

College of Business and Technology
Department of Technology
Course Syllabus

Energy and Power Technology
Dr. Paul Roberts
proberts@uttyler.edu
Office: HPR 240

TECH 3316
Summer I 2005
566-7334-phone
565-5650-fax

Course Description:

This course provides a study of conversion, transmission and control of energy and power systems

(60% Lecture/40% Lab)

Textbook:

Bohn, R. C. & MacDonald, A. J. (1992). Energy technology: Power and transportation (4th ed.). Lake Forest. IL: Glencoe.

Course Objectives:

At the end of this course, participants will be able to:

- 1) identify the major aspects of energy source control and conservation.
- 2) realize the energy demand placed upon available sources of energy.
- 3) sense a political climate under which energy distribution occurs.
- 4) instill the concept of energy conversion mechanics through the use of machines.
- 5) realize the current data trends for energy and power consumption.

Course Competencies

1. Computer-Based Skills – the student will complete projects in computer based design and estimating. Internet search skills will be required to access the online information. Students will also present the completed project to the class and may utilize a presentation software package to illustrate the project.
2. Communication Skills – the student will exhibit a mastery of both written and oral skills in completion and presentation of the projects.
3. Interpersonal Skills – the student will work in a group to complete segments of the projects.
4. Problem Solving (Critical Thinking) – the student will use conceptual thinking and creativity and innovation in the identification and completion of the projects

5. Ethical Issues in Decision Making and Behavior- the student will understand and exhibit ethics through the data assembly and presentation portions of this project.
6. Personal Accountability for Achievement – the student will complete the project at the time designated by the instructor
7. Competence in Technology Principles
 - a. Competence in major field and grounding in other major technology major core areas – the student will complete the project as part of the requirements of the major
 - b. Exposure to and appreciation for industrial experiences such as industrial tours, work-study options and cooperative education, senior seminars – Students will gather data from a variety of sources for the project.

Course Requirements

Three Exams	25% each
Three Article Summaries	5% each
Class Participation	10%

Grades will be based upon the following scale:

A	90 - 100
B	80 - 89
C	70 - 79
D	60 - 69
F	< - 59

Course Outline

	<u>Topic</u>	<u>Assignment</u>
May	10 Introduction; Overview of Energy and Power	Ch. 1
	11 Energy Sources	Ch. 2, 4
	Solar Energy	Ch. 3
	Nuclear Energy	Ch. 5
	12 Energy and Power Measurement	Ch. 6
	13 Control Systems/ Energy and the Environment	Ch. 7,8, 9
	14 Exam	
	17 External-Combustion Engines	Ch. 11
	18 Internal-Combustion Engines	Ch. 12
	19 Automobile Engines	Ch. 13, 14
	20 Small Engine	Ch. 15,16,17,18
	21 Exam	
	24 Mechanical Principles	Ch. 19
	Mechanical Power Systems	Ch. 20
	25 Fluid Power Principles	Ch. 21
	Fluid Power Systems	Ch. 22

26	Electrical Power Principles	Ch. 23
	Electrical Power Systems	Ch. 24
27	Future Sources	Ch. 25
	Storing and Using Energy	Ch. 26
	Emerging Applications	Ch. 27
	Effects of Energy Use on the Society	Ch. 29
28	Final Exam	

Article Summaries

Write three article summaries which are a minimum of two pages each. Do not write more than one summary on a given topic. Refer to the article summary example for form and format and other information. The articles should be taken from current or recent periodicals (no more than two years old), not handbooks or textbooks and should not be less than two pages long. Short column type articles are not acceptable. Use as many different periodical titles as possible, but do not use any more than twice. INTERNET articles are NOT acceptable unless it is an online version of a print journal.

Article summaries should follow the this format.

John Doe
 The University of Texas at Tyler
 Department of Technology
 May 13, 1999

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Communication

Allesandra, A. (March, 1999). The essential elements of providing effective feedback. *Energy Distribution, 9*, 93-98.

This article describes the reasons why feedback mechanisms are important and how they should be used in the context of organizational demands. The author goes into some detail about how a lack of feedback can ...

(Note: The summary must be at least one-half page long, typed and double spaced, but should not be more than about one page long. Do not go into great detail; just summarize the main points. Be sure to follow the American Psychological Association (APA) format as shown above for the bibliographic entry. Also note: This is just a model; do not use my words on either the summary or the reaction.)

Reaction

This article showed me the importance of feedback in systems and how I can use some of the things described to help reduce problems. I think the best part of the article was the examples of how...

(Note: The reaction must be identified as in this example and double-spaced. You should include your feelings about the article, what it did for you, and why you believe that way.)

Class Participation

Class participation will be based upon both class participation and attendance. Attendance is crucial especially considering the density of information covered each class. Attendance will be taken each class.

Additional References

Simplified Design of Steel Structures

James Ambrose

11 July, 1997

ISBN: 0471165743

Simplified Design of Building Foundations, 2nd Edition

James Ambrose

22 September, 1988

ISBN: 0471858986

Design for Earthquakes

James Ambrose, Dimitry Vergun

22 January, 1999

ISBN: 0471241881

Universal Kitchen and Bathroom Planning: Design That Adapts to People

Mary Jo Peterson

01 June, 1998

ISBN: 0070499802

Architectural Stone : Fabrication, Installation, and Selection

Mark A. Chacon

27 September, 1999

ISBN: 047124659X

Statics and Strength of Materials for Architecture and Building Construction (2nd Edition)

Barry S. Onouye, Kevin Kane, Barry Onouye

13 June, 2001

ISBN: 0130549703

Simplified Site Design

James Ambrose, Peter Brandow

January, 1992

ISBN: 0471530298

Residential Building Design and Construction

Jack H. Willenbrock, Harvey Manbeck, Michael G. Suchar

17 June, 1997

ISBN: 0133758745

Simplified Design for Building Fire Safety
James Patterson
18 October, 1993
ISBN: 0471572365

Structural Analysis of Historic Buildings : Restoration, Preservation, and Adaptive Reuse
Applications for Architects and Engineers
J. Stanley Rabun
04 February, 2000
ISBN: 0471315451

Disability Statement

"If you have a disability, including a learning disability, for which you request an accommodation, please contact Ida MacDonald in the Disability Support Services office so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodation must provide documentation of his/her disability to the Disability Support Services counselor. For more information, call or visit the Student Services Center located in the University Center, Room 282. The telephone number is 566-7079 (TDD 565-5579)."

Academic Dishonesty Statement

"Academic dishonesty, such as unauthorized collusion, plagiarism and cheating, as outlined in the Handbook of Operating Procedures, University of Texas at Tyler, will not be tolerated. University regulations require the instructor to report all suspected cases of academic dishonesty to the Dean of Students for disciplinary action. In the event disciplinary measures are imposed on the student, it becomes part of the students' official school records. Also, please note that the handbook obligates you to report all observed cases of academic dishonesty to the instructor.