Level: bachelor

Course title: Web programming (code: I263)

Status: Obligatory for module *Information technologies*, elective for module *Computer sciences*

ECTS: 7

Requirements: None

Learning objectives

Advanced concepts of web programming and the semantic web. Enabling students to apply the acquired knowledge practically, for developing non-trivial, dynamic web presentations and interactive web applications, first and foremost by using the fundamental web technologies (HTML, PHP, JavaScript, AJAX, jQuery), and then by using advanced, modern frameworks (HTM5, JavaServer Faces). Advanced concepts of content management systems (CMS). Concepts of Cloud computing and their practical applications.

Learning outcomes

Expected: Students should be able to design and implement a simple web presentation, in which the content is presented dynamically. The use of a back-end database system is mandatory.
Desired: Students should be able to design and implement a complex web application, with a high level of interactivity common in modern, professional web applications. Students are also expected to understand advanced concepts of the semantic web and content management systems.

Syllabus

Theoretical instruction

Properties of the Web. The client-server architecture. An overview of HTML. Basic concepts of a server-side programming language (PHP). Syntax and semantics. Working with forms. The concept of a session. Establishing database connectivity. Basic concepts of a client-side programming language (JavaScript). Syntax and semantics. Document Object Model (DOM). Event-driven programming. Working with windows, frames, and forms. Asynchronous JavaScript and XML (AJAX). An overview of the most important content and document management systems. Cloud computing and its benefits for developers, as well as the end-users.

Practical instruction: Exercises, Other forms of teaching, Student research

Practice and understanding of the core principles using illustrative examples. Using the jQuery library for easier and faster applications of the presented concepts. Analysis and practical applications of the advanced concepts introduced in the new HTML5 specification. Development of modern, interactive web applications using a web GUI framework (Facelets, JavaServer Faces 2.x, Managed Beans). Practical implementations of web presentations and applications on a dedicated web server.

Weekly teaching load				Other:
Lectures: 2	Exercises: 3	Other forms of teaching:	Student research:	