

Valid for 2022.HS

Module Name: Business Process Integration	
Module Code	w.BA.XX.2GPI-WIN.XX
Module Description	End-to-end business processes require the integration of numerous IT components as well as of employees and customers. This module focuses on how this integration is achieved using a microservices architecture in which a process engine orchestrates all technical and human participants. This is based on technically executable models in the Business Process Model & Notation (BPMN) language.
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	6
Organizational Unit	W Institut für Wirtschaftsinformatik
Module Coordinator	Peter Heinrich (heip)
Deputy Module Coordinator	Björn Scheppler (scep)
Prerequisite Knowledge	Basic knowledge of business process management, business process modeling using BPMN, knowledge of software engineering (object-oriented programming in Java and in a development environment), basic knowledge of modeling and processing various data structures, knowledge of web engineering, and basic knowledge of requirements engineering
Contribution to Program Learning Goals (Affected by Module)	<ul style="list-style-type: none"> § Professional Competence § Methodological Competence § Social Competence § Self-Competence
Contribution to Program Learning Objectives	Professional Competence <ul style="list-style-type: none"> § 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 <ul style="list-style-type: none"> § Problem-Solving & Critical Thinking § Scientific Methodology § Work Methods, Techniques, and Procedures § Information Literacy § Creativity & Innovation Social Competence <ul style="list-style-type: none"> § Written Communication § Oral Communication § Teamwork & Conflict Management Self-Competence <ul style="list-style-type: none"> § Self-Management & Self-Reflection § Ethical & Social Responsibility § Learning & Change
Module Learning Objectives	Students... <ul style="list-style-type: none"> § understand business process automation in the context of corporate IT, business IT alignment, and the socio-economic environment. § are able to explain specialist terms and interrelations of business process integration. § understand the architecture of process automation platforms and their possibilities to orchestrate systems, people, and decisions. § are able to apply knowledge acquired in other modules to tasks involving software engineering, web engineering, and data modeling in the context of business process integration. § have mastered the elements of BPMN notation relevant in managing technically executable processes and are able to transfer business-oriented content into technical BPMN models. § are able to use the process automation platform Camunda as well as BPMN, DMN, and Java to build the prototype of a process application and test it. § are able to assess under what circumstances automation is worthwhile and which degree of automation is appropriate.

Module Content	§ Introduction: BPM lifecycle, reasons for automation, types of automation with a focus on process automation platforms based on workflow engines, and degree of automation § Components and capabilities of a comprehensive process automation platform and the workflow engine as the core element of such a platform § Technical process modeling using BPMN, including the token principle and the transition from a business-oriented to a technical model § Human task management: integration of people, including task lifecycle, task lists, and forms § Approaches to integrating/orchestrating systems with a focus on microservices, REST, and publish/subscribe § Outsourcing of decision-making logic using DMN to a decision engine. § Dealing with data in process applications, including persistence in relational databases and de-/serialization of/to JSON § Testing of process applications § Process applications in a practical context (taught in particular via a guest lecture)		
Links to other modules	The content of this module is linked to the following modules: w.BA.XX.2BSSW-WIN.XX w.BA.XX.2InfoM-WIN.XX w.BA.XX.2SWEng.XX w.BA.XX.2WEng-WIN.XX		
Methods of Instruction	§ Lecture § Interactive Instruction § Exercises	Social Settings Used: Individual Work	
Digital Resources	§ Teaching Videos § Teaching Materials § Practice and Application Exercises (with Key)		
Type of Instruction	Classroom Instruction	Guided Self-Study	Autonomous Self-Study
Large Class	28 h	-	
Small Class	28 h	54 h	
Group Instruction	-	-	
Practical Work	-	-	
Seminar	-	-	
Total	56 h	54 h	70 h
Performance Assessment			
End-of-module exam	Form	Length (min.)	Weighting
Written exam	Closed book	90	100,00 %
Permitted Resources	No calculator		
Others			
	Assessment	Length (min.)	Weighting
Continuous semester work	Pass/Fail	-	-
Classroom Attendance Requirement	Mandatory Attendance: Other Attendance is expected for guest lectures. Details will be announced during the first week of the semester.		
Language of Instruction/Examination	German		
Compulsory Reading	§ Excerpts from J. & Rücker, B. (2019): Praxishandbuch BPMN. Available at https://www.hanser-elibrary.com/doi/10.3139/9783446461123 (ZHAW network or by registering on http://swisscovery.slsp.ch) § Excerpts from Rücker, B. (2021): Practical Process Automation. Available at https://processautomationbook.com		
Recommended Reading	§ Weske (2019): Business Process Management. https://link.springer.com/book/10.1007%2F978-3-662-59432-2 . Especially Chapters 2 and 8.1 § Gadatsch (2017): Grundkurs Geschäftsprozess-Management. http://link.springer.com/10.1007/978-3-658-17179-7 . Especially Chapter 6 § Dumas et al. (2018): Fundamentals of business process management. https://link.springer.com/book/10.1007%2F978-3-662-56509-4 . Especially Chapters 9 and 10		

Comments	<p>Clarification regarding "continuous semester work": For each performance assessment, at least 70% of the achievable points are required for a PASS. In order to be admitted to the final module examination, a PASS is required in 7 out of 10 performance assessments. Students failing to achieve this will temporarily receive a grade of 1.0 in this module and must repeat the module in its entirety one year later. This will result in the student finishing his or her degree later; in addition, he or she must do the sub-semester performance assessments again.</p> <p>Clarification regarding "attendance requirement": Whether there will be one or two guest lectures will be communicated via a Moodle announcement by the first week of the semester. Attending a guest lecture counts as a PASS in terms of continuous semester work.</p>
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