

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 <ul style="list-style-type: none"> • The approximate area of the vehicle roof in m². • The number of solar panels that will fit on the roof • The total area of the solar panels in m² • The percent efficiency of the solar panels • The irradiance in kWhrs/day/m² 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 <ul style="list-style-type: none"> • 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.