



VIETNAM NATIONAL UNIVERSITY OF HO CHI MINH CITY
UNIVERSITY OF NATURAL SCIENCES
FACULTY OF INFORMATION TECHNOLOGY

COURSE SYLLABUS

Course Code:	TH504
Title:	Network Application Design
Credits:	4
Workload:	Lecture hours: 3 periods * 15 weeks = 45 periods Laboratory hours: 2 periods * 15 weeks = 30 periods Preparative hours: 3 periods * 15 weeks = 45 periods
Prerequisites:	TH103 – Data structures 1 TH110 – Introduction to Software Engineering TH111 – Advanced Operating Systems

Course Objectives:

The objective of this course is that, upon its completion, students should be able to: understand and describe network services provided to applications and the relation of network applications to TCP and UDP transport protocols; understand and describe the operation, design, and implementation of network applications and application-level protocols based on the client-server model; design, develop, and debug network applications and application-level protocols using a socket application program interface; and finally, improve the performance of network applications by optimizing both application level protocols and code structures. These topics will be studied in the context of: Unix or Windows NT, the Internet protocol suite, and the WinSock application program interface.

Main Text: N/A

References:

- *Internetworking with TCP/IP, Volume III, C/S Programming and Applications*
Douglas E. Comer and David L. Stevens
- *The Winsock Version*
Prentice Hall, 1997 (ISBN 0-13-848714-6).
- *UNIX Network Programming, Vol.1, Networking APIs: Sockets and XTI*, 2nd ed. W. Richard Stevens, Prentice Hall PTR, 1998.
- *WinSock 2.0*, Lewis Napper, IDG Books Worldwide, 1997.
- *Programming techniques in Windows NT, Vol 2: Network interface programming* (in Vietnamese)
Nguyen Tien Huy, Tran Dan Thu, Nguyen Hanh Nhi. Education Publisher, 1998.
- some previous years undergraduate theses.

Course Outline:

- Chapter 1 : Introduction to the course
- Chapter 2 : Overview of networks and their services
- Chapter 3 : Overview of network applications
- Chapter 4 : Overview of network application design
- Chapter 5 : Network interface programming and sockets
- Chapter 6 : Client-side algorithms
- Chapter 7 : Server-side algorithms
- Chapter 8 : Server design techniques
- Chapter 9 : Client design techniques
- Chapter 10 : Network application design in MS Windows
- Chapter 11 : Network application adjustment and gateways
- Chapter 12 : Data representation and remote procedure calls
- Chapter 13 : Telnet
- Chapter 14 : Raw sockets and ICMP
- Chapter 15 : Security for network applications

Grading

Final exam :

Assignments: