



UNC CHARLOTTE

The WILLIAM STATES LEE COLLEGE of ENGINEERING

Senior Design Project Description

Company Name	Livingston & Haven	Date Submitted	4/28/17
Project Title	MGE / Mechatronics quoting tool and MGE process flow and wash system (L&H_QUOTE)	Planned Semester	Fall 2017 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		Electrical	
Computer		Systems	
Other ()			

Project Overview:

Though it may sound like two projects you would be difficult to do the quoting tool without understanding the time it takes to cut / drill / tap / clean the MGE.

MGE / Mechatronics Quoting tools

MGE Cost Estimation/ Quoting tool

Review current costing methods and tools and identify tool/tools and procedures to speed up quoting process & improve efficiency, while maintaining acceptable accuracy. In scope will be estimating Engineering design and project management time for the project. Students will use MT Pro tools, Inventor or other solid models, Process and material based costing calculations based on time studies or empirical data.

Simple Fabrications Step – to include simple fabrications. – Simple structure – 1 hr

Medium complexity custom work bench or Robotic Cell Guarding (may include a few lockouts or up to two simple mechanisms – 3 hr

*High (size, # parts, mechanical mechanisms) (Siemens Guard) 3-10 mechanisms)– 1 D

*Advanced – will included complex systems with Motion control, pneumatics, conveyor systems, etc. (Doncasters)



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ME, IE, disciplines

MGE Process flow optimization & wash system

Review and learn MGE manufacturing processes from Kickoff to build. Focus on identifying major constraints that limit throughput (measured in Days to ship defect free product) Scope will be on availability of Raw materials including MGE bar, Brackets, and machined parts through Cut, drill, clean, pack or kit, build (if applicable), pack, ship, and install (if applicable).

Students will study MGE manufacturing flow and provide solutions for simplifying and reducing labor costs in the Cut, Drill, Wash, Label/Kit, Build, and Pack processes. They will address Kits, Simple assemblies, and Complex/Large Assemblies in that priority orders. They will include standard parts, Machine Shop 77 parts, and purchased parts but will focus on the collection, organization of material to assure efficient and error free processing of the custom order. Students will GO-SEE-ACT – spending time observing the processes and getting substantive feedback from the current experts on the floor and in the design team.

Deliverables

Current As – Is process flows with data supporting current labor hours to cut, drill, wash, kit, pack and build product.

Spaghetti Maps and or VSM maps showing as is NVA opportunities.

Industrial, Mfg. Engineering team. Can include Mech or Ag Engineers if so desired.

Initial Project Requirements:

This is a more detailed description of the project output itself – describing the scope and specifications for what the project team will actually be designing and producing.

Expected Deliverables/Results:

List all deliverables that the team is to provide to the supporter.

Disposition of Deliverables at the End of the Project:

Hardware developed is the property of the Industry Supporter. Please specify what disposition you would like for the hardware developed by the Project team.

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



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state none):