DETAILED SYLLABUS

MODULE-3

BJT – types, construction, symbols, unbiased transistor, biasing of transistor, operation of n-p-n and p-n-p transistor, transistor current components, BJT circuit configurations : CB, CE, CC, current gains α, β and Υ ,relation between them, leakage current in CB and CE transistors, base spreading resistance , static characteristics for CB and CE configuration:input and output characteristics, base width modulation or Early effect. Eber's Moll model.

BJT biasing and stabilization ,D.C. operating point and load line ,Q point and maximum undistorted output , factors affecting stability of Q point, principle for designing biasing circuits, stability factor of CB and CE circuits ,conditions for proper biasing of transistors, requirements of biasing circuit.

Methods of transistor biasing :- Base resistor or fixed bias, collector feedback bias, Emitter feedback bias and voltage divider bias.

Bias compensation, diode compensation for V_{BE} and $I_{CO,}$ bias compensation using thermistors and sensistors.Thermal resistance, thermal runaway condition for thermal stability in voltage divider bias.

MODULE-4

Comparison between FET and BJT junction field effect transistor – construction symbol, unbiased JFET, operation of n channel JFET, VI characteristics of JFET:- Drain and transfer characteristics, JFET parameters, JFET applications.

MOSFET – Depletion and enhancement MOSFET and Enhancement only MOSFET,construction, symbols ,working, drain and transfer characteristics, MOS capacitor, C-V characteristics of p substrate MOS capacitor.