

# 固態電子元件

## Solid State Electronic Devices

Sept. 2013

# EE3350 固態電子元件導論

## Introduction to Solid-State Electronic Devices

### ■ Class Time & Venue

- W3W4F4 ;台達215

### ■ Textbook

- [Fundamentals of Semiconductor Devices](#)  
by Betty L. Anderson & Richard L. Anderson (Mc GRAW.HILL)

### ■ References

- [Semiconductor Physics and Devices](#)  
by Donald A. Neamen (Mc GRAW.HILL)
- [Solid State Electronic Devices](#)  
by Ben G. Streetman & Sanjay K. Banerjee (Pearson)

### ■ ftp for handout/material download

address: [TBD](#)

login account : TBD password: TBD

# Information

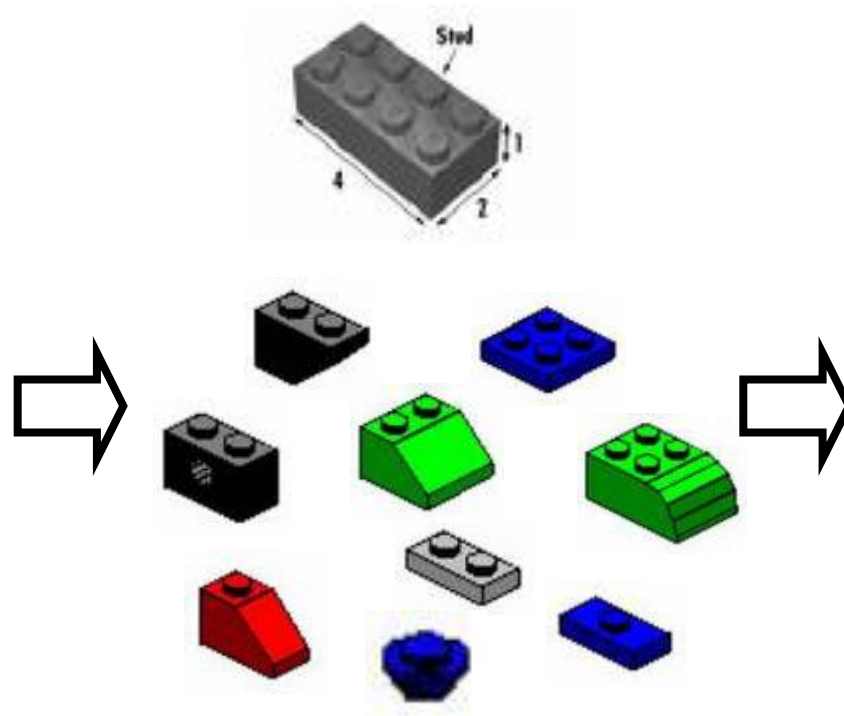
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# What's Device ?

Manufacturing



Components

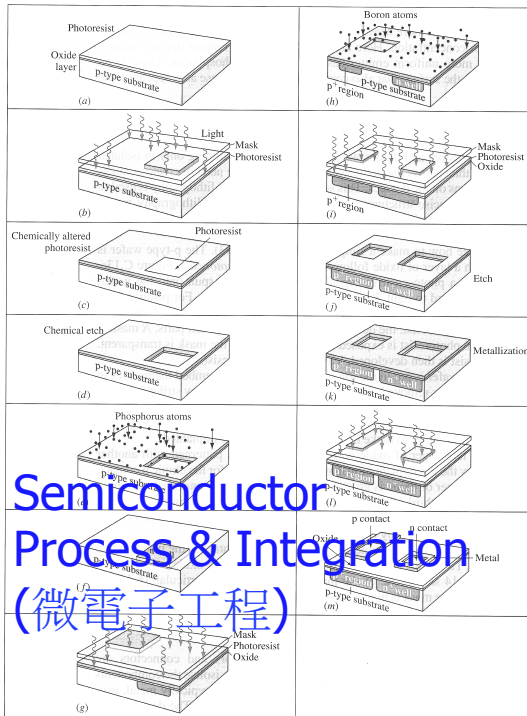


Composition



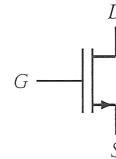
# What's Device ?

## Manufacturing



Semiconductor  
Process & Integration  
(微電子工程)

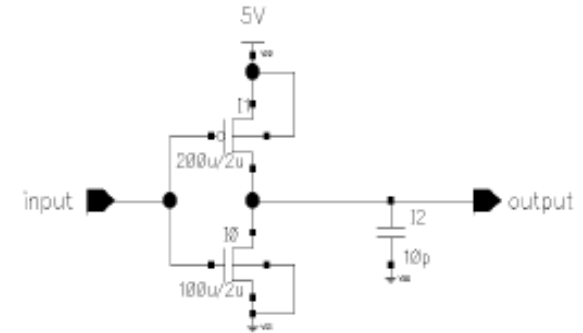
## Components



Semiconductor  
Devices  
(固態電子元件)

VLSI Device  
(積體電路元件)

## Composition



Microelectronics  
(電子學)

VLSI Circuit Design  
(積體電路設計)

# Syllabuses

- Semiconductor Material & Energy States
- Semiconductor Diodes
- Field Effect Transistors
- Bipolar Junction Transistors
- Optoelectronic Devices (Optional)

# Chapters and Schedule

	Topic	Section	Week
A	Semiconductor Physics and Model	Energy State and Model	1,2
B		Energy Bands & Levels	3
C		Current Flow Model	4
D	Junction / Diode / HetroJunction	Homogeneous Junction	5,6
E		Small Signal & Transient Efeect	7
F		Nonstep & Hetero Junctions	8
G	MOSC / MOSFET / Advanced CMOS	MOS Capacitor	9, 10
H		Charge Control Model	11
I		MOSFET Characteristics 1	12
J		MOSFET Characteristics 2	13
K	Bipolar Transistor	Bipolar Structure	14
L		Physical Effect and Mechanism	15

# Grading Policy

- GRADING:
  - Test (n) 40%
  - Midterm (1) 30%
  - Final (1) 30%