

MATERIALS AND PROCESSES IN MANUFACTURING

Lecturer: Fazıl Önder Sönmez
Office: M 4155
Tel: (212) 263-1540 / 2196
e-mail: sonmezfa@boun.edu.tr
TA: Erhan Eyol Office: KB 210 Tel:(212) 263-1540 / 1834
Textbook: Materials and Processes in Manufacturing by E.P. Degarmo, J.T. Black, R.A. Kohser, Prentice Hall, NJ, 1997.
Prerequisite: ME 210, Material Science
Prerequisites by Topic:

1. Stress and Strain
2. Materials and their properties
3. Structural imperfections

Office hours: Wednesdays 1PM - 3PM
Class hours: Tuesdays 9AM – 11AM, M1100, and Thursdays 10AM – 11AM, M4100
Grading:

Quizzes	35 %
Midterm	30 %
Final	35 %

 Saturday, January 5, 1999 - 9 AM to 12 AM

No make-up exam unless in emergency with written excuse.

Quizzes, the midterm and the final are closed book and notes. For the midterm and the final only, one A4 paper for each is permitted containing whatever you may write.

Course Content

Ch. 1. Introduction

Part 1: Materials

Ch. 2. Properties of Materials (reading assignment)

Ch. 3. Nature of Metals and Alloys (reading assignment)

Ch. 4. Equilibrium Diagrams and the Iron-Carbon System

Ch. 5. Heat Treatment

Quiz 1

Part 2: Measurement and Quality Assurance

Ch. 10. Measurement and Inspection

Ch. 11. Nondestructive Inspection and Testing (reading assignment)

Part 3: Casting Processes

Ch. 13. Fundamentals of Casting

Ch. 14. Expendable-Mold Casting Processes

Ch. 15. Multiple-Use-Mold Casting Processes (reading assignment)

Quiz 2

Part 4: Forming Processes

Ch. 17. Fundamentals of Metal Forming

Ch. 18. Hot-Working Processes

Ch. 19. Cold-Working Processes

Quiz 3

Midterm

Part 5: Material Removal Processes

Ch. 21. Fundamentals of Chip-Type Machining Processes

Ch. 23. Turning, Boring, and Related Processes

Ch. 24. Drilling and Related Hole-Making Processes

Ch. 25. Milling

Ch. 27. Abrasive Machining Processes

Ch. 29. Numerical Control and Machining Centers (reading assignment)

Quiz 4

Part 6: Joining Processes

Ch. 33. Gas Flame Processes: Welding, Cutting, and Straightening

Ch. 34. Arc Processes: Welding and Cutting

Quiz 5

Part 7: Processes and Techniques Related to Manufacturing

Ch. 41. Manufacturing Systems and Automation

Ch. 42. Production Systems