ME358: Manufacturing Process

Instructor Names: Mert Corbaci (A1-Tue), Deniz Cetin (A2-Thr)
Course Time and Location: Tuesdays or Thursdays 1.30pm-3.15pm
Course Dates: Fall 2024
LABS: Friday afternoons – one hour
Office Location: EMA202A
Contact information: **dcetin@bu.edu**
Course Credits: 2
Office Hours: By appointment (schedule 24h in advance).
Prof Cetin: Thursdays or Fridays (6-7pm) on Zoom
Prof Corbaci: Wednesdays or Fridays (6-7pm) on Zoom
Eric Abercrombie: Tuesday (11am-12pm), ENG 410
Gerson Amaya: Monday (11am-12pm), ENG 410

EPIC Instructors
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Course Description
This course introduces you to modern manufacturing and materials processing methods. The course includes a wide range of manufacturing processes, including machining, injection molding, and 3D printing; and explains the fundamental principles and practices of manufacturing at scale. We will understand the underlying physical principles and how material properties impact and are impacted by various methods. Labs and projects will enable students to experiment with various processes and understand how the theory applies to the physical world.

Books and Other Course Materials
• Groover, M. (2019). Fundamentals of modern manufacturing: Materials, processes, and systems (Seventh Ed.). Hoboken, NJ: John Wiley & Sons.
• Optional: Thompson, R. (2007). Manufacturing Processes for Design Professionals production (Manufacturing guides). London: Thames & Hudson.
• Other readings posted in Google Drive for the course.

Courseware
Blackboard will be used to distribute all the course material.

Assignments and Grading
• All assignments will be submitted through Gradescope.
Course Code for the Fall 2024, SECTION A1: 3RXD3Z
Course Code for the Fall 2024, SECTION A2: 4J4KKB

Grading Breakdown	Grade %
Lab Project	10%
Attendance and Participation	10%
Homework	20%
Midterm	25%
Final	35%
TOTAL	**100%**

Resources/Support/How to Succeed in This Course:

1. Additional help. Meetings with the course instructor and GTFs can be made in office hours or by appointment.

2. Homework Please read the homework assignment early in the week after it is posted. Any questions about the homework can be emailed to either the GTF or the instructors 24 hours prior to the homework due date. No questions about the homework will be answered by email within 24 hours before it is due. You need to look at the homework in advance and not leave it to the last minute.

3. Accommodations for Students with Documented Disabilities: If you are a student with a disability or believe, you might have a disability that requires accommodations, please contact the Office for Disability Services (ODS) at (617) 353-3658 or access@bu.edu to coordinate any reasonable accommodation requests. ODS is located at 19 Deerfield Street on the second floor (19 Buick Street as of September 1, 2018).

Community of Learning: Class and University Policies

1. Classroom policies

a. All students should participate in lectures, come to class prepared and pay attention. Some of the material on the exam will not appear in the lecture notes but will be discussed in class.

b. Lectures and labs will start promptly ON TIME. Any student who is late will not be counted as present. If you are later than 5 minutes, you will not be allowed for attendance credits.

2. Attendance & Absences

Absences for university-approved reasons will be allowed and we will work to plan how to make up the work Policy on Religious Observance. If you need to be absent for a university-approved excuse you need to fill out the form on the course's Google drive folder. Do not email the professor or the TAs about absences, please fill out the excuse form with the required documentation.

3. Assignment completion, late work and grade adjustments.

All assignments should be turned in through Gradescope.

- Your grade will be reduced by 25% for each day an assignment is late, even by a minute, unless prior arrangements have been made for university-approved excuses. Do not post at the last minute, as there may be technical difficulties with the system.
- Grading errors and adjustments will be allowed for one week after the grades are posted on gradescope. After that, the grades will stand as posted and not be changed.

4. Academic Conduct Statement, Students should abide by BU's academic code.
https://www.bu.edu/academics/policies/academic-conduct-code/

5. Additional guidelines. Additional policies and procedures are listed in course's Blackboard page.

Outline of Class Meetings: Date, Topic

All assignments and readings can be found on Blackboard page. Below is a summary of the lectures over the semester.

