

## ECE Capstone Report Structure

Teams are required to do midterm/final project presentations and demonstrations and submit midterm/final project reports. The specific format of the final report is at the discretion of the instructor/advisor. However, all final reports will contain much of the same material:

- **Abstract:** describes the project, its goals, the most important results and suggestions for future work
- **Introduction/Overview:** more fully describes the problem and provides background information (with citations)
- **Approach/Methods/Results:** the approach taken, how problems were solved, system architecture, experimental results, etc.
- **Standards and Engineering Constraints:** capstone projects solve engineering problems and hence will leverage prior art, including standardized technologies and accepted best-practices, as well as face practical constraints, ranging from basic economic factors to whether the solution can sustainably be deployed. Electrical and Computer Engineering is a collection of rapidly evolving fields, and consequently different Capstone projects might need to build upon different types of standardized knowledge. For example, in many cases, there are industrial standards (e.g. IEEE, ITU and ANSI standards) that serve as the basis upon which teams will build their solutions, while in other cases technological development is driven by community-based efforts and teams will develop their solutions by leveraging open-source “standards”, while in other cases teams will apply accepted best practices in engineering their solutions, and in many cases even combinations of these different types of standardized knowledge. Further, any engineering solution will face design constraints (such as environmental, social, political, ethical, health and safety), as well as associated costs either in terms of parts/methods used or in environmental impact. Therefore, practical constraints and cost/sustainability analyses should be done as part of the project to determine whether the solution obtained (or posited) meets these constraints and is cost-effective or not. In particular, sustainability, especially for physical products that might be mass-produced (as opposed to software, for instance) is an important factor to consider. Teams should recognize that the cost/sustainability exercise is an especially useful exercise if the project result might be commercializable (teams are encouraged to think along those lines as this represents an important aspect behind the engineering discipline). At the very least, the project cost (parts purchased) must be provided and a discussion of how/if costs could be minimized so as to put your project solution into production (manufacture/distribution) if appropriate.

Your project advisor will provide guidance about which types of standardized knowledge will be relevant, as well as specific detail/guidance about cost/sustainability as appropriate.

- **Conclusion/Summary:** what was done and how it was done
- **Bibliography:** a formal list of citations to prior work relevant to the project and formulation/solution of project problems

Overall, student teams should try to produce conference-quality writeups of their work. Examples of past project final reports from 2014 can be found at:

<http://www.ece.rutgers.edu/Capstone2014>