UK
KENTUCKY

December 2, 2010

Tom Lester
Dean, College of Engineering
University of Kentucky
Lexington, KY 40506

Dear Dean Lester,

Attached is a proposal for creation of the course "EGR 240: Global Energy Issues", as well as documentation for submission of the course for satisfaction of the Global Dynamics requirement of the university's Gen Ed program.

The attached course proposal was initially reviewed by the Power and Energy Institute of Kentucky (PEIK) faculty on September 14, 2010. Faculty present at the meeting were Y.T. Cheng, Don Colliver, Aaron Cramer, Paul Dolloff, Larry Holloway, Yuan Liao, Johne' Parker, Vijay Singh, Joe Sottile, and Tim Taylor. Also present at the meeting were Brenda McMurry, Bob Gregory, Sheila Medina. Additional supportive materials have been added to the proposal based on the teaching of the course this semester.

Please let me know if there is any further information that I can provide to assist with the review and approval of this proposal.

Sincerely,

Larry Holloway
TVA Professor of Electrical Engineering
Chair, Department of Electrical and Computer Engineering
Director, Power and Energy Institute of Kentucky (PEIK)

Attached files:

1. Gen Ed Course Approval Cover Sheet
2. Gen Ed Course Review Form for New Submissions
3. Syllabus of course and supplemental documentation (example assignments) for demonstration of the Global Dynamics learning objectives requirements
4. New course creation form
5. Signature Routing Log

General Education Course Approval Cover Sheet

Date of Submission 12/1/2010

1. Check which area(s) this course applies to

Inquiry – Arts & Creativity	☐	Composition & Communications - II	☐
Inquiry – Humanities	☐	Quantitative Foundations	☐
Inquiry – Nat/Math/Phys Sci	☐	Statistical Inferential Reasoning	☐
Inquiry – Social Sciences	☐	U.S. Citizenship, Community, Diversity	☐
Composition & Communications - I	☐	Global Dynamics	☒

2. Provide Course and Department Information.

Department:	EGR (Engineering)		
Course Prefix and Number:	EGR240	Credit hours:	3
Course Title:	Global Energy Issues		
Expected # of Students per Calendar Yr:	60	Course Required for Majors in your Program (check one)?	Yes ☐ No ☒
Prerequisite(s) for Course?	No		

This request is for (check one) A New Course ☒ An Existing Course ☐

Departmental Contact Information

Name:	Larry Holloway	Email:	holloway@engr.uky.edu
Office Address:	453 FPAT	Phone:	859-323-8523

3. In addition to this form, the following must be submitted for consideration:

- A syllabus that conforms to the Senate Syllabi Guidelines, including a mapping of the stated learning outcomes to those presented on the corresponding Course Template.
- A completed Course Review Form. See the Gen Ed website http://www.uky.edu/gened/forms.html for these forms. Proposals prepared prior to September 15th, 2010 are allowed to use a narrative instead of the Course Review Form.
- If applicable, a major course change form for revision of an existing course, or a new course form for a new course.

4. Signatures

Department Chair: Larry Holloway Date: 12-2-10

Dean: Richard Donovan Date: 3/8/11

All proposals are to be submitted from the College Dean's Office
Submission is by way of the General Education website http://www.uky.edu/gened

Course Review Form
Global Dynamics

Course Name: EGR 240: Global Energy Issues	**For Review Committee Use Only**
College: College of Engineering	Accept ☐ Revisions Needed ☐

Using the course syllabus as a reference, identify when and how the following learning outcomes are addressed in the course. Since learning outcomes will likely be addressed multiple ways within the same syllabus, please identify a representative example (or examples) for each outcome.

☑ Course activities which enable students to demonstrate a grasp of the origins and shaping influence of human diversity and issues of equality in the world.

Date/location on syllabus of assignment:

See "Example Global Content" 2.a. (Example assignment is reading from text for 9/13/2010)

Brief Description:

Students will learn about cultural and economic differences that arose in different areas of the world due to scarcity and availability of energy. They will also examine how changing shifts in energy sources could effect the economic and political balances in the world today.

