

I057	Obligatory, V semester	<b>Full Stack Web Development</b>	L	S	E	ECTS 8
			3	1	2	

**Course objectives.** Course objectives are to familiarize students with basic and advanced concepts of Web development on client and server side (full stack) by the use of standard modern web technologies that are harmonized with World Wide Web Consortium (W3C) standards.

**Course prerequisites.** Introduction to Computer Science. Object Oriented Programming.

### Syllabus.

1. Modern HTML and CSS (Cascading Style Sheets) standards. Structures, elements, forms, styles.
2. Introduction to JavaScript dynamic language.
3. JavaScript on client side. Document Object Model (DOM). DOM manipulation. Events.
4. Concept of prototyping in JavaScript.
5. JQuery. JSON. Ajax.
6. Responsive web design (e.g. Bootstrap grid).
7. At least one modern client-side JS framework (such as AngularJS or React).
8. At least one modern server-side JS framework (such as NodeJS).
9. Accessing data through REST API-ja (e.g. in NodeJS). HTTP protocol.
10. Code testing. Tools for JavaScript code testing.
11. Multiplatform Mobile App Development with Web Technologies (e.g. Cordova hybrid application framework, Ionic framework)

### EXPECTED LEARNING OUTCOMES

No.	LEARNING OUTCOMES
1.	To demonstrate knowledge and understanding which can serve as the foundation for developing and application of original ideas.
2.	To apply knowledge, understanding and skills in a broad variety of problems in the field of full stack web development.
3.	To integrate new knowledge to successfully solve programming problems in full stack web development.
4.	To be able to present conclusions and findings to experts and laymen based on knowledge and experience.
5.	To apply the acquired skills onto further education in this field.

**COUPLING OF THE EXPECTED LEARNING OUTCOMES, TEACHING PROCESS ORGANIZATION AND THE EVALUATION OF THE TEACHING OUTCOMES**

TEACHING PROCESS ORGANIZATION	ECTS	EXPECTED LEARNING OUTCOMES **	STUDENT ACTIVITY *	EVALUATION METHOD	SCORE	
					min	max
Lecture attendance	1	1-5	Class attendance, discussion, solving the problems individually and in a team	Lists with signatures, observing the activity during the lectures	0	4
Homework	2	1-4	Solving the problems individually	Grading	12	20
Repeated exams	2	1-4	Preparation for the final project	Grading	19	28
Final exam	3	1-4	Team work	Final project	19	48
TOTAL	8				50	100

**Teaching methods and student assessment.** Lectures will contain many examples with in-depth explanations. Exercises will be held in specialized computer-based laboratories where students will learn how to program in JavaScript and associate frameworks. The final exam will be held after the completion of lectures and exercises and it will contain practical tasks (final project) each student will have to complete as part of a team of four students at most.

**Can the course be taught in English: Yes**

**Basic literature:**

1. R. W. Sebesta, Programming the World Wide Web (6th Ed), Addison-Wesley, Boston, 2011.

**Recommended literature:**

1. W3Schools, <http://www.w3schools.com>
2. Adam Freeman, The Definitive Guide to HTML5, Apress, 2011
3. L. Shklar, R. Rosen, Web Application Architecture: Principles, Protocols and Practices (2nd Ed), Wiley, Chichester, 2009.
4. P. Crowder, Creating Web Sites Bible (3rd Ed), Wiley, Indianapolis, 2008.
5. M. Essert, WEB programiranje, Zavodska skripta, FSB Zagreb, 2001.