Veer Narmad South Gujarat University, Surat
Syllabus
For
B. Sc. Semester III
Physics (Major)(NEP-2020)
Effective from the Academic Year 2024-25

Paper: MJ-PH (TH) – 303 (2 Credits)

UNIT 1 Free and Forced Oscillations

Free oscillation (2.1), damped motion (2.2), energy of damped motion (2.3), forced oscillations and resonance (2.4), analysis of forced vibrations (2.5), analogy between mechanical and electrical quantities (2.6), amplitude and velocity resonances (2.7), power considerations in forced vibration and resonance (2.8), nature of resonance (2.9), phase relations in forced vibrations (2.10), comparison of amplitude and velocity resonances (2.11).

UNIT 2 AC Bridges and Charged Particles in Electromagnetic Fields

Impedance bridge (17.18), measurement of inductance (17.19) (a) Maxwell's impedance bridge, (b) Maxwell's LC bridge, (c) Owen's bridge, (d) Anderson's bridge, measurement of capacitance (17.21) (a) De Sauty's bridge, (b) Wien's bridge, (c) Schering bridge, measurement of frequency (low) (17.22).

Charged particles in crossed electric and magnetic fields (11.8) (i) velocity selector, (ii) Hall effect, (iii) e/m by Thomson method.

Reference books:

1. A treatise on Oscillations, waves and acoustics by D. Chattopadhyay, 1st Ed., Books and Allied (P) Ltd. 2016.
2. Electricity and Magnetism by D. C. Tayal, 4th Revised Ed., Himalaya Publishing House, India, 2019.