Study Programme: Information Technologies	
Course Unit Title: Advanced Web Programming	
Course Unit Code: IT628	
Name of Lecturer(s): Srđan Škrbić	
Type and Level of Studies: Bachelor Academic Degree	
Course Status (compulsory/elective): Elective	
Semester (winter/summer): Summer	
Language of instruction: Serbian (primary), English (secondary)	
Mode of course unit delivery (face-to-face/distance learning): Face-to-face	
Number of ECTS Allocated: 6	
Prerequisites: None	

Course Aims:
This subject covers various aspects of development of web client layer for modern web applications using latest technologies and tools. On one hand, the goal is to master the basics of customizable web page design, while another, more difficult and more comprehensive goal is to master the work with a JavaScript MVC (Model-View-Controller) framework.

Learning outcome
Minimal: It is expected that a student is able to demonstrate an understanding of the basic concepts and techniques of customized web application design and the basics of its development using JavaScript MVC (Model-View-Controller) framework.
Desireable: A successful student is able to demonstrate an understanding of the concepts of customized web application design and development using a JavaScript MVC (Model-View-Controller) framework, as well as knowing different similar frames and tools, and their advantages and disadvantages. It is also expected that the student is be able to recommend appropriate technologies for a given project, select appropriate tools for its realization and justify his choice.

Subject content
Theoretical lectures
The course deals with advanced web programming topics that include the most modern technologies available used for these needs. In the beginning of the course, a brief overview of already known technologies such as HTML (Hypertext Markup Language), CSS (Cascading Style Sheets) and the most basic JavaScript-related concepts is given. A flexible design of responsive websites and applications is considered using a suitable framework for these purposes. JSON (JavaScript Object Notation) is introduced as a data exchange format between application layers. The selected JavaScript MVC (Model-View-Controller) framework is elaborated in detail, focusing on aspects of its practical use and connecting with RESTful (Representational State Transfer) middle layer services.
Practical lectures:practice
In the first part, practical lessons are devoted to skills related to the design and development of responsive web pages and web applications in a suitable framework. In the second, more extensive part of practical lessons, the emphasis is on the practical use of the JavaScript MVC (Model-View-Controller) framework.

Required Reading:
1. Jake Spurlock, "Bootstrap: Responsive Web Development", O'Reilly, 2013.
2. Leonard Richardson, Michael Amundsen, "RESTful Web APIs: Services for a Changing World", O'Reilly, 2013.
3. Ari Lerner, Nate Murray, Felipe Coury, Carlos Taborda, „ng-book 2: The complete Book on AngularJS 2", Fullstack.io, 2015.
4. Shyam Seshadri, "AngularJS", O'Reilly, 2013.

Weekly Contact Hours: 4	**Lectures:** 2	**Practical work:** 2

Teaching Methods:
In the lectures, classical teaching methods using video beam are used to present the topics. In practice, classical teaching methods, using video beam and computers with the necessary software installed are used to practically train skills by getting to know the recommended tools. The premise for successful exercises is the existence of a sufficient number of computers so that each student can work individually.

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	**Final exam**	points
Colloquia	50	oral exam	50