**Program: B.Sc Electronics and Communication System**

Course title: **Core - 2: Semiconductor Devices** Subject Code: 2CT02 Year: I Semester: II Credits: 4 Hrs/Week: 4

-------------------------------------------------------------------------------------------------------------

**Unit-I**

Diode: Construction and Characteristics. Application: Clipping and clamping circuit. Diode breakdown: Zener and Avalanche breakdown. Special diode: Zener diode – Zener diode as a voltage regulator - Varicap - PIN and Tunnel diode.

**Unit-II**

Transistor: Construction and operation-Amplifying action-CB, CE and CC configuration-Load line analysis-Operating point-Cut off and Saturation point. Transistor Biasing: Self bias-feed back bias and voltage divider bias - Transistor as a switch.

**Unit-III**

Field Effect transistor: JFET construction-Working and Characteristics.FET biasing: Self bias and Voltage divider bias.FET as an amplifier: CS and CD in small signal model. MOSFET: Construction, Operation and Characteristics-Types of MOSFET - Introduction to CMOS.

**Unit-IV**

Power Electronics: Introduction - SCR – DIAC - TRAIC – UJT – PUT - SBS – SUS –Construction-Operation and Characteristics-Applications.

**Unit-V**

Optoelectronic Devices: Types of optical sources-Classifications of optoelectronic devices-LED – LCD - Photo diode - photo transistor – Light activated SCR - Solar cell – LDR – Applications.

**Book for study**

1. V.K.Metha “Principles of Electronics”, S.Chand & Company Ltd., Ram Nagar, New Delhi-110055, Reprints 1999, (**Unit I to IV).**

2. S.Salivahanan “Electronic devices and circuits”, N.Suresh Kumar, A.Vallavaraj, TMH publishing company Ltd, New Delhi, 2001 (7Th reprints). (**Unit V)**