

<b>Study program: Multimedial communication technologies</b>			
<b>Course title: Advanced Web technologies</b>			
<b>Professor/assistant: Zoran Veličkovic</b>			
<b>Type of course:</b> compulsory			
<b>ECTS credits: 7</b>			
<b>Pre-requisites:</b>			
<b>Aims of the course:</b>			
The objective of the course is that students:			
<ul style="list-style-type: none"> <li>- Adopts concepts related to advanced Web 2.0 architecture;</li> <li>- Learning the principles of working rich Internet applications RIA (Rich Internet Application);</li> <li>- Conduct programming software on the client side of RIA applications;</li> <li>- To learn programming software on the server side of the RIA application;</li> <li>- Learn to measure the performance of modern Web applications..</li> </ul>			
<b>Learning outcomes:</b>			
It is expected that students after the passed exam can:			
<ul style="list-style-type: none"> <li>- Detects the specifics of Web 2.0 architecture;</li> <li>- Advanced use of client technologies for the implementation of RIA applications;</li> <li>- Advanced use of server technology for realization and optimization of RIA applications;</li> <li>- Analyze, compile and optimize the appearance and functionality of Web applications;</li> <li>- Measures the parameters of Web applications, detects problems in exploitation and proposes solutions.</li> <li>- independently design, implement and maintain RIA applications.</li> </ul>			
<b>Syllabus</b>			
<u>Theoretical part</u>			
Communication protocols and Internet architecture. Web 2.0 - the second generation of the Web. RIA applications, Web services, gadgets, blogs, social networks, site-based services. Web 2.0 technologies: XML, RSS, Atom, JSON. Well-structured Web sites and Web 2.0 applications. Multimedia content on the Web page: text, sound, pictures, and video. Protecting original multimedia content. Adaptation of Web Content to Client Specificity - Responsiveness. MVC Web Application Architecture. Programming technology on the client's side for the development of RIA applications: HTML 5, CSS 3, JavaScript and AJAX. Web readers and application programming interfaces. Built-in and external APIs: Geolocation, Stream, Canvas, WebGL, Web Expenses, WebSocket. Software on the server side: PHP, ASP.NET and MySQL. Integration of the database into the RIA application. Development environments and tools for creating RIA applications. Tools for measuring and analyzing the performance of RIA applications. QoS multimedia content on the Web. Analysis and presentation and measurement results. Web site security and HTTPS protocol. Authentication. Web protection: SSL and TLS. E-business. Working in the cloud. Ethical aspects of the Internet. The future of the Web. Semantic Web.			
<u>Practical part:</u>			
The structure of the modern Web document. New HTML 5 tags and multimedia content. Adaptation and subtitling of video content. Realization of the functionality of Web applications using JavaScript, jQuery and Modernizr. Formats for formatting and optimization of web pages: Less, Bootstrap and Grunt. Installing AJAX technology on a Web site. Integration of MySQL database into RIA applications. User authentication on the Web page and checking the entered data using regular expressions. Open Source Software Development Tools for Web Applications: Laravel, CodeIgniter, CakePHP, Zend Framework. Project development of RIA - MVC applications in WAMP environment. Set up an implemented RIA application on a NWT server. Measurement of the parameters of the realized Web application using the YSlow plug-in and the Wireshark software package. Analysis of the obtained results. An optimized solution proposal.			
<b>Literature</b>			
<ol style="list-style-type: none"> <li>1. Deitel P., Deitel H., AJAX, Rich Internet Applications and Web Development for Programm., Deitel, 2008.</li> <li>2. J. D. Gauchat, HTML 5, CSS3 i JavaScript , Mikro knjiga 2014.</li> <li>3. З. Величковић, С. Стошовић, Интернет технологије: практикум лаб. вежби, ВТШ Ниш, 2015.</li> </ol>			
<b>Number of active classes</b>			<b>Other forms of teaching:</b>
Lectures: 45	Practical classes: 30	Research work:	
<b>Teaching methods</b>			
Teaching method is carried out in the form of lectures, calculus and practical exercises. The inductive method is used in the lectures. Based on a series of simpler examples, conclusions are drawn and formed knowledge that over time becomes an engineering intuition			
Grading system (maximum 100 points), grading scale from 5 to 10: below 51 points grade 5, grade 6 from 51-60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91-100 points.			
Pre-exam obligations	points	Final exam	points
activity during theoretical lectures	10	written exam	
practical training	15+15	oral exam	30
colloquium(s)/seminar papers	15+15		
seminar			
Sum	70	Sum	30