



Pemrograman Jaringan

Orientasi Perkuliahan

PTIIK - 2012



NetProgramming – at a glance

Discrete Mathematics

Advance Networking

Operating Systems

Network Analysis

Computer Networks

Multimedia Networking

Network Security

Network Programming


Distributed Systems

Server and System Administrations





Course Design

- **Classes**
 - 2 Credits
 - **Exercises**
 - 1 Credit
 - **Evaluation**
 - 2 Structured Task (@ 30%)
 - 1 Final Test (40%)
 - **Programming Language**
 - Feel Free
- 



Rules

- Attendance
 - Min 80%
 - TA (not tolerated)
- Fraudulence
 - Buku Pedoman PTIIK : Bab III Pasal 20



Support Tools

- Computer (Laboratorium / Laptop)
 - Moodle – elearning
 - Lecture Info
 - Blog : afif.lecture.ub.ac.id
 - Mail : afif.supianto@ub.ac.id
 - Phone : 081 331 834 734 / 0881 601 2740
 - Class Representative
 - Communicate with Lecture
 - Soon choosen : Ryan (0856 5544 2135)
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➤ Course Objective

- Main Objective
 - Mempelajari konsep-konsep jaringan pada layer aplikasi dan teknik pemrogramannya



Course Outcome

- Memahami bagaimana Internet bekerja, arsitekturnya dan protokol TCP/IP
 - Memahami bagaimana input dan output bekerja
 - Mampu mengembangkan program client dan server dengan menggunakan protokol User Datagram Protocol (UDP) dan Transport Control Protocol (TCP)
 - Mampu mengembangkan aplikasi multithread
 - Memahami protokol Hyper-Text Transfer Protocol (HTTP), dan mengetahui bagaimana mengakses World Wide Web
 - mampu mengembangkan aplikasi terdistribusi seperti Remote Method Invocation (RMI) dan CORBA
 - Mampu mengembangkan aplikasi jaringan berbasis web
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Course Contents

1

Introduction to Client-Server Networking

2

Network Client

3

Network Server

4

Domain Name System



Course Contents

5

Advanced Network Operations

6

Web Client Access

7

Email Composition and Decoding

8

Simple Message Transport Protocol



Course Contents

9

FTP

10

SSL

11

Socket Server and Simple XMLRPCServer

12

Multitasking



References

- Brandon Rhodes and John Goerzen – *Foundations of Python 3 Network Programming 2nd Edition*, 2010 : Apress (Book 1)
- John Goerzen – *Foundations of Python Network Programming*, 2004 : Apress (Book 2)
- David Reilly and Michael Reilly – *Network Programming and Distributed Computing*, 2002: Addison Wesley (Book 3)
- Jan Graba – *Introduction to Network Programming with Java*, 2007: Springer (Book 4)
- Elliotte Rusty Harold – *Java Network Programming, 3rd Edition*, 2004: O'Reilly (Book 5)
- Vinay Chhabra, *A Beginners Guide to RMI*, www.universalteacher.com



Class Design

- **Class 01: Introduction to Client/Server Networking**
 - Understanding TCP Basics
 - Using the Client/Server Model
 - Understanding User Datagram Protocol
 - Understanding Physical Transports and Ethernet
 - Networking in Python
- **Class 02: Client-Server Networking**
 - Understanding Sockets
 - Creating Sockets
 - Communicating with Sockets
 - Handling Errors
 - Using User Datagram Protocol



Class Design

- **Class 03: Network Servers**
 - Preparing for Connections
 - Accepting Connections
 - Handling Errors
 - Using User Datagram Protocol
 - Logging with syslog
 - Avoiding Deadlock
- **Class 04: Domain Name System**
 - Making DNS Queries
 - Using Operating System Lookup Services
 - Advanced Lookups



Class Design

- **Class 05: Advanced Network Operations**
 - Half-Open Sockets
 - Timeouts
 - Transmitting Strings
 - Understanding Network Byte Order
 - Using Broadcast Data
 - Binding to Specific Addresses
 - Using Event Notification
- **Class 06: Web Client Access**
 - Fetching Web Pages and Authenticating
 - Submitting Form Data and Handling Errors
 - Using Non-HTTP Protocols



Class Design

- Class 07: Email Composition and Decoding
 - Understanding Traditional Messages
 - Composing Traditional Messages
 - Parsing Traditional Messages
 - Understanding MIME
 - Composing MIME Attachments
 - Composing MIME Alternatives
 - Composing Non-English Headers
 - Composing Nested Multiparts
 - Parsing MIME Messages



Class Design

- **Class 08: Simple Message Transport Protocol**
 - Introducing the SMTP Library
 - Error Handling and Conversation Debugging
 - Getting Information from EHLO
 - Using Secure Sockets Layer and Transport Layer Security
 - Authenticating
 - SMTP Tips
- **Class 09: FTP**
 - Understanding FTP
 - Downloading ASCII Files and Binary Files
 - Uploading Data and Handling Errors
 - Scanning Directories, Downloading Recursively and Manipulating Server Files and Directories




Class Design

- **Class 10: SSL**
 - Understanding Network Vulnerabilities
 - Reducing Vulnerabilities with SSL
 - Using Built-in SSL
 - Using OpenSSL
 - Verifying Server Certificates with OpenSSL
- **Class 11: Socket Server and Simple XMLRPCServer**
 - Using BaseHTTPServer
 - SimpleHTTPServer
 - CGIHTTPServer
 - Implementing New Protocols
- **Class 12: Multitasking**
 - Forking and Threading



➤ Ketentuan Task 1

- Carilah program jaringan di Internet yang **sudah jadi**, lakukan analisis, bahas source codenya, buat laporannya.
 - Bentuk 15 Kelompok @ 3-4 mahasiswa
 - Keluaran :
 - Makalah [Word 2003 (doc) / Word 2007 (docx)]
 - Source Code [Demo Program]
 - Presentasi [PowerPoint 2003 (ppt) / PowerPoint 2007 (pptx)]
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Ketentuan Task 2

- Carilah paper di Jurnal TI khususnya Networking (bebas namun berbeda antar kelompok)
 - Konsultasi kelayakan
 - Bedah paper tersebut
 - Implementasikan dalam bentuk software
 - lakukan analisis
 - buat laporannya dan papernya
- Keluaran :
 - Makalah [Word 2003 (doc) / Word 2007 (docx)]
 - Source Code [Demo Program]
 - Presentasi [PowerPoint 2003 (ppt) / PowerPoint 2007 (pptx)]
 - Paper
 - Referensi



Timeline

- Minggu ke-6 : Aplikasi pada Task 1 sudah didapatkan dan disetujui oleh Dosen Pengampu
 - Minggu ke-8 : Pengumpulan item keluaran Task1 disertai Presentasi dan Demo Program sebagai pengganti UTS
 - Minggu ke-9 : Sudah mendapatkan paper dan disetujui oleh Dosen Pengampu
 - Minggu ke-10 : Bedah Paper
 - Minggu ke-11 s/d Minggu ke-15 : Konsultasi Task2
 - Minggu ke-16 : Pengumpulan item keluaran Task2
 - Minggu ke-16 : Final Test (UAS)
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Thank You !

afif.supianto@ub.ac.id
081 331 834 734 / 088 160 127 40