

Instructors: Dr. Joel Schesser (joel.schesser@njit.edu), 610 Fenster Hall, x3193

Class Hours: Tuesday 8:30 - 11:25 am, (Status/Lab)
Thursday 10:00 – 11:25 am, Fenster 698 (Lecture)

Office Hours: Dr. Schesser: M, F 1:00 pm-2:00 pm or by appointment

Welcome back to Capstone Design!

Capstone Design II continues the design process. You will complete the design you started in Capstone I by developing design specifications and a test plan; building and testing the product; and demonstrating how well it meets the customer needs. Successful completion of the program requires satisfying the course requirements and your customer.

TEXT

None. Supplemental handouts will be provided as needed.

COURSE DESCRIPTION:

Prerequisites: BME 495.

This portion of the project includes library research, time and cost planning, oral and written reports, as well as construction, troubleshooting and demonstration of a working prototype.

LEARNING OUTCOMES:

By the end of the course you will be able to do the following:

1. Project Implementation: Complete the development and testing of a biomedical engineering technology-based project. Develop engineering documentation for the selected project. Demonstrate the project.
2. Use effective research and critical thinking skills while developing an understanding of ethical issues in research and design.
3. Perform multi-disciplinary teamwork, including written and verbal communication skills, while monitoring project progress using planning and milestone management.

TOPICS:

Design specifications development and traceability
Industrial design, ergonomics, performance, aesthetics
Test plans
Regulatory issues

Design reviews
Reliability and performance testing
FDA

COURSE OUTLINE*:

Wk#, T Date	Lab/Status (Tuesday)	Lecture (Thursday)	Deliverables This Week
1: 9/1	Presentations Review of Course	- "The 7 Characteristics": Detailed Design Specifications and Traceability - Case Study, Laser Cordless Mouse	- Presentations (Tues)
2: 9/8	Status Mtgs, Work	- Performing Design Reviews - Makeup of Product Design Teams	- Update project plan (T) (Tues) - Preliminary High Level Requirements (T) (Thursday)
3: 9/15	Status Mtgs, Work	- Generating Test Plans - Traceability to Requirements - Review of Laser Mouse Test Plan - Testing: Reliability, Performance	
4: 9/22	Status Mtgs, Work	- Design Review	- Review of Selected Requirements 2 Reviewed Copies (Thurs)
5: 9/29	Status Mtgs, Work	- Regulatory (FCC, ISO, UL, Shake and Bake)	- Preliminary Test Plans (T) (Thurs) - Final High Level Req's Document (T) (Thurs)
6: 10/6	Status Mtgs, Work	- Intellectual Property and Invention Disclosure Forms	- Review of Selected Requirements 2 Reviewed Copies (Tues)
7: 10/13	Status Mtgs, Work	- Design Review	
8: 10/20	Status Mtgs, Work	- Midterm Presentation - Industrial Design: Ergonomics, Performance, Aesthetics -Ethics in Biomedical Product Design	- Invention Disclosure Forms (T) (Thurs) - IRB Submittal - Test Plan Document (T) (Thurs)
9: 10/27	Midterm Presentations 08:30 Team 1 09:00 Team 2 09:30 Team 3 10:00 Team 4	- FDA	- PPT Presentation (T) (all emailed by Monday nite) - Ethics Assignment (I) (Thurs)
10: 11/3	Status Mtgs, Work	- Demos -How to Get a Job. Guest Lecturer Ron Rockland, Assoc. Dean, Newark College of Engineering	- FDA Homework (T) (Thurs)
11: 11/10	- Project Demonstrations	- Business Conduct	- Demo Agenda (2 copies) (T) (demo day) -
12: 11/17	Status Mtgs, Work	- How to develop a final report	-
13: 11/24	Tuesday Schedule	- No Class	
14: 12/1	Status Mtgs, Work	-- - Final Presentations	- Draft PPT all teams (Tues)

15: 12/8	Second Demonstrations	- No Class	- Draft of final report (T)
12/14	Final Presentations		Final deliverables by midnight no exceptions: - Emailed Final Presentation and Final Report, zipped (T) Day of the Presentation - 2 hard copies of Final Report (T) - Lab Notebooks (I)

***The Course Outline may be modified at the discretion of the instructor or in the event of extenuating circumstances. Students will be notified in class of any changes to the Course outline and schedule verbally and via the website schedule.**

Assignments and guidelines for deliverables will be made available via email and the website throughout the term. You are responsible for monitoring your email for timely messages.

GRADING:

- 20% - Face-to-face status meetings, emailed weekly progress reports, regular meetings with the customer, customer's feedback on meetings, demos, and presentations (Team&Individual grade)
- 15% - Midterm Presentation (Individual and Team grade)
- 20% - Final Report (WITH advisor signature) (Team grade)
- 15% - Final presentation (Individual and Team grade)
- 30% - Demonstrations, Quizzes/HW, Performance Review, Attendance, Team Assessments from Instructors and Customer (Individual)

Additional Information on Grading

- Quizzes are unannounced and may cover any information covered in class.
- Final Reports are due at the start of the final presentations.
- Teams are expected to invite customers to all presentations and demonstrations.
- Teams must get customer approval for all demonstrations **before** they are presented to instructors.
- CUSTOMER FEEDBACK FORMS ARE REQUIRED AND PART OF YOUR GRADE.

Honor Code Violations/Disruptive Behavior:

NJIT has a zero-tolerance policy regarding cheating of any kind and student behavior that is disruptive to a learning environment. Any incidents will be immediately reported to the Dean of Students. In the cases the Honor Code violations are detected, the punishments range from a minimum of failure in the course plus disciplinary probation up to expulsion from NJIT with notations on students' permanent record. Avoid situations where honorable behavior could be misinterpreted.

No eating or drinking is allowed at the lectures, recitations, workshops, and laboratories. Cellular phones must be turned off during the class hours.