

APPLICATION FOR NEW COURSE

1. General Information.

- a. Submitted by the College of: Engineering Today's Date: 8-22-11
- b. Department/Division: Engineering
- c. Contact person name: Tim Taylor Email: taylor@enr.uky.edu Phone: 859-323-3680
- d. Requested Effective Date: Semester following approval OR Specific Term/Year¹: Spring 2012

2. Designation and Description of Proposed Course.

- a. Prefix and Number: EGR-540
- b. Full Title: Power Economics and Public Policy
- c. Transcript Title (if full title is more than 40 characters): N/A
- d. To be Cross-Listed² with (Prefix and Number): N/A
- e. Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours³ for each meeting pattern type.

45 Lecture _____ Laboratory¹ _____ Recitation _____ Discussion _____ Indep. Study
_____ Clinical _____ Colloquium _____ Practicum _____ Research _____ Residency
_____ 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 course provides an introduction to the theories and industry practices related to power economics and power public policy. Topics studied include: U.S. power markets, electric utility business regulation, electric utility environmental regulation, public policy theory, political science theory, development of new electric generation facilities, utility business operation, engineering influence on public policy, and engineering economic analysis.
- j. Prerequisites, if any: Engineering standing, graduate standing, or consent of instructor
- k. Will this course also be offered through Distance Learning? YES⁴ NO
- l. Supplementary teaching component, if any: Community-Based Experience Service Learning Both

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

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.

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4. Frequency of Course Offering.

- 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? 20-30

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: Students enrolled in the proposed graduate and undergraduate certificate in Power and Energy will be interested in the course.

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 and graduate certificate in Power and Energy
- b. Will this course be a new requirement⁵ for ANY program? YES NO
- If YES⁵, list affected programs: Proposed undergraduate and graduate 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.

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Signature Routing Log

General Information:

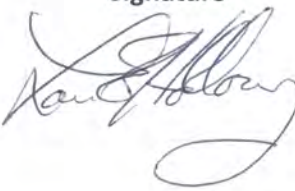
Course Prefix and Number: EGR-540

Proposal Contact Person Name: Timothy R.B. Taylor, Ph.D., P.E. Phone: 323-3680 Email: taylor@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 of Kentucky (PEIK) Faculty Committee	9/19/2011	Larry Holloway / 323-8523 / holloway@engr.uky.edu	
Engineering Faculty	11/28/11	Richard J. Sweigard rsweigard@engr.uky.edu 7-8827	
		/ /	
		/ /	

External-to-College Approvals:

Council	Date Approved	Signature	Approval of Revision ⁶
Undergraduate Council	2/28/2012	Sharon Gill	
Graduate Council	4/9/12	Brian Jackson	
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.

**University of Kentucky
College of Engineering
EGR-540 Power Economics and Public Policy
Course Syllabus, Spring 20XX**

COURSE DESCRIPTION

This course provides an introduction to the theories and industry practices related to power economics and power public policy. Topics studied include: U.S. power markets, electric utility business regulation, electric utility environmental regulation, public policy theory, political science theory, development of new electric generation facilities, utility business operation, engineering influence on public policy, and engineering economic analysis.

COURSE OBJECTIVES

This course is primarily intended to:

- 1) Introduce students to the economics of the power industry
- 2) Introduce students to power industry public policy
- 3) Prepare students to work in the power industry
- 4) Prepare students to include power economics and public policy elements in their engineering decision processes
- 5) Prepare student to participate in the policy making process

LEARNING OUTCOMES

Students completing this course are expected to be able to:

- 1.1) Describe the basic structure of power markets in a regulated and deregulated utility environment
- 1.2) Describe supply/demand dynamics in power markets
- 1.3) Describe how utility business regulations impact electricity utility operation and decision making
- 1.4) Plan the selection of new electric generation facilities within the power market structure of the utility

- 2.1) Apply public policy theory to power public policy issues
- 2.2) Plan the selection of new electric generation facilities within the current and future environmental regulatory environment.
- 2.3) Identify the unintended consequences of power public policy

- 3.1) Communicate professionally within the utility industry
- 3.2) Discuss issues within the utility industry using the general vocabulary of the industry

- 4.1) Describe current and potential future market and environmental regulations affect the feasibility of engineering decisions and assumptions
- 4.2) Apply engineering economic analysis to engineering decision making

- 5.1) Describe how professional engineering organizations influence the public policy process
- 5.2) Describe how engineering professionals influence the public policy process

COURSE PREREQUISITES

Engineering standing within the College of Engineering, graduate enrollment, or consent of the instructors

INSTRUCTORS

Tim Taylor, Ph.D., P.E.

