

NETWORK COMPUTING

Course Objectives:

This course is an introduction to the network computing systems development. The focus of the course is on the study of middleware and enabling technologies that are used in building distributed environments and client/server applications. Concepts such as open systems, interoperability, portability, integration are emphasized. Provide an in-depth understanding of major middleware and application level issues, as well as design and implementation skills in the development of applications using client-server network architectural model.

Topics include:

1. Introduction

- Motivations, trends, main application areas
 - Decision support systems
 - On-line transaction processing
 - Collaborative works
- Requirements, services, environments
- Wireless computing
- Architectural models, realisation methodologies, paradigms

2. Advanced networking technologies *Dr. Kovács Szilveszter (MiE)*

- Advanced LAN and WAN infrastructures
- Services
- Protocols, protocol stacks
- Security

1998

3. Mobile systems *Dr. Györök György (KaSz)*

- Wireless networking technologies
- Services, interfaces
- Protocols
- Applications

1998

4. Web servers and their clients *Dr. Broczkó Péter (KaBp)*

- Platforms, categories, evolutional directions
- Internet/intranet-related services
- Gateway and directory services
- Multiprotocol router services
- APIs
- Scripting languages

1999

5. Middleware

- Basic services: connectivity, N/P-transparency, isolation, RDBMS...
- Advanced middleware services (authentication, security, transparency,....
- Message oriented, RPC-based and transaction oriented middleware, database access,
- Dominant solutions, standardisation,
- Manageability, interoperability.

6. Network programming

Dr. Nagy Rezső (KaSz)

1999

- Network programming paradigm: message based, client/server, RPC, function shipping (mobile code),
- Methodologies,
- Techniques, environments,
- Tools.

7. Using Java in network programming

Vörös József (KaBp)

1998

- Run time and development environments,
 - Using the traditional low- and high-level networking APIs
 - JavaRMI, JavaIDL .
- Network programming support,
- Concurrent programming possibilities,

8. Developing of Network computing applications

- Building scalable remote access,
- RDBMS applications,
- Component based distributed system construction, Java Beans, Enterprise Java Beans.
- Collaborative software development,
- Monitoring, testing and debugging distributed systems

Textbooks:

1. *Internetworking with TCP/IP Volume III Client/Server Programming and Applications*, D. Comer and D. Stevens.
2. *Power Programming with RPC*, J. Bloomer, O'Reilly & Associates.
3. *Object-Oriented Client/Server Internet Environments*, A. Umar, Prentice Hall.
4. <http://java.sun.com/docs>