

Tárgytematika / Course Description

Thermofluids 2.

AJNB_JFTA019**Tárgyfelelős neve /****Teacher's name:** dr. Feszty Dániel**Félév / Semester:** 2025/26/1**Beszámolási forma /****Assesment:** Folyamatos számonkérés**Tárgy heti óraszám /****Teaching hours(week):** 1/1/2**Tárgy féléves óraszám /****Teaching hours(sem.):** 0/0/0

OKTATÁS CÉLJA / AIM OF THE COURSE

The aim of the subject/course is to provide introduction into the basics of Fluid- and Thermodynamics. After completing the course, students will be able to determine the properties of moving fluids as well as the aerodynamic forces acting on objects.

TANTÁRGY TARTALMA / DESCRIPTION

Within the subject there will be project tasks to be completed by the students. In order to be able to complete these projects the students will be provided the required theoretical knowledge through modules so called Atoms. These are the following:

Atoms:

Fluid Kinematics
Bernoulli equations
Fluid dynamics
Control Volume Theorem
Conservation of Mass
Conservation of Momentum
Aerodynamic forces

Projects:

Design and manufacture of a pressure-based air speed meter
Air resistance in Audi wind tunnel (persons, bodies, etc.)
Effect of wind direction on a moving body (e.g. bicycle) - directional dependence of shape factor, etc.

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESMENT'S METHOD

Evaluation will take place as follows: written or oral assessment of atoms (50%) AND class and project participation (50%).

Written or oral assessment of atoms (50%): will evaluate students' knowledge related to the course material. The assessment takes place throughout the semester.

Class and project participation (50%):

- ☐ Class participation (20%) will be evaluated based on presence and the quality of questions and comments during class time. Throughout the semester at least three (3) substantive questions are expected from each student during class or consultation time
- ☐ Successful completion of project work related to the course throughout the semester (30%)

Assessment is performed on a scale of five grades. Grades will be determined as follows:

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KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

Hibbeler, R. (2017). Fluid Mechanics, 2nd Edition Pearson Publishing.

White, F. (2016). Fluid Mecahnics, 8th Edition, McGrawHill.

Cengel, Y., Cimbala, J.M. (2017). Fluid Mechanics: Fundamentals and Applications. 4th Edition, MCGrawHill.

Cengel, Y., Boles, M., Kanoglu, M. (2019). Thermodynamics: An Engineering Approach., 9th Edition, McGrawHill

Moran, M., et al.. (2014). Fundamentals of Engineering Thermodynamics, 8th Edition, Wiley

AJÁNLOTT IRODALOM / RECOMMENDED MATERIAL