**Template for Senior Design Project Report**

**General rules**

* Number report sections (see below) and pages starting with the first page of Introduction (do not number Title page, Abstract page and Table of Contents pages.
* Number all figures in the order as they appear in the report text. All figures should have captions **below the figure**, with the figure number and the text describing its contents. For example: "Fig. 1 Block diagram of the vehicle control system, or "Fig. 4 Flow chart of the control and communication algorithm. Note that schematics, charts, or pictures of signal waveforms are all figures. Make references to figure numbers in the text describing it content. Place each figure close to the text in which it is first mentioned. If the figure illustrates the text describing your project, do not force the reader to scroll down a few pages or to the end of the report.
* Number all tables and give them titles; they should be placed on top of tables (not below like figure captions). Place tables close to the text in which they are is first mentioned. Make references to table numbers in the text discussing their content.
* Do not cutler the main part of the report with trivial pictures of components such as photos of sensors or chips if they are not essential to understanding the text. They may be placed, together with the parts specifications at the end of the report in appendixes.

The report should contain the following elements:

**Title Page**

The front page includes the project title (name), names of the team members, program of their study (COE, or EE), the names of advisers and mentors, and submission date.

**Abstract Page**

Repeat the project name and the names of the team members, advisers and mentors. Follow with the text of the abstract summarizing what was initially proposed and what was accomplished.

Include the sponsor (company) name, if applicable.

The abstract with the title and names should not exceed one single spaced page. Consider this page as a separate, stand-alone document that may be read and understood by someone who does not read the whole report.

**Table of Contents**

List all sections and subsections by page number. Start pagination with the first page of the Introduction, not the Title or the Abstract page.

**The Main Body of the Report**

The text should be divided into numbered sections, starting with the *Introduction*. Each section can be divided into subsections, as needed. For example, the *Introduction* may be divided into subsections with their own names such as: *1.1 Project Overview*

A brief description of each numbered section follows.

**1. Introduction**

Give a brief overview of the project. Why did you choose this topic? Did you modify existing technology or products or worked on your own idea? If your product is similar or has the same functionality as those that already exist, explain how yours is be different. State what was intended, as described in the proposal, and what was actually designed and built.

A block diagram of the system you build may be helpful here.

Include information on mentors, companies, and advisers involved in the project.

This section must also include separate (brief) paragraphs stating:

**Project Objectives**

**Project Significance**

**Project Novelty**

**2. Project accomplishments**

2.1 Technical details

This section contains the description of the project in some detail. Describe circuits and hardware listing by name and model major components, such as microprocessors, sensors, actuators used in your prototype. A good block diagram is very useful in describing your project. Details such as schematics, data sheets of hardware components, etc. are best put in appendices at the end of the report. If you wrote a computer code, put it in a separate appendix.

Besides the project description outlined above, this section must include the following subsections:

**Specifications**

Every engineering product is designed to meet a set of **specifications**; you have to define them for your project. Depending on what you are designing, they may include: communication range, travel distance, speed of operation, power consumption, etc.

**Engineering Standards** are defined by industry organizations (for example IEEE). If your product is to operate in the real world it must meet some of them. If you are using a communication device (cellphone, router, etc.), a computer port, or a microprocessor, you must conform to the standards based on which these systems operate. List engineering standards applicable to your design.

2.2 Testing and Performance Measures

Describe tests and data showing that the project achieved its objectives and met the design specifications. Include tables and graphs, as needed. Comment on these data. If some objectives were not fully met, say so and propose what may be done about it.

2.3 Future Potential

Describe potential for future development, potential applications, marketability, and patentability. You may estimate the cost of your design if it went into production.

2.4 Learning Experience

Describe the educational merit of the project: what have you learned and what experience have you gained by doing the project? Would you do it differently now?

**3. Budget**

List prices of major parts and components. If you work with donated components or components from a sponsor provided to the project, list them even if you do not know the price.

**4. Acknowledgements**

If you used the help of students outside your team, engineers and technicians in a company, professors, or other school personnel, mention it briefly here.

For example: “We thank Jack Crack, ECE student, for his help in selecting and obtaining the microprocessor chip for the project.” Or: The help of Dr. John Down of the ME department in providing access to a 3D printer is gratefully acknowledged.”

**5. References**

List major sources of information used in the report. The reference should be numbered in the order in which they appear in the text. Put the reference number at the end of the sentence in which the referred information is used. For example: “Communication with the microcontroller was based on IEEE 802.15.4 standard for wireless personal area networks (PAN) [4]”

**Appendices**

These are usually designated as APPENDIX A, APPENDIX B, and their pages are numbered A-1,A-2, etc. They contain auxiliary information, such as specifications or images of components, detailed schematics or computer codes. Placing them in the main text would be unnecessary or distracting but the information they contain may be useful in evaluating the project.