LECTURE NUMBER	LECTURE TOPIC	TUESDAY SECTION	DUE	RETURN
1	INTRODUCTION	September 3rd, 2024	-	-
2	METALS	September 10th, 2024	HW1	-
3	MACHINING	September 17th, 2024	HW2	Graded HW1
4	FORMING	September 24th, 2024	HW3	Graded HW2
5	CASTING	October 1st, 2024	HW4	Graded HW3
6	PLASTICS	October 8th, 2024	HW5	Graded HW4
-	(No Class)	October 15th, 2024	HW6	Graded HW5
MIDTERM	MIDTERM	October 22nd, 2024	-	-
7	PLASTIC MFG PROCESSES	October 29th, 2024	-	Graded HW6
8	NON-TRADITIONAL MACHINING	November 5th, 2024	HW7	-
9	ADDITIVE MFG	November 12th, 2024	HW8	Graded HW7
10	SECON. PROCESSES	November 19th, 2024	HW9	Graded HW8
11	JOINING AND ASSEMBLY	November 26th, 2024	HW10	Graded HW9
-	(No Class)	December 3rd, 2024	HW11	Graded HW10
12	MFG SYSTEMS	December 10th, 2024	-	Graded HW11
FINAL	FINAL EXAM	December 16th-20th 2024		

LECTURE NUMBER	LECTURE TOPIC	THURSDAY SECTION	DUE	RETURN
1	INTRODUCTION	September 5th, 2024	-	-
2	METALS	September 12th, 2024	HW1	-
3	MACHINING	September 19th, 2024	HW2	Graded HW1
4	FORMING	September 26th, 2024	HW3	Graded HW2
5	CASTING	October 3rd, 2024	HW4	Graded HW3
6	PLASTICS	October 8th, 2024	HW5	Graded HW4
7	PLASTIC MFG PROCESSES	October 17th, 2024	HW6	Graded HW5
MIDTERM	MIDTERM	October 24th, 2024	-	-
8	NON-TRADITIONAL MACHINING	October 31st	HW7	Graded HW6
9	ADDITIVE MFG	November 7th, 2024	HW8	Graded HW7
10	SECON. PROCESSES	November 14th, 2024	HW9	Graded HW8
11	JOINING AND ASSEMBLY	November 21st, 2024	HW10	Graded HW9
-	Thanksgiving Recess	November 28th, 2024	-	Graded HW10
12	MFG SYSTEMS	December 5th, 2024	HW11	-
-	(No Class- Study Period)	December 12th, 2024	-	Graded HW11
FINAL	FINAL EXAM	December 16th-20th 2024		

Outline of the labs.

There will be a lab held in EPIC. Attendance is mandatory and the material covered in the labs will be on the mid-term and final. Topics will include:

	A	B	C	D
6-Sep	Casting	Project time laser cut RED BACK/CLEAR HANDLE	Sheet metal water jet	CNC Milling
13-Sep	Project time laser cut RED BACK/CLEAR HANDLE	Sheet metal water jet	CNC Milling	Casting
20-Sep	Sheet metal water jet	CNC Milling	Casting	Project time laser cut RED BACK/CLEAR HANDLE
27-Sep	PRESIDENTIAL INNAUGURATION			
4-Oct	CNC Milling	Casting	Project time laser cut RED BACK/CLEAR HANDLE	Sheet metal water jet
11-Oct	Project time WHITE BLOCK	Welding	Secondary Operations	Project Time LATHE
18-Oct	Project Time LATHE	Project time WHITE BLOCK	Welding	Secondary Operations
25-Oct	Secondary Operations	Project Time LATHE	Project time WHITE BLOCK	Welding
1-Nov	Welding	Secondary Operations	Project Time LATHE	Project time WHITE BLOCK
8-Nov	Measurement	CNC Lathe	Injection molding / thermoforming	Fastening
15-Nov	Fastening	Measurement	CNC Lathe	Injection molding / thermoforming
22-Nov	Injection molding / thermoforming	Fastening	Measurement	CNC Lathe
29-Nov	THANKSGIVING			
6-Dec	CNC Lathe	Injection molding / thermoforming	Fastening	Measurement