

Module Handbook

TUK MODHB Homepage

Course INF-22-02-K-6

Middleware for Heterogeneous and Distributed Information Systems (4V+2U, 8.0 LP)

Course Type

SWS	Type	Course Form	CP (Effort)	Presence-Time / Self-Study
-	K	Lecture with exercise classes (V/U)	8.0 CP	156 h
4	V	Lecture		56 h
2	U	Exercise class (in small groups)		28 h
(4V+2U)			8.0 CP	84 h 156 h

Basedata

SWS	4V+2U
CP, Effort	8.0 CP = 240 h
Position of the semester	1 Sem. in WiSe
Level	[6] Master (General)
Language	[DE/EN] German or English as required
Lecturers	Deßloch, Stefan, Prof. Dr. (PROF DEPT: INF)
Area of study	[INF-INSY] Information Systems
Lifecycle-State	[NORM] Active

Contents

- Architecture of distributed information systems and transaction systems

- DB-Gateways
- Distributed transaction processing and management (transactional RPCs, X/Open DTP)
- Application server middleware (transactions, performance, object persistence and queries)
- Message-oriented middleware (asynchronous transactions, message queuing, message brokering)
- Web services (foundations, extensions for robust web services, coordination and transactions)
- Business process middleware (modelling, workflow management systems, transactional workflows, web service orchestration and choreography)
- Web-based information systems
- Concepts for interoperability and integration (distribution, heterogeneity, autonomy, transparency)
- Virtual data integration (federated DBMS, Multi-DBMS, Wrappers and Mediators)
- Materialized data intergration (data replication, data warehousing, data transformation/Extract-Transform-Load)
- Concepts and techniques for integration planning (schema matching, mapping , integration, model management)

Literature

- Bernstein, Philip A., Newcomer, Eric: Principles of Transaction Processing (2nd Edition), Morgan Kaufmann Publ., 2009
- additional references will be announced in the lecture

Requirements for attendance (informal)

Fundamentals of Information Systems and Database Management Systems: Data Models and Database Design, Query Languages (SQL) and Query Processing, Database Architecture, Transactions (ACID), Host/Programming Language Coupling

Requirements for attendance (formal)

None

References to Course [INF-22-02-K-6]

Module	Name	Context	
[INF-22-02-M-6]	Middleware for Heterogeneous and Distributed Information Systems	P: Obligatory	4V+2U, 8.0 LP
Course-Pool	Name		
[INF-INSY_V-KPOOL-6]	Lectures of the teaching area Information Systems		