

SCIE 111 – Balance Sheet for Sustainable Energy Spring 2015

Instructor: Alkan Kabakçioğlu
Office: Sci-118
Office Hours: Monday 14:00-15:00
Teaching Assistant: Murat Öztürk (SCI-131 Ext:1893)
E-mail / Phone: akabacioglu@ku.edu.tr / 1830
Lectures: Monday, Wednesday B2 (10:00-11:15), CASE-Z48
Textbook: **Sustainable Energy – without the hot air**, (UIT Cambridge Ltd.; 2009) By David J.C. MacKay, freely available at www.withouthotair.com .

Course Description: Main definitions and laws used to estimate the energy content of different systems. Evaluation of energy consumption in cars, planes, heating/cooling, lighting, gadgets, and food/farming. Analysis of sustainable energy production methods powered by on/offshore wind, sunlight (solar), rivers (hydroelectric), ocean waves, tides, geothermal and nuclear resources. A balance sheet will be put together in order to help answer the following question: "Can we conceivably live sustainably without the need for fossil fuels?".

Course content

1. The need for sustainable energy
2. Transport : cars, planes, freight
3. Wind
4. Heating and cooling
5. Solar : photovoltaics, thermal, biomass
6. Lighting
7. Wave
8. Information systems and other gadgets
9. Tide
10. Food
11. Geothermal
12. Manufacturing
13. Nuclear

Laboratory: 6 biweekly laboratory sessions in SCI B10.

Laboratory Coordinator:

Nazmi Yılmaz
Office: Science Building, Room 136 - Tel: 1726
Office Hours: Monday B4 (14:00-15:15 pm)
E-mail: nayilmaz@ku.edu.tr

Grading:	Mid-Term 1	25 %, (to be announced)
	Mid-Term 2	25 %, (to be announced)
	Laboratory Work	21 % (3.5% per experiment)
	Attendance	4 %
	Final Exam	25% (to be announced)

Attendance: Attendance is not mandatory, but it contributes 4% to your final grade. It is all or none: you get 4% if you miss no more than 4 classes throughout the semester (with or without excuse); nothing otherwise. No attendance sheets. All I ask is that you return a signed paper at the end of the semester, declaring that you qualify for the attendance grade.

You may check your in-semester progress from KUAIS.