SYLLABUS

| Course Number and Name: | ME691 – Advanced Product Design & Development | |
|----------------------------|-----------------------------------------------|--|
| Term: | Fall 2021 | |
| Lecture: | Monday/Wednesday, EPC B05, 2:30-4:15 | |
| Lab: | TBD, EPC B05, TBD | |
| Credits: | 4. Engineering topic. | |
| Number of Contact Hours: | LAB – 1, LECTURE – 3 | |
| Instructor or Coordinator: | Stephen Chomyszak | |
| Office Hours: | By Appointment | |

Textbook(s) and/or Other Required Material: None

Course Description: This course will teach the Product Development and Design process using a guided project. The class will be segmented into teams of 3 or 4 people. Each team will navigate the entire Product Development and Design process while working on the guided project. There will be engineering/design reviews at various stages of the project which will require each team to prepare and deliver concise and succinct presentations. Teams will incorporate feedback from each review back into their projects. Teams will also learn the basics of project planning and the importance of identifying and addressing high risk issues early in the process. We will utilize the EPIC Center to learn about various model making, prototyping, and manufacturing techniques.

Semester Schedule:

| Week | Topics |
|------|-------------------------------------------------------------------------------|
| 1 | Introduction, Project Intro, MRD, Strengths & Interests |
| 2 | Product Requirements Document - PRD |
| 3 | Program/Project Planning |
| 4 | Conceptualization – Generating Ideas for the Project |
| 5 | Concept Review – Which is the best concept to move forward with? |
| 6 | Architecting the Product and Defining the Interfaces |
| 7 | Concept Level CAD and Material Choices |
| 8 | Engineering Simulations and Manufacturing Review |
| 9 | Engineering/Design Review – Continue forward or Pivot? |
| 10 | Mockups, Models and Prototypes – Levels of Demonstration |
| 11 | Detailed CAD Design, BOM, Assembly Instructions, CMF Docs |
| 12 | Test Plans – Is this thing really going to work? Define success. |
| 13 | Functional Prototype – The pedal hits the metal. Dotting I's and crossing T's |
| 14 | Testing |
| 15 | Engineering/Testing Review |

NOTE: Instructor reserves the right to make alterations to the above schedule as needed.

Assignments and Grading Criteria

This course will be comprised of individual and team-based work. Evaluation of team-based work will be comprised of a final team grade given by the instructor for the overall quality of the work produced by the entire team AND will be prorated based upon a peer evaluation of each member's contribution to the team by all other members on the team. The peer evaluation will be agreed to and signed by all members on the team and will be used in the determination of an individual's team-based evaluation.

The breakdown for the grade weighting is:

| Attendance | 10% |
|---------------------------------|-----|
| Assignments | 25% |
| Team Midterm Presentation | 15% |
| Team Project Final Presentation | 50% |

Due to the importance of the team project, failure to participate in the project will result in a failing grade for the course.

Attendance Policy:

All students are expected to attend all lecture, labs, and events scheduled by their respective team. I will be taking attendance at lectures and labs and I encourage team leaders to take attendance at their team meetings as well to provide meaningful data during the team's peer assessment.

Tracking of attendance will take the following format on a spreadsheet:

1 = Student is present and accounted for during scheduled class/lab time

0.5 = Student is not present but was proactive in communicating their absence to me via email

0 = Student not present and no prior notification given

A series of three 0's in a row will constitute a contact to the Department Chair to investigate the circumstances behind extended absences and to determine any administrative actions that should be taken as a result of the findings.

You can ask to see your attendance record for the class at any time.

Academic Conduct:

All students will be expected to follow Boston University's code for academic conduct found here: <u>https://www.bu.edu/academics/policies/academic-conduct-code/</u>