SYLLABUS

1. Course title:

FLUID MECHANICS I

2. Code:

(max. 20 characters)

3. Cycle of study:

1

4. ECTS credits:

6

5. Type of course:

(●) Mandatory ( ) Elective

6. Prerequisites:

(max. 110 characters)

7. Class restrictions:

(max. 150 characters)

8. Duration / semester:

1 4

9. Weekly contact hours:

9.1. Lectures: 3

9.2. Seminars: 1

9.3. Laboratory/Practice classes: 1

10. Faculty:

Faculty of Mechanical Engineering

11. Department/study program:

Energy engineering, Production engineering, Mehatronics

12. Lecturer:

dr.sc. Izet Alić, professor

13. Lecturer's e-mail:

izet.alic@untz.ba

14. Web site:

www.mf.untz.ba

15. Course aims:

The aim of the course is to provide students with the basic theoretical and practical knowledge about the physical characteristics of the fluid, and approaches to the problem of the study of fluid flow.

16. Learning outcomes:

At the end of the semester / course successful students, who during the entire period of teaching continuously perform their duties, will be trained to independently solve simple problems in the field of flow of compressible and incompressible fluids.

17. Course content:

History of fluid mechanics. Fluid definition, fluid as a continuum. Physical characteristics of fluid.
Fluid-acting forces. Fluid Statics: Basic Equilibrium of Static Fluids;Relatively stationary state; Liquid forces on submerged surface; Stability of the floating body; Fluid Kinematics: Euler's and Lagrange's approach to the analysis of fluid; Continuity Equation; Sources and Sinks; Movement and deformation of the fluid particles; Classification of fluid motion; Fluid Dynamics: Euler's equation; Bernoulli's equation; The Momentum Theorem; Flow through a hole; Viscous fluid dynamics: Navier-Stokes equations; Energy losses in the fluid flow; Laminar and turbulent flow.

18. Learning methods:

The most important learning methods in the subject are:
- Lectures with the use of multimedia resources, active learning techniques and with active participation and discussion of students;
- Auditorial exercises
- Laboratory exercises

19. Assessment methods:

In the seventh week of the semester students take the writing test No. 1, which includes previously treated topics with lectures and exercises. The test consists of theoretical questions and three tasks, where each issue contain the number of points that carries a specific question. The maximum score on the test is 30. In the fifteenth week of the semester students take the writing test number 2, which includes processed topics with lectures and exercises after the test the first test consists of theoretical questions and three tasks, where each issue contain the number of points as bears specific question. The maximum score on the test 30. The student must win at least 50% points on each test to get the points scored on the test. If he / she did not meet one of the tests in the term of the final exam, he / she resumes an unsuccessful test. The final exam is placed verbally (who is permanently placed through the tests) through brief inquiries. Obtain minimum 10 points on the final exam. Students who do not pass the tests are in the end of the final exam only tasks, and when they put the same theoretical background, they write in writing, if necessary with oral explanation.

20. Assessment components:

Rating exam is based on the total number of points a student earned by completing pre-exam requirements and exams, according to the quality of the acquired knowledge and skills, and contains a maximum of 100 points, and is determined according to the following scale:
The presence continues 5 points
2 tests (tasks + theory) x 30 = 60 points
Total pre-exam 65 points
Final exam 35 points

21. Required reading list:

1. S. Delalić, I.Alić : Mehanika fluida I, Tuzla 2005.
2. Pečornik, M.: Tehnička mehanika fluida, Školska knjiga Zagreb, 1989.
3. K.Voronjec, N.Obradović: Mehanika fluida, Građevinska knjiga Beograd, 1973.

22. Web sources:

(max. 687 characters)

23. Applicable starting from the academic year:

2015/2016

24. Adopted in the Faculty/Academy session:

01.06.2015