



## COURSE DATASHEET

<b>Semester:</b>	2016/17/1
<b>Course:</b>	Studies in energetics II.
<b>Code:</b>	NKMKFIT212E
<b>Responsible department:</b>	
<b>Department code:</b>	MKNK
<b>Responsible instructor:</b>	Attila Lukács

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### Course objectives:

The aim of the subject is to allow students to get acquainted with the technological questions of power plants, with the structure and equipment of thermal power plants, the principles of the sizing and the operational characteristics of cooling.

### Course content:

Steam cycle plants. The energetic processes, system structure, quantitative and qualitative losses and efficiency of condensing power plants, ideal and real cycles. Compressor cooling processes and heat pumps. Absorption cooling processes, Cooling towers, Steam turbine processes in power plants, Gas turbine processes in power plants, The structure and operation of power plants. Steam coolers (main circuit and by-pass). Operational questions: the behaviour of feedwater heaters at part load, overload by switching off the feedwater heaters, de-gassing at constant and changing pressure. Reheating. Its solution and impact on the efficiency of the power plant in the case of high pressure power plants and nuclear power plants. Trends in power plant development: opportunities for efficiency improvement, small power plants and renewable.

### Requirements, evaluation and grading:

Students must write two papers in a semester, one paper during the semester and one at the end of it.

### Required and recommended readings:

SZŰCS Ervin—SCHILLER István: Technika és energia II., ELTE TTK egyetemi jegyzet, Tankönyvkiadó, Bp.  
VAJDA György: Energetika II., Akadémia K., Bp.  
HARMATHA András: Termodinamika műszakiaknak, Műszaki. Könyvkiadó, Bp.  
BŰKI G.: Erőművek. Műegyetemi Kiadó, Budapest, 2004. ISBN 963 420 788 X.  
Bihari Péter: Erőművek Budapest, 2002 [ftp://ftp.energia.bme.hu/pub/energ/eromuvek\\_1a.pdf](ftp://ftp.energia.bme.hu/pub/energ/eromuvek_1a.pdf)