Subject Code : RCCSIE3

CC – IV – ELECTRONIC AMPLIFIERS AND OSCILLATORS.

Unit – I: Amplifiers – I

Single stage transistor amplifier – Amplifying action – Graphical analysis of transistor amplifier – Load line analysis – Voltage gain – Current gain – Frequency response of an amplifier.

Unit – II: Amplifiers – II

Multistage amplifier – RC coupled amplifier – Transformer coupled amplifier – Direct coupled amplifier – Negative feedback in amplifiers – Advantages of negative feedback – Gain and bandwidth of negative feedback amplifier.

Unit – III: Power Amplifiers.

The Power BJT – Thermal resistance – Dissipation – Operation curve – Maximum power hyperbola –Second breakdown – Thermal runaway – Class A large signal amplifier – The transformer coupled audio power amplifier – Efficiency – Push pull amplifiers – Class B – Class AB and transformerless types – Class C power amplifiers.

Unit – IV: Oscillators – I

Sinusoidal oscillator – Barkhausen criterion for oscillations – Transistor oscillator – Tuned collector oscillator – Tuned base oscillator – Hartley oscillator – Colpitt's oscillator – Phase shift oscillator – Expression for frequency and condition for sustained oscillations for all oscillators.

Unit – V: Oscillators – II

Crystal oscillator – Wien's bridge oscillator using transistor – FET oscillator – Limitations of LC and RC oscillators – Oscillator frequency stability. Concepts of monostable, astable and bistable multivibrators.

Books for Study:

1. Integrated electronics – Millman and Halkias – Tata McGraw Hill – 1993.
2. Basic electronics – B.L. Theraja – S.Chand & Co. (1991).

Books for References:

1. Electronic Circuits and Systems – Bapat – Tata McGraw Hill. – 1982.
2. Basic Electronics and Linear Circuits – N.N. Bhargava and others.- Tata McGraw Hill.
3. Electronic Devices and Circuits – Allen Mottershead – Prentice Hall of India
4. Basic Electronics for Scientists – James J Brophy – McGraw Hill International Edn. – 1990.
5. Integrated Circuits – K.R. Botkar – Khanna Publishers.
6. Functional Electronics – K.V. Ramanan – Tata McGraw Hill.
7. Integrated Circuits – Deboo and Burrous - McGraw Hill.