Practice for Digital System

Chia-Chun Tsai
Professor
Dept. of Computer Science and Information Engineering
Nanhua University
E-mail: chun@mail.nhu.edu.tw
http://www.nhu.edu.tw/~chun

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Course Time and Office Hours

- **Course Time & Place:**
  - **CSIE-1A - 8:10 ~ 11:00, Wednesday, W100**
  - 2/28~6/27 **No class: 2/28, 4/4**
- **Office Hours & Place:**
  - **13:10 ~ 16:00, Tuesday, C309**
  - **13:10 ~ 16:00, Thursday, C309**
- **TA Hours & Place:**
  - **13:10 ~ 17:00, Wednesday, Dept. of CSIE**
    CSIE-4B 林智隍 (volunteer)

Objectives for Practice for Digital System

- This course **introduces**

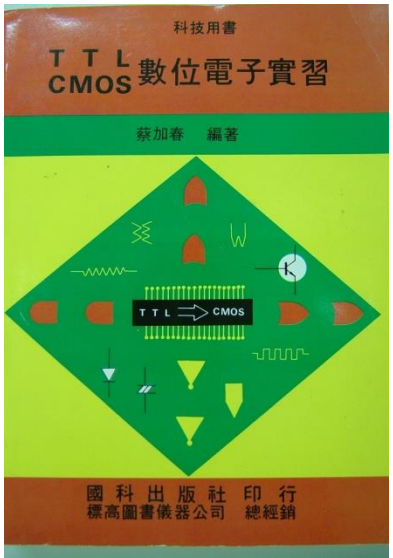
the basic characteristics of digital circuit devices, **how to make the applications of these digital devices**, and **combine them for various practical experiments of digital system circuits**.

- These **covered topics are**:

experiment of **basic logic gates**, experiment of TTL and CMOS interface, experiment of **particular logic gates**, experiment of **encoders**, experiment of 7-segment **decoder** display, experiment of **multiplexers** and **demultiplexers**, experiment of **latch** and **flip-flops**, experiment of **counters**, experiment of **shift registers**, experiment of **adders** and **subtractors**, and experiment of **oscillators**.

Reference Books

- M. Morris Mano, "Digital Design", 5th Edition, Prentice Hall, 2012
- Chia-Chun Tsai, "Digital Electronic Experiments and Applications", Microport Computer Company, Aug. 1986



Grading

- **Attendance: -5%~5%**
- **Experiments and Assignments: 40 %**
- **Mid-term Test (paper-based): 20 %**
- **Final Test (paper-based & lab-based): 40 %**

Note：

- **Two persons for one group, may one person for one group if enough equipment.**
- **Same scoring each lab for a group, but no scoring for the absenter someday.**

Attendances -5%~5 %

- **Roll call each class**
  -0.5 each since arrive late from the 2nd time
- **Signature each class**
  -1 for 1st absence, -2 each since the 2nd time absence

Exception:

- **Final test may be rejected if you are absent for more than six times or above because your learning has not been recognized to complete this course.**

Experiments & Assignments 40%

- **Experiment of assigned works**

  Grading for sum of righted answers in total experiments
- **Multisim simulation for assignments**

  Grading for sum of videos
- **Video work for assignments** (*Q*New)

  Grading for sum of videos
- **Deliver your paper recordings of experiments or videos on time**

  The score should be reduced due to the late works
- **Don't cheat for your homework**

  The score would be zero once one is verified.

Mid-term Test 20 %
Final Test 40 %

- **Paper-based Problems** in Chinese & English for Mid-term Test and Final Test
- **Lab-based Experiment** in Chinese & English for Final Test
- **Don't cheat for any tests**

  The score would be zero once one is verified.
- **Open all the grading** (You can check your scores about Experiments and Tests anytime)
- **No 58~59.9 points in term score**

Teaching/Grading Report on Web

http://www.nhu.edu.tw/~chun

English-Version 首頁(CC Tsai) 簡介(Biography) 教學課程(Teaching Courses) 教學績效(Teaching Awards) 輔導績效(Counseling Awards) 成績公佈(Grade Report)
研究(Research) 著作(Publication) 學術服務(Academic Service) 行政服務(Admin. Service) 社會服務(Social Service) 校務諮詢委員建言(Advisory Service)
傑出經驗分享(Distinguished Sharing) 感言(Impression) 領悟人生(Life Review) 永懷國小恩師趙鎰堂/僑平國小56級六丙同學會 HotLinks

蔡加春(Chia-Chun Tsai)

E-mail:chun@mail.nhu.edu.tw

蘭潭, Chiayi

Rhein & Rheinturm, Düsseldorf, Germany, July 2017

Recommended-readings Web: http://qnew.nhu.edu.tw

Lab. Rules for Practice for Digital System

- **No games** (嚴禁嬉戲)

  Safety is first
- **No foods, No drinks** (嚴禁飲食)

  Worry mouse and cockroach to damage equipments
- Use equipments carefully and return them homing really after finishing (愛惜器材,用完確實整理歸位)
- Instruments checklist of each group (各組確實填寫儀器檢查表)
- Instruments checklist in summary (課程班代確實填寫儀器檢查總表)

Contents for Practice for Digital System

00. Course Overview including Lab Safety Rules

01. Lab1- Introduction to Basic Instruments

02. Lab2- Basic Logic Gates

03. Lab3- Particular Logic Gates

04. Lab4- Active High & Low for Driving

05. Lab5- Equivalent Logic Gates

06. Lab6- Applications of Logic Gates

07. Lab7- Encoders

Mid-term Test (Paper-based)

Contents for Practice for Digital System

08. Lab8- Decoders

09. Lab9- Multiplexers and Demultiplexers

10. Lab10- Adders and Subtractors

11. Lab11- Astable Oscillators

12. Lab12- Latches and Flip-Flops

13. Lab13- Counters and Displayers

14. Lab14- Shift Registers

15. Lab15- One Shot (Monostable Oscillator)

Final Test (Paper-based & Lab-based)