**Senior Design II – Week 1 – Agreement of Responsibilities, *Statement of Work*   
to be done by each team member separated by categories i-iv and a-k**

495 d/b During the course of your senior design capstone experience, your team is expected to showcase your knowledge, abilities, education and understanding from the i-iv and a through k items listed below in specific ways related to your project.

Each team member will complete one of these forms. The member will list his or her responsibilities for the project organized as to how they pertain to each of the a-k. Replace red text with your own.

The project manager is responsible for reviewing and approving these prior to submission to be sure that all items are included in the team, and that all responsibilities needed for project completion are included. Also, check that the file name includes the team number and member’s initials. (Use three-letter initials when necessary.) The Faculty Technical Adviser (FTA) is asked to sign that this includes the technical work he/she is expecting to be done this semester.

For example:

**NAME:** JANE DOE

**TEAM:** 13-SAFR

**MAIN RESPONSIBILITIES:** Solar power system for autonomous flying robot.

**(i) which knowledge and skills from earlier course work have/will I applied/apply**

I used my circuit analysis techniques learned in ECE 235, 345, 296 and 385. All final circuit schematics will be present with simulated and measured results compared 0

**(ii) which knowledge and skills did I have to (or will I have to) learn on my own for this project**

I learned soldering techniques, how to use Eagle software to make Printed Circuit Boards, and standard experimental procedures and a lot about photovoltaic modules available. 0

**(iii) what appropriate engineering standards did I follow (or will I follow) in my design**

I used “IEEE Std 1262-1995 IEEE Recommended Practice for Qualiﬁcation of Photovoltaic (PV) Modules” for the” visual inspection procedure” and for its “electrical performance test” as will be shown in the design report appendix on lab report results. Finding and applying the standards was quite a bit of work, but I will do it and document it. 0

**(iv) what are my multiple realistic constraints that I have to design for**

In addition to the implied constraints of time and budget, I have a strict size ( 4”x4”x4”) and weight constraint (2 lb) for my system as well as having to power the entire system for 48 hours with only 6 hours of bright daylight. In addition to these constraints of performance specifications, I have to design to make the system easy to manufacture and more sustainable, safe and economic than our leading competitors. 0

**(a) an ability to apply knowledge of mathematics, science, and engineering**

This will be best demonstrated by power calculations and circuit analysis. The hand calculations, excel spreadsheets, and circuit simulations will be provided. As shown in appendix A of proposal. 0

**(b) an ability to design and conduct experiments, as well as to analyze and interpret data**

This will be demonstrated by charging and discharging graphs and corresponding lab reports. As described in page 12 of proposal. 0

**(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability**

This will be demonstrated by the updated system and subsystem HoQ and specifications first developed for the proposal. These include life-cycle of the product and its environmental effects as well as safety and economics. These issues will be addressed again in the design report. 0

**(d) an ability to function on multidisciplinary teams**

This will be demonstrated in ratings I receive on the Teamwork Evaluation Forms during the semester and at the end of the semester as well as by my results in obtaining information from many people and companies which will be logged in my notebook and referenced in the report. 0

**(e) an ability to identify, formulate, and solve engineering problems**

This will be demonstrated by a power subsystem tested in week 6 and integrated in week 8. 0

**(f) an understanding of professional and ethical responsibility**

I have read and understand the 8 ethical tests as well as the IEEE and NSPE codes of ethics. This is demonstrated by my meeting the expected milestone deadlines of a week 6 test for my subsystem and a week 8 test of the team’s system as well as by well documented work. 0

**(g) an ability to communicate effectively**

All of my oral and written communications will follow the guidelines given in class. All sections of the report will be clear, concise, consistent and contain relevant engineering specifics. 0

**(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context**

This is demonstrated by the discussion in the proposal introduction which included references related to the possible uses and abuses of a solar powered autonomous flying robot. This will be further demonstrated in the user’s guide and on the robot with warnings as to the legality of uses. 0

**(i) a recognition of the need for, and an ability to engage in life-long learning**

This is best demonstrated by everything I will list in the EoP memo that I was able to learn independently in order to complete this project to the satisfaction of my client and managers. 0

**(j) a knowledge of contemporary issues**

This is to be demonstrated by my use of up-to-date references in the literature review and new market comparison made after the project has been completed. 0

**(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.**

This is to be demonstrated by my use of the HoQ and trade studies in my design process as well as my use of tools such as Excel, Matlab, PSPICE and SIMULINK. 0

**APPROVED BY:**

**PM SIGNATURE: DATE: 1/16/2014**

**FTA SIGNATURE: DATE: 1/16/2014**