

Academic Org: Fac Office of Engineering – Subject: Courses offered by Fac of Eng

**Course:** ENGG2020      **Course ID:** 003617      **Eff Date:** 2022-07-01      **Crse Status:** Active      **Apprv. Status:** Approved      **【Course Rev】**  
Digital Logic and Systems 數位邏輯及數字系統

This course introduces the digital concepts; number systems; operations and codes; logic gates; Boolean algebra and logic simplification; combinational logic; functions of combinational logic; flip-flops and related devices; counters; finite state machines; programmable logic devices - programming and sequential logic applications; memory and storage; integrated circuit technologies.

本科介紹數位概念；數字系統；運算及編碼；邏輯門；布爾代數及邏輯簡化；組合邏輯；組合邏輯函數；觸發器及相關器件；計數器；有限狀態的時序機；可編程邏輯器件－編程及序列邏輯應用；記憶及存儲；集成電路技術。

**Grade Descriptor:**      A

EXCELLENT – exceptionally good performance and far exceeding expectation in all or most of the course learning outcomes; demonstration of superior understanding of the subject matter, the ability to analyze problems and apply extensive knowledge, and skillful use of concepts and materials to derive proper solutions.

有關等級說明的資料，請參閱英文版本。

B

GOOD – good performance in all course learning outcomes and exceeding expectation in some of them; demonstration of good understanding of the subject matter and the ability to use proper concepts and materials to solve most of the problems encountered.

有關等級說明的資料，請參閱英文版本。

C

FAIR – adequate performance and meeting expectation in all course learning outcomes; demonstration of adequate understanding of the subject matter and the ability to solve simple problems.

有關等級說明的資料，請參閱英文版本。

D

MARGINAL – performance barely meets the expectation in the essential course learning outcomes; demonstration of partial understanding of the subject matter and

the ability to solve simple problems.

有關等級說明的資料，請參閱英文版本。

F

FAILURE – performance does not meet the expectation in the essential course learning outcomes; demonstration of serious deficiencies and the need to retake the course.

有關等級說明的資料，請參閱英文版本。

**Equivalent Offering:**

**Units:** 3 (Min) / 3 (Max) / 3 (Acad Progress)  
**Grading Basis:** Graded  
**Repeat for Credit:** N  
**Multiple Enroll:** N  
**Course Attributes:**

**Topics:**

**COURSE OUTCOMES**

**Learning Outcomes:**

Students will be able to:  
1. know the basics on both the combinational and sequential logic designs  
2. do VHDL designs for some simple systems  
3. debug the design

**Course Syllabus:**

This course introduces the digital concepts; number systems; operations and codes; logic gates; Boolean algebra and logic simplification; combinational logic; functions of combinational logic; flip-flops and related devices; counters; finite state machines; programmable logic devices - programming and sequential logic applications; memory and storage; integrated circuit technologies.

**Assessment Type:**

Essay test or exam : 50%  
Others : 50%

**Feedback for Evaluation:**

1. Course evaluation
2. Qualitative feedback from students

**Required Readings:**

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**Recommended Readings:**

1. M. M. Mano and C. R. Kime, Logic and Computer Design Fundamentals, Prentice Hall, 3rd edition.
2. Introduction to logic design, Alan B. Marcovitz

**OFFERINGS**

1. ENGG2020 Acad Organization=ENO; Acad Career=UG

**COMPONENTS**

EXR : Size=30; Final Exam=N; Contact=0  
LEC : Size=30; Final Exam=Y; Contact=3  
TUT : Size=30; Final Exam=N; Contact=1

**ENROLMENT REQUIREMENTS**

1. ENGG2020 **Enrollment Requirement Group:**  
Not for students who have taken ELEG2120 or ESTR2104.

**New Enrollment Requirement(s):**  
Exclusion = no change

**CAF**

eLearning hrs for blended cls 0  
No. of micro-modules 0  
Research components (UG) 0%

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