MEC 516: Energy Technologies Laboratory I

Catalog Description:

Experiments are performed in the areas of IR imaging, heat pumps, batteries/power electronics, solar thermal, thermal conductivity, and insulation. The focus is on system efficiencies, system integration, and design for residential markets.

Pre/co-requisite: MEC 520

Reference books:

- *Fundamentals of Eng. Thermodynamics, Morran and Shapiro*
- *Heat Transfer, Holman*
- *Heat Transfer: a practical approach, Yunus A. Cengel*
- *Principles of Solar Engineering, Goswani, Kreith, and Kreider*

Activities:

1. Heat Pump Labs 1 & 2
2. IR Labs 1 & 2
3. Spectral Properties of Light Labs 1 & 2
4. Insulation Lab
5. Thermal Conductivity Lab
6. Solar Thermal Heating Lab
7. Motors and Batteries Labs 1 & 2
8. Rankine Cycle Lab
Grades:

• Each of the labs will be graded out of 10 points. Being a graduate level class, 1 of the 10 points is reserved for producing a graduate level report. This point will be given at the graders discretion. Combined, the labs are worth 60% of the semester grade.

• A group project report will be assigned and due mid-November and will be worth 20% of the semester grade. Further details will be given in class and on Blackboard.

• An end of semester exam will be given worth 20% of the semester grade. This will include questions from each experiment performed during the semester.

Americans with Disabilities Act

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact Disability Support Services at (631) 632-6748 or http://studentaffairs.stonybrook.edu/dss/. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website: http://www.sunysb.edu/ehs/fire/disabilities.shtml

Statement on Academic Dishonesty

Academic dishonesty is an extremely serious offense and will not be tolerated in any form. Academic dishonesty in general is the presentation of intellectual work that is not originally yours. Examples include, but are not limited to, copying or plagiarizing class assignments including homework, reports, designs, and other submitted materials; copying or otherwise communicating answers on exams with other students; bringing unapproved aids, either in physical (written) or electronic form to an exam; obtaining copies of an exam prior to its administration, etc. Academic dishonesty violates both the ethical and moral standards of the Engineering profession and all infractions related to academic dishonesty will be prosecuted to the fullest via the CEAS CASA committee. For you, the honest student, academic dishonesty results in lower class curves, hence a depression in your GPA and class standing, while cheapening the degree you earn.