

# EE513 Final Project Guidelines

Proposal Due: April 25th, 2016 @ class

**Content:** In the second half of the semester, each individual student will be responsible for a project, where you will design, analyze, and simulate a power electronic converter/control method that improves the performance of existing converter/control method from the literature.

**Topics:** Topics should be related to power electronics. Topic domains include, but are not limited to:

- power electronics converters
- control
- circuit modeling
- power electronics applications (renewable energy systems, transportation electrification, etc..)
- etc.

**Select a base paper:** First, you need to select a base paper, read it deeply and understand it thoroughly. For your base paper, journal papers are preferred; conference papers selected should have at least 20 Google Scholar ([scholar.google.com](http://scholar.google.com)) citations. Only recent papers published during the past ten years (since 2006) may be considered. Please note that you must select a journal or conference paper in the scope of:

- IEEE Transactions on Power Electronics
- IEEE Transactions on Industrial Electronics
- IEEE Transactions on Industry Applications
- IEEE Transactions on Vehicular Technology
- IEEE Transactions on Smart Grid
- IET Power Electronics
- IEEE Applied Power Electronics Conference and Expo.(APEC)
- IEEE Energy Conversion Congress and Expo. (ECCE)

**Schedule an individual meeting with me:** Each of you need to schedule an individual meeting with me. Bring the hard copy of the base paper and discuss with me about what you plan to do in this project. Confirm with me about your goals and expectations in this project.

**Write a short proposal:** After finalizing the base paper selection, each student needs to write a proposal. In this proposal, you need to summarize what you plan to do in this project. This proposal is limited to be within one page. Turn-in this proposal as an additional homework.

**Study the base paper:** Study, analyze, and simulate the converter/control method proposed by the based paper. Fully understand the base paper.

**Propose improvements:** Propose a topology/control method that avoids the short-coming or improves the performance of the work in the base paper. Design, analyze, and simulate the converter to verify the proposed idea.

**Oral presentation:** In the end of semester, each student needs to prepare a 20 mins oral presentation to the class. This presentation is mandatory, without which the student will not receive a project grade. The slides must be composed in English. The time of the oral presentation will be scheduled later on.

**Final report:** After the presentation, each individual needs to submit a report to summarize your work in this project. This report must be written in English. Students will be graded on your final report.

- format: IEEE conference paper format
- page limit: 12 pages
- font size: minimum 11 point
- column: single column

**Grading:** Projects will be graded with the following considerations:

- level of problem difficulty
- originality of solution
- depth and rigorousness of analysis
- clarity of presentation/explanation
- scholarly introduction