Telephone: 859-323-3680

E-mail: taylor@engr.uky.edu (best way to reach me)

Office: 151A Raymond Building

Office hours: by e-mail appointment or when available. I'm typically in my office from 7:00am – 4:30pm Monday - Friday. If I'm in my office and not on the phone or meeting with someone I can usually meet with you.

Johné Parker, Ph.D.

Telephone: 859-257-6336 x80647

E-mail: jparker@engr.uky.edu

Office: 175 Ralph G. Anderson Building

Office hours: Tuesday/Thursday 11:00 am – 12:15 pm or by e-mail appointment.

TEACHING ASSISTANT

XXXXXXXX

Telephone: XXXXXXX

E-mail: XXXXXXXX

Office: XXXXXXX

Office hours: XXXXXXX

CLASS MEETINGS

Tuesdays 9:30 am – 10:45 am, 255 FPAT

Thursdays 9:30 am – 10:45 am, 255 FPAT

TEXTBOOK

Theories of the Policy Process 2nd Edition by Paul A. Sabatier published by Westview Press. To my knowledge this book is not available at the bookstores, you will have to order it through someplace like Amazon.com. The cost is ~\$30. A 1st Edition of the book should be fine for this class.

COURSE WEBPAGE

Class assignments, announcements, lecture notes, the grade book etc. are available on the course Blackboard Vista page. To access the course material on the Blackboard page you will need to enroll in the course on Blackboard. If you are registered for this class you should be automatically enrolled in the course on Blackboard. To access the Blackboard page, go to <http://elearning.uky.edu> and sign in using your Link Blue account. Search for *EGR540: Policy & Eco of Energ.*

If you have never used Blackboard Vista it is recommended that you complete the available “Bb 101 On-line for Students” training session. To enroll in the training course do the following¹:

- Go to <http://elearning.uky.edu> and log in with your Link Blue ID.
- Click on the Courses link near the top left of the page (to the right of My Bb and under the Library tab).
- In the Course Search line, type **Bb9-101** (exactly as you see it there, including the dash).
- Find the Course ID (first column) **Bb9-101-OnLine-Stu**, and click the down arrow next to the Course ID.
- From the drop-down menu, click on *Enroll*.
- On the next page, enter the Access Code **bb9-101** (include the hyphen) and click on Submit. You are now enrolled and may proceed with the training course.

Please inform me of any problems in accessing the course Blackboard page.

COURSE REQUIREMENTS

Students are expected to participate actively in class discussions. Completion of class assignments is required to build proficiency and understanding. All students will make both oral and written presentations. Reading assignments will be made from the assigned text, from class handouts, and from other sources.

CLASS SCHEDULE (Preliminary – subject to change, check course webpage)

Week	Tuesday Class Session	Thursday Class Session
1	--	Introduction to the U.S. power industry
2	Power industry business regulation	Power industry environmental regulation
3	Political science theory	Political science theory workshop
4	Public policy theory	Public policy theory
5	Public policy theory	Public policy theory
6	Engineers in the policy/political process	Engineering economic analysis
7	Engineering economic analysis	Engineering economic analysis
8	Power industry market structure	Mid-term Exam
9	Economic dispatch	Term project introduction/Return exam
10	Spring Break	
11	Utility business models	Facility siting
12	Term project workshop	Generation fuel issues
13	Generation planning	Conservation
14	Power generation development presentations (Teams)	Power generation development presentations (Student Teams)
15	Power generation development presentations (Teams)	Power generation development presentations (Student Teams)
16	Graduate student team presentations	Graduate student team presentations
	Final Exam: Tuesday, May 3 at 8:00 am (set by the University)	

¹ These instructions are taken directly from the TASC site available at <http://www.uky.edu/TASC/IT/bb101online.php>

ATTENDANCE

Students are expected to attend class meetings and actively participate in class discussions. Students are expected to behave professionally and respect the views of others during discussion periods. Disruptive behavior will not be tolerated and violators will be excused from class. Disruptive behavior includes showing up late, talking during lectures, sleeping, texting, cell phoning, surfing the net, reading the Kernal, working Sudokus/crosswords, and working on assignments not related to this class. As noted below, a portion of the course grade is determined by class participation and attendance. This portion of your grade will be determined through in-class exercises randomly distributed throughout the semester. Unexcused absences will affect this portion of your grade. Excused absences are defined by the University in Section 5.2.4.2 of the *University Senate Rules*. The instructors will **rarely** grant excused absences outside of those defined in the *University Senate Rules*. As noted in Section 5.2.4.2 of the *University Senate Rules* the instructors reserve the right to request appropriate documentation (e.g. doctors notes, university trip letters, etc) to verify excused absences. Students will be allowed to make-up course material missed during an excused absence but will not be allowed to make-up work missed during unexcused absences. If you will miss class (excused or unexcused) it is considered professional courtesy to let the instructor know beforehand by either phone or e-mail.

