Course Number and Title: ENG EC463 – Senior Design I

Instructor Name: Alan Pisano (lead professor)  
Osama AlShaykh  
Michael Hirsch  
Course Dates: Every Fall Semester  
Office Location: PHO 522 (Pisano)  
Course Time & Location: TR 3:30-5:15  
PHO 206 & Senior Design Lab PHO 111/113  
Course Credits: 4  
Contact Information:  
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Office Hours: (Typical) T 1:30-3:00; W 2:00-3:30 (Pisano – varies each semester)

Course Description.
EC463 is a required “team-based” project design course. Projects are solicited from a variety of sources (companies, non-profits, alumni, faculty) during the summer and students select from those provided to the class. In addition, student-defined projects are solicited and some are also selected. The only project requirements are that they are sufficiently challenging, suitable for EE/CE Seniors to work on over 2 semesters, have a “client” who needs the final built project, and have a societally relevant content recognizing the Societal Engineering thrust of the college. Students are assigned to projects based on their preferences, skill-sets, and the specific technical challenges of the project. Most teams are comprised of 5 students and are a mix of both EE and CE students. A few teams are also interdisciplinary with BME and ME. The students learn by “active learning” as well as being guided/mentored by the faculty and TAs. The main deliverable of this first semester is a “Final Report (First Semester Report)” which documents their design requirements, conceptualizations, selection among alternate approaches, prototype design (HW/SW), testing, and plans for completion the following semester (EC464). Additionally, each team must produce a physical prototype and demonstrate the ability of their prototype to meet the requirements as specified by their “client”.

Other Outcomes (e.g., School, Department, and/or Program Outcomes)
EC463, and its follow-on course, EC464, are required of all EE and CE Seniors in the ECE department. It is a key requirement for ABET accreditation of the Electrical Engineering and Computer Engineering degree programs.

Instructional Format, Course Pedagogy, and Approach to Learning
The course utilizes didactic lectures to guide the students in all phases of the engineering design process, and includes substantive out of class group work culminating in a final first semester report as described above. Extensive individual feedback and mentoring specifically related to the student’s assigned project.

Books and Other Course Materials
The only recommended textbook is: Dym, Little, Orwin, (2014), Engineering Design – A Project Based Introduction, John Wiley and Sons.

Courseware
Blackboard Learn is used for all course material.

Assignments and Grading
Performance is assessed on the following listed deliverables. Each element will have a specific set of assessment items in an evaluation rubric that will be distributed to you beforehand in Blackboard Learn.

Grading Elements (T – team grade) (I – individual grade)

<table>
<thead>
<tr>
<th>Percent Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Problem description &amp; requirements review (PDRR) (T)</td>
</tr>
<tr>
<td>5</td>
<td>Mini-Project (I)</td>
</tr>
<tr>
<td>20</td>
<td>First prototype testing (T) (5 for test plan - 12 for in-lab testing - 3 for test report)</td>
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<tr>
<td>5</td>
<td>Testing Video (T)</td>
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<tr>
<td>25</td>
<td>First Semester Report (T) (Includes 5 points for “Demo Day”)</td>
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<tr>
<td>20</td>
<td>Engineers logbook (I) (Graded twice 10 each)</td>
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<tr>
<td>4</td>
<td>Team contract (I)</td>
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<tr>
<td>6</td>
<td>Personal Progress report (I)</td>
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<tr>
<td>5</td>
<td>Attendance (I)</td>
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<tr>
<td>2</td>
<td>Seminar Attendance (I)</td>
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100 – Total   (42 individual & 58 team)

Resources/Support/How to Succeed in This Course:

1. Faculty and TAs both formally and informally mentor both individual students and teams.
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 25 Buick Street on the 3rd floor.

Community of Learning: Class and University Policies

1. Course members’ responsibility for ensuring a positive learning environment (e.g., participation/discussion guidelines). These are communicated to the students at the first class and follow ECE department guidelines.

2. Attendance & Absences. Students lose one point out of the course total of 100 for each unexcused absence. Prof. Pisano can excuse students for any valid reason (such as illness, job interviews, etc). Affirm Policy on Religious Observance.

3. Assignment Completion & Late Work. These are specified on Blackboard Learn including due dates for all assignments and penalties for late submissions.

4. Academic Conduct Statement, including expectations for academic honesty, reference to consequences for cheating or plagiarism, course-specific guidelines for, e.g., extent of allowable collaboration on assignments, and URL for Academic Conduct Code:
   https://www.bu.edu/academics/policies/academic-conduct-code/