2012-2013 SHORT SIGNATURE SHEET

UNC CHARLOTTE

Date: _November 25, 2013 _____

Subject: _Establish new course: CEGR4246 Energy and the Environment _____

Originating Department: _Civil & Environmental Engineering_____

TYPE OF PROPOSAL: UNDERGRADUATE___X__ GRADUATE_____ UNDERGRADUATE & GRADUATE__X_
(Separate proposals sent to UCCC and Grad. Council)

DATE RECEIVED	DATE FORWARDED	COMMENTS: APPROVED, APPROVED WITH REVISIONS, ETC.	SIGNATURES
			PERSON ORIGINATING PROPOSAL Martin Kane 11/27/13
		Approved	**DEPARTMENT CHAIR** John Daniels 12/4/13
4-Dec 2013	11-Dec 2013	*Approved*	**COLLEGE CURRICULUM COMMITTEE CHAIR** [print name here:] Wesley Williams
	12/15/13	*Approved*	**COLLEGE DEAN** [print name here:]
		Approved	**GENERAL EDUCATION** (if applicable; for General Education courses only) [print name here:]
		Approved	**UNDERGRADUATE COURSE & CURRICULUM COMMITTEE CHAIR** (for undergraduate courses only)
		Approved	**GRADUATE COUNCIL CHAIR** (for graduate courses only)
			FACULTY GOVERNANCE ASSISTANT (received and processed in Academic Affairs)

Revised 08/10/12
OAA/lz

UNC CHARLOTTE

SHORT FORM
COURSE AND CURRICULUM PROPOSAL

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*To: Undergraduate Course and Curriculum Committee Chair

From: Department of Civil and Environmental Engineering (CEE)

Date: November 25, 2013

Re: Proposal for New Course: CEGR 4246 – Energy and the Environment

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The Short Form is used for minor curriculum changes. Minor changes may include:

- Changes to course numbering (note: must follow Course Numbering Policy)
- Editorial changes to current catalog copy
- Individual new courses (undergraduate only)
- Other small changes that have limited to no impact on other departments or units

Submission of this Short Form indicates review and assessment of the proposed curriculum changes at the department and collegiate level either separately or as part of ongoing assessment efforts.

*Proposals for undergraduate courses should be sent to the Undergraduate Course and Curriculum Committee Chair. Proposals related to both undergraduate and graduate courses, (e.g., courses co-listed at both levels) must be sent to both the Undergraduate Course and Curriculum Committee and the Graduate Council.

SUMMARY: The CEE Department proposes to add an elective course, CEGR 4246, Energy and the Environment, to its undergraduate curriculum leading to the BSCE degree. This course has been taught for several semesters as a "topics" course (CEGR 4090). It has been well-received by students and well-regarded by the faculty. A review by the CEE Curriculum Committee resulted in a strong recommendation that this course be offered as a permanent elective in the undergraduate curriculum, and the CEE Faculty agreed. Therefore, a permanent course number and a permanent catalogue description are requested.

FOR CONSULTATION WITH OTHER DEPARTMENTS:

1. Does the proposed change affect other departments (including additions and/or changes to degree requirements or prerequisites offered in other departments)?
   _____Yes ____X___ No

2. If Yes, please list the other departments affected by the proposed change:

3. Have you consulted with each department listed in item 2 regarding the proposed change?

   _____Yes _____No

   Result(s) of Consultation(s) (please attach documentation):

   For a new course or for major modification of an existing course, include Consultation on Library Holdings.

   Attached.

RESOURCES:

1. For a new course or revisions to an existing course, check all the statements that apply:
   ____ This course will be cross listed with another course.
   __X_ There are prerequisites for this course.
   ____ There are co-requisites for this course.
   ____ This course is repeatable for credit.
   ____ This course will affect the number of credits hours for its program.
   ____This proposal results in the deletion of an existing course(s) from the degree program and/or catalog.
   This proposal will alter and agreement with a North Carolina community college.

   For all items checked above, applicable statements and content must be reflected in the proposed catalog copy.

2. Indicate the additional resources required, if any, to implement and maintain the proposed change.

CREDIT HOUR: Review statement and check if applicable

X The appropriate faculty committee has reviewed the course outline/syllabus and has determined that the assignments are sufficient to meet the University definition of a credit hour.

