



## COURSE DATASHEET

<b>Semester:</b>	2015/16/2
<b>Course:</b>	Technical Fluid Mechanics and Engineering Thermodynamics
<b>Code:</b>	VEMKGEB212H
<b>Responsible department:</b>	Institute of Mechanical Engineering
<b>Department code:</b>	MKGEI
<b>Responsible instructor:</b>	dr. Imre Timár

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### Course objectives:

To give the students a good overview about the most important laws and equations of fluid mechanics. They will be able to solve fundamental problems of fluid engineering practice. They get knowledge about measurement techniques in fluid engineering and some types of fluid machines. To be acquainted with the fundamentals of thermodynamics and practical applications.

### Course content:

Elements of fluid mechanics. Hydrostatics and its basic equations. Some special fields of force. The law of indestructibility of matter in fluid mechanics. Energy conservation in fluid mechanics. Bernoulli's equation and its applications. Momentum equation and its application. Unsteady flow. Incompressible fluid flow with friction. Calculation of energy dissipation. Similarity in fluid mechanics. Measurement in fluid techniques. Some types of fluid machines. Thermal cycles (Carnot, thermal power station, refrigerator). Heatflow in standing and flowing fluids. Heat-transfer ( $Pe$ ,  $Pr$ ,  $Nu$  numbers) Heat-transfer with boiling and condensation. Transmission of heat with respect constant and changing temperature difference. Heat-exchangers. Heat-insulation.

### Requirements, evaluation and grading:

Taking part in lectures and seminars, successful test

### Required and recommended readings:

Dr. Bálint A.: Műszaki áramlástan, Veszprémi Egyetemi Kiadó, 2002.; Eck, Bruno: Technische Strömungslehre Springer Verlag, Berlin, 1985.; Pattantyús Á.G.: A gépek üzemtana. Tankönyvkiadó, Bp., 1983.; Fűzi O.: Vízgépek Tankönyvkiadó, Bp., 1966.; 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.; Kalide, W.: Einführung in die Technische Strömungslehre Carl Hanser Verlag München, Wien, 1990.; Dr. Pleva L.-Zsiros L.: Műszaki hőtan, VE 1990.; Dr. Pleva L.-Zsiros L.: Műszaki hőtan szemináriumi segédlet és példatár VE, 1994.; Mihejev: A hőátadás számításának gyakorlati alapjai TK., 1990.