☑ Course activities which enable students to demonstrate an understanding of the civic and other complexities and responsibilities of actively participating in a diverse, multiethnic, multilingual world community.

Date/location on syllabus of assignment:

See "Example Global Content" 2b,3b. Several assignments cover the tradeoffs between energy benefits and the broader costs (environmental, political, societal, economic, etc.), and how different nations address these.

Brief Description:

Intelligent energy use and development is an important civic responsibility because of the economic impacts and environmental impacts of these choices. Different nations and regions address this responsibility different based in part on their historical perspectives, their geography, their culture, and their economies.

☑ Course activities which enable students to demonstrate an awareness of how individual and collective decision making and civic responsibilities often generate ethical dilemmas, conflicts, and trade-offs that must be thoughtfully evaluated, weighed, and resolved.

Date/location on syllabus of assignment:

This is a common theme throughout the course. See Examples of Global Content items include 7a and 7b.

Brief Description:

The course is focused on the ethical dilemmas, conflicts, and trade-offs associated with energy cost and availability (with associated impacts on prosperity, way of life, and culture) versus civic and global responsibilities for the environment, for international development, and for national security. Students also consider the opportunities for new technical and economic opportunities with the changing energy landscape.

☑ Course activities which enable students to demonstrate an awareness of major elements of at least one non-US culture or society, and its relationship to the 21st century context. This does not preclude a studied examination of the historical evolution of such issues, or an emphasis on one prominent time period.

Date/location on syllabus of assignment:

See the detail of the semester project.

Brief Description:

Students will select a country and examine its energy sources and uses and how these relate to its culture and society. Students will do a comparative analysis of this country with another. Students will recommend an energy plan for the country (or use sources of an already proposed plan, if one exists) and do an analysis of the possible impacts this plan will have on the country.

☑ Course activities which enable students to demonstrate an understanding of how local features (economic, cultural, social, political and religious) of urban or rural communities, ethnicities, nations and regions are often linked to global trends, tendencies, and characteristics that mutually shape one another.

Date/location on syllabus of assignment:

See the October 20 homework as an example. See also Examples of Global Content 3a,3b,4a, for example.

Brief Description:

This is a common theme. The global theme is energy, and the course regularly examines how it affects communities, nations, and regions.

☑ Evidence that this course's learning environment encourages students to actively learn about, and gain understanding of, at least <u>two</u> of the following:

- ⊘ social, cultural, and institutional change;
- ⊘ civic engagement;
- ⊘ regional, national or cross-national comparisons;
- ○ power and resistance.

Date/location on syllabus of such evidence:

See the homework for Sept. 20, 2010 for an example of social, cultural, and institutional change.
See the Semester Project (Dec. 6, 2010) for an example of cross-national comparisons.

Brief description:

Through international and historical comparisons, students learn the relationships of energy to changes in health and life expectancy, education, human migrations, economic growth, environment, culture, international politics and conflicts, and lifestyles. Students also gain an understanding of public policy issues related to energy and are thus better prepared for civic engagement in public debates of issues, as well as in their own individual choices.

☑ An assignment, constituting a minimum of 15% of the course grade, which can be submitted as an artifact of the above set of six student learning outcomes.

Date/location on syllabus of such an assignment:

See the project description in the syllabus.

Brief description:

Students will select a country and examine its energy sources and uses and how these relate to its culture and society. Students will do a comparative analysis of this country with another (possibly the US). Students will recommend an energy plan for the country (or use sources of an already proposed plan, if one exists) and do an analysis of the possible impacts this plan will have on the country.

☑ The non-US focus constitutes at least 50% of the course.

Brief Description:

Energy is a global issue, and there is heavy emphasis on the international aspects of energy throughout the lectures and readings. International aspects of the course include comparisons of energy sources, energy usage, energy impacts, and energy policies.

☑ Palpable evidence that students make effective use of library facilities or information sources, when applicable, in order to demonstrate information literacy in the exploration of the course's major thematic foci.