GRADING

Homework assignments	10%
Class participation and attendance	15%
Midterm examination	25%
Term Project	25%
Final examination	25%
Total	100%

Each student will receive the *better* of their External Grade and their Internal Grade, determined as follows:

External Grade -

<u>Grade</u>	<u>Course Score (Undergraduate)</u>	<u>Course Score (Graduate)</u>
A	90-100	90-100
B	80-89	80-89
C	70-79	70-79
D	60-69	--
E	<60	<70

At the discretion of the instructor, the course scores required for specific external grades may be lowered (allowing more people to get better grades) but will not be raised.

Internal Grade (aka “the curve”) -

<u>Grade</u>	<u>Students Completing Course Getting this Grade or Better</u>
A	>= 10%
B	>= 20%
C	>= 30%
D	no minimum

F no minimum

As described by the inequalities, the fraction of the class to receive a specific grade *may* be increased at the discretion of the instructor (allowing more people to get better grades), but will not be lowered. Mid-term grades for undergraduate students will be posted in myUK by the deadline shown on the UK academic calendar.

Questions about the grading of assignments should be addressed to the instructors (tests and/or projects) or the TA (homework assignments) within one week of receiving the grade, or before the last class meeting, whichever comes first. If, after understanding the basis for the grade assigned, you feel that you have provided what is asked for but have not received appropriate credit, write a letter to the instructor specifically pointing out these occurrences and documenting your position, and submit it with the unchanged submittal to the instructor. The instructor will then review the grading and contact you.

EXTRA CREDIT

It is strongly suggested that you come to class prepared. This means completing any assigned readings before coming to class and reviewing your notes from the previous lecture. Reading assignments are indicated on the course webpage. To encourage your attendance and review of this material, we will write the name of each student in this class on a playing card. At the beginning of each class we will shuffle the deck and draw cards one at a time, asking a question of the person whose card is drawn. Questions will cover the reading assignment for that class and the lecture material from the previous class. Unless otherwise indicated, you may not use the textbook, class notes, etc. when answering the questions (i.e. the questions are ‘closed book’). If you answer the question correctly, you will receive 1 point. If you answer the question incorrectly you will receive 0 points. We will use this questioning procedure each class day (except for those in which an exam is scheduled, a guest lecturer, or during student presentations). At the end of the semester your total points earned will be added to each of your exam grades (e.g. if you earn 4 “extra credit” points during the semester and you score 80% and 82% on the two exams, your adjusted exam scores will be 84% and 86%, respectively).

GRADUATE STUDENTS

Students enrolled in this course for graduate credit are required to perform additional work above the undergraduate level. As such, graduate students will work with the instructors to select a topic related to the course material for independent study during the semester. Graduate students will work in teams to complete this project. Graduate students will present the results of this work to the instructors in the form of a paper (5,000 word max) and to the entire class in the form of a 10-15 minute oral presentation. The grade for this assignment will be included in the determination of the Term Project Grade noted above.

PERMISSION TO DISTRIBUTE MINOR GRADED PAPERS TO CLASS MEMBERS

By your attendance in this class, and having been assigned to read this material, you grant permission for the instructors of this class to return your graded work, other than major exams and projects, during class, by passing it out in a single bundle, for each student to retrieve their own paper. You understand that another student might see your grade, but you are waiving your right to privacy in this instance only. If you do not wish to have your homework paper handed

out in class you will notify the instructor in writing, and will instead personally pick up your papers from the grader, upon presentation of a photo ID, at a mutually acceptable time and place. In any case, exam papers will be handed out individually and no student will be permitted to pick up another student's major exam under any condition. Projects will be returned to a single team member and will show only the team grade.

GUIDELINES FOR SUBMISSION OF ASSIGNMENTS AND PROJECTS

All assignments and term projects should conform to the following guidelines unless specifically advised otherwise. If these guidelines are unclear, ask the instructor for clarification. It is your responsibility to understand the assignment (what is expected, due date, objectives, criteria for evaluation, etc.) before you hand in the finished product and in time to prepare your submittal by the deadline. Read and start on assignments early enough to provide adequate time for questions to the instructor and to your teammates.

Assignments and projects are due at the beginning of class on the due date specified. Late assignments will be accepted only by prior arrangement with the instructor at least 48 hours before the deadline. Late term projects will be marked down one letter grade unless prior arrangement with the instructor has been made (this will almost surely affect the course grade). Extensions will be granted only for circumstances beyond the student's control. E-mail submittals will not be accepted except by prior arrangement and extenuating circumstances.

Submittals in this course are like bids, in that they are due on the date and time specified, and extensions are rarely given. They must be in hard copy, prepared on a word processor, printed, spell-checked, and checked for accuracy by all team members. Neatness, grammar, and spelling *do* count in all engineering work so they will count in this course as well. Writing help is available at the University Writing Center at <http://www.uky.edu/AS/English/wc/>. Your money (tuition) helps fund the Writing Center so take advantage of it.

