

2019.HS

Module Name: Web Engineering	
Module Code	w.BA.XX.2WEng-WIN.XX
Module Description	The students understand the need for web applications and web-based information systems. They know the basic technologies that cover the fundamental aspects of web applications including client and server as well as static and dynamic content. They understand the fundamental concepts of each technology and are able to apply and combine them. They are able to specify interfaces for web servers and to build prototypes of web applications on their own.
Program and Specialization	Business Information Technology
Legal Framework	Academic Regulations BSc dated 29.01.2009, Appendix to the Academic Regulations for the degree programs in Business Administration, Business Information Technology, and Business 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 Ltg
Module Coordinator	Max Meisterhans (meix)
Deputy Module Coordinator	Alexandre de Spindler (desa)
Prerequisite Knowledge	<p>Software Engineering</p> <ul style="list-style-type: none"> • Modeling using UML • Data structures • Procedural programming • Object-oriented programming • Event-based programming • Design and methods • Development tools <p>Requirements Engineering</p> <ul style="list-style-type: none"> • Fundamentals of software design • Conceptual modeling • Use case diagrams and use case descriptions • Fundamentals of user interface design <p>Information Management</p> <p>The module "Information Management" takes place in the same semester and introduces the following content relevant for web engineering:</p> <ul style="list-style-type: none"> • 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) <p>Students who do not attend these modules must acquire the relevant knowledge by themselves.</p>
Contribution to Program Learning Goals (Affected by Module)	§ Professional Competence § Methodological Competence § Social Competence § Self-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

	Social Competence § Written Communication § Oral Communication § Teamwork & Conflict Management § Intercultural Insight & Ability to Change Perspective Self-Competence § Self-Management & Self-Reflection § Learning & Change		
Module Learning Objectives	Students... § know and understand the need for web applications and web information systems; use of web-based information systems; architectures of web-based information systems (incl. client/server, HTTP request-response protocol); § know and understand different web technologies: client-side: HTML, CSS, JavaScript, frameworks and libraries for building web applications; web APIs: REST, API specification; § know and understand the concepts of web technologies. § understand the use of web technologies in the context of iterative and model-driven engineering processes. § design web information system components and implement these using web technologies. § are able to choose suitable web technologies in order to implement web applications. § are able to design representations of entities (XML, JSON) and map representations of resources to data in a relational database. § define and carry out iterative and model-driven engineering methods. § learn new web technologies on their own (e.g., using online documentation, finding and adapting code examples).		
Module Content	§ Architecture of web applications (components and their interaction, HTTP) § Web technologies: HTML, CSS, JavaScript § Web application development libraries and frameworks, e.g., JQuery, Vue.js, or equivalent § Toolchain to develop web applications § Design and implementation of web applications in groups of 4 (max.) § Application of iterative and model-driven engineering methods in the scope of web applications § Specification of web APIs (REST)		
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 § Problem-Oriented Teaching § Project Work § Literature Review § Group project	Social Settings Used: § Individual Work § Group Work	
Digital Resources	Practice and Application Exercises (with Key)		
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	
Performance Assessment			
End-of-module exam	Form	Length (min.)	Weighting
Written exam	Specified documentation	60	75,00 %
Permitted Resources	No calculator	With dictionary	
Others			
Project	Assessment	Length (min.)	Weighting
	Grade	-	25,00 %
Classroom Attendance Requirement	Will be communicated separately as part of the course.		
Language of Instruction/Examination	English		
Compulsory Reading	-		

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