



UNC CHARLOTTE

The WILLIAM STATES LEE COLLEGE of ENGINEERING

Senior Design Project Description

Company Name	Commscope	Date Submitted	July 3, 2017
Project Title	Picabond Grease Application Machine Improvements (COMMS_PICA)	Planned Starting Semester	Fall 2017

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	3	Electrical	2
Computer	1	Systems	
Other ()			

Project Overview:

The Commscope Greensboro division is a high volume manufacturer of a wide variety of electronic connectors. One of these connectors is used in telephone splicing and it is called a “Picabond” connector. As a final part of the production process, grease is injected into the connector and sealed in place with a Mylar film. The grease promotes conduction and prevents water incursion and corrosion. A picture of completed Picabond connectors is shown below:



The machine used to inject the grease and seal these connectors is shown below:



UNC CHARLOTTE

The WILLIAM STATES LEE COLLEGE of ENGINEERING



The machine uses Mylar heat shrink tape to seal the injected grease into the part. This machine is between 30 and 40 years old as is the technology on it that performs the process. Both are overdue for modernization. Not only is the machine very old, it is fairly large measuring 23 feet long by 3 feet wide by 7 feet tall. The objective of the Project is to study the current machine and then make recommendations on how the machine and process could be improved to reduce floor space (goal is 50% reduction if footprint), reduce energy consumption, improve output quality, consistency and enhance operator safety.

Initial Project Requirements:

The Project team will meet with Commscope in their plant to study this machine. Each operation of the machine will be studied to understand the purpose, materials and the process used. The student team will analyze and design alternate ways of completing the process steps to achieve the improvement objectives stated above. Based on the solutions developed, the student team will work with Commscope to define second semester implementation plans for proof of concept testing of the different steps in the process.

Expected Deliverables/Results:

- Analysis of current machine and process to determine specific deficiencies that will be the focus for improvement.
- Break the process down into discrete sub-set processes
- Design alternate technologies to perform the needed tasks in an improved way addressing the design objectives
- Perform proof of concept testing for each of the individual process operations to demonstrate feasibility and improvements for the alternate process designs.



UNC CHARLOTTE

The WILLIAM STATES LEE COLLEGE of ENGINEERING

- Document a design concept for a replacement machine that integrates the improved processes.

Disposition of Deliverables at the End of the Project:

Hardware produced will be handed over to Commscope after the conclusion of the May 2018 Expo, unless Supporter wishes to sponsor a follow-on phase.

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

- Team is required to travel to Commscope Greensboro to gather data needed to understand current processes in sufficient detail to be able to design improvements.
- Design reviews to be held at client facility in order to have machine available for reference and to be able to involve more of the Commscope team.