



**DEPARTMENT OF MECHANICAL AND INDUSTRIAL ENGINEERING
MECHANICAL ENGINEERING PROGRAM, BSC.**

Course Syllabus

1. Course number and name

IE310, Manufacturing Processes

2. Credits and contact hours

(3+0) 3 credit hours, 3 contact hours

3. Course type

Blended Learning Course (2+1)

4. Instructor's or course coordinator's name

Dr. Sinan Faouri

5. Textbook information

Groover, M.P. Fundamentals of Modern Manufacturing, John Wiley & Sons Inc.,
4th. Edition, 2010, ISBN-13: 978-0470467008

a. Other supplemental materials

Instructor's notes

6. Specific course information

a. Catalog description

To introduce the students with the fundamentals of: mechanical behavior of materials, metal forming, bulk deformation processes like rolling, forging, extrusion, and wire and bar drawing, and sheet metal working processes like cutting operations, bending and deep drawing.

b. Prerequisites or co-requisites

Prerequisite: ME 205 Engineering Materials

c. The course is:

Required in industrial and mechanical engineering program

7. Specific goals for the course

a. Course outcomes:

After completion of the course, students are expected to be able to:

1. Identify the basic concepts of Manufacturing Process and its types



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2. Understand the physical and mechanical properties for materials and materials handling
3. Design a sense of practical experience to approach and solve problems.
4. Effectively communicate in all means (e.g. writing) for assignments and projects as well as enhance teamwork spirit.
5. Increasing the awareness of safety issues for personals and environment.

b. The following student outcomes are addressed by the course:

SO-(2) An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

SO-(4) An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environmental, and societal context.

SO-(pc) The structure of the curriculum must provide both breadth and depth across the range of engineering topics implied by the title of the program.

8. Learning Outcomes and their Alignment with Program Educational Objective (PEO's), Methods of Delivery, and Assessment Methods:

Learning Outcomes	Program PEOs	Method of Delivery	Assessment Method
Course Outcomes			
CO-(1): Identify the basic concepts of Manufacturing Process and its types	-	Asynchronous active learning	Discussion boards
CO-(2): Understand the physical and mechanical properties for materials and materials handling	-	Lectures (Example and Problems)	Assignment
CO-(3): Design a sense of practical experience to approach and solve problems.	-	Lectures (Example and Problems)	Project
CO-(4): Effectively communicate in all means (e.g. writing) for assignments and projects as well as enhance teamwork spirit.	-	Asynchronous active learning	Assignment



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CO-(5): Increasing the awareness of safety issues for personals and environment.	-	Asynchronous active learning	Discussion boards
Student Outcomes			
SO-(2) An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	2	Lectures (Example and Problems)	Midterm Exam
SO-(4) An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environmental, and societal context.	1, 3	Term Project	Term Project- Part 2
SO-(pc) The structure of the curriculum must provide both breadth and depth across the range of engineering topics implied by the title of the program.	1	Term Project	Term Project- Part 1

9. Weekly Teaching Plan

Week No.	Lecture	Topic	Method of Delivery
1	Sun (9-10)	Chapter 1: Introduction and overview to manufacturing	Lecture
	Tue (9-10)	Chapter 2: The nature of materials	Lecture
	Thu (9-10)	Interactive videos- Chapter 1+2	Asynchronous active learning
2	Sun (9-10)	Chapter 3: Mechanical properties of materials	Lecture
	Tue (9-10)	Chapter 3: Mechanical properties of materials	Lecture
	Thu (9-10)	Assignment-Mechanical properties of materials (3)	Asynchronous active learning
3	Sun (9-10)	Chapter 3: Mechanical properties of materials	Lecture
	Tue	Chapter 3: Mechanical properties of materials	Lecture



