

Subject name	Fluid Mechanics II	
Subject code	IS-FM2-8	
Department	Hydraulic Engineering and Geotechnics	
Faculty	Environmental Engineering and Land Surveying	
Subject supervisor/Lecturer	Jacek Florek Ph.D., Leszek Książek Ph.D., Agnieszka Woś Ph.D.	
General information	Teaching period	summer or winter semester
	ECTS credit	6
	Lectures total	15
	Lab and field practicals	30
Objective and general description	The objective is to approach problems of the fluid mechanics divided in to static and dynamic experiments. After the basic calculations are provided the laboratory and the field experiments are in order to show the processes and the applications of measurement techniques.	
Lectures 5x2 hours	<ol style="list-style-type: none"> 1. Pressure and fluid statics. 2. Hydrostatic forces of surfaces, buoyancy. 3. Bernoulli and energy Equation. 4. Laminar and turbulent flow. 5. Open-channel flow. 	
Lab and field practicals 15 x 2 hours	<ol style="list-style-type: none"> 1. Pressure, distribution. 2. Hydrostatic forces on plane surface. 3. Hydrostatic forces on curved surface. 4. Buoyancy. 5. Static and dynamic of the fluid - common ground. 6. Frictionless flow: The Bernoulli Equation. 7. Bernoulli Equation for real fluid. 8. Conservation of flow. 9. Flow in open channel. 10. Hydraulic and energy grade lines, local and linear losses. 11. Reynolds Number. 12. The hydraulic jump. 13. Outflows. 14-15. Slope, roughness, flow, geometry - measurements in field. 	
References	<p>Fluid Mechanics. Frank M. White. McGraw-Hill Series in Mechanical Engineering. 2011, ISBN 978-0-07-352934-9</p> <p>Fluid Mechanics : Fundamentals and Applications. Yunus Cengel, John M. Cimbala. . McGraw-Hill Series in Mechanical Engineering. 2014, ISBN ISBN 978-0-07-338032-2</p>	