



Code	Subject Title	Cr. Hrs	Semester
PHY-203	Basic Electronics	3	IV
Year	Discipline		
2	Physics		

Circuit Analysis: Network theorems, AC circuit analysis using the  $j$  operator.

Semiconductor Devices and Applications: The pn junction diode, Rectifier circuits, Clippers, Clampers, Voltage multipliers.

Bipolar Junction Transistor and Its Biasing: Basic transistor configurations, The dc biasing circuits and bias stabilization.

Field Effect Transistor and FET DC Biasing:

The depletion-mode JFET, The depletion-mode MOSFET, The enhancement-mode FET, The dc biasing circuits and bias stabilization.

Bipolar Junction Transistor Models: The  $r_C$  model, The hybrid equivalent model, Graphical determination of h-parameters, Variation of transistor parameters.

BJT Small-Signal Analysis: The CE fixed-bias, self-bias and voltage-divider amplifiers, The emitter follower, The CB amplifier, Complete hybrid equivalent model.

FET Small-Signal Analysis: The JFET fixed bias, self-bias, voltage-divider and source-follower amplifiers.

#### **Books Recommended:**

1. *Basic Electronics* by B. Grob, 8<sup>th</sup> Edition, Glencoe-McGraw-Hill, New York, NY (USA), 2002.
2. *Introductory Circuit Analysis* by Robert L. Boylestad, 6<sup>th</sup> Edi., Merril Publ. Co. Columbus, Ohio (USA) 1990.
3. *Electronic Devices* by Thomas L. Floyd: 5<sup>th</sup> Edition Prentice-Hall Inter. Inc., Englewood Cliffs, (USA), 1999.
4. *Electronic Principles* by Albert P. Malvino, 5<sup>th</sup> Edition Glencoe-McGraw-Hill Book Co., New York (USA) 1993.
5. *Introductory Electronic Devices and Circuits* by Robert T. Paynter, Prentice-Hall Intern. Inc. Upper Saddle River N.Y. USA, 1997
6. *Electronic Devices and Circuit Theory* by Robert Boylestad and Louis Nashelsky 6<sup>th</sup> Edition, Prentice-Hall International, Inc., (USA), 1996
7. *Electronic Devices and Circuits*, by Theodore F. Bogart, Jr. 4<sup>th</sup> Edition, Prentice-Hall, Upper Saddle River, NJ (USA) 1997.
8. *Electronic Circuits and Systems*, by J. D. Ryder, Charles M. Thomson, Prentice-Hall Inc. Englewood Cliffs, New Jersey (USA) 1976.