address:

COURSE DESCRIPTION:

MFG-229 Materials Processing and Fabrication will include both an overview of materials and processes used in the manufacture of precision products and a practical exploration of fabrication techniques used in industry. A comparative study of casting, welding, heat treating, molding, laminating, EDM, CNC machining, grinding, etc. will be undertaken, as well as forming processes such as rolling, shearing, stamping, cutting, and joining methods for metallic and non-metallic materials.
2 lecture, 4 lab, 4 credits
Prerequisite: MFG-122 Machine Tool Principles I, MFG-124 Quality & Measurement,
DFT-107 Drafting I

STUDENT LEARNING OBJECTIVES:

As a result of meeting the requirements in this course, students will be able to:	Student performance on these objectives will be measured by:
1. Select the most appropriate machining process for various parts based on their design material, geometric configuration, dimensional tolerances and service specifications.	Graded Exercises and Exams.
2. Demonstrate the ability to select the appropriate materials and method of fabrication for non-machined structures (e.g. steel, aluminum, welded, bolted, etc.).	Graded hands-on lab work and Exams.
3. Demonstrate the ability to machine precisian components to be incorporated into a larger fabricated structure, using conventional lathes, mills, grinders and precisian measuring equipment.	Graded hands-on lab work.
4. Demonstrate the ability to construct non-precisian structures to satisfactory level of quality which meet design criteria.	Graded hands-on lab work.

COURSE CONTENT:

CHAPTER	TOPIC
2,3,6.	Metallic Materials & Structures
7,8.	Nonmetallic Materials & Structures
15.	Fundamentals of Metal Forming
16.	Bulk Forming Processes
23.	Drilling & Related Hole-making Processes
27.	Other Machining Processes
30.	Fundamentals of Joining
32.	Resistance and Solid-State Welding Processes.
33.	Other Welding Processes, Brazing and Soldering
34.	Adhesive Bonding, Mechanical Fastening, and Joining of Nonmetals.

Handouts:

Project Planning & Organization
Joining Process – Mechanical
New Technologies in Fabrication
Project Assessments in Industry

TEXTBOOK: Jig and Fixture Design, Fifth Edition, Hoffman, Edward G., Thomson Publishers, 2003. ISBN 1-4018-1107-8

EVALUATION:

A. Project Assignments 35%
B. Examinations….. . . . . 35%
C. Final Examination. 20%
D. Class Participation 10%
TOTAL 100%

SPECIAL NOTES: **A final grade cannot be assigned for the course until all projects and examinations for the course have been completed.**

Make-up examinations will be administered in accordance with the instructor's and division's policy.

FACULTY ABSENCE PROCEDURE: Please note well.

A daily listing will appear in the glass case located in the main hall A bldg. which will indicate all classes which are cancelled. Students can consult this case before going to class. If students find a class cancelled which has not been listed, they should report this to the divisional dean's office (A325) or to the evening/Saturday office (L113).

CALENDAR:

Class Meeting	Date	Topic	Chapter
1.	_____	Properties of Materials	2
2.	_____	Nature of Metals & Alloys	3
3.	_____	Ferrous Metals & Alloys	6
4.	_____	**EXAM** Non- Ferrous Metals & Alloys	7
5.	_____	Non-Metallic Materials	8
6.	_____	Fundamentals of Metal Forming	15,23,27
7.	_____	Sheet Form Process	30
8.	_____	**EXAM** Intro To Welding	30,32,33
9.	_____	Non-Metallic Mat. Tools & Techniques	Handout (H/O)
10.	_____	**Project Assignment**	H/O
11.	_____	Open Lab	
12.	_____	Adhesive Bonding	34
13.	_____	Open Lab	--
14.	_____	Project Assessment	H/O
15	_____	**FINAL EXAM** Project Critique	H/O

All BCC students enrolled in credit courses are entitled to a WebAdvisor account. With WebAdvisor, you may register online, check your schedule, room assignments, GPA, and find out what courses you need to take. To find out more about WebAdvisor or to sign up online, visit <http://go.bergen.edu>! While there, please make sure you give us your preferred email address. You'll find directions how to do this at <http://go.bergen.edu/email>.