Code: 21„Fluid Mechanics”

ECTScredits: 4	Number of hours per week: 2+0+1
Forms of assessments:Exam	Types of assessment: Exam - written with oral discussion

Department, providinginstruction on the discipline:

Department: *THERMAL ENGINEERING*
FACULTY OF SHIPBUILDING

Lecturer: Assoc.Prof.Dr.An.Yangyozov

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Annotation:

This course considers the fundamental concepts of fluid mechanics with an introduction to the fundamental equations for liquids and gases. The course objective is to give the students the necessary theoretical understanding to analyse and solve complex engineering problems in fluid systems working with incompressible and compressible fluids. Applications to a variety of topics are provided including fluid statics, fluid kinematics, fluid dynamics, experimental research and measurements, pipe systems, wing aerodynamics and similarity laws applied for fluid problems.

The course is designed to increase interest and understanding of the wide-ranging field of fluid mechanics as industrial hydro- and aero-dynamics, hydro and pneumotechnics, fluids at different flow regimes and fluid-solid interactions.

Main issues of the syllabus content:

- Introduction and application of Fluid mechanics. Physical properties of liquids and gases
- Hydrostatics
- Fluid kinematics
- Ideal fluid dynamics
- Real fluid dynamics
- Fluid flow with losses
- Wing and airfoils

Content presentation:

The course topics are presented using posters, slides,digital projector and specialized CFD software for flow visualization. The calculations are performed with computers connected to digital projector.

Laboratory exercisesare conducted in specialized laboratories of hydrodynamics and aerodynamics. During laboratory classes are measured important fluid parameters as velocity and pressure. The flow parameters distribution is measured with Pitot tube, Prandtl tube, and different types of anemometers.