

Course Syllabus

Course Number: EE 361-ECE 461	Course Name: Green Power Generation
Course Time: Tue. & Thurs. 11am – 1pm	Course Location: BNW 127
Schedule: 5/24/2016 - 7/28/2016	Final Exam: Team Seminar
Instructor: Jeffrey N. Denenberg	Hours: The hour after class, or by appointment
Office: Bannow 301C	Google Voice: 203-513-9427
Office Phone: 203-254-4000 x3330	Both emails are checked regularly but use ieee.org when I'm out of my office
Email: jdeneberg@fairfield.edu jeffrey.deneberg@ieee.org	

This course compares various methods of green power generation including solar power, wind power, water power, and several others. This course covers how power is generated from these sources, the startup costs, the efficiency, and the practicality. These methods are compared to the present most common method of using oil and gas to heat water into steam to turn turbines. The student does not necessarily need a background in engineering and any necessary background material will be covered. Three Credits

Learning Outcomes

No.	Outcome	<u>Cognitive Level</u>	<u>ABET a-k</u>
1	The student will understand society's need for reliable, inexpensive and environmentally friendly electrical power and how to design a system to provide it.	Knowledge, Application, & Synthesis	a, c, e, f, h, j, k
2	The student will be able to analyze the impact of power generation systems on the environment.	Analysis	a, e, k
3	The student will be able to compare the economics of utilizing each of the discussed power generation technologies	Application	a, c, e, k

Class Grade Distribution – Will be updated after each exam

Text: Class Lecture Notes, [Recorded Lectures](#) (current and summer, 2014)

MatLab:

MatLab Student Ed. (The Math Works) – Free to Fairfield students,

[Download Instructions](#)

[Octave for Windows](#) – an open source MatLab clone

[MatLab Tutorial by B. Aliane](#)

References: Linked Videos

Blackboard:

This course uses both the instructor's web site (<http://doctord.webhop.net>) and Blackboard to make materials available to the student. Exam Solution keys will be made available on Blackboard after each exam is graded. Students will also upload their Seminar materials in the Seminar Assignment area.

Grade allocation:

Exams (2)	67%
Homework/Seminar Topic	<u>33%</u>
Total	100%

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Course Schedule:

Week	Topic	Homework	Lecture Notes	Videos/References
5/24 5/26	Course Introduction - Global Warming Photovoltaic Generation	Get ahead in your reading/viewing Seminar Topics	1-PhotovoltaicGeneration.ppt Swap-Power-Plants-for-Giant-Batteries	NASA on Global Warming, Mohan-1.1 (First 5 minutes), Solar-Power: How-Stuff-Works: Solar
5/31 6/2	Photovoltaic Generation Economics Photovoltaic/Fuel Cell Experiment		2-PhotovoltaicEconomics.pptx Pasco Green Power Manual LoggerPro3 8 6 2 Update File	Solar Panel Cost Nanoparticles-Solar Quantum-Dot-Abstract
6/7 6/9	Wind Generation		3 WindPower.ppt UK-largest-offshore-wind-farm	Wind-Power Seminar Topics
6/14 6/16	Wind Generation Economics Seminar: Photovoltaics Review for Exam 1	Homework1	4 WindPower2.pptx	How-Stuff-Works: Wind Power The Rise of the Personal Power Plant
6/21 6/23	Exam 1 Exam 1 Reprise, Seminar: Wind Power			
6/28 6/30	Hydro-Electric Generation Hydro-Electric – 2, Fuel Cell Seminar		5 Hydroelectric.ppt	hoover-dam-and-hydroelectric-power
7/5 7/7	Hydro-Electric 3, Geothermal-1 Geothermal-2, Geothermal Seminar	Homework2		
7/12 7/14	Nuclear Power Generation , Nuclear Disasters Seminar: Tide and Wave Power		6 Geothermal.ppt	Geothermal Energy in Iceland
7/19 7/21	Seminar: Microgrids Nuclear Power Seminar, Review for Exam 2,		7 Nuclear Power.ppt 8 Nuclear Disasters.ppt	Fukushima
7/26 7/28	Exam 2 Exam 2 Reprise			

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CLASS EXPECTATIONS

I. TEACHER

- Distribute syllabus.
- Review the material described in the syllabus.
- Explain material.
- Identify alternate reading assignments or books that clarify the material.
- Relate material to "real world" situations when possible.
- Answer questions.
- Be available to discuss problems.

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Email:	jeffrey.denenberg@ieee.org ; jdenenberg@fairfield.edu
Home Page:	http://doctord.dyndns.org or http://doctord.webhop.net
Class Office Hours:	Hour before and after class in BNW 301C or BNW GR22

- Be receptive to new ideas.
- Announce business/class conflicts in advance.
- Make up missed classes. Note: I do not cancel classes. We will use Zoom.us to run an on-line session if required.
- Prepare and administer exams.
- Grade fairly.
- Assign appropriate home problems.
- Homework policy – reviewed in class, Quizzes

II. STUDENT

- Be familiar with the prerequisite material as well as the Computer Tools and Tutorials.
- Regularly log into Blackboard to see current announcements.
- Ask questions and stay current.
- Study the material described in the syllabus. Preferably before it covered in class and do some of the problems with answers in the back of each assigned chapter.
- Complete the assigned homework.
- Obtain class notes and homework if a class is missed. View lecture video on that week's topic(s)
- Use the library and the Internet to obtain supplemental material.
- Prepare for exams.
- Ask for help** from me (I have office hours) and/or your fellow students.

III. DISABILITY

If you have a documented disability and wish to discuss academic accommodations, please contact: David Ryan-Soderlund at Academic and Disability Support Services (203) 254-4000, x2615, or email drsoderlund@mail.fairfield.edu, and notify the course instructor within the first two weeks of the semester.

IV. DISTANCE EDUCATION STUDENTS

The course lecture notes and supplementary videos are accessible via links in this syllabus and via Blackboard. You should submit scanned copied of assigned HW and your Exams via email. You will receive an invitation to join our discussion just before each class begins. I plan to also hold an interactive session once a week on a scheduled basis to answer questions that may arise.