

國立金門大學

教學綱要

部別：日間部學士班

114學年度第2學期

列印日期：2026/01/21

科目名稱：電子學(二) (Microelectronic Circuits II) 開課班級：電機二甲學 分：3.0 授課時數：3.0
授課教師：李金譚 必選修：必修

1. 教學目標

This course introduces the basic physics and operation principles of semiconductor devices, the fundamentals of diode, BJT, MOSFET, and other semiconductor devices. Students could learn basic knowledge on semiconductor devices that includes DC characteristic, small signal characteristics and frequency characteristics. Students could also learn some well know useful circuits, and have ability to analyze or design the simple application circuits.

2. 教學綱要

The following is the brief summary of the topics that are covered in this course. Topic I presents the BJT' s DC characteristic, biasing schemes and analysis procedures. Topic II introduces the BJT' s AC characteristic and small signal models. Topic III outlines the different types of BJT' s single stage amplifiers. Topic IV introduces the fundamentals of field effect transistor (FET). Topic V presents the MOSFET' s DC characteristic, biasing schemes and analysis procedures. Topic VI outlines the different types of FET' s single stage amplifiers. Topic VII Frequency Response. Topic VIII Power Amplifiers.

3. 教科書

書名：Microelectronics Circuit Analysis and Design

1 出版日期：年 月

作者：D.A. Neamen 出版社：McGraw-Hill 版本：

書名：微電子學

2 出版日期：年 月

作者：SEDRA/Smith(曹恆偉譯) 出版社：滄海圖書 版本：第八版

4. 參考書

1 書名：Microelectronic Circuits 出版日期：年 月

作者：Sedra/Smith 出版社： 版本：

※請遵守智慧財產權觀念，依著作權法規定，教科書及教材不得非法影印與使用盜版軟體。

5. 教學進度表

週次	日期	內容	備註
1	2026/02/22—2026/02/28	BJT Transistor operation modes and Professional Ethics	
2	2026/03/01—2026/03/07	BJT Circuits at DC	
3	2026/03/08—2026/03/14	BJT Small signal operation	
4	2026/03/15—2026/03/21	BJT Amplifiers I	
5	2026/03/22—2026/03/28	BJT Amplifiers II	
6	2026/03/29—2026/04/04	MOSFET Physical operation	
7	2026/04/05—2026/04/11	MOSFET Characteristics	
8	2026/04/12—2026/04/18	Midterm Examination	
9	2026/04/19—2026/04/25	MOSFET DC Biasing schemes	
10	2026/04/26—2026/05/02	MOSFET Amplifiers I	
11	2026/05/03—2026/05/09	MOSFET Amplifiers II	
12	2026/05/10—2026/05/16	Basic JFET Characteristics and Amplifiers	

13	2026/05/17—2026/05/23	Frequency Response I	
14	2026/05/24—2026/05/30	Frequency Response II	
15	2026/05/31—2026/06/06	Frequency Response III	
16	2026/06/07—2026/06/13	Final Examination	
17	2026/06/14—2026/06/20	Self-directed Learning I	
18	2026/06/21—2026/06/27	Self-directed Learning II	

6. 成績評定及課堂要求

The course grade is based upon the results of the weekly quiz (20%), the midterm examination (30%), the final examination (40%) and the attendance of course (10%).

8. 永續發展目標(SDGs): SDG4 優質教育、SDG9 工業化、創新及基礎建設

9. 大學社會責任(USR)關聯性: 中