



Company Information

Company Name	<i>J&L Machine and Fabrication</i>	Date Submitted	<i>04/16/2025</i>
Project Title	<i>Automation of Preventative Maintenance Project (J&L_PM)</i>	Planned Starting Semester	<i>Fall 2025</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
Computer	2	Systems	3

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.
- Website: <http://jlmaf.com/>
- The team will be instructed to complete a Preventative Maintenance database program

Project Requirements:

- Preventative maintenance is a key function for J&L to ensure maximum uptime for their capital equipment.
- This project has the objective to do the design, development, and implementation of a dynamic Preventative Maintenance tool/database/dashboard that allows for an effective



monitoring regarding the performance of all machinery.

- The tool will be capable of adding work instructions for specific PM tasks, adding/deleting machines to the database, monitoring the completion of PM tasks, uploading time and cost for each PM task, logging all repairs with proper root cause diagnosis and corrective action plan, etc.
- ISE students will design the user interface and architecture of the tool to meet the needs of the J&L staff. They will also develop all of the documentation that will be input into the tool, perform validation testing and co-ordinate testing by J&L. One of the ISE students will also be the Project Lead.
- The computer engineering students will develop the program using the architecture and data supplied by the ISE students.

Expected Deliverables/Results:

- Preventative Maintenance system which meets the above requirements.

Disposition of Deliverables at the End of the Project:

Students are graded based on their display and presentation of their team's work product. It is mandatory that they exhibit at the Expo, so if the work product was tested at the supporter's location, it must be returned to campus for the Expo. It is also a mandatory part of this Program that the Industry supporter attend the 2 expos to grade their team's performance. After the expo, the team and supporter should arrange the handover of the work product to the industry supporter. This handover must be concluded within 7 days of the Expo.

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

- Interest in automation of processes
- Ability to travel to J&L's facility as required, mileage reimbursement per ISL procedures.