



BENHA UNIVERSITY
FACULTY OF ENGINEERING (SHOUBRA)
ELECTRONICS AND COMMUNICATIONS ENGINEERING



CCE 201
Solid State Electronic Devices
(2022 - 2023) term 231

Lecture 0: Course Introduction.

Dr. Ahmed Samir

<https://bu.edu.eg/staff/ahmedsaied>

Outlines

Course Information and Evaluation

Course Introduction

Course Content

Course Spec.

Course Information and Evaluation


Instructor:	Dr. Ahmed Samir
Lectures:	Monday
Textbooks:	<ul style="list-style-type: none"> ❖ Adel Sedra and Kenneth C. Smith., <i>Microelectronic circuits Textbook</i>. ❖ S. M. Sze and Kwok K. Ng, <i>Physics of Semiconductor Devices, 3rd Edition, John Wiley & Sons, Inc. (2007)</i>. ❖ Neamen D.A., (2007), <i>Microelectronics Circuit Analysis and Design, McGraw Hill</i>.
Credit:	100 Marks

Assessment Tools	Week	Weight
Midterm Examination	7	30 %
Final Examination	(As Schedule)	40 %
Quizzes	5	5 %
Home assignments	12	5 %
Mini Project	10	20 %
Total		100 %

Contact:

❑ E-mail: ahmed.saied@feng.bu.edu.eg

❑ Office hour: Monday.

❑ Mobile: 011 5049 7002 

❑ Course Handout:
[here](#)



Outlines

○ **Course Information and Evaluation**

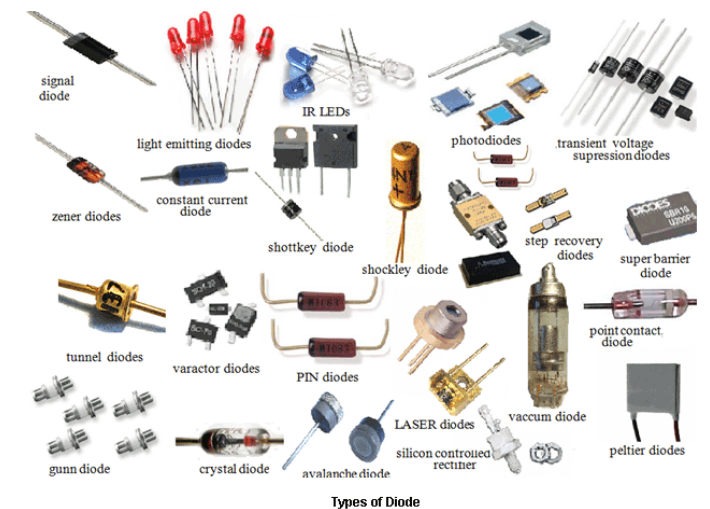
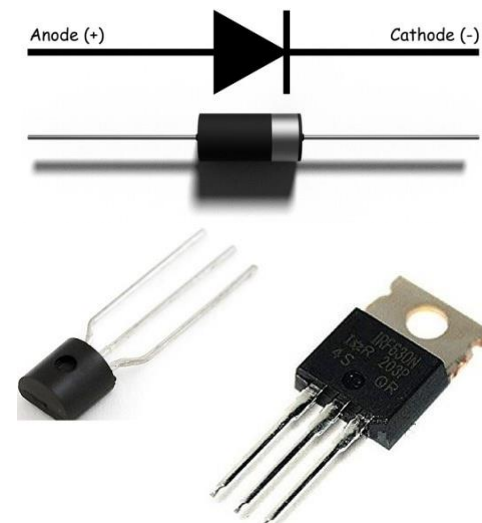
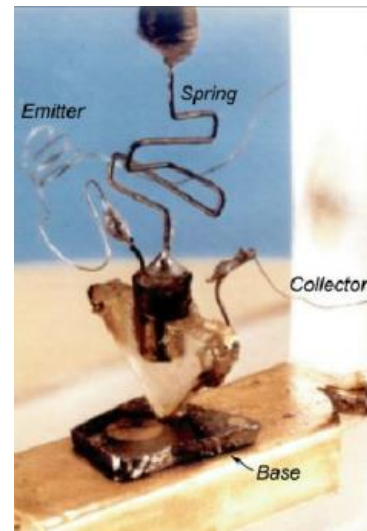
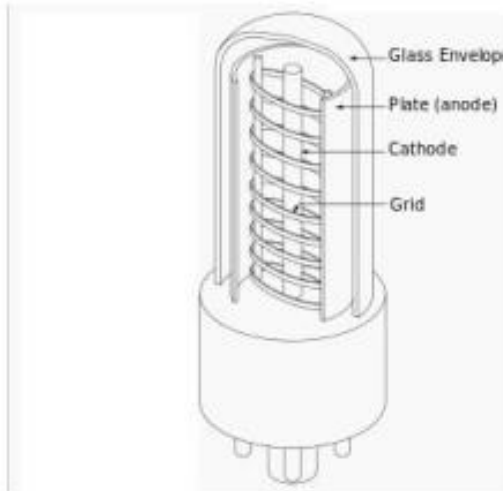
○ **Course Introduction**

○ **Course Content**

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Course Introduction: Solid State Electronic Devices

- ▶ **Solid-state electronics** are those circuits or devices built entirely from **solid materials** and in which the electrons, or other charge carriers, are confined entirely within the solid material.
- ▶ The term is often used to contrast with the earlier technologies of vacuum and gas-discharge tube devices, and it is also conventional to exclude electromechanical devices (relays, switches, hard drives and other devices with moving parts) from the term solid state.



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Course Content: Solid State Electronic Devices

The course consists of the following parts:

1) Semiconductor physics

- The characteristics of conductors, insulators and semiconductors.
- The doping in semiconductors
- Intrinsic & extrinsic Fermi level

2) Currents in Semiconductor:

- Drift current
- Diffusion current

3) PN junction .

4) Diode characteristics.

5) Diode applications.

- Rectifiers, Clipping circuits, Clamping Circuits , Multipliers

6) Special purpose diodes and its applications.

7) Basics of Bipolar junction transistors (BJT).

8) Applications and analysis of BJT circuits.

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Course Spec.

Solid State Electronic Devices

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