



COURSE DATASHEET

Semester:	2012/13/1
Course:	Technical Fluid Mechanics and Engineering Thermodynamics (Part II.)
Code:	VEMKGEB242H
Responsible department:	Department of Mechanical Engineering
Department code:	MKGE
Responsible instructor:	Dr. András Bálint

Course objectives:

To be acquainted with the fundamentals of thermodynamics and practical applications.

Course content:

Fundamentals of thermodynamics. 1-st Fundamental Law of thermodynamics. Change of heat and mechanical energy. 2-nd Fundamental Law of thermodynamics. State equations of ideal gases. Change of states of ideal gases. Cycles: Carnot cycle, Thermal efficiency. Irreversible processes. Change of states of ideal gases. Change of states of real fluids on i-s and graphs Real cycles: Rankine cycle, refrigeration cycle. Thermodynamic processes and the entropy. Thermodynamic efficiency. Force cooling, refrigerating machine (compression-type and absorption machine). Heat conduction in medium at rest, with different boundary conditions. Heat conduction in medium in motion. Heat transfer. Application of Similitude Theory. Transmission of heat with respect constant and changing temperature difference. Parallel-flow and counterflow heat exchanger. Linear equations of heat exchangers, with respect parallel flow, counterflow, mixing box, and different systems. Heat exchanger devices. Heat insulation.

Requirements, evaluation and grading:

Taking part in lectures and seminars, successful test

Required and recommended readings:

Pleva, Zsiros: Műszaki hőtan, VE 1990.; Pleva, Zsiros: Műszaki hőtan szemináriumi segédlet és példatár VE, 1994. Mihajev: A hőátadás számításainak gyakorlati alapjai TK., 1990. Mucskai L.: Hőcserélők termikus és hidraulikus méretezése MK., 1973.; Pattantyús: Gépek üzemtana MK., 1983.