

ECTS catalog with learning outcomes University of Montenegro

Faculty of Civil Engineering / / ENGINEERING HYDROLOGY

Course:	ENGINEERING HYDROLOGY							
Course ID	Course status	Semester	ECTS credits	Lessons (Lessons+Exer cises+Laboratory)				
11939	Mandatory	1	5	2+1+1				
Programs		•	•					
Prerequisites								
Aims	Acquiring basic knowledge of hydraulics with emphasis on application in construction							
Learning outcomes	1. After completing this course, the student will be able to: 2. Calculate the hydrostatic force on flat and curved surfaces 3. Calculate the friction force and all energy losses in the pipeline 4. Perform hydraulic calculation of short structures: foundations, sharp-edged spillways, practical profile spillways, evacuation organ overflows 5. Calculates the hydraulics of a wide threshold, manhole overflow, bridge narrowing 6. Calculates various types of rapid flow, as well as lateral overflow							
Lecturer / Teaching assistant								
Methodology	Lectures, exercises, colloquiums							
Plan and program of work								
Preparing week	Preparation and registration of the semester							
I week lectures	Introduction. Characteristics of fluids.							
I week exercises	Introduction. Characteristics of fluids.							
II week lectures	Hydrostatics. Change in pressure depending on the position. Pressure measurements.							
II week exercises	Hydrostatics. Change in pressure depending on the position. Pressure measurements.							
III week lectures	Hydrostatic forces on solid boundary surfaces.							
III week exercises	Hydrostatic forces on solid boundary surfaces.							
IV week lectures	The effect of pressure on flat and curved surfaces - pressure force.							
IV week exercises	The effect of pressure on flat and curved surfaces - pressure force.							
V week lectures	Basic concepts of fluid dynamics. The equation of conservation of mass. Dynamic equation (Equation of momentum)							
V week exercises	The equation of conservation of mass. The momentum equation.							
VI week lectures	Energy equation.							
VI week exercises	Energy equation.							
VII week lectures	Friction. Energy losses.							
VII week exercises	Friction. Energy losses.							
VIII week lectures	Friction during uniform flow in a pipe. Local energy losses.							
VIII week exercises	Friction during uniform flow in a pipe. Local energy losses.							
IX week lectures	COLLOQUIUM I							
IX week exercises	COLLOQUIUM I							
X week lectures	Hydrodynamic resistances							
X week exercises	Hydrodynamic resistances							
XI week lectures	Shape resistances.							
XI week exercises	Shape resistances.							
XII week lectures	Flow in open streams. Hydraulic jump.							
XII week exercises	Flow in open streams. Hydraulic jump.							
XIII week lectures	Uneven flow. Level line shapes.							
XIII week exercises	Uneven flow. Level line shapes.							
XIV week lectures	Highlighting below the constitution. Overflow over a wide threshold							



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XIV week ex	ercises	Highlighting below the constitution. Overflow over a wide threshold							
XV week led	tures	colloquium II							
XV week ex	ercises	colloquium II							
Student w	orkload	Classes and final exam: 6 hour(s) i 40 minutes \times 16 =106 hour(s) i 40 minutes Necessary preparation before the beginning of the semester administration, registration, certification): 6 hour(s) i 40 minutes \times 2 =13 hour(s) i 20 minutes Total workload for the subject: 5 \times 30=150 hour(s) Additional work for exam preparation in the exam period, including taking the remedial exam from 0 to 30 hours (remaining time he first two items to the total load for the item) 30 hour(s) i 0 minutes Workload structure: 106 hour(s) i 40 minutes (courses), 13 hour(s) minutes (preparation), 30 hour(s) i 0 minutes (additional work)							
Per week			Per semester						
5 credits x 40/30=6 hours and 40 minuts 2 sat(a) theoretical classes 1 sat(a) practical classes 1 excercises 2 hour(s) i 40 minuts of independent work, including consultations			Classes and final exam: 6 hour(s) i 40 minuts x 16 =106 hour(s) i 40 minuts Necessary preparation before the beginning of the semester (administration, registration, certification): 6 hour(s) i 40 minuts x 2 =13 hour(s) i 20 minuts Total workload for the subject: 5 x 30=150 hour(s) Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) 30 hour(s) i 0 minuts Workload structure: 106 hour(s) i 40 minuts (cources), 13 hour(s) i 20 minuts (preparation), 30 hour(s) i 0 minuts (additional work)						
Student obligations			Weekly 6.0 credits x $40/30 = 8$ hours Total workload for the subject $6.0x30 = 180$ hours						
Consultation	ons								
Literature			D. Prodanović: Mehanika fluida za studente Građevinskog fakulteta. Građevinski fakultet u Beogradu.2007. G.Hajdin: Mehanika fluida-Uvodjenje u hidrauliku.Građevinski fakultet, Beograd. 2001. Č.Maksimović. Zbirka zadataka iz mehanike fluida. Građevinski fakultet, Beograd, 1995. Dopunska literatura: B. Batinić: Hidraulika, Građevinski fakultet, Beograd, 1993. M. Radojković:Stacionarno strujanje u otvorenim tokovima prizmatičnog preseka,Građevinski fakultet, BG,1978 B. Batinić, M. Radojković: Zbirka rešenih ispitnih zadataka iz hidraulike", Građevinski fakultet, Beograd, 1981						
Examination methods			Knowledge is checked continuously during the semester and at the final exam. The maximum possible number of points is 100, the colloquium 50 points and the final exam 50 points						
Special remarks		One part of the exercises must be done in the hydraulic laboratory. Laboratory practice requires mandatory attendance.							
Comment		Additional information about the subject can be obtained from the subject teacher, associate, head of the study program and from the vice dean for teaching							
Grade:	F	Е	D	С	В	А			
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points			