Discipline	Internet Technologies code: 37 summer semester	
Specialty	SOFTWARE AND INTERNET TECHNOLOGIES	
ECTS credits: **6**	Form of assessment: Examination	
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Department	SOFTWARE AND INTERNET TECHNOLOGIES	
Faculty	Faculty of Computer Sciences and Automation	

Annotation: The subject "Internet Technologies" is based on the previous disciplines like Web design, Object-oriented programming 1&2 and Computer networks and Internet. The purpose is to present the knowledge of different "client" side technologies like HTML, CSS, JavaScript (AJAX, AQuery). Server side technology Java EE and Java Web container – Apache Tomcat. The students will learn how to build advanced web applications with modern technologies and approaches.

Learning objectives:

- HTML
- CSS
- JavaScript
- Server side technology Java EE
- Java Web container

CONTENTS:

Training Area	Hours lectures	Hours seminar exercises
Topic 1. Introduction 1.1. Internet. 1.2. Internet technologies 1.3. Client-server paradigm	2	
Topic 2. "Client side" technologies 2.1. Architecture and processes in current browsers	2	
Topic 3. HTML technology. 3.1. New concepts in HTML 5 3.2. Difference between HTML5 and older versions of HTML	2	

Topic 4. Cascading Style Sheets (CSS) technology. 4.1. Main concept. CSS box model. 4.2. Syntax and structure. 4.3. Responsive design.	2	
Topic 5. JavaScript technology. 5.1. General concept, syntax and structure 5.2. AJAX and JQuery 5.3. AngularJS	2	
Topic 6. Data transport technologies 6.1 XML 6.2 XSL/XSLT 6.3 JSON	2	
Topic 7. “Server-side” processing. Concepts and architectures. 7.1 Server types. 7.2 Web containers 7.3 Java web containers	2	
Topic 8. “Server-side” technologies. 8.1 PHP, .ASP, Node,js. , Java EE 8.2 Java EE ecosystem	2	
Topic 9. JAVA Servlet API. 9.1 Concept. 9.2 Lifecycle of Servlet 9.3 Advanced topics	2	
Topic 10. Java Server Pages technology (JSP). 10.1 Concept. 10.2 Lifecycle of JSP 10.3 Advanced topics	2	
Topic 11. Java Server Pages standard tag library (JSTL). 11.1 Concept. 11.2 Tag types	2	
Topic 12. Web services. 11.1 Concept of web service. 11.2 SOA/SOAP 11.3 Rest service	4	
Topic 13. Programmer tools. 13.1 Build tools. Maven. 13.2 Version control tools. Git, GitHub etc..	2	
Topic 14. Security of the web systems. 13.1 Fundamental security. 13.2 Best practices.	2	
Topic 1. HTML 5. Introduction 1.1. Semantic HTML. Forms 1.2.		2
Topic 2. HTML 5		2

2.1. Graphics. 2.2. Drag and drop. 2.3. Media. SVG		
Topic 3. CSS basics 2.1. CSS animations. 2.2. Positioning. 2.3. FlexBox.		2
Topic 4. CSS Responsive layout 4.1. Grid systems. 4.2. Bootstrap.		2
Topic 5. XML/ XSL 5.1. Creating XML containers. 5.2. Validating and transforming of XML with XSL/XSLT		2
Topic 6. JavaScript (JS) 3.1. DOM manipulations. 3.2. Dynamic content management with AJAX		2
Topic 7. JQuery 7.1. Advantages 7.2 DOM manipulations. 7.3. AJAX requests.		2
Topic 8. First semestrial control		2
Topic 9. Apache Tomcat 9.1. Architecture and configuration of Apache Tomcat Java web container 9.2. Apache Tomcat administration. 9.3. Deploying of web applications		2
Topic 10. Java Servlet 10.1. Implementing HTTP request and response methods with Servlet. The methods doGet() and doPost(). 10.2. Servlet annotations.		2
Topic 11. Java Server Pages 11.1. Architecture and configuration of Apache Tomcat Java web container 11.2. Apache Tomcat administration. 11.3. Deploying of web applications		2
Topic 12. Java Server Pages Standard Tag Library (JSTL) 12.1. Using JSTL for server-side processing. 12.2. Creating and using own tag library.		2
Topic 13. Implementing of simple authentication system. 13.1. Implementing of "*log-in*" Servlet controller. 13.2. Implementing of JSP views. 13.3. Implementing asynchronous communication between client and server.		4
Topic 14 Second semestrial control		2
TOTAL: 60 h	**30**	**30**