Date/location on syllabus of such an assignment:

Extensive use of reading sources, beyond the textbook. See assignment list.

Brief description:

Extensive use of reading sources beyond the textbook. These include readings from newspapers, magazines, government and non-government (NGO) reports, and scientific literature (IEEE magazines). See the final project description for an example of data collection guidelines for project research.

Reviewer Comments:

APPLICATION FOR NEW COURSE

1. General Information.

a. Submitted by the College of: Engineering Today's Date: 9/10/10

b. Department/Division: Electrical and Computer Engineering

c. Contact person name: Larry Holloway Email: holloway@engr.uky.edu Phone: 859-323-8523

d. Requested Effective Date: ☒ Semester following approval OR ☐ Specific Term/Year[1] : _____

2. Designation and Description of Proposed Course.

a. Prefix and Number: EGR 240

b. Full Title: Global Energy Issues

c. Transcript Title (if full title is more than 40 characters): _____

d. To be Cross-Listed[2] with (Prefix and Number): _____

e. Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours[3] for each meeting pattern type.

2 Lecture _____ Laboratory[1] _____ Recitation xx Discussion _____ Indep. Study

_____ Clinical _____ Colloquium _____ Practicum _____ Research _____ Residency

1 Seminar _____ Studio _____ Other – Please explain: _____

f. Identify a grading system: ☒ Letter (A, B, C, etc.) ☐ Pass/Fail

g. Number of credits: 3

h. Is this course repeatable for additional credit? YES ☐ NO ☒

If YES: Maximum number of credit hours: _____

If YES: Will this course allow multiple registrations during the same semester? YES ☐ NO ☐

i. Course Description for Bulletin: This is a cross-disciplinary course open to all majors. This course critically examines issues associated with the technical, economic, societal, environmental, and geopolitical aspects of energy. The course is taught through lectures, discussions, and invited speakers.

j. Prerequisites, if any: none

k. Will this course also be offered through Distance Learning? YES[4] ☐ NO ☒

l. Supplementary teaching component, if any: ☐ Community-Based Experience ☐ Service Learning ☐ Both

3. Will this course be taught off campus? YES ☐ NO ☒

4. Frequency of Course Offering.

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[1] Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.

[2] The chair of the cross-listing department must sign off on the Signature Routing Log.

[3] In general, undergraduate courses are developed on the principle that one semester hour of credit represents one hour of classroom meeting per week for a semester, exclusive of any laboratory meeting. Laboratory meeting, generally, represents at least two hours per week for a semester for one credit hour. (from *SR 5.2.1*)

[4] You must *also* submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.

APPLICATION FOR NEW COURSE

a. Course will be offered (check all that apply): ☒ Fall ☒ Spring ☐ Summer

b. Will the course be offered every year? YES ☒ NO ☐

If NO, explain: _____

5. Are facilities and personnel necessary for the proposed new course available? YES ☒ NO ☐

If NO, explain: _____

6. What enrollment (per section per semester) may reasonably be expected? 30

7. Anticipated Student Demand.

a. Will this course serve students primarily within the degree program? YES ☐ NO ☒

b. Will it be of interest to a significant number of students outside the degree pgm? YES ☒ NO ☐

If YES, explain: This course is being designed to satisfy the General Education Global Dynamics requirement

8. Check the category most applicable to this course:

☐ Traditional – Offered in Corresponding Departments at Universities Elsewhere

☒ Relatively New – Now Being Widely Established

☐ Not Yet Found in Many (or Any) Other Universities

9. Course Relationship to Program(s).

a. Is this course part of a proposed new program? YES ☒ NO ☐

If YES, name the proposed new program: Proposed Undergraduate Certificate in Power and Energy

b. Will this course be a new requirement[5] for ANY program? YES ☒ NO ☐

If YES[5], list affected programs: Proposed Undergraduate Certificate in Power and Energy

10. Information to be Placed on Syllabus.

a. Is the course 400G or 500? YES ☐ NO ☒

If YES, the *differentiation for undergraduate and graduate students must be included* in the information required in ***10.b***. You must include: (i) identification of additional assignments by the graduate students; and/or (ii) establishment of different grading criteria in the course for graduate students. (See *SR 3.1.4.*)

b. ☒ The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from ***10.a*** above) are attached.

