AME 20216 – Lab Report Score Sheet

A5 and A6 – Solar Energy
NDID#:_____

Lab Section (Day/time): _____

General Requirements (10 points)

Item and Description	Points Awarded	Possible Points
Overall quality of writing (spelling, grammar, readability, captions, and discussion)		5
Format and Technical Elements (font, margins, page numbers, heading, abstract/summary, findings, conclusion, numbered equations, variables, figures, tables, captions and references)		5
TOTAL		10

Technical Writing – Write a full lab report with a Summary, Findings, and Conclusions section. (See the example on the Resources page of the course website.)

- **Summary** section should have a few sentences explaining the work and its significance, then present the most important values (numbers) that were measured or calculated.
- **Results** section should briefly explain the experiments and calculations, then discuss the results. Be sure to address relevant talking points from the lab handout.
- **Conclusions** section should reiterate the important take-aways, address any unanswered talking points from the lab handouts, and discuss possible future directions.
- Do *not* write a first-person narrative. Rather, write it as a declaration of objective observations, scientific facts, and logical deductions.

References – The report must include 2 references. These can be data sheets from the lab website, articles from the internet, the textbook, etc. References should follow the ASME format.

Deliverables for A5 and A6 (25 points)

For more details on any of the items below, please refer to the lab handout.

Item and Description	Points Awarded	Possible Points
A5: A plot of measured output voltage vs. load resistance for the two different lamp irradiances		3
A5: A plot of measured efficiency vs. load resistance for the two different lamp irradiances with vertical lines denoting the internal resistances		3
A5: A plot of measured irradiance vs. distance for the two different lamp irradiances		3
A5: A plot of log(irradiance) vs. log(distance) for the two different lamp irradiances with linear curve fits and slopes in the caption		3
A6: A table summarizing your design parameters and calculations • The approximate area of the vehicle roof in m^2. • The number of solar panels that will fit on the roof • The total area of the solar panels in m^2 • The percent efficiency of the solar panels • The irradiance in kWhrs/day/m^2 at the location • The total average power in kWhrs/day the solar panels are expected to produce • The energy storage capacity of the battery • The number of batteries needed to store half a day's worth of energy from the panels.		5
A6: A table summarizing the power requirements for each of the devices • Typical voltage required • Typical current required • Instantaneous power consumption in kW • Estimated daily usage of each device in hrs/day • Estimated avg. power consumption for each device in kWhrs/day • "Feasible" or "Not Feasible" for each device		5
A6: A bill of materials (BOM) for the solar panels, batteries, and charge controller		3
TOTAL		25

OVERALL SCORE _____ / 35

Format

- Use a 12 point “serifed” font such as Times New Roman.
- Document should be double-spaced.
- Document should have 1” margins in all directions.
- Page numbers are required centered at bottom of page.
- Equations must be numbered.
- All variables must be italicized.
- All variables in an equations must be defined (i.e. “where *c* is the speed of sound”).
- Captions should be the same font as the rest of the document.
- Do *not* use the * symbol to denote multiplication.

Guidelines for Deliverables

- Tables should always be centered with captions *above* labeled Table 1, etc..
- Tables should have black text on white background with 12 point Times New Roman.
- Tables should have the text centered both horizontally and vertically.
- Plots should *not* have titles.
- Plots should always have axes clearly labeled with units.
- Plots should always be centered with captions *beneath* labeled Fig. 1, etc.
- Theoretical curves should always be smooth and continuous (no “kinks”).
- Measured data points should be plotted as individual markers. If there are *more than 20* measured data points, then connect them or use a continuous line.