Study program: Modern computer technologies

Course title: Web Programming

Professor/assistant: Slavimir N. Stošović

Type of course: elective

ECTS credits: 6

Pre-requisites:

Aims of the course:
To prepare students to:
- understand the basic concepts of multilevel web-based applications based on a particular server language,
- understand the possibilities of web application frameworks,
- apply the state-of-the-art technology for design of commercial Internet applications,
- use a web framework to develop a web application,
- analyze the complexity of the implemented web application and optimize it accordingly.

Learning outcomes:
By mastering the subject, a student will be able to:
- understand, formulate and present various types of Internet applications,
- establish the relationship between the frontend and the backend of web application frameworks,
- structure, formulate and design a multi-layer web application with the necessary complexity using the most effective methods and technologies,
- develop a multi-layer web application with the required complexity using one selected web framework,
- evaluate and execute complexity analysis and, if necessary, optimize the developed web application.

Syllabus

Theoretical part

Basic web application concepts. Concepts and application of three-layer and multilayer applications. Rich internet applications. Client web browser overview. Overview of temple languages and their use. Dynamic generation of web pages using server templates engine. Overview of service web templates. Ajax technology. Using a web server. HTTP protocol. MVC architectural form. Concept and use of web services. REST architecture. Designing and writing API documentation. Work with sessions. Authentication using OAuth protocol. Connecting to a database. Object-relational mapping. Web application security.

Practical part

Practice, other forms of study and research work

Practical exercises will follow theoretical lessons. Students will be able to create a web application in a selected web template through the project task, which will be upgraded step by step at each time of the exercise.

Literature

1. E. Williams, D. Lane, Web aplikacije i baze podataka, O'Reilly, 2013.
2. Java Web Servces up and running Second Edition, Martin Kalin, O'Reilly, 2013.
3. Laravel up and running a Framework for building Modern PHP Apps, Matt Stauffer, O'Reilly Media, 2016.

Number of active classes			Other forms of teaching:
Lectures: 30	Practical classes: 30	Research work:	

Teaching methods
Theoretical and practical classes are performed in the classroom with presentations, simulations and video files.

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	**20**	written exam	**20**
practical training	**20**	oral exam	**20**
colloquium(s)/seminar papers	**30**		
Sum	**70**	**Sum**	**30**