

# Course Syllabus

## ALT 120 - Renewable Energy System Technologies 08-10-2017

Fall Semester 2017

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<b>Instructor Information:</b>	Andrew McMahan (919) 545-8036 amcmahan@cccc.edu
<b>Office Hours:</b>	1:00 – 2:00 Monday or by appointment
<b>Office Location:</b>	Sustainable Tech Bldg, Rm 144
<b>Class Time:</b>	Tuesday - 9:00 a.m. to 12:50 p.m.
<b>Class Location:</b>	Room 137, Sustainable Tech Building
<b>Course Prerequisite:</b>	This course has no prerequisite coursework
<b>Course Credit Hours:</b>	3 credit hours

### Course Description:

This course provides an introduction to multiple technologies that allow for the production and or conservation of energy from renewable sources. Topics will include solar photovoltaics, solar thermal, wind power, hydroelectric, tidal energy, and energy conservation methods. Upon completion, students should be able to demonstrate an understanding of renewable energy production and its impact on humans and their environment.

### Rationale:

Students should take this course if they have the goal of completing a degree in Sustainability Technologies, certificate in Renewable Energy, or simply want to learn more about renewable energy.

### Expected Student Outcomes:

*Upon completion of this course, students should be able to...*

- Understand the difference between renewable and nonrenewable energy sources
- Compare and contrast various sources of renewable energy
- Evaluate possibilities for various renewable energy sources in different geographic locations
- Locate resources used to make informed decisions about various renewable energies
- Identify mechanical components of renewable energy systems
- Describe the flow of electrons from power source to end user
- Implement changes to their own lives to promote energy efficiency and renewable energies

**Required Textbook:** Boyle, Godfrey; Renewable Energy: Power for a Sustainable Future. 3<sup>rd</sup> Edition. Oxford University Press, 2012.

**Textbook ISBN #:** 9780199545339

## Responsibilities of the Instructor and the Student:

*The student is expected to:*

- Arrive in class on-time ready to participate with class materials and assignments completed
- Access course materials on the college blackboard site
- Utilize cougarmail for course correspondence
- Read the syllabus and the assignments
- Complete all assignments according to the timetable provided by the instructor
- Actively participate in classroom discussions
- Respect the thoughts and opinions of others in class
- Dress appropriately for all field trips and labs.

*The student can expect the instructor to:*

- Attend every scheduled class meeting or arrange for alternate instruction
- Be on time and prepared to teach every class
- Respect the thoughts and opinions of students
- Be regularly accessible by e-mail and/or phone, and keep regularly scheduled office hours
- Encourage student interaction through campus events and college resources
- Share opportunities for sustainability activities outside the classroom (conferences, workshops, etc.)
- Prepare a course syllabus that reflects the objectives of this course
- Evaluate student progress and give prompt feedback to weekly assignments

## Grading Policy:

### Grading Scale

A = 100 – 90  
B = 89 – 80  
C = 79 – 70  
D = 69 – 60  
F = Below 60

### Grade Distribution

Tests (4) = 40 %  
Lab/In Class Grades = 15 %  
Homework = 15 %  
Quizzes = 20 %  
Participation = 10 %

## Attendance Policy:

Central Carolina Community College's 80% attendance policy is enforced. This means that to receive credit for the course, you may miss no more than 20% of the scheduled contact hours without the approval from the dean.

*Exceeding absence limitations may result in being dropped from the course.*

## Exam Policy:

If for some reason you must miss a scheduled examination, you must contact the instructor prior to your absence with an acceptable excuse. Failure to do so will result in the loss of 15 points from the make-up test grade. Any student who missed a scheduled exam must be prepared to take the exam on the day of their return to class. The instructor has the right to decide whether a make-up test will or will not be allowed.

## Lab Policy:

The instructor has the right to remove a student from any lab if the instructor feels a student is being disruptive, unsafe, careless, or is causing a threat themselves or others. Many of the labs in this course require long pants and close-toed shoes for proper safety. Close-toed shoes, appropriate clothing, and protective eyewear must be worn at all times during class activities. Students will not be allowed to participate in class activities without proper attire.

### **Academic Honesty:**

Academic honesty is expected of each student. Cheating, plagiarism, and similar acts of dishonesty are prohibited throughout this course. Specific examples of academic honesty violations and consequences for dishonesty are outlined in the Student Planner and Handbook, the college website and the CCCC Catalog. This course will adhere to the guidelines and penalties for academic dishonesty that are communicated in these college publications.

### **Special Services:**

Central Carolina Community College has adopted the following policy to guide its delivery of services to students with disabilities: “No otherwise qualified individual . . . shall, by reason of disability be excluded from the participation in, be denied the benefits of, or subjected to discrimination under any program or activity at Central Carolina Community College. The College will make program modification adjustments in instructional delivery and provide supplemental services to enable students with disabilities to participate in activities compatible with their condition and interests”. The [Special Populations](#) Coordinator in the Student Development Services on the Lee campus will assist you. Call (919) 718-7273 or 1-800-682-8353, ext. 7273 for information or to set an appointment.

### **Academic Assistance Center:**

Academic Assistance Centers - located on the Chatham, Harnett, and Lee campuses - offer a range of options for assistance, both in person and online. Each Academic Assistance Center offers the following services:

[Open Computer Lab](#)  
[Tutorial Program](#)  
[Proctoring Exams](#)

[Listening/Language Lab](#)  
[Make-up Testing](#)  
[Assistive Technology](#)

Please use the academic assistance center for tutoring, assignment assistance, printing, checking email etc. This is a campus resource to help your success. Familiarize yourself with the assistance center and schedule your time on campus to use the center.

### **Withdrawing from the Course:**

Should the student desire to withdraw from the course, it is the **student’s responsibility** to obtain the proper drop-add form from Student Development, complete all the information on this form, and bring the form to the instructor for their signature. **Failure to follow this procedure may result in a failing grade for the course.**

## Fall 2017

### ALT 120 Course Calendar - *Subject to Change*

Week	Date	Topic
1	Aug. 22	Syllabus / Introductions / Energy Basics
2	Aug. 29	Electrical Basics / Energy Generation / Petroleum / Coal
3	Sep. 05	Solar Thermal Energy
4	Sep. 12	<b>Exam 1 - Energy Basics / Thermal Energy / Petroleum &amp; Coal</b> Solar Photovoltaics
5	Sep. 19	Solar Lab: Site Selection/ Module Efficiency
6	Sep. 26	Bioenergy Lab: Biochar
7	Oct. 03	Hydroelectric Power
<b>Oct. 10</b>		<b><u>No Class – Go to your Monday Classes</u></b>
8	Oct. 17	<b>Exam 2 - PV, Bioenergy, Hydro Energy</b> Field Trip: Hydroelectric Power Plant
9	Oct. 24	Guest Lecture
10	Oct. 31	Wind Energy
11	Nov. 07	Geothermal Energy / Ground Source Heat Pumps
12	Nov. 14	<b>Exam 3 – Wind, Geothermal</b> Tidal Energy / Wave Energy
13	Nov. 21	Nuclear Energy / Field Trip
14	Nov. 28	Energy Policy / Transitioning to Renewables
15	Dec. 05	Field Trip
16	Dec. 12	<b>Exam 4 – Policy / Tidal Energy / Wave Energy</b>