Course Syllabus: EET 4950 - Senior Design Project (3 credits)

Course Description: Senior students will utilize the knowledge and experience gained in the previous courses to work in groups on their proposed engineering projects. Students will create a website to show their design progress and follow a timeline to implement and present their projects. Students will also write a professional design project report. Minimum grade of C is required if used to satisfy Electrical and Computer Engineering Technology, B.S. Degree requirement.

Prerequisite: EET 4910 (Senior Design Proposal) or Departmental Approval.

Class Time and Location: Design groups will meet at least once a week with the project supervisor at a mutually agreed day and time.

Professor's Information:
Name: Dr. Masood Ejaz
Office: West Campus, Bldg. 11 – Room 255
Phone: (Office) 407.582.1945
Email: mejaz@mail.valenciacollege.edu
Office hours:

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>Monday</td>
<td>8:00AM – 9:00AM</td>
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<td>Tuesday</td>
<td>8:00AM – 9:00AM</td>
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<td>Wednesday</td>
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<td>Friday</td>
<td>9:00AM – 12:00PM</td>
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Student Performance Assessment:

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<tbody>
<tr>
<td>Project Websites</td>
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<td>10%</td>
</tr>
<tr>
<td>Project Presentation</td>
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<td>30%</td>
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<tr>
<td>Project Report¹</td>
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<td>60%</td>
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¹ Use ECET Project Report Template

Library Resources:
Library at the West campus has put together dedicated resources for the BSECET program that can be accessed through [http://libguides.valenciacollege.edu/bsecet](http://libguides.valenciacollege.edu/bsecet)
Course Learning Outcomes & Performance Indicators:

Course Learning Outcomes indicate the knowledge that a student should gain in this course. Performance Indicators represent how that knowledge will be measured.

<table>
<thead>
<tr>
<th>Course Learning Outcomes</th>
<th>Performance Indicators</th>
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<tbody>
<tr>
<td>1. Learn to foster a working and learning environment with group partners.</td>
<td>• Students will share their ideas and knowledge to develop the design and respectfully analyze and critique other presented ideas.</td>
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<td>• Student will learn to resolve conflict of interest among group partners to successfully develop the proposed design.</td>
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<td>2. Demonstrate proper management of time to complete the design project.</td>
<td>• Students will follow the timeline outlined in the project proposal with the best of their ability.</td>
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<td>• Students will present their progress through a project webpage updated weekly.</td>
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<td>• Student will submit documentation of the project and defend the project at the time set by the Senior Design instructor/committee</td>
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<td>3. Develop skills to design, implement and troubleshoot the senior project.</td>
<td>• Students will conduct thorough research regarding the design of their senior project.</td>
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<td>• Students will implement the design process in the successive phases as outlined in their project proposal.</td>
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<td>• Students will troubleshoot their design to deliver a product as close in specifications as outlined in their project proposal.</td>
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<td>4. Create a professional engineering design report according to the given requirements.</td>
<td>• Students will create and submit a professional engineering report for their design project.</td>
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<tr>
<td>5. Develop skills to present the design project in front of an audience in a professional manner.</td>
<td>• Students will create a professional power point presentation to present their project in front of an audience.</td>
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<td>• Students will satisfactorily answer the questions asked by the audience.</td>
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<td>• Students will demonstrate a working design of their project.</td>
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Important Dates:

- **Labor Day**
- **Drop/Refund Deadline**
- **No Show Reporting Period**
- **College Night (No Class)**
- **Withdrawal deadline for “W” Grade**
- **Thanksgiving Break**
- **Project Presentation**
- **Final Grades Viewable in ATLAS**
**Tentative Schedule:**

Project update/progress: Every Week (Time and day will be given to the groups)

**Final Project Report Submission (Hard Copy): Thursday, November 29, 2018**

**Project Presentation: Friday, December 7, 2018**

**Note:** Submit a soft copy of your draft project report at least one week before the deadline of the final hard copy submission, as given above, to get final approval from your advisor. Once you print a hard copy and get it bounded, any change will further increase the cost of printing and binding.

**DISCLAIMER:** Any Changes in the policy and/or schedule of this syllabus may be made at anytime during the semester at the discretion of the instructor.

**Deliverables:**

**PROJECT WEBSITE (10%)**

Each group will keep a log of their activities on the project website that they developed for the Senior Design Proposal course. Anything that you do for the project (research, problem solving, simulations, programs, pictures, videos etc.) should go on the website. Also, minutes of weekly meetings with the advisor should also go on the website. Items on the website should have proper dates and should be updated weekly with your work. At the end of the project, this website should show your progress from start to end.

Project website's main page should have abstract/explanation of your project. Other important links should be:

- Introduction to group members / biography of group members
- Minutes of meeting with the advisor
- Progress log of the project
- Time & Effort Table: A table that shows brief summary of contribution by each group member on specific dates. A sample of this table is shown below:

<table>
<thead>
<tr>
<th>Week/Date</th>
<th>Name of Student 1</th>
<th>Name of Student 2</th>
<th>Group work</th>
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<tbody>
<tr>
<td>1/May 15, 2018</td>
<td>Performed research on Project idea # 1</td>
<td>Performed research on Project idea # 2</td>
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<tr>
<td>1/May 18, 2018</td>
<td>Created block diagram for idea # 1</td>
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<tr>
<td>1/May 20, 2018</td>
<td></td>
<td>Created block diagram and detailed explanation of project idea # 2</td>
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<tr>
<td>8/June 20, 2018</td>
<td>Put together the power supply circuit, performed simulation, and test it for accuracy</td>
<td>Worked on chapter # 2 of the report</td>
<td></td>
</tr>
<tr>
<td>8/June 22, 2018</td>
<td></td>
<td></td>
<td>Worked on project website, worked on the assembly of power supply in the project</td>
</tr>
</tbody>
</table>

You can check some of the design websites from previous groups at:

https://ecetvcseniordesigns.wordpress.com/
PROJECT REPORT (60%)

Note: Use the ECET design report template

Following sections are required for the project report. You can add more sections/chapters if required. Each section/chapter should start with a new page. Please check report rubric for further details.

