



B.Sc. (Electronics) SEMESTER II

Paper I

(Semiconductor Devices)

Unit I

Semiconductors:

<https://www.youtube.com/watch?v=GIRfAt7ffWY>

<https://www.youtube.com/watch?v=8LUL2cBoJ48>

Classification and types, PN junction; Formation, depletion region:

<https://www.youtube.com/watch?v=d3VIDOOS7xk&list=PLBlnK6fEyyqRiw-GZRqfnlVIBz9dxrqHJS&index=11>

https://www.youtube.com/watch?v=cAu_Qv6rsM8&list=PLBlnK6fEyyqRiw-GZRqfnlVIBz9dxrqHJS&index=9

barrier potential:

<https://www.youtube.com/watch?v=itL2MQqZtqA&list=PLBlnK6fEyyqRiw-GZRqfnlVIBz9dxrqHJS&index=10>

symbol, biasing modes, V-I characteristics:

<https://www.youtube.com/watch?v=vKeaPHXF9U&list=PLBlnK6fEyyqRiw-GZRqfnlVIBz9dxrqHJS&index=15>

diode current equation, effect of temperature on diode current,

<https://www.youtube.com/watch?v=itL2MQqZtqA&list=PLBlnK6fEyyqRiw-GZRqfnlVIBz9dxrqHJS&index=10>

ideal diode, basic diode ratings, Zener diode:

<https://www.youtube.com/watch?v=JdL3DnnFHxw&list=PLBlnK6fEyyqRiw-GZRqfnlVIBz9dxrqHJS&index=41>

LED construction, working, characteristics & uses:

<https://www.youtube.com/watch?v=7-yjNQ6Lo2U>

Unit II

Transistor Basics:

<https://www.youtube.com/watch?v=dTx9VKV0hjo>

Formation of transistor; PNP and NPN, symbols, working principle:

<https://www.youtube.com/watch?v=dTx9VKV0hjo>

transistor current equation:

<https://www.youtube.com/watch?v=d2lmY-AMs24&t=33s>



Modes of operation;

<https://www.youtube.com/watch?v=56Kk-QINMy8>

<https://www.youtube.com/watch?v=kspQI4LEQf0>

CB, CE and CC, input output and transfer characteristics in CB and CE configuration:

<https://www.youtube.com/watch?v=QmcUjYQY9Bg>

definition of α , β and relation between them, simple problems, comparison of CB, CE and CC mode Regions of operation (active, cut off and saturation), Leakage currents, load line and Q point, Transistor as an amplifier

https://www.youtube.com/watch?v=KJQfj8cZF_Q

switch in CE configuration,.

<https://www.youtube.com/watch?v=NRr33zHGBik>

Unit III

Field Effect Transistors: Construction, working and characteristics of JFET

<https://www.youtube.com/watch?v=g4nBAifUVik>

FET Parameters r_d , g_m , μ and their relation.

<https://www.youtube.com/watch?v=yy0co4BdrIg>

MOS Field Effect Transistors: Types of MOSFETs, Circuit symbols, Construction, Working and Characteristic curves of Depletion type MOSFET (both N channel and P Channel) and Enhancement type MOSFET (both N channel and P channel). Comparison between JFET and MOSFET.

<https://www.youtube.com/watch?v=V3clzkXUO7g>

Unit IV

Switching Devices: Construction, Working principle, characteristic curves, symbol and Applications of

UJT:

<https://www.youtube.com/watch?v=Ee34rPDqIws>

SCR:

<https://www.youtube.com/watch?v=RJ43fnX-LsM>

DIAC:

<https://www.youtube.com/watch?v=CBeaJFWc3os>

and TRIAC: <https://www.youtube.com/watch?v=W4ShfQbPtCI>