UNIVERSITY OF PANNONIA

COURSE DATASHEET

Semester:	2012/13/2
Course:	Technical Fluid Mechanics and Engineering Thermodynamics (Part I.)
Code:	VEMKGEB143H
Responsible department:	Department of Applied Mechanical Engineering
Department code:	MKAGT
Responsible instructor:	Dr. Sándor Verdes

Course objectives:

The students get some basic knowledge about the physical properties of fluids and about the basic laws of the fluid mechanics. They will be able to calculate the engineer's excercises related to the fuid mechanics and get some information abouth the measuring methods in the fluid mechanics.

Course content:

A short history and the basic elements of the fluid machanics. Statics of fluid systems and the Pascal's law. The change of the pressure in the space with different acceleration. The form of the mass conservation's law in the fluid mechanics. The form of energy conservation's law in the fluid mechanics. The momentum equation and its applications. One-dimensional ideal flow. The application of Bernoulli's law. Unsteady flow of incompessible fluid. Incompressible fluid flow with friction. Laminar and turbulent flow. The calculation of the velocity-profil the laminar and turbulent flow. The hydraulic-diameter. Incompressible fluid flow in pipelines. The calculation of energie loss, in staight pipes in sudden enlargement and in valves. The characteristics of control valves. The calculation of energy loss in diffusors and in confusors. The characteristics of pipeline systems. Dimensional analysis similarity and measuring methods in the fuid mechanics. Test.

Requirements, evaluation and grading:

1 test paper on the 14 th week of the semester

Required and recommended readings:

Dr.Bálint A.: Műszaki áramlástan, Veszprémi Egyetemi Kiadó, 2002.; Varga J.: Hidraulikus és pneumatikus gépek. Kézikönyv MK Bp., 1974.; Naue G.-Lippe F.-Mascheck,H.I.-Schenk,R.-Reher,E.O.: Technische Strömungsmechanik VEB Deutscher Verlag für Grundstoffindustrie Leipzig, 1975.; Bohl, W.: Műszaki áramlástan. MK. Bp., 1983.

Műszaki áramlástani feladatok Pannon Egyetemi Kiadó.