

EE270 Final Project Proposal

Proposal Due: April 18th, 2017 @ class

Abstract: In this course, each individual student will be responsible for a project. This project is a preliminary training of your research skills. In this project, you will conduct a literature review, propose your project, submit your proposal, implement your idea in simulation, and write a project report.

Select your topic: First, you need to select a topic according to your research interest. Topic domains include, but are not limited to:

- High frequency power converters
- ZVS DC/DC converters
- Class-E power amplifiers
- Wireless charging
- Z-source converters
- Switch capacitor based power converters
- Modeling techniques of power converters
- AC/DC PFC rectifiers
- Modular multi-level converters
- Power electronics in LED lighting
- Controlling techniques of inverters
- Bidirectional DC/DC converters
- Multi-port converters
- PEV onboard chargers
- Battery equalizers
- Battery management systems
- On-chip power converters
- Fault tolerant control
- Integrated power converters
- Power electronic interfaces for renewable energy harvesting systems
- Resonant converters
- Constant power loads instability of power converters

Review the literature: Next, you need to further narrow down your research scope and conduct a comprehensive literature review around it. It is recommended that you select around 15-20 recently published academic papers and read them thoroughly. Only recent papers published during the past ten years (since 2007) may be considered. Please note that you are recommended to select papers within the scope of:

- IEEE Transactions on Power Electronics
- IEEE Transactions on Industrial Electronics
- IEEE Journal of Emerging and Selected Topics in Power Electronics
- IEEE Transactions on Industry Applications
- IEEE Transactions on Vehicular Technology
- IET Power Electronics
- IEEE Applied Power Electronics Conference and Expo.(APEC)
- IEEE Energy Conversion Congress and Expo. (ECCE)

Schedule a meeting: Each of you need to schedule an individual meeting with me before the due date. Discuss with me about both the research status and what you plan to do in this project. Confirm with me about your goals and expectations in this project.

Write a proposal: After finalizing the base paper selection, each student needs to write a proposal. In this proposal, you need to:

- Introduce the background.
- Evaluate the research status, review the state of the art comprehensively.
- Propose your work in your project
- Summarize your expected contributions/results.

Proposal format requirement:

- Page limit: less than 10 pages
- Font size: minimum 11 point
- Column: single column
- Line space: 1.5 lines