Zurich University
of Applied Sciences

School of
Management and Law

Valid for 2024.FS

Module Name: Web Engineering		
Module Code	w.BA.XX.2WEng-WIN.XX	
Module Description	Web applications are omnipresent today and offer the great advantage that they do not have to be installed locally and that only a web browser is needed to access them on any device. By using a client-server architecture, the presentation layer (front-end) is clearly separated from the data access layer (back-end). This concept allows developers to create flexible and reusable applications.In this module, students learn the basic technologies and tools required for front-end engineering. They create prototypes of web applications using the web technologies HTML, CSS, and JavaScript as well as a framework for building user interfaces. Furthermore, students learn how to design application programming interfaces (API) and how to exchange data using HTTP in order to communicate with a server application. Note: Creating server applications will be a topic in "Information Management", the contents of which are aligned with this module.	
Program and Specialization	Business Information Technology	
Legal Framework	Academic Regulations BSc dated 29.01.2009, for the degree programs in Business Administration, International Management, Business Information Technology, Business Law, Business Law and Applied Law, first adopted on 12.05.2009	
Module Category	**Module Type:** Compulsory	**Program Phase:** Main Study Period
ECTS	3	
Organizational Unit	W Institut für Wirtschaftsinformatik	
Module Coordinator	Max Meisterhans (meix)	
Deputy Module Coordinator	Alexandre de Spindler (desa)	
Prerequisite Knowledge	**IMPORTANT: Students who do not attend the following modules must acquire the relevant knowledge by themselves.** **Software Engineering** • Modeling using UML • Data structures • Procedural programming • Object-oriented programming • Event-based programming • Design and methods • Development tools **Requirements Engineering** • Fundamentals of software design • Conceptual modelling • Use case diagrams and use case descriptions • Fundamentals of user interface design **Information Management** The module "Information Management" takes place in the same semester and introduces the following content relevant to web engineering: • Data representation (XML, JSON) • Data models (relational model, XML) • Back-end technologies (SQL, Java) • Ability to implement a web server with Java that provides access to a database (SQL)	
Contribution to Program Learning Goals (Affected by Module)	§ Professional Competence § Methodological Competence	

Contribution to Program Learning Objectives	Professional Competence § Knowing and Understanding Content of Theoretical and Practical Relevance § Apply, Analyze, and Synthesize Content of Theoretical and Practical Relevance § Evaluate Content of Theoretical and Practical Relevance Methodological Competence § Problem-Solving & Critical Thinking § Scientific Methodology § Work Methods, Techniques, and Procedures § Information Literacy § Creativity & Innovation
Module Learning Objectives	Students... § know and understand the need for web applications and web information systems. § know the web technologies HTML, CSS, and JavaScript and understand their purpose. § can design and implement prototypes of web applications using web technologies (HTML, CSS, JavaScript). § are able to choose suitable web technologies in order to implement web applications. § are able to design RESTful APIs for accessing representations of entities (JSON) provided by a server application. § are able to learn new web technologies on their own (e.g., using online documentation, finding and adapting code examples). § are able to use HTTP for exchanging data between a server and a client. § can use components of the CSS framework Bootstrap in their own web applications and can use Bootstrap to create layouts and forms. § are able to use a JavaScript framework to create basic single page applications.
Module Content	§ Architecture of web applications (client-server architecture, front-end and back-end). § Web technologies: HTML, CSS, JavaScript. § Web application development libraries and frameworks. § Toolchain to develop web applications. § Design and implementation of web application prototypes. § Specification of application programming interfaces (RESTful APIs). § Communication between clients and servers using HTTP.
Links to other modules	The content of this module is linked to the following modules: w.BA.XX.2InfoM-WIN.XX
	w.BA.XX.2ITPM-WIN.XX
	w.BA.XX.2REng.XX
	w.BA.XX.2SWEng.XX
Methods of Instruction	§ Lecture § Interactive Instruction § Application Tasks § Exercises § Project Work § Literature Review
	Social Settings Used: Individual Work
Digital Resources	§ Teaching Videos § Teaching Materials § Practice and Application Exercises (with Key) § Multiple Choice Tests

Type of Instruction	**Classroom Instruction**	**Guided Self-Study**	**Autonomous Self-Study**
Large Class	-	-	
Small Class	-	-	
Group Instruction	28 h	14 h	
Practical Work	-	-	
Seminar	-	-	
Total	**28 h**	**14 h**	**48 h**

Performance Assessment

End-of-module exam	**Form**	**Length (min.)**	**Weighting**
-	-	-	-
Permitted Resources	-		

Others	**Assessment**	**Length (min.)**	**Weighting**
Project (including presentation)	Grade	-	100,00 %

Classroom Attendance Requirement	Mandatory Attendance: Other Will be communicated separately as part of the module.
Language of Instruction/Examination	English
Compulsory Reading	-

Recommended Reading	-
Comments	Additional materials and references to online material will be provided throughout the module.