



subject of PhD studies

Géza Pattantyús-Ábrahám
Doctoral School of Mechanical Engineering

SUBJECT DATA SHEET AND REQUIREMENTS

last modified: 20th May 2016

FLUID MECHANICS I. (PhD)

ÁRAMLÁSTAN I. (PhD)

1	Code	Semester Nr. or fall/spring	Contact hours/week (lect.+semin.+lab.)	Requirements p / e / s	Credit	Language
	BMEGEÁT4A08	1.(2.*) fall/spring	2+0+0	e	3	English

*: in case of enrolment in fall

2. Subject's responsible:

Name:	Title:	Affiliation (Department):
Prof. János VAD	professor, head	Dept. of Fluid Mechanics

3. Lecturer:

Name:	Title:	Affiliation (Department):
Prof. Tamás LAJOS	professor emeritus	Dept. of Fluid Mechanics

4. Thematic background of the subject:
physics, fluid dynamics

5. Compulsory / suggested prerequisites:

Compulsory: -

Suggested: Fluid Mechanics of MSc level

6. Main aims and objectives, learning outcomes of the subject:

The course aims to introduce students to the PhD-level areas of fluid dynamics, according to the individual doctoral research topic and interest, with respect to the following (ch.8.) thematic description, in consultation with the lecturer.

7. Method of education:

lecture 2h/w, and private consultation

8. Detailed thematic description of the subject:

The subject provides an overview on fundamentals of Fluid Mechanics (continuity, equations of motion with practical applications, laminar and turbulent flows, similarity theory, hydraulics, fundamentals of gas dynamics).

It gives an in-depth insight into the descriptive equations of fluid mechanics, from various perspectives of physics and mathematics, including the aspects of transport theory and numerical modelling.

It gives an overview on turbulence modelling, and on the possibilities of numerical computations on turbulent flows, taking the application example (among others) of characteristics of atmospheric flows.

The subject provides details on some selected chapters of fluid mechanics (free jets and their applications; vortex laws and their applications; flows past bluff bodies).

Finally, it gives a short summary on some advanced Fluid Mechanics measurement techniques, including the aspects of computer-controlled data acquisition and processing.



The subject is supplemented by a more detailed discussion on the specific chapters related to the individual research projects of the PhD students involved.

9. Requirements and grading

a) in term-period

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b) in examination period

Written and/or oral exam. Totally max. achievable 100 scores equal to 100% as base of the final grading. Minimum 40 %.

Grading: 0%-39%: fail(1); 40%-54% pass(2), 55%-69%: satisfactory (3), 70%-84%: good(4), 85%-100%: excellent (5)

c) The students are subject to disciplinary measures against the application of unauthorized means at mid-terms, term-end exams and homework and the application of the 1/2013. (I.30.) Dean's Order must be followed.

10. Retake and repeat

Due to the Code of Studies and Exams of BME. Any further movements are due to the Code of Studies and Exams of BME.

11. Consulting opportunities:

Consultation hours: by email appointments and as it is indicated on the department's website.

12. Reference literature (compulsory, recommended):

- Downloadable materials: www.ara.bme.hu/oktatas/tantargy/NEPTUN/BMEGEAT4A08

13. Home study required to pass the subject:

Contact hours	28	h/semester
Home study for the courses	28	h/semester
Home study for the mid-semester checks	-	h/check
Preparation of mid-semester homework	-	h/homework
Home study of the allotted written notes	20	h/semester
Home study for the exam	28	h/semester
Totally:	90	h/semester

14. The data sheet and the requirements are prepared by:

Name:	Title:	Affiliation (Department):
Prof. Tamás LAJOS	professor emeritus	Dept. of Fluid Mechanics