[5] In order to change a program, a program change form must also be submitted.

APPLICATION FOR NEW COURSE

Signature Routing Log

General Information:

Course Prefix and Number: EGR 240

Proposal Contact Person Name: Larry Holloway Phone: 323-8523 Email: holloway@engr.uky.edu

INSTRUCTIONS:

Identify the groups or individuals reviewing the proposal; note the date of approval; offer a contact person for each entry; and obtain signature of person authorized to report approval.

Internal College Approvals and Course Cross-listing Approvals:

Reviewing Group	Date Approved	Contact Person (name/phone/email)	Signature
Power and Energy Institute Kentucky (PEIK) faculty group (in College of Engineering -- see cover letter)	9/14/2010	Larry Holloway / 859-323-8523 / holloway@engr.uky.edu	Lawrence Holloway
Engineering faculty	3/8/11	Richard Swigard / 48827 / rswigar@engr.uky.edu	
		/ /	
		/ /	
		/ /	

External-to-College Approvals:

Council	Date Approved	Signature	Approval of Revision[6]
Undergraduate Council	11/22/2011	Sharon Gill	
Graduate Council			
Health Care Colleges Council			
Senate Council Approval		University Senate Approval	

Comments:

[6] Councils use this space to indicate approval of revisions made subsequent to that council's approval, if deemed necessary by the revising council.

EGR240: Global Energy Issues
Fall 2010
(Taught in Fall 2010 as EGR199 - 010)

Time and Location:

MWF 3:00 pm, F Paul Anderson Tower 267

Instructor:

Dr. Larry Holloway
Office: 453 F.P.Anderson Tower
Office Hours: MW 4-5
(appointments can also be scheduled through Brenda McMurry, 257-1834)
Office Phone: 323-8523
Email: Holloway@engr.uky.edu

Overview: This is a cross-disciplinary course open to all majors. The course critically examines issues associated with the technical, economic, societal, environmental, and geopolitical aspects of energy. The course is taught through lectures, discussions, and invited speakers.

This course is being designed to satisfy the Global Dynamics requirement of the University of Kentucky's General Education Requirement. However, approval has not yet been granted.

Prerequisites: None.

Student Learning Outcomes

After completing this course, the student will be able to:

- Describe basic concepts of energy and power, including types of energy, conversion of energy, and conservation of energy.
- Understand the relationships between energy use and economic activities, standard of living, and cultures.
- Understand the current mix of energy sources in use around the world, including coal, natural gas, oil, nuclear, solar, wind, geothermal, hydro, and biomass. For each of these, describe the basic technologies, the pros and cons of each, and the major challenges.
- Understand the basics of electric power, including emerging issues of smart grid transmission and distribution.
- Understand the basic environmental issues with energy generation and use.

- Understand the basic policy issues of power and energy, including in environmental regulation, pricing, and development.
- Understand the basic economic aspects of power and energy, including energy markets.
- Understand the basic geopolitical issues of power, including national security and economic security.

Texts:

This class will rely on several sources for material. The required text is:

Energy at the Crossroads: Global Perspectives and Uncertainties, by Vaclav Smil. MIT Press, 2005.

In addition, reading assignments will come from recent articles in magazines and journals (to be available on-line through UK library access). Example outside reading assignments will be taken from IEEE Spectrum, IEEE Power and Energy Magazine, Time, Wall Street Journal, New York Times, and others. Almost all outside reading assignments will be available electronically, either freely available on the web or through the University of Kentucky Libraries electronics subscriptions. For articles in the UK Libraries subscriptions, access requires you to be on a computer operating through the on-campus network to have access to the websites.

