ECE 495c and ECE 495d ECE Design Syllabus\(^1\)

Fall 2013

Professor: Dr. Harackiewicz 495c, 495d  
Office: ENGR E-120  
Email: fran@ engr.siu.edu  
Office Phone: 453-7031

Office Hours 495cd: MWF 10-noon  
Communications Instructor 495c: Dr. V Gupta 495i; MWF 8-9am and 1-2pm, ENGR E 212  
Lecture: TR 11AM-12:15PM A111 or A122 for 495c; TR 1-2:15PM for 495d  
Lab: TR 2:15-3:15PM ENGR E215; or at other times if you get a key

Grading/Evaluation:

Each student’s grade in the course depends partially on the evaluation of his/her performance of his/her assigned individual tasks, but primarily on the evaluation of the team’s accomplishments.

Any member of the College of Engineering faculty or staff or interested parties outside the university may witness and review both written and oral reports. However, the course evaluation will be done by one of the course instructors and the faculty technical advisor; if one of the course instructors serves as a project technical advisor, two course instructors will evaluate the project.

Evaluation of your performance will be according to SEC Policy and Procedures Manual

Classroom Policies:

A. Attendance Policy: Attendance is mandatory for all classes (aka SEC staff meetings) and team meetings. Absenteeism adversely affects your grade unless your absence is excused by your course professors. Attendance will be taken throughout the semester, and it will be counted toward the final grade. Students are responsible for all announcements made in class and/or posted to D2L.

B. Late work/Missed Exams: Late work is not accepted. If an exam is missed for a legitimate reason, a grade will be assigned based on the remaining homework/exams.

C. Mobile Technology Policy: Students are expected to polish their professional skills in this course. Mobile technology should not be used unless specifically required for a presentation.

---

\(^1\) Pages 2 and 3 are for ABET
ECE 495 Syllabus Spring 2013

1. **Course number and name**: ECE 495c and ECE 495d ECE Design I and II
2. **Credits and contact hours**: 3, 3 credits, Three 50-minute sessions per week, Two hours of scheduled lab per week plus at other times as needed
3. **Course Committee**: Harackiewicz, Tragoudas, Ramaprasad
4. **Text book(s), title, author, and year**:
   Bookfactory Wire-O Bound Carbonless Duplicate Laboratory Notebook

**References or other supplemental materials:**
5. **Specific course information**
   a. (catalog descriptions): (i) Engineering communications including resumes, literature reviews, memos, letters, proposals, reports, specifications, user guides and oral presentations. Selection of Senior Design projects and team assignments. (p) Team approach in engineering projects. Understanding & analyzing a request for proposals. Identification of tasks, assignment of tasked team organization. Work plan, time scheduling. Feasibility analysis, cost-benefit analysis. Ethics & professionalism issues related to engineering projects in general & to the specific project assigned. Team coordination and documentation of team member efforts. (d) Team approach in engineering projects. Work plan/time scheduling. Design options & cost-benefit analysis. Development of the final decision. Team coordination & documentation of team member efforts, design stages, team communications & team decision making processes. Implementation of the design (if the project warrants). Evaluation of final product. Written, oral & poster presentation of final design.
   b. prerequisites or co-requisites: Not for graduate credit. Restricted to senior standing in Electrical and Computer Engineering, ECE495i, ECE495p
   c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program: Required for EE and CpE majors
   d. Professional Component {Credit Hours}
<table>
<thead>
<tr>
<th>Mathematics</th>
<th>Sciences</th>
<th>General Ed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Eng. Science</td>
<td>Eng. Design</td>
<td>2, 3</td>
</tr>
</tbody>
</table>
6. **Instructional Objectives (with SO's), ex. The student will be able to explain the significance of current research about a particular topic. (a, b, h)** 
   The student is expected to be able to:
   a. Prepare a functional resume and cover letter, present self in interview and with an elevator pitch (g)
   b. Take the practice FE exam or other university exam (a,f,i,j)
   c. Follow prescribed steps of an iterative design process to complete a project that meets the needs of a client and management: scope, and define project producing a QFD house of quality document, specifications sheet, trade study tables, block diagrams, flow chart, diagrams, drawings and schematics (c)
   d. Individually and collaboratively document and present engineering work professionally using IEEE style in written, oral, and digital formats for various audiences: literature and patent review, proposal, design review, business plan if appropriate, design report, poster, demonstration, technical manual and user’s manual. (c,d,g,h,i,j)
   e. Use the soft skills necessary to do engineering design in a team environment by creating and maintaining weekly action item lists, semester timelines, daily design notebook entries, as-needed memos, and agendas. Attend weekly meetings and seek technical expertise and conduct independent learning (d,e,f,g)
   f. Articulate within deliverable reports the ethical, cultural, societal, and professional issues that impact the engineering design for their project, such as intellectual property, labor and employee relations, and services of professional societies. (c)
   g. Apply mathematical, scientific, and engineering knowledge and skills as well as modern engineering tools (e.g. from hand calculations to computer simulations) to formulate and solve a complex engineering problem in a team environment. Design and conduct experiments and provide demonstrations of prototypes as needed. (a,b,c,d,e,f,k)
   h. Produce and maintain a budget and an estimated cost and schedule for an engineering project. (c)
   i. Articulate the intellectual property, ethical, health, safety, environmental, economic, and societal issues related to their project. (c,h,j)
   j. Recognize when they need to learn a new skill or acquire more knowledge, and then learn that they can find out what they need to know in order to complete a project even if they have never had any formal training or class work in the subject. (i)
   k. Evaluate work of self and others and self-assess learning (d,f,g,i)

