



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	應用電子學AA			學年/學期 Academic Year/Semester	113/1			
課程名稱(英文) Course Name in English	Applied Electronics							
科目代碼 Course Code	PHYS3250AA	系級 Department & Year	學三	開課單位 Course-Offering Department	物理學系			
修別 Type	學程 Program	學分數/時間 Credit(s)/Hour(s)	3.0/3.0					
授課教師 Instructor	/林楚軒							
先修課程 Prerequisite								

課程描述 Course Description

本課程內容包含：

- (1) 電子學背景知識（含基礎電路學、半導體物理）。
- (2) 常見電子元件（二極體、BJT、MOSFET）及電路分析。

課程目標 Course Objectives

建立電子學的基礎與觀念

系專業能力 Basic Learning Outcomes		課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.'s Education Objectives
A	具備物理之基礎背景知識 Possessing fundamental knowledge in physical sciences.	<input type="circle"/>
B	能運用基本物理知識與邏輯推理，分析解決物理問題 Being able to analyze and solve physics problems based on basic knowledge in physics as well as logical reasoning.	<input checked="" type="circle"/>
C	對目前測量器材有基礎認識，且具有操作物理實驗儀器的能力 Being acquainted with modern equipment and being able to operate them for performing physics experiments.	<input checked="" type="circle"/>
D	能使用基礎電腦程式語言解決物理問題 Being able to use basic computer programming for solving physics problems.	
E	善用各種資訊平台進行論文資料蒐集的能力 Being able to use various platforms for data collection benefiting a topical research.	
F	具備科技發展的國際視野以及外語溝通的能力 Having an international view of the technology developments and being able to use a foreign language for communications	
G	能整合物理與其它領域知識 Being able to integrate the knowledge of physics with that of other fields.	<input type="circle"/>

圖示說明 Illustration : ● 高度相關 Highly correlated ○ 中度相關 Moderately correlated

授課進度表 Teaching Schedule & Content

週次 Week	內容 Subject/Topics	備註 Remarks
1	1. Introduction	
2	1. Introduction	
3	2. Physics of semiconductor	
4	2. Physics of semiconductor	

5	2. Physics of semiconductor	
6	老師出國暫停一次，第一週先補課	
7	3. Diode models and circuits	
8	3. Diode models and circuits	
9	4. Bipolar transistors	期中考
10	4. Bipolar transistors	
11	4. Bipolar transistors	
12	5. Bipolar amplifiers	
13	5. Bipolar amplifiers	
14	5. Bipolar amplifiers	
15	5. Bipolar amplifiers	
16	6. Physics of MOS transistors	
17	6. Physics of MOS transistors	期末考
18	Razavi影片補充	

教 學 策 略 Teaching Strategies

課堂講授 Lecture 分組討論 Group Discussion 參觀實習 Field Trip
 其他 Miscellaneous:

教 學 創 新 自 評 Teaching Self-Evaluation

創新教學 (Innovative Teaching)

問題導向學習 (PBL) 團體合作學習 (TBL) 解決導向學習 (SBL)
 翻轉教室 Flipped Classroom 磨課師 Moocs

社會責任 (Social Responsibility)

在地實踐 Community Practice 產學合作 Industy-Academia Cooperation

跨域合作 (Transdisciplinary Projects)

跨界教學 Transdisciplinary Teaching 跨院系教學 Inter-collegiate Teaching

業師合授 Courses Co-taught with Industry Practitioners

其它 other:

學期成績計算及多元評量方式 Grading & Assessments

配分項目 Items	配分比例 Percentage	多元評量方式 Assessments						
		測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定
平時成績(含出缺席) General Performance (Attendance Record)	40%			✓				
期中考成績 Midterm Exam	30%	✓						
期末考成績 Final Exam	30%	✓						
作業成績 Homework and/or Assignments								
其他 Miscellaneous (_____)								

評量方式補充說明
Grading & Assessments Supplemental instructions

上課抽問:40%(有到就有一半分), 考試:60%

教科書與參考書目 (書名、作者、書局、代理商、說明)

Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

Fundamentals of Microelectronics, Razavi, Third edition, 2020

課程教材網址(含線上教學資訊,教師個人網址請列位於本校內之網址)

Teaching Aids & Teacher's Website (Including online teaching information.

Personal website can be listed here.)

<https://www.youtube.com/watch?v=yQDfVJzEymI&list=PLiDoPUX9nLkJ8dnPgKoVE0iAb8Bfu1KRR>

課本作者線上教學影片，可充分配合本課程

其他補充說明 (Supplemental instructions)

成績會公佈於東華e學苑

<http://www.elearn.ndhu.edu.tw/moodle/>