

Title Hydraulics and Hydrology	Code 1010105111010130110
Field Civil Engineering Extramural Second-cycle Studies	Year / Semester 1 / 1
Specialty -	Course core
Hours Lectures: 2 Classes: 10 Laboratory: - Projects / seminars: -	Number of credits 3
	Language polish

Lecturer:

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Status of the course in the study program:

core

Assumptions and objectives of the course:

Recognition of theoretical and practical problems of fluid flows

Contents of the course (course description):

Forces in fluids. Statics of fluids: basic equation of fluid equilibrium and its application, fluid instruments for pressure measurement, hydrostatic pressure on flat and curved surfaces, diagram of pressure, buoyancy. Dynamics of ideal fluid: continuity equation, Bernoulli's equation and its interpretation. Motion of real fluid: Reynolds's experiment, laminar and turbulent flow. Hydraulics of pipelines: linear and local head losses, diagram of piezometric head pressure, hydraulic calculation of single pipeline, siphon, calculation of long pipelines. Free surface flow: steady state flow in open channels, sewage channels, critical flow. Flow in porous media: Darcy's law, hydraulic conductivity coefficient, inflow to drainage ditch, wells. Water cycle. Characteristic and measurement of flow in rivers. Stage measurements. Design floods.

Introductory courses and the required pre-knowledge:

Mathematics, General Physics

Courses form and teaching methods:

Lectures, Classes

Form and terms of complete the course - requirements and assessment methods:

Written tests, examination

Basic Bibliography:

Additional Bibliography: