Zeitplan für Informatik-Master-Veranstaltung "Fachspezifischer Architekturentwurf (FAE)" WS 18/19
Schedule for Computer Science Master Course "Domain Specific Architectures" WS 18/19

Date	Time	Lecture / Presentation Part	by …	Group Work Part	Result(s) To be presented next course meeting
Fr 12.10.	12:00 - 16:00	**Kickoff** - Course structure, time schedule, further organizational details, grading criteria - Rules for result documentation (Github)	TH Köln	- Discussion of the domain at hand: what subdomains do we have? - Definition of 3-4 subteams, along the subdomain borders	- Subdomains identified - Each student mapped to a subdomain team
Fr 19.10.	13:00 - 17:00	**1.1. DDD & Organization Structure** - Introduction to DDD core concepts - "What is this all about"? Relationship between domain-driven design, agility and organization structure - Practical advice for domain and bounded context analysis (good practices, rules of thumb for size, …)	TH Köln	- Subteams work on their own (sub-)domain model, using DDD concepts	- Initial sub-domain model "on paper"
Fr 26.10.	13:00 - 17:00	**1.2. Microservice Concepts** - Motivation: Why Microservices? Advantages and disadvantages, comparison with monolithic architectures and with SOA - Core Microservice principles (loose coupling, you build it / you run it, freedom of technology choice, …) - Approach when modelling services (e.g. aggregate root = service as a design starting point) - Ideal size for a Service (developer anarchy vs. self-contained system)	external or TH Köln	- Teams implement simple CRUD services	- Aggregates defined - JPA definitions ready
Fr 02.11.	13:00 - 17:00	**2.1 API Patterns** - Rules for REST APIs - Maturity model according to Richardson, esp. level 2 vs. level 3 - GraphQL as alternative to REST - Good practices: what-to-use-when - API First vs. Code First	external or TH Köln	- Teams design and implement CRUD REST API - Constraint: Spring Boot + Spring Web MVC must be used (not Sprint Data REST)	REST API specified & documented REST API implementation can be tested using Postman
Fr 09.11.	13:00 - 16:00	**3.1. Rich Domain Model** - Distinction Anemic / Rich Domain Model - Why is it sensible to use REST level 3 with a RDM? - How to implement complex interactions between services	TH Köln	- Teams define examples for complex functions on services, implement them as dummies, and implement interaktion between services - Constrain: first use HateOAS package (to feel the pain), then migrate to Spring Data REST (which gives you level 3 "for free")	- API based on Spring Data REST specified & implemented (testable by Postman) - complex interaction scenario can be demonstrated (Postman)
Fr 16.11.	13:00 - 17:00	**4.1. UIs in a Microservice Landscape** - Popular MS patterns to connect UIs: API Gateway, Backend for Frontend - Do's and Don'ts when connecting clients - UI integration concepts (HTML links, monolithic UIs, client / service side composition, Micro Frontends, …)	external or TH Köln	- Teams build simple UI, connect them via REST and integrate them using a chosen integration paradigm	- Simple UIs in place - Basic UI integration - Connected via REST API
Fr 23.11.		*No Lecture due to Project Week*			
Fr 30.11.	13:00 - 17:00	**5.1. Container & Execution Environment** - Docker as a concept - Service Discovery - DevOps principles	external or TH Köln	- Teams set up execution environment	- "All on Docker" - Service Discovery in place - Basic integration between MS available (REST calls)
Fr 07.12.	13:00 - 17:00	**3.2 Transactions between Microservices** - Transaction patterns (event sourcing, Saga pattern, interaction between REST and messaging) - Introduction to messaging and frequently used technologies	external or TH Köln	- Teams define events (provider) and connect to message broker - Teams select events to be consumed and implement a listener	- events specified for exemplary services - some services connected to message broker (provider & consumer)
Fr 14.12.	tbd	**Joint Workshop with Social Workers (Prof. Dr. Isabel Zorn)**	TH Köln	*See workshop concept, agenda, and goals*	
Fr 21.12.	13:00 - 17:00	**Advanced Architecture Topic 1** - *see list of advanced topics*	external	*to be defined*	
Fr 28.12. Fr 04.01.		*Xmas Break*			
Fr 11.01.		**Advanced Architecture Topic 2** - *see list of advanced topics*	external		
Fr 18.01.	13:00 - 17:00	**Advanced Architecture Topic 3** - *see list of advanced topics*	external	*to be defined*	
Fr 25.01.		**Advanced Architecture Topic 4** - *see list of advanced topics*	external		
Fr 01.02.	13:00 - 17:00	**Wrapup** - Summary - Retrospective: Conclusions, Lessons Learnt - Organizational details for final architecture documentation and final presentation	TH Köln	- Teams prepare their own conclusions, to be shared with the larger group later	

Green: Invitations for external guest lectures