There will be probably three movie assignments throughout the semester. Assigned movies in most cases are available through many rental sources, including local rental stores and internet rentals (such as Netflix). A movie presentation time will be arranged outside of class for students who don't otherwise have access to these movies.

Global Dynamics and General Education Requirements

This course is being designed to satisfy the *Global Dynamics* requirement of the University of Kentucky's General Education Requirement. (Approval is pending.) As such, the course will satisfy the following:

1. Students will complete a project exploring energy from a global perspective.
2. At least 50% of the course will focus on the global aspects of energy.
3. Students will demonstrate an understanding of the change of energy sources and uses over time, and will understand energy in a comparative and cross-national manner.
4. Students will understand how energy issues affect different communities, nations, and regions, including the impact of energy on the economic, cultural, social, and political aspects of these communities, nations, and regions.

5. Students will demonstrate an understanding of the civic complexities and responsibilities of energy choices and policies, including both the commonalities and the differences globablly.

6. Students will demonstrate an awareness of the elements of at least one non-US culture or society with respect to energy. This is done through the class project.

7. Students will demonstrate a grasp of the global inequalities and diversities that exist with respect to energy across the world.

Course Format

The course will be taught through lectures, discussions, and invited speakers. A number of topics will be covered during the semester, and for each topic, the typical format will be as follows:

- 2 to 3 lectures on the topic
- 1 discussion class on the topic, where students are to read outside material and come prepared to discuss it during class.
- 1 outside speaker on the topic. Speakers will come from industry, government, and research.

Grading

The grade in this class will consist of the following:

- (200 pts.) Two tests, of 100 points each. This will be primarily over material covered in the lectures.
- (300 pts.) Homeworks, class preparations, and discussions: There will be a homework assignment approximately once per week. Example homework assignments include the following: basic analysis of data similar to class analyses, finding comparative information through the internet or libraries. Also, students will be required to be prepared for class and to then to engage in class discussions. There may be micro-quizzes to confirm students have read assigned readings. Students will be selected on a rotating basis to lead off the discussions. Larger assignments will be weighted more than smaller assignments.
- (100 pts.) Project: The students will complete a project that explores a significant energy issue from a global perspective.

Students should hand in material on the day it is due. Unless an absence or delay is excused, late assignments will receive a 10% penalty. Class participation grades for an unexcused absence will be zero points.

The grading scale is:

90%-100%: A
80%-89%: B
70%-79%: C
60%-69%: D
Below 60%: E

If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center for coordination of campus disability services available to students with disabilities.

Final Exam Information

The final exam will take place on the date and time established by the university for courses with sharing the days and times as this course. Information is available from www.uky.edu/registrar.

Mid-term Grade

Mid-term grades will be posted in myUK by the deadline established in the Academic Calendar (http://www.uky.edu/Registrar/AcademicCalendar.htm)

COURSE POLICIES:

Submission of Assignments:

Assignments are due at the beginning of the class period on the due date assigned. If the due date is not a class date, then assignments may be submitted by by email or in the instructor's mail box in 453 FPAT. Assignments that are late may be not accepted. If the instructor chooses to accept a late assignment, late points may be deducted at the discretion of the instructor.

Attendance Policy.

You are expected to attend all classes. Repeated unexcused absences may lead to a grade penalty of up to 10% of the final grade.

Excused Absences:

Students need to notify the professor of absences prior to class when possible. S.R. 5.2.4.2 defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit "reasonable cause for nonattendance" by the professor.

Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Information regarding dates of major religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-2754).

Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused or unexcused) per university policy.

Verification of Absences

Students may be asked to verify their absences in order for them to be considered excused. Senate Rule 5.2.4.2 states that faculty have the right to request "appropriate verification" when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

Academic Integrity:

Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: http://www.uky.edu/Ombud . A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Part II of Student Rights and Responsibilities (available online http://www.uky.edu/StudentAffairs/Code/part2.html) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about the question of plagiarism involving their own work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be.

Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone. When a student's assignment involves research in outside sources of information, the student must carefully acknowledge exactly what, where and how he/she employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain (Section 6.3.1).

