

<b>Module title</b> Modeling				
<b>Module code</b> tba	<b>Level</b> Master (MSc.)	<b>Hours per week</b> 4	<b>ECTS credits</b> 5	<b>Duration</b> 1 semester
<b>Module instructor</b> Prof. Dr. Kern	<b>Lecture type</b> Lectures and assignments Practical courses	<b>Prerequisite(s)</b> Basic knowledge in the Java programming language, and knowledge in software engineering		<b>Grading</b> Exam at the end of the semester
<b>Objectives</b> Participants will be able to independently understand, model, implement and execute business processes. They deepen their knowledge in implementing web services using the OO programming language Java and its integration into business processes. Students will be able to understand and model distributed systems using advanced modeling notations (such as, e.g., EPK, Petri nets, communicating automata, etc.). Students will be able to apply model and test driven development techniques to given problems.				
<b>Content</b> <ul style="list-style-type: none"> <li>• History and comparison of notations and languages for software and business process modeling,</li> <li>• Comparison and rating of different modeling tools for BPMN,</li> <li>• Business process modelling using BPMN,</li> <li>• Execution of business processes using a BPMN engine,</li> <li>• Implementation and integration of web services in such an engine,</li> <li>• Comparison of BPMN to other modeling notation such as, e.g., EPKs and Petri nets, MSCs, MSGs, CFMs,</li> <li>• Modeling using advanced notations such as EPK, Petri nets, communicating automata,</li> <li>• Introduction to model and test driven software development</li> </ul>				
<b>Textbook/teaching material</b> Amongst others the following literature will be used during this course:  English: <ul style="list-style-type: none"> <li>• Wil van der Aalst, Christian Stahl: Modeling Business Processes, A Petri Net-Oriented Approach (2011)</li> <li>• Viktor Farcic: Test-Driven Java Development (2015)</li> </ul> German: <ul style="list-style-type: none"> <li>• Jakob Freund, Bernd: RuckerPraxishandbuch BPMN 2.0 (2014)</li> <li>• Wolfgang Reisig: Petrinetze: Modellierungstechnik, Analysemethoden, Fallstudien (2010)</li> </ul>				

Note: this is not the official course descriptor according to the "Studien- und Prüfungsordnung" (SPO)