Software architecture in the large: towards Web 3.0

Objective: The goal of this course is to provide undergraduate students with fundamentals and principles of software architecture in the large and how novel business models would benefit from Web 3.0.

Description: The course first presents some foundation and reinforces the importance of software architectural design, both at micro and macro levels. It revisits the common architectural styles in use today: layered, front-end/back-end, microkernel, service-based, microservices, etc. before delving into the enterprise modeling and business processes. Students will be asked to team up and work out their own software architecture models, taking into account the architecture characteristics and enterprise architecture. The course ends by discussing the opportunities of Web 3.0 technology, giving the students a chance to learn how to architect their business applications and automate their business processes using Web 3.0.

Textbook:
Mark Richards, Neal Ford, Fundamentals of Software Architecture: An Engineering Approach, O'Reilly Media, 1st edition (January 2020), ISBN: 978-1492043454
Marlon Dumas, Marcello La Rosa, Jan Mendling, Hajo A. Reijers, Fundamentals of Business Process Management, Springer, 2nd edition (March 2018)

Module title	Software architecture design: fundamentals and applications in Web 3.0
Module number	
Programme	Computer Science
Applicability of the module	
Module duration	1 semester
Status	Compulsory optional module
Recommended semester during the programme	
Credit points (Cp) of the module	5
Prerequisites for module participation	None
Prerequisites for module examination	None
Module examination	

Intended learning outcomes / acquired competences of the module	- Understand the concept of software architecture in the large and the common software architecture styles in use today - Demonstrate the ability to craft a software architecture model both at micro and macro levels - Understand the principles of Web 3.0 especially on private blockchains - Able to architect business applications and automate business processes in light of Web 3.0
Contents of the module	Lecture Lab exercises Team-based presentations
Teaching methods of the module	Lecture, in-class exercises and lab hours
Total workload	
Language of the module	English
Frequency of the module	Winter semester only
Module Examination	Project work (8 weeks) and presentation (min. 15 min. and max. 20 min.)