Please note: Any assignment you turn in may be submitted to an electronic database to check for plagiarism.

Accommodations due to disability:

If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address: jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.

Outline of classes, with Example of Global Content for class sections:

1. Introduction to energy and power: Definitions, measuring, comparing, efficiency, energy flows

    a. This content is definitions and introductions, so does not have much global content. However, there is brief mention of different measurements as used internationally.

2. Energy sources: Comparison of major sources of energy with global perspective, including coal, oil, gas, hydro, nuclear, solar, biomass

    a. Review of history of energy, including rise of coal and fossil fuel in England and then at different times in different countries. Also includes cultural and economic differences that arose in different areas of the world due to scarcity or availability of energy.

    b. Overviews of different global energy strategies and issues: Iceland for geothermal, Brazil for biofuels, Finland's nuclear waste storage plan, France's dependence on nuclear, China's Three Gorges hydropower, etc.

3. Energy and Society: Relationships of energy with health, prosperity, culture, perspectives

    a. Examination of linkages (or lack of linkages in some cases) between national energy usage and Gross Domestic Product, infant mortality, life expectancy, Freedom Index, etc. across countries (Source: V. Smil course text).

    b. Examination of impact of energy on rural development in the third world, including education, fertility, disease, economics, and others. (Source: World Bank report on "The Welfare Impacts of Rural Electrification").

4. Energy Use: Major uses of energy, including differences globally

    a. Examination of major categories of energy uses, including heating/cooling (relationship geographically), manufacturing (how global and domestic manufacturing differences depend on differences in energy availability), agriculture, transportation, etc.

5. Energy Generation Technologies and Issues:

    a. A portion of this is overview of technologies, which is not country specific. However, the mix of energy sources used across different countries is examined, as well as why certain countries have the mixes of energy and the technologies that they do. International focus on solar energy in Spain and Germany, coal in the US and China, hydropower in China, wind in Denmark and the UK and Portugal, Geothermal in Iceland, nuclear in France, etc.

6. Electric Power: transmission and distribution basics, introduction to smart grid issues, and differing regulatory strategies and structures.

a. Analysis and comparison of regulatory frameworks and public policies for electricity in US, UK, Europe, Latin America, and India.

7. Energy and the Environment: Effects on environment, including pollution types. Regulation methods.

    a. Discussion of pollution effects globally, including discussion of international efforts to regulate pollution. Topics include acid rain (SO2 and NOx), mercury, and CO2.

    b. Discussion of environmental issues/concerns across almost all energy sources, including hydro, solar, wind, fossil fuels, nuclear.

8. Energy and Policy: Energy policy issues and roles of governments. Energy and War. Energy and National Security.

    a. Discussion of national security issues via case studies for different countries, including issues with Russian gas shutoff in Europe in 2008, OPEC, Hugo Chavez, and others.

9. Energy and Economics: energy and pricing and markets (regulated, deregulated). Effect of energy on economy - energy as damper, or energy as driver of innovation?

    a. Examination of the global move to green energy, and how that can shift the balance of power and economics for countries with the knowhow or the sources of this energy. Open discussion on the Solar Sahara initiative.

The table below shows assignments for the Fall 2010 offering of the course. Example assignments are attached.

Project

The project for this course is an energy study of some country (other than the USA). The project details are given in the attached assignment.

