Faculty of Mechanical Engineering / MECHANICAL ENGINEERING / FLUID MECHANICS

Course:	FLUID MECHANICS			
Course ID	**Course status**	**Semester**	**ECTS credits**	**Lessons** (Lessons+Exercises+Laboratory)
268	Mandatory	5	6	2+2+0
Programs	MECHANICAL ENGINEERING			
Prerequisites				
Aims	Introduction to the basic elements of fluid mechanics, with the processes of fluid and gas flow.			
Learning outcomes				
Lecturer / Teaching assistant	Prof. dr Uroš Karadžić, Mr Vidosava Vilotijević.			
Methodology	Lectures, exercises, homework, colloquiums.			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Introduction, definition of fluid, basic laws and methods of analysis.			
I week exercises	An incompressible fluid at rest in the earth's gravitational field			
II week lectures	Physical properties of fluids: density, pressure, temperature, compressibility, viscosity, etc.			
II week exercises	Fluid in a state of absolute and relative rest			
III week lectures	Fluid in a state of absolute and relative rest.			
III week exercises	Fluid in a state of absolute and relative rest- rotational motion			
IV week lectures	Pressure on flat and curved surfaces, buoyancy and flotation.			
IV week exercises	Pressure on flat surface.			
V week lectures	Stream field, Reynolds transport theorem.			
V week exercises	Pressure on curved surface.			
VI week lectures	Divergence and rotor velocity, deformation velocity.			
VI week exercises	Buoyancy and flotation.			
VII week lectures	Flow, stream function, potential and eddy flow.			
VII week exercises	Flow, stream function, potential and eddy flow.			
VIII week lectures	Integral form of dynamic equations of motion.			
VIII week exercises	Application of the continuity equation in integral form			
IX week lectures	Load of stream lines, action of jets on solid barriers.			
IX week exercises	Flow, stream function, potential and eddy flow.			
X week lectures	Euler, Bernoulli and Cauchy-Langrage equations.			
X week exercises	I colloquium			
XI week lectures	Navije- Stokes equations.			
XI week exercises	Load of stream lines, action of jets on solid barriers.			
XII week lectures	Flow between parallel plates, through pipes and coaxial rollers. Reynolds equations.			
XII week exercises				
XIII week lectures	Energy equation, flow through pump and turbine.			
XIII week exercises	Bernoulli and energy equation.			
XIV week lectures	Dimensional analysis.			
XIV week exercises	Dimensional analysis and similarity theory			
XV week lectures	Similarity theory.			
XV week exercises	II colloquium			
Student workload	weekly 6 ECTS x 40/30 = 8 hours Structure: 1 hour and 30 minutes lectures 1 hour and 30 minutes			

	exercises 5 hours self learning During semester Lectures and final exam:(8 hours) x 16 weeks = 128 hours Necessary preparations before semester beginning: (administration, enrollment, validation) 2x8 hours=16 hours Total hours of the course: 6x30=180 hours Additional work: preparation for remedial exam and remedial exam 36 hours Load structure: 128 hours (Schooling)+16 hours (preparation)+36 hours (additional work)

Per week	**Per semester**
6 credits x 40/30=8 hours and 0 minuts 2 sat(a) theoretical classes 0 sat(a) practical classes 2 excercises **4 hour(s) i 0 minuts** of independent work, including consultations	Classes and final exam: **8 hour(s) i 0 minuts x 16 =128 hour(s) i 0 minuts** Necessary preparation before the beginning of the semester (administration, registration, certification): **8 hour(s) i 0 minuts x 2 =16 hour(s) i 0 minuts** Total workload for the subject: **6 x 30=180 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) **36 hour(s) i 0 minuts** Workload structure: **128 hour(s) i 0 minuts (cources), 16 hour(s) i 0 minuts (preparation), 36 hour(s) i 0 minuts (additional work)**
Student obligations	
Consultations	
Literature	1. P. Vukoslavčević, U. Karadžić: Mehanika fluida, 2. V. Saljinkov: Statika i kinematika fluida, 3. S. Čantrak, P.Marjanović: Mehanika fluida- teorija i praksa.
Examination methods	- Colloquiums 2x35 points - Final exam 30points Grading Scale: 100% - 90% A; 90% - 80% B; 80% - 70% C; 70% - 60% D; 60% - 51% E; 50% - 0% F
Special remarks	
Comment	

Grade:	F	E	D	C	B	A
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