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| Module Name | | **Distributed Systems Advanced Chapters (Vertiefung Verteilte Systeme)** | | | | | | | | |
| Module Responsibility | | *Prof. Dr. Michael Cebulla* | | | | | | | | |
| Qualification Targets | | *Students extend and deepen their knowledge about architectures of distributed systems. They become acquainted with additional architectures and*  *development platforms. They develop their programming skills concerning the development of distributed systems in practical exercises. Generally the focus lies on the concept of intelligent middleware.* | | | | | | | | |
|  | **Content** | | **Know** | **Understand** | **Apply** | **Analyze** | **Assess** | **Synthesize** |  | |
| Analysis and properties of architectures | | x | x | x | x | x |  |
| Service oriented architectures | | x | x | x | x | x |  |
| Stream Processing | | x | x | x | x | x |  |
| Actors and agents | | x | x | x | x | x |  |  |  |
| Module Contents | | *Advanced Topics in the Development of Distributed Systems:*  - *Architectures of Distributed Systems: Structure and Properties*  - *Serviceoriented Architectures: Properties, Solutions, Perspectives*  - *Data-driven Systems: Stream Processing*  - *Actor und Agent Systems*  - *Clustering, Container , Cloud Computing* | | | | | | | | |
| Teaching Methods | | *Lectures (2 hrs/week), Exercise (2 hrs/week)* | | | | | | | | |
| Requirements for Participation | | *Programming skills in Java* | | | | | | | | |
| Literature / Multimedia-based Teaching Material | | *Andrew S. Tanenbaum, Maarten van Steen, Distributed Systems: Principles and*  *Paradigms, Pearson Prentice Hall 2007*  *George F. Coulouris, Jean Dollimore, Tim Kindberg, Distributed Systems:*  *Concepts and Design, Pearson Prentice Hall, 2003*  *Nicolai M. Josuttis, SOA in Practice – The Art of Distributed Systems Design,*  *O’Reilly 2007*  *Raymond Roestenburg, Rob Bakker, Rob Williams, Akka in Action, Manning*  *Publication 2016*  *Fabio Bellifemine, Giovanni Caire, Dominic Greenwood, Developing Multi-Agent*  *Systems with JADE, John Wiley & Sons, 2004* | | | | | | | | |
| Applicability | | *Master of Applied Computer Science, Master Angewandte Medieninformatik* | | | | | | | | |
| Effort/  Total Workload | | *150 hours: Presence 60 hours, 45 hours self-study, 45 hrs exam preparation* | | | | | | | | |
| ECTS/ Emphasis of the Grade for the final Grade | | *5 CP (Emphasis of the Grade for the final Grade 5/120)* | | | | | | | | |
| Performance Record | | *Written exam* | | | | | | | | |
| Semester | | *1st or 3rd semester* | | | | | | | | |
| Frequence of Occurrence | | *Every second year* | | | | | | | | |
| Duration | | *One semester* | | | | | | | | |
| Type of Course | | *Selectable course from the area distributed and mobile systems* | | | | | | | | |