EGR240: Global Energy Issues -- assignments (Fall 2010)				
~~Assignment types:~~				
		"questions"	specific questions regarding class or other presented material	
		"Targeted readings"	specific articles assigned, with targeted questions over key concepts.	
		"Open readings"	Students select an article (typically on a specific topic). Students write a summary with commentary.	
		"Seminar discussion"	summary and commentary/analysis on seminar.	
Date	***Global Content?***	***Type***	***Title and summary objectives***	***Geographical focus***
9/3/2010	N	Open Reading	Student choice of article to discuss/present to class	not specific
9/8/2010	N	questions	Basic definitions and concepts	not specific
9/13/2010	Y	Targeted readings	Portions of Chapter 1 of Smil text, "Energy at the Crossroads: Global Perspectives and Uncertainties", (pp 1-31)	Global and historical perspectives on changing resource bases and use trends.
9/15/2010	Y	Targeted readings	Portions of Chapter 1 of Smil text, "Energy at the Crossroads: Global Perspectives and Uncertainties", on electrical energy use, and electrical energy international trade (pp 31-62)	not country specific, but some coverage of US, Canada, Brazil, Paraguay
~~9/20~~/2010	Y	Targeted~~ed readings~~	~~Socia~~l impacts of energy	3rd world (specifically Phi~~lippines, African~~ nations, Bangladesh), China, and Hungary
9/20/2010	N	Questions on movie	"The Big Energy Gamble", documentary on California's energy plan.	Primarily US (California)
9/22/2010	y	Targeted readings	Nuclear energy and nuclear waste -- cross-national comparison of alternative perspectives and solutions to issues	Finland, France, US
9/27/2010	Y	Targeted Reading	Smil textbook, chapter 5 (pp239-258 and 284-290) on nonfossil energies	Latin America, Asia, Europe, North America
9/29/2010	N	Questions on movie	"Kentucky Coal" documentary	Primarily US (Kentucky), with some global comparisons
10/4/2010	Y	Targeted Reading	Wind energy and issues, with international perspectives	Portugal, Scotland and United Kingdom, Denmark, USA
10/11/2010	Y	Seminar discussion	"Food and Energy in a Sustainable World", Dr. Scott Shearer	China, Brazil, Germany
10/11/2010	Y	Targeted Reading	The 21st Century Grid.	US primarily, but also some discussion of Italy and Sweden
10/18/2010	N	Seminar discussion	"Smart Grid Overview", Dr. Paul Dolloff, East Kentucky Power	US primarily
10/20/2010	Y	Targeted Reading	International comparisons of energy use, its relationship to GDP, industrialization, country size, climate, industrial structure, international differences in personal consumption, infant mortality, life expectancies, food availability, education, and personal freedoms. (Reading from Smil textbook, "Energy at the Crossroads: Global Perspectives and Uncertainties", chapter 2.)	Many countries -- completely global emphasis.
10/25/2010	N	Questions on movie	"Enron: Smartest Guys in the Room" movie documentary	US primarily
10/27/2010	N	Seminar discussion	"Challenges facing electric utility regulators in today's environment", seminar by Kentucky PSC Commissioner James W. Gardner.	US primarily
11/1/2010	N	Seminar discussion	"Kentucky's Energy plan", Dr. Len Peters, Secretary of Kentucky Energy Cabinet	US primarily
11/3/2010	N	Open reading	Students choose an article on energy consumption, use, environment, and policies	not specific
11/8/2010	Y	Targeted Readings	Analysis of public policies on power regulation across countries and regions.	Latin America (Brazil, Chile, Argentina), Europe, United Kingdom, India, US
11/15/2010	N	Seminar discussion	"Kentucky's plaace in a Carbon Constrained World", Dr. Rodney Andrews, CAER	US primarily
11/17/2010	Y	Targeted Reading	Non-economic costs of energy (from Smil Text)	Global
11/19/2010	Y	Open reading	Students choose an article on CO2 issues, including technologies, management, and climate change.	Global
11/22/2010	N	Seminar discussion	"Carbon's cost to electricity's consumer", Tim Mosher, former President of Kentucky Power	US primarily
11/29/2010	Y	Targeted Readings	Analysis of national security issues of energy.	Russia, Ukraine, Gaza, Venezuela, OPEC countries.
12/6/2010	Y	Major Project	Students pick a country and do an energy profile and analysis of that profile in the context of its location, industry, economic development, resources, and social characteristics.	Countries chosen by students in Fall 2010 include: Germany, Luxemburg, Denmark, Japan, Spain, Russia, Singapore, France, Italy, Iceland, Australia.