Course name	**Engineering Hydrology**	
Course code	IS-EHD-6	
Department	Sanitary Engineering and Water Management	
Faculty	Environment Engineering and Geodesy	
Course supervisor/Lecturer	Agnieszka Cupak, PhD., Andrzej Wałęga,PhD.	
General information	Semester	winter
	ECTS credits	6
	Lectures total	15
	Classes/labs/field classes	30
Prerequisites (required knowledge or skills)	Meteorology, Mathematics, Statistics	
Objective and general description	Student will has a knowledge about: hydrologic cycle, water balance and method of hydrologic analysis in small and midsize catchments. Student will can to calculate of precipitation and catchments characteristics, analysis of flood frequency and modeling of flood waves.	
Lectures (5x3h)	1. Definition of hydrology and engineering hydrology. The catchment and its hydrologic budget. Uses of engineering hydrology. 2. Basic hydrologic principles: precipitation, hydrologic abstractions, catchment properties. 3. Hydrology of small catchments: rational method, overland flow. 4. Hydrology of midsize catchment: runoff curve number method, unit hydrograph techniques. 5. Frequency analysis: concept of statistics and probability, flood frequency analysis, low-flow frequency analysis. Regional analysis. 6. Catchment routing: time-area method, Clark unit hydrograph method, cascade of linear reservoirs method, catchment routing with kinematics wave. 7. Catchment modeling: classification of models, model component and model construction, model calibration and verification, catchment models.	
Classes (15h)	1. Flood frequency analysis in gauge station: Pearson III type distribution	

	2. Rainfall-runoff catchment model with HEC-HMS program 3. Qualification of connection between two cross-sections
Field work (15h)	Evaluation of flow with use different measurement methods
Assessment method Specify: oral/written examination	Written examination
References	1. Maidment D. V. 1993. Handbook of Hydrology. McGraw-Hill 2. Shaw E.M., Beven K.L., Chappel N.A., Lamb R. 2011. Hydrology in practice. Fourth Edition. Spon Press 3. Ven Te Chow, Maidment D.R., Mays L.W. 1988. Applied hydrology. McGraw-Hill International Editions 4. Ponce V. M., 1989. Engineering Hydrology: Principles and Practices. Prentice Hall, Upper Saddle River, New Jersey. 5. National Engineering Handbook. Part 630 Hydrology. National Resources Conservation Service. US Department of Agriculture. 1997.