



UNIVERSITY OF NIŠ

Course Unit Descriptor

Faculty

Faculty of Mechanical Engineering

GENERAL INFORMATION

Study Program	Mechanical Engineering		
Study Module (if applicable)	-		
Course Title	Fluid mechanics		
Level of Study	<input checked="" type="checkbox"/> Bachelor	<input type="checkbox"/> Master's	<input type="checkbox"/> Doctoral
Type of Course	<input checked="" type="checkbox"/> Obligatory	<input type="checkbox"/> Elective	
Semester	<input type="checkbox"/> Autumn	<input checked="" type="checkbox"/> Spring	
Year of Study	II		
Number of ECTS Allocated	6		
Name of Lecturer/Lecturers	Dragiša D. Nikodijević		
Teaching Mode	<input checked="" type="checkbox"/> Lectures	<input type="checkbox"/> Group tutorials	<input type="checkbox"/> Individual tutorials
	<input checked="" type="checkbox"/> Laboratory work	<input type="checkbox"/> Project work	<input type="checkbox"/> Seminar
	<input type="checkbox"/> Distance learning	<input type="checkbox"/> Blended learning	<input type="checkbox"/> Other

Purpose and Overview (max. 5 sentences)

The aim of the course is to introduce all students to physical properties of the fluid, basic equations that describe the fluid statics and dynamics and real problems related to the fluid flow. The course is targeting both the theoretical and practical aspects of the fluid mechanics.

Syllabus (brief outline and summary of topics, max. 10 sentences)

1) Physical properties of fluids. 2) The forces acting on the fluid. 3) Fluid statics. Pressure and its properties, hydrostatic equation. Relative equilibrium of fluids. 4) The pressure of fluid on flat and curved surfaces. Buoyancy and stability. 5) General equations of fluid dynamics: Euler equations, the equation of continuity. Bernoulli's equation. 6) Laminar fluid flow, Navier-Stokes equations, turbulent flow - Reynolds equations. 7) Hydrodynamic similarity, the Pi-theorem. 8) Basic theory of hydraulic resistance. Calculation of the friction and local losses. 9) Laminar and turbulent flow of fluid through the pipe. 10) The basis of the hydrodynamic lubrication theory. 11) Calculation of simple and complex pipeline. 12) Orifice and nozzle discharge. Flow trough small and large orifices, underwater discharge. Discharge with variable fluid level.

Language of Instruction

- Serbian (complete course) English (complete course) Other _____ (complete course)
- Serbian with English mentoring Serbian with other mentoring _____

Assessment Methods and Criteria

Pre exam Duties	Points	Final Exam	Points
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Lecture (participation)	5	Written Examination	0* (60)
Laboratory	5	Oral Examination	Max. 30
Three midterm exams	60	Overall Sum	100
* Refers to students who have already gained points by completing pre-exam requirements			