Middleware for Heterogeneous and Distributed Information Systems

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Course Outline (1)

- Chapter 1: Motivation
    - Developing distributed information systems
    - Enterprise Application Integration
    - B2B-Integration
- Chapter 2: Distributed Information Systems
    - Layers, architecture, interaction types
- Chapter 3: DB-Gateways
    - ODBC, JDBC, SQLJ
- Chapter 4: TP-Monitors
    - Responsibilities
    - Distributed Transaction Management
- Chapter 5: Distributed Objects and Components
    - CORBA, Enterprise JavaBeans
- Chapter 6: Web-based Information Systems
    - Web-based DB access
- Chapter 7: Data Integration
    - Wrapper-based Integration
- Chapter 8: Schema Mapping and Integration

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Course Outline (2)

- Chapter 9: Message-Oriented Middleware
  - Message Queuing
  - Message Brokering
- Chapter 10: Business Process Modeling and Workflow Management
  - Business Engineering
  - Workflow Management Systems
  - WF and Transactions
- Chapter 11: XML
  - Fundamentals
  - XML and Integration Middleware
- Chapter 12: Web Services
  - Service Oriented Architecture
  - Invocation (SOAP), Description (WSDL), Discovery (UDDI)
  - Web Services Support in Middleware Platforms
  - Transactions and Coordination
  - Security
- Chapter 13: Business Processes & Web Services
  - Web Services Composition and Choreography
  - Business Activities and Transactions
- Chapter 14: e-Business Coordination, Collaboration and Integration
  - RosettaNet
  - Relationship to WS standards

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Books (1)

- Alonso, Gustavo; Casati, Fabio; Kuno, Harumi; Machiraju, Vijay
  Web Services, Springer Verlag, Heidelberg, 2003
- Allamaraju, S. et. al.: *Professional Java Server Programming - J2EE Edition*, Wrox Press, Birmingham, UK, 2000
- Bradley, N.: *The XML companion*, Addison-Wesley, Harlow, UK, 1998
- Gray, J., Reuter, A.: *Transaction Processing: Concepts und Techniques*, Morgan Kaufmann, San Mateo, Kalifornien, 1993
- Szyperski, C.: *Component Software - Beyond Object-Oriented Programming*, Addison Wesley, ACM Press, New York, 1997
- Griffel, F.: *Componentware: Konzepte und Techniken, eines Softwareparadigmas*, dpunkt, Heidelberg, 1998
- Harold, E.R.: *The XML Bible* (2nd ed.), Hungry Minds, Inc., 2001
- *The J2EE™ Tutorial*, http://java.sun.com/j2ee/tutorial/index.html

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Books(2)

- Pree, W.: *Komponentenbasierte Softwareentwicklung mit Frameworks*, dpunkt, Heidelberg, 1997
- Stonebraker, M., Brown, P., Moore, D.: *Object-Relational DBMSs - The Next Great Wave*, 2nd Edition, Morgan Kaufmann, San Mateo, Kalifornien, 1998
- Leymann, F., Roller, D.: *Production Worklflow*, Prentice Hall, 2000
- Gamma, E., Helm, R., Johnson, R., Vlissides, J.: *Design Patterns - Elements of Reusable Object-Oriented Software*, Addison Wesley, Reading, Massachusetts, 1995
- Blakeley, B., Harris, H., Lewis, R.: *Messaging & Queuing Using the MQI*, McGraw-Hill, New York, 1995
- Geiger, K.: Inside ODBC - *Der Entwicklerleitfaden zum Industriestandard für Datenbankschnittstellen*, Microsoft Press, Washington, 1995

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Books(3)

- Melton, J., Eisenberg, A.: *Understanding SQL and Java Together - A Guide to SQLJ, JDBC, and Related Technologies*, Morgan Kaufmann, San Francisco, 2000
- Orfali, R., Harkey, D.: *Client/Server Programming with JAVA and CORBA*, Wiley Computer Publishing Group (John Wiley & Sons, Inc.), New York, 1997
- Siegel, J.: *CORBA - Fundmentals and Programming*, Wiley Computer Publishing Group (John Wiley & Sons, Inc.), New York, 1996
- Mowbray, T.J., Zahavi, R.: *The Essential CORBA - Systems Integration Using Distributed Objects*, Wiley Computer Publishing Group (John Wiley & Sons, Inc.), New York, 1995
- Mowbray, T.J., Malveau, R.C.: *CORBA Design Patterns*, Wiley Computer Publishing Group (John Wiley & Sons, Inc.), New York, 1997
- Lea, D.: *Concurrent Programming in Java - Design Principles and Patterns*, Addison Wesley, Reading, Massachusetts, 1996

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