EECE 326 Fundamentals of Energy Systems Lab

Department of Electrical Engineering and Computer Science

Course Number	Course Name	Semester
EECE326	Fundamentals of Energy Systems Lab	Spring 2017

Class Hours: M 2:30 - 6:00 PM (@3023 Integrated Power Systems Lab)

Catalog Data: EECE326 Fundamentals of Energy Systems Laboratory, 1 Credit. Treats poly-phase power measurements, Synchronous Machines, transmission line, Renewable Electricity Generation.

Textbook: Lab Manual

References:
1. Sarma, Electric Machines, WEST Publishing Co. 1996
2. Masters, Renewable and Efficient Electric Power Systems (1st Ed) John Wiley & Sons, Hoboken, NJ, 2004

Instructor: Dr. Charles Kim (Office: LKD3014, 202-806-4821, ckim@howard.edu)
Office Hours: TR 2 - 4 pm

Goals: The purpose of this Lab is to augment the theoretical foundations introduced in the Fundamentals of Energy Systems course. The studies include power systems, its individual components, power generation, and distributed generation, and renewable energy generation. Detailed list of the design project topics are found in the Laboratory manual.

Pre- or Co-requisites: Co-Requisite EECE325 Fundamentals of Energy Systems

Topics:

Labs

Lab 1	Safety and Power Supply
Lab 2	Phase Sequence
Lab 3	Real and reactive power
Lab 4	Power Flow and Voltage Regulation
Lab 5	Phase Angle and Voltage Drop
Lab 6	Synchronous Machines
Lab 7	Wind Power Generation
Lab 8	Power Inverter
Lab 9	Photovoltaic Power Generation
Lab 10	Battery Systems
Lab 11	Additional Lab

Grading:

Laboratory Reports	60
Exam	30
Attendance	10
Total	100

Lab Report:
1. Report writing is an individual work. All reports are due in class only.
2. Reports are due 1 week after completion of the lab.

2. Late reports are not accepted.
3. Report Format: Use the lab manual.

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Expected performance curve:

A	Score ≥90
B	80≤ score ≤89
C	70≤ score ≤79
D	60≤ score ≤69
F	score ≤59

Safety/Ethics: Safety and professional ethics are emphasized in this course. See "Safety Manual" (located in Advanced Electronics Lab,) and "Electrical Engineering Undergraduates" handbook.

Note: Under the Americans with Disabilities Act of 1990, if you want to be identified as a person with a disability and need accommodations, please advise me by making an appointment.

Desired outcomes of this course:

An ability to apply knowledge of mathematics, science, and engineering
An ability to design a system component, or process to meet desired needs
An ability to communicate effectively