# ME/ASE Senior Design Report and Honors Project

# Integrative and Applied Learning Assignment

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| Mechanical Engineering | Aerospace Systems Engineering |
| 4600:461 Senior Design Project 1 | 4900:497 Aerospace Design Project |
| 4600:497 Honors Design Project | 4900:497 Aerospace Honors Project |

Your objective in writing this paper is to explain in non-technical terms how your project fits into and effects society. Using a broad perspective, describe how your project relates to societal considerations and professional responsibilities. Although you may be complete your Senior Design Project as a group, this assignment will be written on an individual basis.

This paper is inspired by the two of the ABET student outcomes that require the integration and application of what you have learned over the course of your education. These student outcomes are:

2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors

4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts

This project also addresses the following General Education learning outcome requiring demonstration of responsible citizenship in an interconnected world.

4. Students will demonstrate foundational competency in knowledge and skills that promote personal, social and environmental responsibility. This foundational competency shall include knowledge of diversity, systemic relationships, and collateral effects and consequences within and across systems. Let me know what you think.

Every engineering design problem is going to have a different relationship to society and a different balance of costs and benefits. Some technological advancements are evolutionary, and the costs and benefits are incremental. Some technological advancements are revolutionary with the power to make major changes in society.

The cross-section of Mechanical & Aerospace Systems Engineering and society is important and varied. Although your design project will be specific, it will involve a product or project from a particular industry. It may involve cars, trucks, buses, airplanes, robots, rockets, energy and power production, heating, refrigeration, and air conditioning, or about anything that is manufactured. Each of these technologies, industries and transportation systems has had a profound effect on our economy, society, and culture. As new ideas are developed and proven, these changes are ongoing.

For instance, global warming is a societal issue that has major implications, as a societal problem mechanical engineers are looking at different ways to address this problem. Mechanical engineers are working to make power plants more efficient. Aerospace systems engineers are working on efficient hybrid or electric propulsion systems. Other engineers are trying to develop ways to reduce our use of fossil fuels by developing solar or wind power systems.

## Outline of the Integrative and Applied Learning Assignment

**Title page**

project title, author, advisor(s), department, university, project-ending semester, and year

**Introduction**

Describe your engineering design project objectives, outcomes, and constraints

**Integrative and Applied Learning**

Describe your project from a perspective that relates to the relevant societal considerations and professional responsibilities

**Conclusion**

**References**

## Assignment Style

* The paper should be self-contained (ie not make reference to information that is not included)
* Cite stable, long-lasting and authoritative websites when website information is needed. Avoid citing websites such as Wikipedia, whose contents may be changed by un-authoritative individuals (but these websites can be used as clues to reliable sources).
* Include references for books, articles (including research papers), URL’s of WWW webpages and personal communications