

Company Information

Company Name	<i>J&L Machine & Fabrication</i>	Date Submitted	<i>05/14/2021</i>
Project Title	<i>Operations Re-engineering (J&L OPS)</i>	Planned Starting Semester	<i>Fall 2021</i>

Senior Design Project Description

Personnel


Typical teams will have 4-6 students, with engineering disciplines assigned based on the anticipated Scope of the Project.

Please provide your estimate of staffing in the below table. The Senior Design Committee will adjust as appropriate based on scope and discipline skills:

Discipline	Number	Discipline	Number
Mechanical		Electrical	
Computer		Systems	5
Other ()			

Company and Project Overview:

- J&L is a precision Fabrication and Machining provider focusing on Fabrication, Precision machining and Powder coat applications.
- Services include: CNC forming, turning, milling, laser cutting, part bending, welding, and painting
- Customers like Daimler Mercedes Truck Division purchases parts from J&L for their assembly like brackets, chassis plates, shafts, etc.
- J&L is executing a 5-years business plan looking at tripling revenue. With such a growth coming ahead, J&L is looking to re-engineer its processes & machine layout to extract efficiencies towards increasing productivity and in parallel continue to meet ever-demanding customers' deliveries.
- Website: <http://jlmaf.com/>

 <p>North Carolina Manufacturing Extension Partnership</p>	<p>This project is partially supported by a grant from the NC Manufacturing Extension partnership, an organization the helps to support business and job growth for NC companies. To learn more about the NC MEP, click on this link: https://www.ncmep.org/.</p>
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Project Requirements:

- Factory was setup years back when revenue was 30% of current volume, and machines were added on the go without a master layout, resulting in major inefficiencies across the entire shop floor.
- Conduct System Engineering study on agreed upon parts of the operation to uncover inefficiencies in current setup
- Looking for the team to apply their engineering skills in designing a new layout, processes, and assess labor usage deployment in driving future growth.

Expected Deliverables/Results:

- Design a factory machine layout that optimizes material handling
- Design new operational processes to handle growth without losing quality standards
- Conduct manpower planning to optimize resources on the shop floor
- The main objectives are to extract efficiencies from the above to drive sustainable profitable growth for the company

Disposition of Deliverables at the End of the Project:

- All design and validation data to be turned over after the final Expo.

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

- Industrial Design
- Operations Design
- Statistical Analysis
- Organizational Behavior
- AutoCad (optional) to assist in mapping factory floor
- SEGR 3102 and SEGR 4114 are required for this project.
- Travel to J&L will be required on a frequent basis.