

**AllAbtEngg.com**  
**For Questions, Notes, Syllabus & Results**

**EC8252 ELECTRONIC DEVICES SYLLABUS**

**L T P C 3 0 0 3**

**OBJECTIVES:**

□ To acquaint the students with the construction, theory and operation of the basic electronic devices such as PN junction diode, Bipolar and Field effect Transistors, Power control devices, LED, LCD and other Opto-electronic devices

**UNIT I SEMICONDUCTOR DIODE 9**

PN junction diode, Current equations, Energy Band diagram, Diffusion and drift current densities, forward and reverse bias characteristics, Transition and Diffusion Capacitances, Switching Characteristics, Breakdown in PN Junction Diodes.

**UNIT II BIPOLAR JUNCTION TRANSISTORS 9**

NPN -PNP -Operations-Early effect-Current equations – Input and Output characteristics of CE, CB, CC - Hybrid - $\pi$  model - h-parameter model, Ebers Moll Model- Gummel Poon-model, Multi Emitter Transistor.

**UNIT III FIELD EFFECT TRANSISTORS 9**

JFETs – Drain and Transfer Characteristics-Current Equations-Pinch off voltage and its significance- MOSFET- Characteristics- Threshold voltage -Channel length modulation, DMOSFET, E-MOSFET- Characteristics – Comparison of MOSFET with JFET.

**UNIT IV SPECIAL SEMICONDUCTOR DEVICES 9**

Metal-Semiconductor Junction- MESFET, FINFET, PINFET, CNTFET, DUAL GATE MOSFET, Schottky barrier diode-Zener diode-Varactor diode –Tunnel diode- Gallium Arsenide device, LASER diode, LDR.

**UNIT V POWER DEVICES AND DISPLAY DEVICES 9**

UJT, SCR, Diac, Triac, Power BJT- Power MOSFET- DMOS-VMOS. LED, LCD, Photo transistor, Opto Coupler, Solar cell, CCD.

**TEXT BOOKS:**

1. Donald A Neaman, —Semiconductor Physics and DevicesII, Fourth Edition, Tata Mc GrawHill Inc. 2012.
2. Salivahanan. S, Suresh Kumar. N, Vallavaraj. A, —Electronic Devices and circuitsII, Third Edition, Tata McGraw- Hill, 2008.

**REFERENCES:**

1. Robert Boylestad and Louis Nashelsky, —Electron Devices and Circuit TheoryII Pearson Prentice Hall, 10th edition, July 2008.
2. R.S. Sedha, — A Text Book of Applied ElectronicsII S. Chand Publications, 2006.
3. Yang, —Fundamentals of Semiconductor devicesII, McGraw Hill International Edition, 1978.