

# National Changhua University of Education 106-2

## Syllabus & Course Schedule

Course : Display Device Physics

Course Number : 51023 (1EIME3150930)

Instructor : 賴永齡

Credit : 3 Hour(s); 3 Credit(s)

Course Type : Requirement Optional

Full English : YES NO

Teaching evaluation questionnaire : (8)

- 1.Lectures 2.Discussion 3.Practicum (Education or Management)
- 4.Practicum (Science or Engineering) 5.Laboratory course 6.Physical activity course 8.General course 9.Practicum/Laboratory course 10.Physical activity course

Teaching mode : (0)

- 0.Classroom instruction 1.Practice workshop 2.Distance learning (Synchronous) 3.Distance learning (Asynchronous) 4.Classroom & group discussion 8.Classroom & Assisted distance learning (Synchronous or Asynchronous) 9.Other (Such as sports, education, internship or experimental course)

<PS. Classroom & group discussion. Definition: The total hours of discussions exceeds one third of total class hours.>

Immersing the following issues or contents :

(none)

Objective :

The objective of this course is to discuss fundamental concepts of the display device physics and to let students have both the basic and detail knowledge of display device physics. The course starts with the discussion of crystal structure of solid and quantum mechanics. Then different topics including semiconductor in equilibrium, carrier transport phenomena, junctions, and transistors are introduced. Finally, the thin-film transistors and organic light-emitting diodes are discussed. With the knowledge of display device physics, students can have the ability to face the challenge of their future career.

Outline :

- Chapter 1. Semiconductors
- Chapter 2. PN Junction
- Chapter 3. Metal-Semiconductor Junction
- Chapter 4. Bipolar Junction Transistor
- Chapter 5. Metal-Oxide-Semiconductor Structure
- Chapter 6. Display Devices

Required reading of Masterpiece :

☆ Main materials :

Yeong-Lin Lai, Lecture Notes of Display Device Physics, Feb. 2018.

☆ Reference materials :

<PS. Do not make copies illegally.>

☆ Course pre-requisites :

☆ Recommended reading :

Online materials :

Teaching methods :

Method
Lecture
※ Teaching methods Memo : (none)

Scoring methods :

Method	%
Written report	50%
Presentation	50%
※ Scoring methods Memo : (none)	

The development of core ability :

Core Ability	Correlation
(D) 具備整合知識解決問題所需之思考力、能創新思考廣泛應用光機電的技術	10
(D) 具備光機電工程所需之進階數理科學、能應用機電控制與光機電於跨領域。	10
(D) 具備使用光機電領域高階軟硬體能力、能建立模型並深入分析之研究能力。	10
(D) 具備掌握國內外先進科技發展及趨勢、具邏輯組織與領導管理的規劃能力	10
(D) 具備良好團隊合作所需要的溝通能力、能體認社會責任與專業倫理之重要	10
(D) 具備進階語文及資訊能力之個人優勢、能執行跨領域整合兼具全球化視野	10
<B: Bachelor's degree; M: Master's degree; D: doctor's degree>	

# Course Schedule

Instructor： 賴永齡

E-mail： yllai@cc.ncue.edu.tw

Office TEL： 8140 Department TEL： 8102

Course Number： 51023 (1EIME3150930)

Course： Display Device Physics

Class Time & Classroom： (－) 10－12 EB226

Weekly Calendar：

Week	Date	Teaching Chapter	Before Class Preparation	Homework / Exam / Notes
1	02/26	Chapter 1		
2	03/05	Chapter 1		
3	03/12	Chapter 1		
4	03/19	Chapter 2		
5	03/26	Chapter 2		
6	04/02	Chapter 2		
7	04/09	Chapter 3		
8	04/16	Chapter 3		
9	04/23	Mid-term		期中考 (Mid-term)
10	04/30	Chapter 4		
11	05/07	Chapter 4		
12	05/14	Chapter 4		
13	05/21	Chapter 5		
14	05/28	Chapter 5		
15	06/04	Chapter 5		
16	06/11	Chapter 6		
17	06/18	Chapter 6		
18	06/25	Final exam		期末考 (Final exam)

※ Course Content Memo： (none)