Syllabus

Course Description

Course Title	Web and Internet Engineering with Project
Course Code	76447
Course Title Additional	
Scientific-Disciplinary Sector	INFO-01/A
Language	German
Degree Course	Bachelor in Informatics and Management of Digital Business
Other Degree Courses (Loaned)	Bachelor in Computer Science
Lecturers	Prof. Dr. Markus Zanker, Markus.Zanker@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/3466
Teaching Assistant	
Semester	Second semester
Course Year/s	1
CP	6
Teaching Hours	40
Lab Hours	20
Individual Study Hours	90
Planned Office Hours	12
Contents Summary	• Basics of computer networks, web protocols and markup languages • Development of web applications: basics of usability, accessibility and responsive design • Client-side dynamicity and web scripting languages • Client-side GUI frameworks • Web application design and web services • Languages and frameworks for server-side web development
Course Topics	The basics of computer networks, web protocols, and markup languages form the foundation for the development of modern

	web applications. Key concepts such as communication via the Internet using HTTP/HTTPS, the structure of IP networks, and the use of HTML for structuring web pages are covered. In web development, the focus is on usability, accessibility, and responsive design to ensure a barrier-free user interface that can be used on various end devices. Client-side dynamics are implemented using the web scripting language JavaScript in combination with CSS and frameworks like Bootstrap. The design of web applications and web services also includes the planning and modeling of functionalities, data flows, and interfaces. JavaScript (Node.js) is also used for server-side web development, which, together with the Express framework and a database system, enables the processing of user requests and the implementation of basic business logic.
Keywords	Web development, client technologies, server technologies
Recommended Prerequisites	Knowledge of at least one programming language.
Propaedeutic Courses	
Teaching Format	• Lectures • Small exercises and regular assignments • Work in teams
Mandatory Attendance	Not compulsory, but recommended.
Specific Educational Objectives and Learning Outcomes	The course belongs to the type "attività formative caratterizzanti – discipline informatiche". It deals with the design and development of web-based applications providing practical knowledge and skills required for designing and building them. The principles for the design and development of the client-side and server-side parts of an application will be illustrated. Knowledge and understanding: • D1.3 - Know the basic principles of programming. • D1.8 - Know the basics of designing and building web applications. Applying knowledge and understanding: • D2.2 - Ability to solve algorithmic problems using programming methods. • D2.8 - Ability to develop applications in the web area.

	• D2.17 - Know how to manage small projects for the development of information systems and how coordinate small working groups. Communication skills • D4.4 - Ability to structure and prepare technical documentation • D4.5 - Ability to collaborate in interdisciplinary teams to achieve IT objectives. Learning skills • D5.3 - Ability to follow rapid technological developments and to learn about innovative aspects of the latest generation of information technology and systems.
Specific Educational Objectives and Learning Outcomes (additional info.)	
Assessment	The assignments aim at ensuring a continuous interaction with the course content and will be assessed according to correctness and completeness. The project activity aims at assessing how students approach the development of a web-based application and how they interact with each other in order to achieve a common goal. The written exam assesses the acquisition and the understanding of the theoretical knowledge presented during lectures.
Evaluation Criteria	Written exam [50%], assignments [25%] and a project [25%]. The project and the assignments are valid for the 3 regular exam sessions within the same academic year. The assignments must be submitted during the semester, and the project can be presented before the written exam of the first exam session or before the second regular exam session on the dates announced at the beginning of the semester. Further details will be provided during the lectures and on the course web page.
Required Readings	Lecture materials on the course page.
Supplementary Readings	Links to mainly online resources will be provided in the course web page.

Further Information	Software used: • HTML5 (https://www.w3schools.com/html/) • CSS (https://www.w3schools.com/css/) • Bootstrap (https://getbootstrap.com/) • JavaScript (https://www.w3schools.com/js/) • Node (https://nodejs.org) • Apache HTTP Server (https://httpd.apache.org) • nginx (https://nginx.org)
Sustainable Development Goals (SDGs)	Quality education