ME 568 Alternative Energy and Fuel Resources FALL 2014

Instructor: Dr. Tomasz Wiltowski Office: E23 Phone: 453-7000 Email: tomek@siu.edu Time: TBA Location: TBA Office hours: T, Th 2:30 pm – 3:30 pm Textbook: The course will not require any textbook. All the lectures and course information will be published on the webpage.

Course description:

The course will covers alternatives for energy resources and the impact of the human growth on the energy usage and its environmental consequences. The course describes the fossil fuel era, renewable energy resources and the hydrogen fuel era. The fundamentals of each of these fuel types, their conversion to unstable energy and the potential of each of these fuels for the future is discussed.

Interesting Information Resources on the Internet:

One of the goals of this course is to provide an introduction to the emerging information technologies apply to Energy and Fuels. At some point you may wish to browse World Wide Web Virtual Library. There are also lots of other fun things to see and do on the Internet. So take a break every so often from the serious stuff and explore the rest of the Wide World Web and the Internet.

Grading:

Mid term Exam: 40%

Presentation: 60%

Daily Schedule:

The attached schedule gives the anticipated dates of lecture topics and the dates on which examinations are to be given. This schedule will be revised as necessary during the semester. Some topics may take more or less lecture time than indicated here and the problems numbers will be adjusted to be in sync with the lecture topics. However, the dates for examinations are fixed and the topics covered in each exam will be adjusted to those covered by lectures at the time of the examination.

Emergency Procedures

Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on BERT's website at <u>www.bert.siu.edu</u>, Department of Safety's website <u>www.pds.siu.edu</u> (disaster drop down) and in Emergency Response Guideline pamphlet. Know how to respond to each type of emergency.

Instructors will provide guidance and direction to students in the classroom in the event of an emergency. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency. The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.

SCHEDULE

Introduction to the course Introduction to Energy Nonrenewable Energy Resources: Coal & Natural Gas Nonrenewable Energy Resources: Crude Oil Environmental Impact of Energy Consumption: The Saga of the Greenhouse Effect Nuclear Energy Renewable Energy Resources: Solar Energy Renewable Energy Resources: Geothermal Energy Renewable Energy Resources: Hydropower Energy Renewable Energy Resources: Biomass Energy Renewable Energy Resources: Wind Energy Renewable Energy Resources: Wind Energy Renewable Energy Resources: Wave Energy

Mid-term Exam

Renewable Energy Resources: Tidal Energy

Hydrogen: Production

Hydrogen: Storage

Gasification of Coal, student's presentation

Gasification of Coal, student's presentation

Liquid Fuels from Coal, student's presentation

Liquid Fuels from Coal: Fischer-Tropsch, student's Presentation

Shale Oil from Oil Shale, student's presentation

Renewable in Transportation, student's presentation

Fuels for Transportation – student's presentation

Modern vehicles, student's presentation

Fuel Cells, student's presentation

Fuel Cells, student's presentation

Future Energy Recourses, course summary, where we are going and what is the future of energy