ME358: Manufacturing Processes
DRAFT

Instructor Name: Anna Thornton
Course Dates: Fall 2019
Office Location: 202D 730 Comm ave.

Course Time & Location: F 10:10 – 11:25
LABS: Friday afternoons
Contact Information: thorntac@bu.edu
Office Hours: Th 12-2
Course Credits: 2

EPIC STAFF
Joe Estano, jestano@bu.edu
Bob Sjostrom, sjos trom@bu.edu
David Campbell, dcampbel@bu.edu
Kara Mogensen, karam@bu.edu

GRADING AND TA
GTF: TBD
Grader: TBD

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. (2016). Fundamentals of modern manufacturing: Materials, processes, and systems (Sixth Ed.). Hoboken, NJ: John Wiley & Sons. (Can be purchased as a subset of chapters and eBook)

- Thompson, R. (2007). Manufacturing Processes for Design Professionals production (Manufacturing guides). London: Thames & Hudson.

- Other readings posted in blackboard.

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

Assignments and Grading

- Project 20%. You will be required to build a device (the design and materials will be provided) using the processes available in EPIC.
- Mid-term exam 20%. This will be an in-class exam roughly one hour long. It will cover the first half of the course. You will be allowed a one-page cheat sheet.
- Final exam 20%. This will be a 2-hour exam. It will cover the whole of the term. You will be allowed to bring in a one-page cheat sheet.

- Homework 20%. (see homework section)
- Attendance 10% (see attendance section)
- Participation 10%

Resources/Support/How to Succeed in This Course:

1. **Additional help.** Prof. Thornton will hold office hours and can meet by appointment as needed. The grader and GTF are also available for help and support.
2. **Homework** will be posted two weeks before they are due. Please read the homework assignment early in the week. Any questions about the homework can be emailed to either the GTF, graders or Prof. Thornton before Wed noon the week the homework are due. No questions about the homework will be answered the 48 hours before it is due. *You need to look at the homework in advance and not leave it to the last minute.* Prof. Thornton typically will hold office hours on Tuesdays and you are welcome to come by for help or questions then.
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 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 into the class.
    c. No computers or cell phones. There will be no talking between students during the class. If you are warned more than once, you will be asked to leave class.
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. Every person gets one unexcused absence. If you need to be absent for a university-approved excuse you need to fill out the form on blackboard. Do not email the professor about absences. The attendance records will be posted regularly. You have one week after attendance is posted to identify any errors. After that the attendance record stands.
3. **Assignment completion, late work and grade adjustments**. All assignments should be turned in through Blackboard.
    - 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; BB is notoriously unstable.
    - Grading errors and adjustments will be allowed for two weeks after the grades are posted on blackboard. 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/*

Outline of Class Meetings: Date, Topic

All assignments and readings can be found on Blackboard. Below is a summary of the lectures over the semester. Homework will be due for weeks 2-6, and 8 – 13. The homework assignments will be posted on blackboard.

9/6	1	Introduction
9/13	2	Metals
9/20	3	Machining
9/27	4	Forming
10/4	5	Casting
10/11	6	Plastics
10/18	7	Mid-term
10/25	8	Injection molding
11/1	9	Additive
11/8	10	Cutting
11/15	11	Secondary processes
11/22	12	Fastening
12/6	13	Supply chain

Outline of labs. There will be a lab each week held in EPIC. Attendance is mandatory and the material covered in the labs will be on the mid-term and final.

- Casting
- Milling
- Measurement
- Lathe
- Laser cutting/ sheet metal
- Fastening
- Welding
- Injection molding / thermoforming
- 3-D printing
- Post processing
- 3 labs dedicated to the project