

# 中原大學電子工程學系博士班資格考考試科目

Chung Yuan Christian University Department of Electronic Engineering

## Ph.D. Qualifying Exam Subjects

86年06月30日博士班委員會修訂  
91年04月23日博士班委員會修訂  
91年07月17日博士班委員會修訂  
95年05月30日博士班委員會修訂  
99年11月17日電子系990103次系務會議修訂  
100年2月16日電子系990201次系務會議修訂  
106年9月20日資工系系務會議修訂  
109年4月29日電子系1080203系務會議修訂  
Revised by the Ph.D. Program Committee on June 30, 1997  
Revised by the Ph.D. Program Committee on April 23, 2002  
Revised by the Ph.D. Program Committee on July 17, 2002  
Revised by the Ph.D. Program Committee on May 30, 2006  
Revised by the Department Meeting of the Department of Electronic Engineering on November 17, 2010 (Meeting No. 990103)  
Revised by the Department Meeting of the Department of Electronic Engineering on February 16, 2011 (Meeting No. 990201)  
Revised by the Department Meeting of the Department of Computer Science on September 20, 2017  
Revised by the Department Meeting of the Department of Electronic Engineering on April 29, 2020 (Meeting No. 1080203)

### (電子組)

- (一) 固態組—10選2 (固態物理、半導體物理、半導體元件、積體電路元件、量子發光元件、光電元件、半導體記憶元件概論、半導體量測、薄膜技術、化合物半導體磊晶特論)
- (二) 數位組—10選2 (電子學、類比CMOS積體電路設計、數位電路(含數位系統)、積體電路邏輯合成、計算機演算法、類比電流式電路設計、有源線性電路分析合成、混合訊號積體電路設計、VLSI設計與佈局實作、大數據分析)
- (三) 通訊組—5選2 (隨機過程、數位通訊、計算機網路、數位信號處理、微波電路)

備註：電子組部分，依各組科目選考2科。開學1~2週內提出申請，第10週考試。

### (Electronics Division)

1. **Solid-State Group** - Choose 2 out of 10: Solid-State Physics, Semiconductor Physics, Semiconductor Devices, Integrated Circuit Devices, Quantum Light Emitting Devices, Optoelectronic Devices, Introduction to Semiconductor Memory Devices, Semiconductor Measurements, Thin Film Technology, Special Topics on Compound Semiconductor Epitaxy
2. **Digital Group** - Choose 2 out of 10: Electronics, Analog CMOS Integrated Circuit Design, Digital Circuits (including Digital Systems), Logic Synthesis for Integrated Circuits, Computer Algorithms, Analog Current-Mode Circuit Design, Analysis and Synthesis of Active Linear Circuits, Mixed-Signal Integrated Circuit Design, VLSI Design and Layout Implementation, Big Data Analysis
3. **Communications Group** - Choose 2 out of 5: Random Processes, Digital Communications, Computer Networks, Digital Signal Processing, Microwave Circuits

**Note:** For the Electronics Division, students are required to select and take 2 subjects from their respective groups. Applications must be submitted within 1-2 weeks after the start of the semester, and the exam will be held in the 10th week.

(資訊組)

一、必考：作業系統、計算機結構、演算法三科。

\* 以上三科可擇至多兩科在博士班入學後修讀大學部以上課程可免考該科，成績須 70 分以上(作業系統-作業系統；計算機結構-計算機組織；演算法-演算法分析)。

備註：資訊組部分經 106 學年度第一學期第一次系務會議修正通過，自 106 學年度起電子系博士班資訊組在校生適用，每學期舉辦一次，相關時程請洽資訊系辦公室。

### **(Computer Science Division)**

#### **1. Mandatory Subjects:** Operating Systems, Computer Architecture, Algorithms

*Note:* Students may choose to take up to two of the above subjects in courses above the undergraduate level after entering the Ph.D. program to be exempted from the exams, provided they achieve a score of 70 or above (Operating Systems - Operating Systems; Computer Architecture - Computer Organization; Algorithms - Algorithm Analysis).

**Additional Note:** For the Computer Science Division, as approved by the first departmental meeting of the academic year 2017-2018, these requirements apply to students enrolled from the academic year 2017-2018 onward. The qualifying exam is held once per semester. For related schedules, please contact the Computer Science Department office.