

Data Communication

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Textbook : *Data and Computer Communications*, 6th Ed., by

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Website: <http://williamstallings.com/DCC6e.html>

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上課時間

1 st wk	09/17,18	Opening
2 nd wk	09/24,25	
3 rd wk	10/01,02	
4 th wk	10/08,09	
5 th wk	10/15,16	
6 th wk	10/22,23	
7 th wk	10/29,30	
8 th wk	11/05,06	
9 th wk	11/12,13	(Midterm Exam)
10 th wk	11/19,20	
11 th wk	11/26,27	
12 th wk	12/03,04	
13 th wk	12/10,11	
14 th wk	12/17,18	
15 th wk	12/24,25	
16 th wk	12/31	
17 th wk	01/07,08	(Final exam)
18 th wk	01/15	(Report due)

評分方式：Midterm 40%, Final 40%, Report/Homework 20%

Exam.: 簡答為主，計算為輔

Homework: 上課繳交，逾時不收

Contents

6th Ed

Part I. OVERVIEW

1. Introduction
2. Protocols and Architecture

Part II. DATA COMMUNICATIONS

3. Data Transmission
4. Transmission Media
5. Data Encoding
6. The Datacommunication Interface
7. Data Link Control
8. Multiplexing

Part III. WIDE-AREA NETWORKS

9. Circuit Switching
10. Packet Switching
11. ATM and Frame Relay
12. Congestion Control in Data Networks

***Part IV. LOCAL AREA NETWORKS**

13. LAN Technology
14. LAN Systems

***Part V. COMMUNICATIONS ARCHITECTURE AND PROTOCOLS**

15. Internet Protocols
16. Internetwork Operation
17. Transport Protocols
18. Network Security
19. Distributed Applications

Appendix A ISDN and Broadband ISDN

Appendix B RFCs Cited in This Book

Appendix C Projects for Teaching Data and Computer Communications

7th Ed

1. Introduction
2. Protocols and Architecture
3. Data Transmission
4. Transmission Media
5. Data Encoding
6. The Datacommunication Interface
7. Data Link Control
8. Multiplexing

9. Spread Spectrum

10. Circuit Switching and Packet Switching
11. Asynchronous Transfer Mode
12. Routing in Switched Networks
13. Congestion Control in Switched Data Networks

14. Cellular Wireless Networks

15. Local Area Network Overview
16. High-Speed LANs
17. Wireless LANs

18. Internetwork Protocols
19. Internetwork Operation
20. Transport Protocols
21. Network Security
22. Distributed Applications

A. RFCs Cited in This Book

B. Fourier Analysis

C. Projects for Teaching Data and Computer Communications

* Optional

Topics for Course Report

(兩人一組)

1. Tools Page Laboratory Manual and Exercises

www.csee.usf.edu/~cristen/tools/toolpage.html

- (1) Studying DLC flow and error control performance
- (2) Studying the effects of frame length in Ethernet
- (3) Studying the effects of early token release (ETR) in Token Ring
- (4) Studying Markov chains and their solution as a set of equations
- (5) Studying the effects of second moment on queueing delay
- (6) Reproducing the Bellcore “self similar” traffic study
- (7) Studying the effects of traffic shifts on LRD statistics
- (8) Studying the effects of “self similarity” on queueing behavior
- (9) Analysis of collected round-trip delay “ping” data
- (10) Studying sliding window in a UDP/IP client/server application

REPORT GUIDELINES

Each term project will result in a detailed 10-20 page written technical report.

(1) Abstract.

- ✓ It comes first in your report, but you write it last.

(2) Summary.

- ✓ Gives succinct information on the purpose, methods, results and conclusions reported.

(3) Introduction.

- ✓ Include background material and discuss the scope and limitations of your project.

(4) Discussion.

- ✓ The body of your report. This includes the methodology used. Be sure to fully describe any figures, tables or diagrams you include.

(5) Results.

(6) Conclusions.

(7) References (must always be included), annotated if possible.

(8) Appendices, including supporting material as needed.

問卷調查

1. 請簡述你的修課動機
2. 請列出你所修過通訊相關的課程名稱及修課年級
3. 你修過以下課題嗎？
 - ◆ Fourier Transform
 - ◆ 線性代數
 - ◆ 機率統計
 - ◆ 通訊系統
4. 你如果決定選修這門課，希望透過此課程學到什麼？