

**MM1341**

<b>Study program / course:</b> Mechanical Engineering				
<b>Type and level of study:</b> Master academic studies				
<b>Course:</b> Fluid transport				
<b>Lecturers:</b> Milovanovic M. Dobrica				
<b>Status of course:</b> Obligatory for module M <sub>4</sub> , I semester				
<b>Number of ECTS:</b> 6				
<b>Precondition:</b> None, but it is desirable to have passed exam in Fluid Mechanics				
<b>The objective of course</b> The main course objective is to introduce students with basic principles of fluid pipe transport, as well as with the methods of transport of particular kind of fluids having in mind their peculiarities and the peculiarities under which the transport is performed. The special attention is paid to the application of Information and Communication Technologies in solving this kind of problems.				
<b>The outcome of course</b> The knowledge achieved should help students to be capable of solving the practical problems, using the literature from this area, as well as the advantages which offers Internet.				
<b>Syllabus</b>				
<b>Theoretical study</b> Physical properties of fluids (density, compressibility, viscosity, friction, specific heat capacity, thermal conductivity). Layout and calculation of pipe systems for water transportation (hydraulic calculation of water-pipe networks, water hammer in pipes) Layout and calculation of pipe systems for oil transportation (oil production, oil pipelines building and methods of oil transport; isothermal and non-isothermal hydraulic calculation of oil-pipes). Layout and calculation of pipe systems for gas transportation (gas production, gas pipelines building, isothermal and non-isothermal hydraulic calculation of gas-pipes, adiabatic gas flow). Layout and calculation of pipe systems for vapour transportation (hydraulic calculation of pipes for transport of superheated, saturated and humid steam).				
<b>Practical classes</b> Practical training designed to reinforce the syllabus. Seminars.				
<b>Recommended reading</b> 1. Milovanovic, D.: Transport fluida, skripta, Mašinski fakultet Kragujevac, 2008. 2. Šašić, M.: Transport fluida i čvrstih materijala cevima, Građevinska knjiga, Beograd, 1990. 3. Milovanović, D.: Transport fluida cevima, zbirka rešenih zadataka, Mašinski fakultet Kragujevac, 1998.				
The number of hours of active teaching:				Other classes:
Theory: 2	Practical classes: 1,6	Other forms of teaching: 0,4	Research study: 0	1
<b>Methods of teaching</b> Teaching is performed through lectures and auditorium. Knowledge checking is continuous during the year through tests, seminars, discussion on the teaching units. Student's activities are rated during the teaching (70 points) and during the final exam (30 points).				
<b>Evaluation of knowledge</b>				
<b>Pre-final exam obligations</b>	<b>points</b>	<b>Final exam</b>	<b>points</b>	
Activities during the classes:	<b>10</b>	Final exam	<b>30</b>	
Practical classes:				
Colloquiums(s) :	<b>50</b>			

Seminar(s) :	<b>10</b>		
--------------	-----------	--	--