Internet Applications

—— *Course Outline*

BUPT/QMUL

2021-03-04

Instructor

- Instructors: 时岩，黄小红，程莉
- From School of Computer Science (National Pilot Software Engineering School) 计算机学院(国家示范性软件学院), BUPT
- About this class
  - 黄小红
  - From Network and Information Center
  - Platform: 腾讯课堂+iClass
  - QQ Group：
    - 935502800 (for 2018215107-2018215110)
  - My Mailbox: huangxh@bupt.edu.cn

Credit, Hours and Prerequisite Courses

- Credit: 3
- Course Hours: 48 (3 Hours/week)
- Prerequisite courses
  - 1300029
    - Programming Fundamentals
  - EBU5403
    - Internet Protocols

Topics

Background

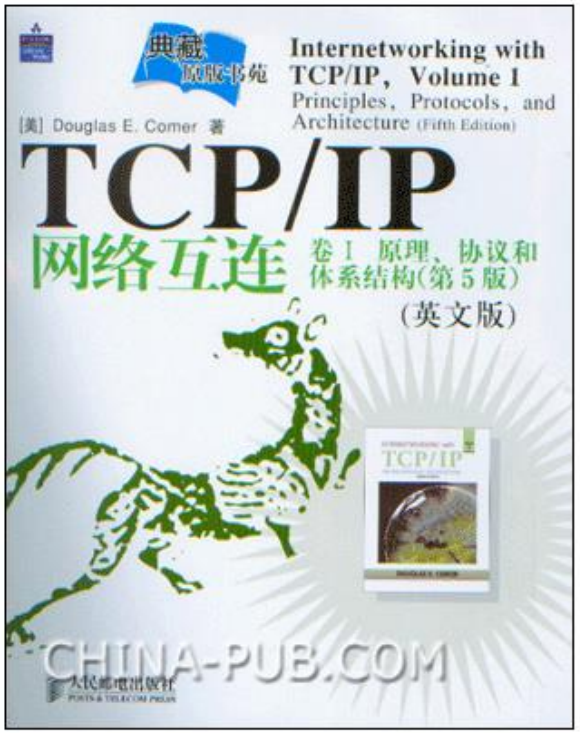
- Introduction of Internet
- TCP/IP and OSI/RM
- Socket Programming

Typical Internet Applications

- DNS (Domain Name System)
- DHCP (Dynamic Host Configuration Protocol)
- Remote Interactive Computing: TELNET/SSH
- Email: SMTP/POP/IMAP/MIME
- File Transfer and Access: FTP/TFTP/NFS
- World Wide Web: HTTP
- Network Management: SNMP
- Seminars about New applications

Reference Textbooks

- Internetworking with TCP/IP, Volume I Principles, Protocols and Architecture
- Fifth Edition
- Douglas E. Comer



Labs and Projects

- Basics–Linux commands, compiling, debugging, …
- Simple UDP client / server program
- Simple TCP client / server program

Evaluation

- Your final credit in this course will be determined by:
  - Labs and Coursework ---- 40%
  - Final Exam ---- 60%

Course Schedule (1)

Week	Topic
1	• Introduction: History of Internet • Network Layered Architecture
2	• Socket Programming (I)
3	• Install Linux in VM • Linux Commands and Operations
4	• Socket Programming (II)
5	• Socket programming practice with given example programs
6	• Dynamic Host Configuration Protocol • TELNET/SSH and Applications (I)

Course Schedule (2)

Week	Topic
7	• TELNET/SSH and Applications (II) • DNS
8	• Socket programming: UDP • Using Wireshark to capture and analyze application layer protocols
9	• **Seminar I**
10	• Socket programming: TCP (I)
11	• File Transfer Protocols
12	• Email • WWW and HTTP (I)

Course Schedule (3)

Week	Topic
13	• WWW and HTTP (II) • Network Management Protocols
14	• **Seminar II**
15	• Socket programming: TCP (II)
16	• Review
17	• Preparation for Final Exam
18	