

UNC Charlotte College of Engineering Senior Design Program Process for Supporting an ME, EE, Computer E, SE and CE Project

Thank you for your interest in participating in the UNC Charlotte College of Engineering Senior design program. The program's goal is to match our students with local companies to work together and solve design problems. In this capacity, our students gain real world engineering experience while local companies benefit from completed work on elective research projects. The ideal project should not be on a critical path for the company, nor pertain to trade secrets or corporate sensitive information. While the results of the projects cannot be guaranteed, there are a number of checks and balances put into place to monitor the team's progress and keep the industry supporter updated and abreast of any changes. The senior design teams typically consist of 4-6 students and we estimate about 250 hours of work output per student over the two semester course. There are two options available for staffing projects: 1) A single team producing one solution and one prototype, requiring a donation of \$7,000, 2) Two teams generating two separate solutions and prototypes for the same project idea, requiring a donation of \$10,000. Payment for either option will be invoiced in **February 2017**. Student teams will have a budget of up to \$3,000 for parts and services for their prototype. Expenses in excess of this will be discussed with the supporter.

The documentation required from each participating industry supporter and the associated deadlines are listed below. The senior design course coordinator would be happy to assist with defining the scope of the project so that it fits within the academic schedule if needed.

1. Submit a short description of the intended project with expected deliverables/results. (Project Description form)
2. Provide the contact information for the technical and the financial representatives.

Project work starts in September with the Senior Design Kickoff Breakfast on January 20th where the teams will start to discuss the project requirements with their supporters.

Additional milestones are as follows:

- Students submit work breakdown structures, schedules, risk assessments, budgets, change requests, design documentation and reports to their supporter throughout the two semesters.
- The supporter attends design reviews in both semesters to evaluate progress/test results.
- Students present their completed design work at the Design Expo at the end of the first semester (May 4th, 2017).
- The second semester is the implementation phase, where students implement their design into a prototype or model and test.
- Students generate appropriate hardware and documentation.
- Completed prototypes and models are displayed at our EXPO on December 8th, 2017.

Yes, we are interested in participating in the UNC Charlotte College of Engineering Senior Design Program!



UNC CHARLOTTE

The WILLIAM STATES LEE COLLEGE of ENGINEERING

UNC Charlotte College of Engineering Senior Design Program Company Profile 2016-2017 School Year

Company Name: Cardinal Health
Project Title: Finished Product Distribution System

Technical Contact(s)

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Name: Deborah Rouse
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Senior Design Project Description for SPRING 2017

Project Title: Finished Product Distribution System (CARD_FIN)

Supporter: Cardinal Health

Supporter Technical Representative: ASSIGNED

Faculty Mentor: _____ ASSIGNED TBD (check one)

Single Team Dual Team _____ (check one)

Personnel (EN/ET): _____ E, 1 Cp, _____ Cv, 2 M, 2 SE

(Complete if the number of students required is known)

Expected person-hours: (250 per student)

Description of Project:

Cardinal Health is a leading supplier of products to the medical and pharmaceutical industries. At their Fort Mill location Cardinal Health assembles more than 25,000 surgical packs per day. Once a surgical pack is completed it is combined with other similar packs and hand loaded into a box. Boxes are then loaded onto pallets. Boxes are loaded until the pallet size is 48" x 40" x 108" high. The boxes on each pallet are then individually scanned prior to the boxes on the pallet being shrink wrapped and sent out for sterilization. The goal of this project is to develop a system to auto scan all of the boxes on the pallet at once rather than scanning each box on the pallet.

If the pallets can be auto scanned it can save one person per shift.

Initial Project Requirements (e.g. weight, size, etc.):

Project requirements include:

- Compatible with 16 different box sizes
- Scan the entire pallet while it rotates prior to the shrink wrap
- Compatible with different box arrangements
- Evaluate work flow

Expected Deliverables/Results:

A report must be provided describing the results of the analysis and design. The report will include a concept assembly drawing with BOM. Costs estimates are to be provided for all BOM items. The report will include the results of the work flow analysis.

A prototype will be built and tested for the auto scanner.

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

None.