University of Missouri

Energy Systems and Resources
UEA-600&600G/MU-NE730

Instructors
Bob Tompson**,** Tushar K. Ghosh, S, Loyalka and Mark A. Prelas

University of Missouri
E2433 Lafferre Hall
Phone: (573) 882-9691
E-Mail: prelasm@missouri.edu Office hours: questions can be submitted via email

Description
This is a general overview of energy systems, renewable and non-renewable energy sources, and advances in energy applications.

Recommended Text

1. Energy Resources and Systems
   Volume 1: Fundamentals and Non-renewable Resources
   Tushar K Ghosh and Mark A. Prelas, Springer
2. Energy Resources and Systems
   Volume 2: Renewable Resources
   Tushar K Ghosh and Mark A. Prelas, Springer

Course Descriptions and Goals
General overview of energy systems, renewable and non-renewable energy sources, and advances in energy applications.

Grading

Homework	40% (~10)**
Participation	10%
Project 1	20% (midterm exam)
Project 2	30% (final exam), seminar required for the graduate

There will be approximately 10 homework assignments during the semester. Homework will be assigned on blackboard, and must be submitted by due date (usually a week) from the assignment. Later

submission may cause point deduction (50% deduction for one week delay and no point after that) if there are no prior notification or excuse. For the final project, the power point is required for the graduate students.

Grading scale (tentative) will be announced when it is fixed

A : > 85	A- : 80 ~ 84	
B+ : 75 ~ 79	B : 70 ~ 74	B- : 65 ~ 69
C+ : 60 ~ 64	C : 55 ~ 59	C- : 50 ~ 54
D+ : 45 ~ 49	D : 40 ~ 44	

Lesson plan (could be changed without notice):

Lecture 1: Instructor/Course introduction / Energy and Economy

Lecture 2: Engineering economics 1

Lecture 3: Engineering economics 2

Lecture 4: Engineering economics 3

Lecture 5: Physics of units and dimensions

Lecture 6: Heat transfer and thermo-cycle 1

Lecture 7: Heat transfer and thermo-cycle 2

Lecture 8: Coal 1

Lecture 9: Coal 2

Lecture 10: Natural gas 1

Lecture 11: Natural gas 2

Lecture 12: Oil

Lecture 13: Nuclear energy 1

Lecture 14: Nuclear energy 2

Lecture 15: Hubbert model

Lecture 16: **Project review**

Lecture 17: Wind energy

Lecture 18: Solar energy

Lecture 19: Geothermal energy

Lecture 20: Ocean energy

Lecture 21: Bioenergy

Lecture 22: Ethanol

Lecture 23: Hydrogen energy

Lecture 24: Fuel cell 1

Lecture 25: Fuel cell 2

Lecture 26: Environmental effects 1

Lecture 27: Environmental effects 2

Lecture 28: Semester comprehensive review

Lecture 29: **Project review 2**

Lecture 30: **Project review 3 (Final exam week)**