INDUSTRIAL SOLUTIONS LABORATORY

Company Information

Company Name	*Daimler Truck NA – Mt Holly TMP*	**Date Submitted**	*05/11/2022*
Project Title	*Energy Audit and Development of Energy Monitoring system* **(DAIM_AUDIT)**	**Planned Starting Semester**	*Fall 2022*

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	2	Electrical	1
Computer	1	Systems	2

Company and Project Overview:

Daimler Trucks & Buses is one of the world's largest commercial vehicle manufacturers, with more than 35 primary locations around the world and around 100,000 employees. The company brings seven vehicle brands under one roof:

Mercedes-Benz (light, medium and heavy trucks as well as city, intercity and touring coaches) and Setra (intercity, long-distance and premium coaches) are our traditional European brands; our U.S. brands Freightliner Trucks (trucks in weight classes 5 to 8 for a wide range of commercial vehicle applications), Western Star (heavy trucks for specialized and long-haul transports) and Thomas Built Buses (light- to medium-duty buses); and our Asian brands BharatBenz, based in Chennai, India (trucks in the weight classes 9 to 55 t and medium- and heavy-duty buses) and FUSO, headquartered in Japan (trucks and buses for Asia, Middle East, Africa, Europe and Latin America).

The Mount Holly Truck Manufacturing plant produces the full line of Freightliner medium-duty Business Class® M2 / SD models as well as an e-coated cab for the Western Star units built at the Cleveland and Portland Truck Plants. See photos below of product:

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Project Requirements:

Analyze and benchmark the plant's energy usage and equipment efficiency. Analyze current load data and distribution systems to determine load capacities. Review and update, as required current distribution system drawings/information. Investigate and recommend energy monitoring system options for the following utilities: electrical, natural gas and city water. Monitoring system should be able to be integrated with the current Metasys system. Prepare equipment/system specifications with installation scope of work and project timelines.

Expected Deliverables/Results:

- Analyze and benchmark the plant's energy usage using existing utilities data. Provide information on overall distribution system capabilities and identify any system deficiencies.
- Review monitoring equipment/system options and provide recommendations based on best fit, cost, and ROI. Equipment should be compatible with current Metasys software.
- Prepare equipment/system specifications for RFQ package
- Implement equipment and system upgrades
- Update current distribution system data/drawings as required.

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. 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):

- Electrical power distribution systems
- System integration
- Data monitoring systems
- Mechanical distribution (city water & natural gas) systems
- Thermodynamics
- AutoCad
- Travel to Daimler Trucks Mt. Holly facility mileage will be reimbursed per ISL purchasing procedures.