

Course Syllabus

Course Number: EE 361-ECE 461	Course Name: Green Power Generation
Course Time: Mondays 6:30 – 9:00	Course Location: BNW GR22
Schedule: 9/11/2017 - 12/18/2017	Final Exam: Team Seminar
Instructor: Jeffrey N. Denenberg	Hours: M – R 1:00-2:00, 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: jdenenberg@fairfield.edu jeffrey.denenberg@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	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: Renewable Energy: Power for a Sustainable Future, G. Boyle, 3rd Ed. 2012, OUP, ISBN: 978-0-19-954533-9

Class Lecture Notes, [Recorded Lectures](#), [Recorded Seminars](#)

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
9/11	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
9/18	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
9/25	Wind Generation		3 WindPower.ppt UK-largest-offshore-wind-farm	Wind-Power Seminar Topics
10/2	Wind Generation Economics Seminar 1: Photovoltaics Review for Exam 1	Homework1	4 WindPower2.pptx	How-Stuff-Works: Wind Power The Rise of the Personal Power Plant
10/9	Fall Break – No Class			
10/16	Seminar 2: Wind Power, Review for Exam 1			
10/23	Exam 1			
10/30	Exam 1 Reprise, Hydro-Electric Generation			
11/6	Hydro-Electric 2, Seminar 3		5 Hydroelectric.ppt	hoover-dam-and-hydroelectric-power
11/13	Seminar 4: Geothermal	Homework2	6 Geothermal.ppt	Geothermal Energy in Iceland
11/20	Nuclear Power Generation, & Disasters, Seminar 5:		7 Nuclear Power.ppt 8 Nuclear Disasters.ppt	Fukushima
11/27	Seminar 6, Review for Exam 2,			
12/4	Exam 2			
12/11	Exam 2 Reprise Seminar 7 (if required)			
12/18	Seminar 8 (if required)	Finals Week	12/14-20	

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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.

V. ACADEMIC INTEGRITY

Students are sometimes unsure of what constitutes academic dishonesty. In all academic work, students are expected to submit materials that are their own and are to include attribution for any ideas or language that are not their own. Examples of dishonest conduct include, but are not limited to:

- Falsification of academic records or grades, including but not limited to any act of falsifying information on an official academic document, grade report, class registration document or transcript.
- Cheating, such as copying examination answers from materials such as crib notes or another student's paper.
- Collusion, such as working with another person or persons when independent work is prescribed. .
- Inappropriate use of notes.
- Falsification or fabrication of an assigned project, data, results, or sources.
- Giving, receiving, offering, or soliciting information in examinations.
- Using previously prepared materials in examinations, tests, projects, or quizzes.
- Destruction or alteration of another student's work.
- Submitting the same paper or report for assignments in more than one course without the prior written permission of each instructor.
- Appropriating information, ideas, or the language of other people or writers and submitting it as one's own to satisfy the requirements of a course – commonly known as plagiarism. Plagiarism constitutes theft and deceit. Assignments (compositions, term papers, computer programs, etc. .) acquired either in part or in whole from commercial sources, publications, students, or other sources and submitted as one's own original work will be considered plagiarism.
- Unauthorized recording, sale, or use of lectures and other instructional materials.

In the event of such dishonesty, professors are to award a grade of zero for the project, paper, or examination in question, and may record an F for the course itself. When appropriate, expulsion may be recommended. . A notation of the event is made in the student's file in the academic dean's office. The student will receive a copy.

You all are REQUIRED to successfully complete Fairfield University's "Academic Integrity course" in the early weeks of this course by clicking on the appropriate link below.

[Academic Integrity Graduate](#)

[Academic Integrity Undergraduate](#)

This exercise will also be available as a separate course on Blackboard soon and all Graduate students will be required to successfully complete it (70% or better) to be able to register for courses in the following semester. Make sure to have the system email me the results of the quiz at the end of the exercise.