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	(9-10)		
	Thu (9-10)	Chapter 18: Fundamentals of metal forming	Online Lecture/ synchronous
4	Sun (9-10)	Chapter 18: Fundamentals of metal forming	Lecture
	Tue (9-10)	Chapter 18: Fundamentals of metal forming	Lecture
	Thu (9-10)	Chapter 18: Fundamentals of metal forming	Tutorial/synchronous lecture
5	Sun (9-10)	Chapter 19: Bulk deformation processes	Lecture
	Tue (9-10)	Chapter 19: Bulk deformation processes- Rolling	Lecture
	Thu (9-10)	Chapter 19: Bulk deformation processes- Rolling	Online Lecture
6	Sun (9-10)	Chapter 19: Bulk deformation processes- Rolling	Lecture
	Tue (9-10)	Chapter 19: Bulk deformation processes- Rolling	Lecture
	Thu (9-10)	Chapter 19: Bulk deformation processes- Rolling	Online Lecture
7	Sun (9-10)	Chapter 19: Bulk deformation processes- Forging	Lecture
	Tue (9-10)	Chapter 19: Bulk deformation processes- Forging	Lecture
	Thu (9-10)	Chapter 19: Bulk deformation processes- Forging	Online Lecture
8	Sun (9-10)	Chapter 19: Bulk deformation processes- Forging	Lecture
	Tue (9-10)	Chapter 19: Bulk deformation processes- Forging	Lecture
	Thu (9-10)	Chapter 19: Bulk deformation processes- Forging	Online Lecture
9	Sun (9-10)	Chapter 19: Bulk deformation processes- Extrusion	Lecture
	Tue (9-10)	Chapter 19: Bulk deformation processes- Extrusion	Lecture
	Thu (9-10)	Chapter 19: Bulk deformation processes- Extrusion	Online Lecture
10	Sun (9-10)	Chapter 19: Bulk deformation processes- Extrusion	Lecture
	Tue	Chapter 19: Bulk deformation processes- Extrusion	Lecture



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	(9-10)		
	Thu (9-10)	Chapter 19: Bulk deformation processes- Extrusion	Online Lecture
11	Sun (9-10)	Chapter 19: Bulk deformation processes- Wire and bar drawing	Lecture
	Tue (9-10)	Chapter 19: Bulk deformation processes- Wire and bar drawing	Lecture
	Thu (9-10)	Chapter 19: Bulk deformation processes- Wire and bar drawing	Asynchronous active learning
12	Sun (9-10)	Chapter 19: Bulk deformation processes- Wire and bar drawing	Lecture
	Tue (9-10)	Chapter 19: Bulk deformation processes- Wire and bar drawing	Lecture
	Thu (9-10)	Chapter 19: Bulk deformation processes- Wire and bar drawing	Asynchronous active learning
13	Sun (9-10)	Chapter 20: Sheet metal working- Cutting operations	Lecture
	Tue (9-10)	Chapter 20: Sheet metal working- Cutting operations	Lecture
	Thu (9-10)	Chapter 20: Sheet metal working- Cutting operations	Asynchronous active learning
14	Sun (9-10)	Chapter 20: Sheet metal working- Bending operations	Lecture
	Tue (9-10)	Chapter 20: Sheet metal working- Bending operations	Lecture
	Thu (9-10)	Chapter 20: Sheet metal working- Bending operations	Asynchronous active learning
15	Sun (9-10)	Chapter 20: Sheet metal working- Deep drawing	Lecture
	Tue (9-10)	Chapter 20: Sheet metal working- Deep drawing	Lecture
	Thu (9-10)	Discussion boards- Chapter 20: Sheet metal working- Deep drawing	Asynchronous active learning

10. Grade Distribution:

Assessment	Grade	Week No.
- Midterm Exam	30%	7 th Week



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-Assignments (Reports /Quizzes/ Seminar / Tutorials/ Home works)	20%	1-16 th Week
- Final Examination	50%	16 th Week

Note: Make-up exams will be offered for valid reasons. It may be different from regular exams in content and format.