



COURSE DATASHEET

Semester:	2013/14/1
Course:	Energy Management and Environmental Protection
Code:	VEMKKVT112E
Responsible department:	Department of Environmental Engineering
Department code:	MKKV
Responsible instructor:	dr. Endre Domokos

Course objectives:

The aim of the course is that the students learn fundamentals of energetic. During the course we evaluate world's energy conversions systems, energy transit networks and its environmental effects. After the successful tests the students know possibilities of energy-conversion systems and able to make a responsible decision about of energy development.

Course content:

1. Energy-conservations fundamentals. History overview, energy streams in nature. 2. Explanations of first and second terms of thermodynamic to energy-production. 3. Traditional energy-sources, combustibles and fuels. Fossil and nuclear energy carrier. 4. Coal-mining and processing. Its energy usage: modern technology for environmental protection. 5. Mineral oil processing, oil reserve, oil prices. Connection to environmental protection. 6. Gas usage and its benefits. Hydrogen and fuel cells in electric produce. 7. Nuclear energy production: history, powerplants, environmental issues. 8. Test 9. Alternative and renewable energy sources. Sun and wind energy: usage, environmental and economy aspects. 10. Geothermal-, hydro and biomass-energy: usage, environmental and economy aspects. 11. Increase efficiency of energy conversions. Energy saving actions as a solution of future. Problems of energy conservation and its solutions. 12. Future of energetic. Evaluation the environmental aspects of energy politics. 13. Optimization problems. Price-politics in energetic. 14. International comparisons. Practical pilot projects. Solving optimalizations problems. 15. Test

Requirements, evaluation and grading:

2 tests ($\geq 50\%$ average)

Required and recommended readings:

Reményi Károly: Az energetikai fejlesztések fő irányai, Akadémiai Kiadó, 2002 Barótfi I.: Energia-felhasználói kézikönyv. KÖTECH Kft., Bp. 1994. Eastop, T. D., Croft, D. R.: Energy Efficiency. Longman Scientific & Technical, Harlow, 1990. The Open University: Energy Resources 1: Fossil Fuels. Energy Resources 11: Nuclear and other Options. Fossil Fuels. The Open University Press, Walton Hall, Milton Keynes, 1986. HÜTTE – A mérnöki tudományok kézikönyve, Springer-Verlag Kiadó, 1993. Ulrich Förstner: Környezetvédelmi Technika, Springer-Verlag Kiadó, 1993.