Teamwork. Some assignments (e.g. projects) will be performed as a team. In such a case, all team members must contribute equally to the preparation of the assignment. Submittals must contain the names of all team members contributing to the product. Individual student grades for team assignments will be based on 1) the group grade for the assignment and 2) team member peer evaluations. All team members will be equally responsible for the material contained in the submittals. Any other materials, information, or advice used in the preparation of any submittal must be cited in the submittal. It is essential that each submittal identify and give credit for the work of others when it is used. It is never wrong (and it is in fact encouraged) to use information obtained from other (reliable) sources; it is always wrong not to identify those sources.

Format Submittals should be organized like (brief) engineering studies or reports. Identify all assumptions made and the sources of all technical information. Identify the answers clearly. *Text must be printed or typed, not handwritten (except when indicated by the instructor), in 12 point type and 1 1/2-line spacing.* Necessary handwritten material such as graphs and drawings should be large and printed legibly. Provide all team members' names, assignment title, and date at the top of the first page. Number the pages.

Diagrams: Insert diagrams, equations, graphs, etc. into the text near where they are referenced. Figures and tables should be captioned and all figures and tables must be cited in the text.

References: Refer to published material in the text with the authors' last names and year of publication of the reference in brackets, as: (Halpin and Woodhead, 1998); (Vanhoucke et al., 2001); (Forrester 1997). Provide a reference list (alphabetically by the first author's last name) at the end of the text in the following format:

Halpin, D. W., and R. W. Woodhead, *Construction Management*, John Wiley & Sons, New York, 1998.

Vanhoucke, M., E. Demeulemeester, and W. Herroelen, "On Maximizing the Net Present Value of a Project Under Renewable Resource Constraints," *Management Science*, Vol. 47, No. 8, August 2001, pp. 1113-1121.

Refer to oral or unpublished sources as in the following example:

Forrester, J. W., personal communication, 1997.

Summary: Effective communication is essential for success in engineering. Developing that skill requires practice. Be brief, concise, and to the point. Use the spell-checker on the word processor. In the case of team work, every team member should proofread and approve the final document before submittal.

ACADEMIC HONESTY

Academic dishonesty, in the form of plagiarism and cheating, is a large problem at many U.S. universities and it is an issue we take very seriously. No form of scholastic dishonesty will be tolerated in this course. This is consistent with Section 6.3.0 of the University Senate Rules which states that "students shall not plagiarize [or] cheat."

Section 6.3.1 of the University Senate Rules states the following in regards to plagiarism.

"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 a question of plagiarism involving their 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 acknowledgment of the fact, the students are guilty of plagiarism.

Plagiarism includes reproducing someone else's work, whether it be published article, chapter of a book, a paper from a friend or some file, or whatever. 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 or information, the student must carefully acknowledge exactly what, where and how he/she has 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.”

As commonly defined, plagiarism consists of passing off as one's own the ideas, word, writings, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have permission of that person. This includes copying material from books, reports, journals, pamphlets, handouts, other publications, web sites, etc., without giving appropriate credit for those ideas or without identifying material as quotations when taken directly from another source. If you have any doubt, uncertainty, or questions regarding plagiarism while working on an assignment for this (or any other course) please come see us **before** you turn in the assignment. Additional information on plagiarism is available on the UK Ombud website at: <http://www.uky.edu/Ombud/Plagiarism.pdf>

Section 6.3.2 of the University Senate Rules states the following in regards to cheating.

“Cheating is defined by its general usage. It includes, but is not limited to, the wrongfully giving, taking, or presenting any information or material by a student with the intent of aiding himself/herself or another on any academic work which is considered in any way in the determination of the final grade. The fact that a student could not have benefited from an action is not by itself proof that the action does not constitute cheating. Any question of definition shall be referred to the University Appeals Board.”

Unless specifically allowed in advance by the instructors, all assignments, homework, and exams in this class are expected to be completed based on individual effort. While working within a study group is an acceptable learning method, copying the work and ideas of others is cheating.

The handouts used in this course are copyrighted. By “handouts,” is meant all materials generated for this class, which include but are not limited to syllabi, notes, quizzes, exams, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts for any purpose other than your personal use during this course unless you are expressly granted permission *in writing*.

Incidents of academic dishonesty in this course will be handled according to policies and procedures outlined in, but not limited to, the University Senate Rules, the College of Engineering, and the Office of Academic Ombud Services. It would be much better to take a bad grade on an assignment than to be caught plagiarizing or cheating in this course.

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.

ACADEMIC ACCOMODATIONS 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 us 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.