SYDE 461 Project Title (Times New Roman – 14 point, centered)

Team #: Team member 1, Team member 2, Team member 3, Team member 4

Abstract – The Abstract should be a 150-200 word succinct summary of your report discussing your project to date. Text should be in Times Roman 11 point, fully justified. Document margins are set at 1 inch. Text should be fully justified. There should be one single-line spacing between the Abstract and the Keywords. The main content headings and Roman numeral should be left-aligned and in capital letters. Sub-headings should begin at the left margin and be italicized. Indent paragraphs to improve ease of reading. The maximum page allowance is **10 pages**.

Keywords – Provide three key words, or key phrases, that best describe your project area. Leave one single-line spacing between the keywords and the Introduction.

I. INTRODUCTION AND IMPACTS

This section may be drawn from your Project Description document. Clearly define the problem or situation of concern being addressed, as well as the main objectives of your team project. Be sure to include a summary of the relevant state of the art to demonstrate how your project is adding engineering value in terms of creating new technology or exploring new approaches to using existing technology.

Your team should reasonably speculate on potential positive and negative impacts of your project. These impacts may be economic, societal, and/or environmental in nature. Provide appropriate justification to support your speculations.

II. PROJECT SCOPE

Clearly define the project scope for your defined problem. Include a general systems diagram that illustrates the expected main systems components of interest for the project. Indicate which components are "off-the-shelf" (i.e. the team is not responsible for the technology); and which components will be designed or modified by the team. The systems diagram may be as simple as a set of block diagrams to convey major component relationships as well as inputs and outputs. Teams are encouraged to include appropriate systems diagrams to help clarify team responsibilities for SYDE 461/462.

III. ENGINEERING METHODS OF ANALYSIS AND DESIGN

This section should describe the overall engineering analysis, design, and testing plan for the project, for each major stage of the project, highlighting which methods your team has used to date. This section should describe design and validation plans for the project, including benchmarks and testing protocols that have been, or will be used for the project. If your team members have worked on separate components, then consider reporting using sub-sections titled to reflect the systems component that was analyzed or considered for design. For example:

A. *Software Architecture Development (EXAMPLE)*

As an example, this sub-section would describe the analytical approach taken to establish appropriate architecture for the software component of a complex project.

B. *Hardware Testing Methods (EXAMPLE)*

As an example, this sub-section would describe the hardware testing approaches that a team might have under-taken to establish competitive benchmarks for a re-design. An annotated photo of the testing set-up might be included as an appropriately labelled figure (e.g. Figure 1. Benchmark test set-up for component X). Figures should be numbered with labels appearing as a centered caption underneath the diagram, illustration, or image. Tables should be numbered with title appearing above the table.

IV. PROJECT OUTCOMES TO DATE

This section should focus on the **actual outcomes** achieved by the team to date. It can include results from data analysis, annotated concept sketches, screenshots of models or simulations, and/or images of prototypes. Be truthful since you will be expected to provide evidence of your claims. If you have run into unexpected challenges and/or delays explain why that has happened. The onus is on your team to prove you have been making a valid, appropriate, and concerted effort on your project. Your team will be expected to account for project progress on a 250+ hour project (8 weeks x 4 people x 8-10 hours per week).

NOTE: The expectation for this deliverable is that teams will be honestly reporting progress and outcomes.

If your team did not get as far as expected with the design, be honest.

If your team was unable to complete (or start) the analysis or design activities proposed in your Project Description, be honest.

If your team's analysis or design activities did not go as expected, be honest.

If your team was unable to do the intended analysis or design activities prior to the report submission but is able to complete some/all activities before the Panel Exam, then you may report on those updates during your presentation.

Under Policy 71, if a team submits a report that contains fraudulent information (including reports of analysis, design or test activities that have not been carried out, or data falsely generated) then the course instructor will have no option but to treat it as an academic offence. Investigation applies to all team members, as the team collectively submits the document. The same applies if fraudulent reporting is uncovered as part of the questioning during the Panel Exam. Honesty is part of professional practice. It is not uncommon to have to explain and own up to why a project has not proceeded as planned. Being accountable and responsible for (team) decisions are part of professional practice too.

V. CHALLENGES AND CONCLUSIONS DRAWN FROM OUTCOMES TO DATE

This section should clearly draw conclusions from your Outcomes Sections. Based on results and efforts to date, is the project on track for meeting the team's project goals for SYDE 461, and the identified project goals to be achieved by the end of SYDE 461? Based on the results, identify the main practical engineering challenges involved with meeting your project objectives. Discuss the necessary steps you will need to take, or have taken, to address these challenges. Is there a need to modify or re-scope the project goals that were set at the beginning of the term? Does your team have the necessary resources to achieve the project goals? Answers should be supported by the evidence your team has provided earlier in the document.

VI. RECOMMENDATIONS FOR PRACTICAL NEXT STEPS IN PROJECT

This section should outline the practical next steps that your team will take to move the project closer to achieving the overall project goals during SYDE 461. The steps should be logically linked to the conclusions you have drawn – especially if there is a need to address current short-comings or challenges.

ACKNOWLEDGMENTS

This section should acknowledge any help and support that the team has received from supervisors, advisors, and industry partners.

REFERENCES

Teams are expected to consistently use an appropriate academic referencing style, as outlined in the SYDE Style Guide. You must use the IEEE (e.g. [1]) citation format. As senior undergraduate students, the expectation is that you will be able to research and cite high quality sources of information, such as appropriate academic journals and peer-reviewed sources, rather than deferring only to low quality sources like personal websites and Wikipedia.

The REFERENCES section is not included in the 10-page maximum.

[1] G. R. Heppler, "Systems Design Engineering Technical Report Style Manual, Fifth Edition", SYDE 000. University of Waterloo, 2009.