

CTC/ETC/MTC 215
Sustainable Energy Systems
Jayne Baran

Time: Wednesday 2-4 pm
Donovan 1106-Class
Semester: Spring 2025

Course Description:

An introduction to sustainable energy systems. Topics include solar energy, wind energy, fuel cell technology, biomass energy, geothermal energy, clean coal technology, ocean energy, hydroelectric power, and nuclear power. Two hours of lecture per week.

Credit Hours: 2

Learning Outcomes:

1. Gain factual knowledge about renewable energy systems (trends, terminology).
2. Understand environmental effects of renewable energy systems.

Required Text and Materials:

Buchla, Kissell, and Floyd, *Renewable Energy Systems*, Pearson, 2015, ISBN-10: 0-13-262251-3;
ISBN-13: 978-0-13-262251-6

Office Hours and Contact Info:

Mon 2-4 pm or Wed 9-11 am
(Or by appointment)
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Topics and Projects:

Topics:	Description	Hrs	Assignments
Ch 1	Energy Sources & Environmental Effects	2	End of Chapter Quizzes and/or Assigned Problems
Ch 2	Electrical Fundamentals	2	End of Chapter Quizzes and/or Assigned Problems
Ch 3	Solar Photovoltaics	2	End of Chapter Quizzes and/or Assigned Problems
Ch 4	Solar Power Systems	2	End of Chapter Quizzes and/or Assigned Problems
Ch 5	Solar Tracking	2	End of Chapter Quizzes and/or Assigned Problems
Ch 6	Charge Controllers and Inverters	2	End of Chapter Quizzes and/or Assigned Problems
Ch 7	Wind Power Systems	2	End of Chapter Quizzes and/or Assigned Problems
Ch 8	Wind Turbine Control	2	End of Chapter Quizzes and/or Assigned Problems
Ch 9	Biomass Technologies	2	End of Chapter Quizzes and/or Assigned Problems
Ch 10	Geothermal Power Generation	2	End of Chapter Quizzes and/or Assigned Problems
Ch 11	Energy from Water	2	End of Chapter Quizzes and/or Assigned Problems
Ch 12	Fuel Cells	2	End of Chapter Quizzes and/or Assigned Problems
Ch 13	Generators	2	End of Chapter Quizzes and/or Assigned Problems
Ch 14	The Electrical Power Grid	2	End of Chapter Quizzes and/or Assigned Problems
	Midterm/Final	4	

Methods of Evaluation:

Homework:

Homework shall be typed or neatly handwritten in pencil on engineering graph paper. There is no provision for make-up of homework assignments. A missed homework assignment is a zero and will be factored into the final grade.

Projects:

Applied mini-projects emphasize teamwork and communication, as well as the application of industry-standard word-processing and spreadsheet software.

Examinations:

There will be one midterm and one final exam scheduled during the semester. Students are expected to take the exams at the scheduled times. Generally, no make-up test will be given except for medical emergencies or other valid reasons for which prior approval has been obtained.

Attendance/Participation:

Students are expected to attend every class period and have homework and project assignments completed and ready to present. The need for professionalism and excellence is reinforced through the requirement for assignments to be completed on time and in a neat and well-organized manner. A missed class does not excuse responsibility for the work covered in class and the homework assignments.

Homework	40%
Projects	10%
Mid-Term Exam	25%
Final Exam	25%
TOTAL	100%

Code of Conduct:

Students are referred to the Student Handbook for SUNY Poly's current Code of Academic Conduct regarding plagiarism and other inappropriate academic activities.

Cancellation of Classes Due to Inclement Weather or Other Emergency:

SUNY Poly has a 24-hour hotline to inform students, faculty and staff when severe winter weather prompts the cancellation of all classes. On-campus, you can call the "Snowline" by dialing ext. 7669 ("SNOW"). Off-campus, Snowline can be reached by calling 315-792-7385. Snowline cards are available at various locations on campus.

In the event of severe weather, Snowline will announce only the cancellation of ALL classes. The cancellation of all classes will also be posted online, at sunypoly.edu, and will be broadcast on radio and television stations in the Utica-Rome, Syracuse and Albany areas. Individual class cancellations are always available at sunypoly.edu/apps/cancelled_classes.

In the event that classes go online due to covid, Blackboard Collaborate will be used.

Accommodations for Students with Disabilities:

Your access in this course is important to me. The SUNY Polytechnic Institute values diversity and inclusion; it is committed to a climate of mutual respect and full participation. The goal is to create a learning environment that is usable, equitable, inclusive and welcoming.

In compliance with the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act, SUNY Polytechnic Institute is dedicated to ensuring comprehensive educational access and accommodations for all registered students seeking access to meet course requirements and fully participate in programs and activities. Students with documented disabilities, medical or mental health conditions are encouraged to request these services by registering with the Office of Student Accessibility Services. Please request accommodations early in the semester, or as soon as you become registered with the Office of Student Accessibility Services, so that we have adequate time to arrange your approved academic accommodation/s. Once Accessibility Services creates your accommodation plan, it is your responsibility to provide me a copy of the accommodation plan.

If you experience any access barriers in this course, such as with printed content, graphics, online materials, etc., reach out to me or Accessibility Services right away. For information related to these services or to schedule an appointment, please contact the Office of Student Accessibility Services using the information provided below.

Office of Student Accessibility Services

SAS@sunypoly.edu

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