7. **Brief list of topics (class, lab and project) to be covered (with hours)**

   a. Classroom Topic (Hours)
   - Introduction, Design Notebooks, Welcome Back and HTML (3)
   - Project Menu, Team Assignments, and Project Management (3)
   - Memos, Resumes, Style Guide, and Career Services (2)

---

2 subject to change at the instructor’s discretion. Students are responsible for announcements made in class and on D2L.
ECE 495 Syllabus Spring 2013

- Literature Reviews, Library Services, Proposals, Design Reviews, Design Reports (5)
- Professional Ethics (2)
- Guest Lectures (4)
- Orals, Demonstrations (11-13)
- Finishing Up (3)
- Management Meetings, Project and Communication Reviews (50)
- Exams (2)
- Dean’s Address (2)

b. Laboratory Topics (Hours)
1. Various Labs designed by teams as needed for project (75)

c. Projects (Hours)
1. Vary by team. The project type is either entrepreneurial, business, research, competition or humanitarian. (150)

8. CAD and Computer Tools Used: (varies per project) Excel, MATLAB, Multisim, Simulink, pSpice, Xilinx, AutoCAD, CST, Ansoft, C++, java script, visual basic, LABVIEW, Cadence, PLC, python, ...

9. Assessment of the Contribution to Student Outcomes

<table>
<thead>
<tr>
<th>Outcome</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
<th>g</th>
<th>h</th>
<th>i</th>
<th>j</th>
<th>k</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessed</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Student Outcomes (ABET criteria a-k) are quoted here:

(a) an ability to apply knowledge of mathematics, science, and engineering
(b) an ability to design and conduct experiments, as well as to analyze and interpret data
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
(d) an ability to function on multidisciplinary teams
(e) an ability to identify, formulate, and solve engineering problems
(f) an understanding of professional and ethical responsibility
(g) an ability to communicate effectively
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
(i) a recognition of the need for, and an ability to engage in life-long learning
(j) a knowledge of contemporary issues
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
University Policies

A. Incomplete Grades: An INC is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. An INC must be changed to a completed grade within a time period designated by the instructor but not to exceed one year from the close of the term in which the course was taken, or graduation, whichever occurs first. Should the student fail to complete the course within the time period designated, not to exceed one year, or graduation, whichever comes first, the incomplete will be converted to a grade of F and the grade will be computed in the student’s grade point average. Students should not reregister for courses in which an INC has been assigned with the intent of changing the INC grade. Re-registration will not prevent the INC from being changed to an F.

B. Academic Integrity: You are expected to submit your original work and adhere to the academic policies as stated in the SIU Student Conduct Code: http://srr.siu.edu (listed under Additional Links). Any act of academic dishonesty, cheating, or plagiarism in any form, including anonymous internet sources used in student papers, will be reported. These acts are taken seriously and the consequences may range from failing an assignment to expulsion from the university.

C. SIU Email: Your SIU email account is an official form of University communication. Your instructor will use SIU email as a primary means of electronic communication with students. Please make sure that you maintain a valid password and acquire the habit of regularly checking your SIU email account for important instructor and University announcements. You may view the official SIU Student Email Policy at: http://policies.siu.edu/policies/email.html.

D. Emergency Procedures: SIU is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with SIU Emergency response Plan and building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on BERT’s website at http://www.bert.siu.edu/, the SIU Department of Public Safety’s website www.dps.siu.edu (disaster dropdown and video, “Shots Fired”), and in the Emergency Response Guideline pamphlet. Know how to respond to each type of emergency. Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. **It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.** The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.
E. **Supplementary Assistance:** SIU is committed to assisting students with disabilities. With the cooperation of SIU’s Disability Support Services (DSS), each student who qualifies for reasonable supplementary assistance has the right to receive it. Students requesting supplementary assistance must first register with DSS in Woody Hall, B-150, 618-453-5738 or 618-453-2293 (TTY), by email DSS@siu.edu, or http://disabilityservices.siu.edu/. Notice: If you have any type of special need(s) or disability for which you require accommodations to promote your learning in class, please contact me as soon as possible. The Office of Disability Support Services (DSS) offers various support services and can help you with special accommodations. You may wish to contact DSS to verify your eligibility and options for accommodations related to your special need(s) or disability.

**Student Services**

A. **Learning Support Services:** The Center for Learning Support Services (CLSS) assists students of all cultures, abilities, backgrounds and identities with enhancing their self-management and interdependent learning skills. Programs offered by CLSS include: group study sessions; math tutoring; academic coaching; early intervention program; and study skills seminars. For additional information please contact CLSS in Woody Hall, Room A-313, 618-453-2925, or www.tutoring.siu.edu.

B. **Writing Center:** The Writing Center offers free tutoring services and assistance with improving writing skills to all SIU undergraduate students and faculty. For center locations and hours, to schedule an appointment online, and to view information regarding the Online Writing Lab (OWL) contact the Writing Center at 618-453-1231 (Morris Library location); 618-453-2927 (Trueblood location), or www.write.siu.edu.

C. **Saluki Cares:** The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress— physical, emotional, financial or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. To make a referral to Saluki Cares click, call or send: http://salukicares.siu.edu/index.html; 618-453-5714, or siucares@siu.edu.