(i) Cover Page / Title Page (Institution, division, and department names; Title of your project; Group members; Project supervisor; Semester)
(ii) Abstract
(iii) Acknowledgements (if any)
(iv) Table of Contents
(v) List of Illustrations
(vi) List of Tables
(vii) Chapter # 1 - Introduction: Provide a general background of the problem that you worked on. Establish the need and motivation for a solution to this problem. Briefly go over other different approaches that have been employed to solve similar type of problems. Show a block diagram of your design and go over different sections of design. Discuss the organization of rest of the report. This section should be comprehensive and should be divided into several sections or sub-sections
(viii) Chapter # 2 - Background Research: Discuss all the background research that you conducted and explanation of components/modules that relate to your project. This may include discussion of algorithms or topics that you used in parts of your project, different hardware components, brief introduction to programming languages that you used (and why?), and any other item and study that already existed and you used it for your project. If you are using equations and expressions, make sure to professionally write them with equation editor and properly explain them.
(ix) Chapter # 3 – Contribution or Project Description: In different sections, explain your original contribution towards the design. This include, but not limited to, design integration and implementation, troubleshooting, multiple results carried under different conditions, discussion of success and failure rates (quantitatively), graphs corresponding to results etc. Do not include programming codes as they go under Appendices. If it is necessary to show the implementation of an algorithm fundamental to your design through a piece of code, just show that piece or pieces of code and discuss them; don’t put the whole program. This chapter is extremely important to demonstrate your project and it should be comprehensive with quantitative results and their discussion.
(x) Chapter # 4 – Non-Technical Issues: Discuss all non-technical issues as outlined in the template. If there is any other non-technical issue that you can think of, make sure to include it. Don’t assume that this chapter is not important. The issues outlined in the template are very important for any engineering design so make sure to think deeply and write properly about each issue.
(xi) Chapter # 5 – Conclusion: Summarize your project and results and conclude your study with an emphasis of the utility of your project. Suggest future recommendations if you or any other group wants to take your idea to the next level.
(xii) References (Please adhere to the IEEE citation style)
Note: Make sure to mention references in the main text by using reference number inside squared brackets [ ] that correspond to the corresponding reference under References section.
(xiii) Appendices (programming codes, data-sheets, detailed derivations etc.)
(xiv) Group members biography
PROJECT PRESENTATION (30%)

Students will be analyzed based on the following criteria (please check presentation rubric for further details):

(i) Attire:
   a. Should be Business attire

(ii) Presentation style:
   a. Face the audience when explaining your project instead of looking at your presentation and talking to the audience
   b. Answer any question with precision and if required explain it in detail
   c. Look at the person when answering his/her question

(iii) Quality of Presentation:
   a. Make sure not to make your presentation crowded with words.
   b. After project title, include a slide with group members’ introduction that include their accomplishments (awards, graduating GPA) and future plans.
   c. Include Overview of Presentation/Table of Contents.
   d. Discuss motivation of your project.
   e. Discuss your proposed project in detail and include a block diagram of your proposed project.
   f. Discuss any existing or similar systems.
   g. Include important equations and expressions, if there are any, and discuss briefly but clearly.
   h. Discuss algorithms used in the design but do not include programming codes used to program those algorithms.
   i. Discuss your results that you obtained under different conditions and show a quantitative study of the success of your project.
   j. Include estimated and actual budget.
   k. Include Summary/Conclusion at the end of the presentation.
   l. Ask the audience if there are any questions.
   m. Make sure that each member fully understands the presentation contents and should be able to answer any question by himself without his/her partner’s interference

Student Core Competencies:
The faculty of Valencia College has established four Core Competencies that describe the learning outcomes for a Valencia graduate. They are: THINK, VALUE, COMMUNICATE, and ACT. These general competencies can be applied in many contexts and must be developed over a lifetime. They specify how learning can be expressed and assessed in practice. They enable students and faculty to set learning goals and assess learning within and across the many disciplines of human inquiry. Use the descriptions and examples of academic work for each to measure your own learning outcomes. Samples of the academic work are great additions to your Learning Portfolio. For further information on student core competencies please go to www.valenciacollege.edu/competencies.

Expected Student Conduct:
Valencia College is dedicated not only to the advancement of knowledge and learning but is concerned with the development of responsible personal and social conduct. By enrolling at Valencia College, a student assumes the responsibility for becoming familiar with and abiding by the general rules of conduct. The primary responsibility for managing the classroom environment rests with the faculty. Students who engage in any prohibited or unlawful acts that result in the disruption of a class may be directed by the faculty member to leave the class. Violation of any classroom or Valencia’s rules may lead to disciplinary action up to and including expulsion from Valencia. Disciplinary action could include being withdrawn from class, disciplinary warning, probation, suspension, expulsion, or other appropriate and authorized actions. You will find the Student Code of Conduct in the current Valencia Student Handbook.

Students with disabilities:
Students who qualify for academic accommodations must provide a letter from the Office for Students with Disabilities (OSD) and discuss specific needs with the professor, preferably during the first two weeks of class. The Office for Students with Disabilities determines accommodations based on appropriate documentation of disabilities (West Campus SSB 102, ext. 1523).