ME500: Additive Manufacturing

Instructor Name: Anna Thornton
Office Location: 202D 730 Comm ave.
Contact Information: thorntac@bu.edu
Office Hours: Th 12-2

Course Dates: Fall 2018
Course Time & Location: MW 12:20-2:05
Course Credits: 4

Course Description.
This course will teach the fundamentals of Additive Manufacturing (AM) theory and how AM is being used in industry to accelerate product development and replace more traditional low-volume and high volume manufacturing processes. Topics will cover the technologies, methods and applications or a range of additive methods including FDM (Fused Deposition Modeling), SLA (Sterolithography) and MLS(Metal Laster Sintering), methods for designing for additive will be covered, and implications of additive manufacturing in the complete product life-cycle. We will use the equipment in EPIC to demonstrate and practice the design and production of additive parts.

Books and Other Course Materials
A variety of texts, on-line resources and HBS cases will be asigned

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

Assignments and Grading
- Assignments 50%
- Participation 10%
- Design review 10%
- Literature Review 20%

Resources/Support/How to Succeed in This Course:
1. Prof. Thornton will hold office hours and can meet by appointment as needed.
2. 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. All students should participate in design reviews, class discussions and presentations.

2. **Attendance & Absences.** Please notify Prof. Thornton if you need to be absent. Absences for university approved reasons will be allowed and we will work to plan how to make up the work Policy on Religious Observance.

3. **Assignment Completion & Late Work**. All assignments should be turned in through Blackboard. Grades will be reduced for late work.

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, Readings Due, Assignments Due

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

1	Introduction to Additive
2	Additive data workflow
3	FDM
4	FDM
5	Supports
6	Lattice structures
7	Topological optimization
8	SLM
9	SLM
10	SLA
11	Other processes
12	Other processes
13	Print algorithms
14	DFA
15	Post processing
16	Equipment
17	Reverse engineering / scanning
18	PRP process
19	Process selection and comparison
20	Medical applications
21	Industrial tooling
22	Other applicaiton
23	Startups
24	Future of AM
25	AM as mass production
26	How will additive impact the supply chain
27	Wrap up