

## Course Syllabus

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

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	Cognitive Level	ABET a-k
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](#) (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%

## Course Syllabus

### 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 <a href="#">Seminar Topics</a>	<a href="#">1-PhotovoltaicGeneration.ppt</a> <a href="#">Swap-Power-Plants-for-Giant-Batteries</a>	<a href="#">NASA on Global Warming, Mohan-1.1</a> (First 5 minutes), <a href="#">Solar-Power: How-Stuff-Works: Solar</a>
5/31 6/2	Photovoltaic Generation Economics Photovoltaic/Fuel Cell Experiment		<a href="#">2-PhotovoltaicEconomics.pptx</a> <a href="#">Pasco Green Power Manual</a> <a href="#">LoggerPro3 8 6 2 Update File</a>	<a href="#">Solar Panel Cost</a> <a href="#">Nanoparticles-Solar</a> <a href="#">Quantum-Dot-Abstract</a>
6/7 6/9	Wind Generation		<a href="#">3 WindPower.ppt</a> <a href="#">UK-largest-offshore-wind-farm</a>	<a href="#">Wind-Power</a> <a href="#">Seminar Topics</a>
6/14 6/16	Wind Generation Economics Seminar Presentation 1 Review for Exam 1	<a href="#">Homework1</a>	<a href="#">4 WindPower2.pptx</a>	<a href="#">How-Stuff-Works: Wind Power</a> <a href="#">The Rise of the Personal Power Plant</a>
<b>6/21</b> 6/23	<b>Exam 1</b> Exam 1 Reprise, Seminar Presentation 2			
6/28 6/30	Hydro-Electric Generation Seminar Presentation 3		<a href="#">5 Hydroelectric.ppt</a>	<a href="#">hoover-dam-and-hydroelectric-power</a>
7/5 7/7	Hydro-Electric Generation Economics Seminar Presentation 4	<a href="#">Homework2</a>		
7/12 7/14	Geothermal Power Seminar Presentation 5		<a href="#">6 Geothermal.ppt</a>	<a href="#">Geothermal Energy in Iceland</a>
7/19 7/21	Nuclear Power Generation Review for Exam 2		<a href="#">7 Nuclear Power.ppt</a> <a href="#">8 Nuclear Disasters.ppt</a>	<a href="#">Fukushima</a>
<b>7/26</b> 7/28	<b>Exam 2</b> Exam 2 Reprise , Seminar Presentation 6			

# Course Syllabus

## 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:	<a href="mailto:jeffrey.denenberg@ieee.org">jeffrey.denenberg@ieee.org</a> ; <a href="mailto:jdenenberg@fairfield.edu">jdenenberg@fairfield.edu</a>
Home Page:	<a href="http://doctord.dyndns.org">http://doctord.dyndns.org</a> or <a href="http://doctord.webhop.net">http://doctord.webhop.net</a>
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](mailto: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.