PROPOSED CATALOG COPY:

CEGR 4246. Energy and the Environment. (3) Prerequisite: CEGR 3141 or consent of CEE department. A quantitative survey of the sources and uses of energy and an analysis of their economic, environmental, and social impacts to society.

ACADEMIC PLAN OF STUDY: If the proposed change will impact an existing Academic Plan of Study, provide updated Academic Plan of Study in template format.

STUDENT LEARNING OUTCOMES; If applicable, please indicate what SLOs are supported by this course or whether this curricular change requires a change in SLOs or assessment for the degree program.

TEXTBOOK COSTS: It is the policy of the Board of Governors to reduce textbook costs for students whenever possible. Have electronic textbooks, textbook rentals, or the buyback program been considered and adopted? Considered.

IMPORTANT NOTE: A Microsoft Word version of the final course and curriculum proposal should be sent to facultygovernance@uncc.edu upon approval by the Undergraduate Course and Curriculum Committee and/or Graduate Council chair.

UNC CHARLOTTE

J. Murrey Atkins Library

Consultation on Library Holdings

To: **Martin Kane**

From: **Alison Bradley**

Date: **11/27/13**

Subject: **CEGR 4246 – Energy and the Environment**

Summary of Librarian's Evaluation of Holdings:

Evaluator: **Alison Bradley** **Date:** **11/27/13**

Check One:

1. Holdings are superior _____
2. Holdings are adequate __x__
3. Holdings are adequate only if Dept. purchases additional items. _____
4. Holdings are inadequate _____

Comments:
Library holdings should be adequate to support student research for this course (see list of items held by subject heading below). Students will have access to relevant databases including Compendex, IEEE Xplore, Environment Complete, Environmental Sciences and Pollution Management, and many others.

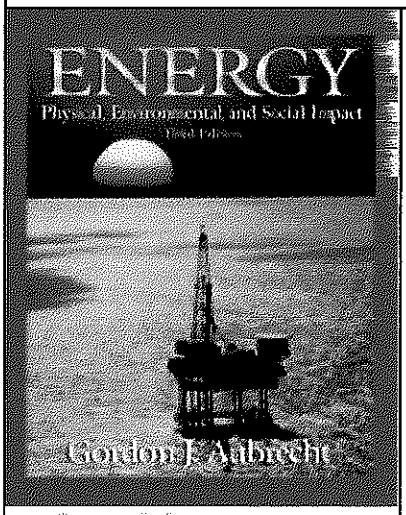
LC Subject Heading	Books	Journals
Electric power production	231	30
Electric power-plants Environmental aspects	127	7
Renewable energy sources	577	45
Power resources	1228	247

Alison Bradley

Evaluator's Signature

11/27/13

Date



› Course Info
› Homework Assignments
› Old Tests
› Links
› Announcements

Course Description

Survey of the Methods of Energy Production, and the Physical, Environmental, and Social Impact of Each Method

Prerequisites: One-year of college level calculus, one-year of college level physics

Course Objectives

The overall objective of this course is to provide the student with an understanding of the costs and benefits of the various methods for meeting society's energy needs. In particular, students in the class should:

- understand the physical principles and constraints related to electricity generation, transmission, and consumption
- understand the broad categories of methods for producing electrical power,
- understand the costs and benefits of the various means of electrical production,
- understand the costs and benefits of renewable means of electrical energy production,
- understand the environmental impacts of fossil-fuel based electrical energy production, and
- understand the environmental regulations related to energy production

Text

Aubrecht, Gordon J. 2006. "Energy, Physical, Environmental, and Social Impact, Third Edition." Pearson/Addison Wesley Publishers, San Francisco, CA. ISBN 0-13-093222-1

Grading and Exams

There will be two tests during the semester and one comprehensive final examination. There will also be a group project that will require an oral presentation and a short (4-8 page) written project report. Homework problems will also

be assigned and graded. The final numerical grade will be a weighted average of the tests, the final, and the homeworks, as follows:

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Mid-term test:   30%
Homeworks:       10%
Group Project:   30%
Final:           30%
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Group Project

