

Senior Design Project Description

Company Name	UNCC Industrial Solutions Lab	Date Submitted	December 6, 2017
Project Title	Engineering Design Toolkit (UNCC_TOOL)	Planned Starting Semester	Spring 2018

Personnel

Typical teams will have 4-6 students, with engineering disciplines assigned based on the anticipated Scope of the Project. 250 hours are expected per person.

Complete the following table if this information is known, otherwise the Senior Design Committee will develop based on the project scope:

Discipline	Number	Discipline	Number
Mechanical	5	Electrical	
Computer		Systems	
Other:			

Project Overview:

The objective of this project is to create a suite of design solutions commonly encountered during the design process. Every year, hundreds of students spent a great deal of time scouring websites, random books, videos and whatever else they can find to help them find a solution to their specific design problem. In this project, the team will take the most commonly encountered design problems and create an authoritative design guide with actual hardware examples. For example, the use of motors is ubiquitous in many design solutions, but each semester students go through the learning curve to determine what types of motors to use, where to source the motors, how to size the motors and how to control the motors. Another example is with power transmission systems and the conversion of rotary and linear motion while considering dynamic loading and max desired speed. This project will examine the past 10 years of senior design projects and create a powerful design tool to help future students quickly move through the design process including where to source components. This project is financially supported by the Industrial Solutions Lab to create tools that can help future Senior Design Teams to achieve more on their project by allowing them to focus on creativity in their solutions and not on “re-inventing the wheel” each semester.

Initial Project Requirements:

Students will be required to determine what designs are common to many senior design projects and provide a design guide that will help future students quickly make and justify design decisions. The team will create example hardware that allows designers to interact in a “hands on sense” with a potential design option before selecting that design solution for their particular problem.



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Expected Deliverables/Results:

- Design guide/website that helps designers quickly move through the design process.
- A demo system showing alternative design options to include motors and power transmission solutions.

Disposition of Deliverables at the End of the Project:

Hardware produced should be placed in the lab location designated by the Faculty Mentor to maximize the exposure and access for future Senior Design students.

List here any specific skills, requirements, knowledge needed or suggested (If none please state none):

- Willingness to learn quickly and communicate that knowledge effectively.