Groups of three students each will complete a project that has the following components

1. a group oral presentation of approximately 30 minutes
2. a paper of 6-9 pages
3. four sample homework problems (with answers) covering the subject matter of the project
4. A two-page flyer in .pdf format suitable for emailing to the class

The subject of the project should be a controversial topic related to Energy and the Environment that is suitable for presenting opposing viewpoints. An example project might be "More Nuclear Power Plants for the U.S., Yes or No?" The oral presentation and paper should have three sections

1. An introduction to the subject (e.g. Nuclear Power)
2. An argument supporting one particular side of an argument (e.g. the US needs more nuclear power plants)
3. An argument for the dissenting point of view (the US should not build more nuclear power plants)

The four components of the project will be weighted as follows:

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Oral Presentation: 30%
Two-page Flyer:    20%
Homework Problems: 25%
Paper:             25%
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Student Conduct

All materials submitted for grades (e.g. test and final problems, homework assignments) must represent the student's original work. Students may discuss homework problems, including comparing answers. Copying another student's work, or copying a solutions manual is strictly forbidden. It is the responsibility of every student to know and observe the requirements of the UNCC Code of

Student Academic Integrity. This code forbids cheating, fabrication or falsification of information, multiple submissions of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonesty. Any student violating the code will be subject to the penalties described in this document. If in doubt, please ask before you engage in any activity about which you are unsure.

Students are responsible for meeting all class deadlines (e.g. completing homework assignments, taking tests and finals). Students must appear at the designated time to take in-class tests and finals to receive any credit, unless **prior** approval is granted for an alternate time. You will not be granted alternate test or final times afterwards.

Class Schedule

Energy and the Environment, Spring 2009, Class Schedule

Date	Home-work	Class	Topics	Reading Assignment
Jan. 13		1	Class Introduction, Science, Technology & Limits, The Necessity of Finite Population	Chapters 1 and 2
Jan. 15		2	Work, Energy, and Power	Chapter 3
Jan. 20			Snow day, no class	
Jan. 22	Hwk. 1 (1-3) due	3	Electricity, Projections of Energy Consumption	Chapters 4 and 5
Jan. 27		4	Atoms & Chemical Energy	Chapters 6
Jan. 29		5	Energy Generation Efficiency, Thermodynamics	Chapter 7
Feb. 3	Hwk 2. (4-6) due	6	Production & Distribution of Electricity	Chapter 8
Feb. 10		7	Conservation as an Energy Resource	Chapter 9
Feb. 12		9	Mineral Resources, Recycling & Reuse	Chapters 10, 11
Feb. 17	Hwk. 3 (7-9) due	10	Fossil-Fuel Resources	Chapter 12
Feb. 19		11	Review, Chapters 1 -11	
Feb. 24		12	In-class Test #1, Chapters 1-11	
Feb. 26		13	Fossil Fuel Resources	Chapter 12
Mar. 3				
Mar. 5			Environmental Impacts & Pollution from Generating Facilities	Chapter 13-14
Mar. 10-12			Spring Break, no classes	
Mar. 17				
Mar. 19		14	Weather & Climate	Chapter 16
Mar. 24	Hwk. 4 (10-11 due)	15	Climate Change and Human Activity	Chapter 17
Mar. 26		16	Nuclear Reactions, Nuclear Energy Production Basics	Chapters 18-19
Mar. 31		17	Nuclear Energy Production Basics	Chapter 19

April 2			Safety & Nuclear Energy, Project Presentation	Chapter 20
April 7			Solar Energy: Wind, Photovoltaics, Large-Scale Installations	Chapter 21
April 9	Hwk. 5 (13, 14) due		Project Presentation	Chapter 21
April 14	Hwk. 6 (16, 17) due		Solar Energy and Water	Chapter 22
April 16			Project Presentations	Chapter 22
April 21	Hwk. 7 (18, 19, 20) due		Biomass Energy	Chapter 23
April 23			Energy Storage and Energy Alternatives, Project Presentations	Chapter 25
April 28	Hwk. 8 (21-25) due		Review, Project Presentations	
May 5, 2-5 PM			Final	