SRI Y N COLLEGE (A)-NARSAPUR

DEPARTMENT OF PHYSICS

2021-2022

ADDITIONAL INPUTS

SRI Y.N.COLLEGE (AUTONOMOUS)-NARSAPUR

(Affiliated to Adikavi Nannaya University)

Thrice Accredited by NAAC at 'A' Grade

Recognized by UGC as 'College with Potential for Excellence'

For 2021-22 Batch [2020-21 Batch onwards]

I B.Sc.: PHYSICS SEMESTER – I PAPER – I

MECHANICS, WAVES AND OSCILLATIONS

ADDITIONAL INPUTS

1. Motion in a Central Force Field:

Basic idea of Global Positioning System (GPS), weightlessness, Physiological effects of astronauts

2. Coupled oscillations: (05 hrs)

Coupled oscillators-Introduction, Two coupled oscillators, Normal coordinates and Normal modes-N-coupled oscillators and wave equation.

3. Complex vibrations:

Fourier theorem and evaluation of the Fourier coefficients, analysis of periodic wave functions-square wave.

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I B.Sc.: PHYSICS SEMESTER – II PAPER – II
WAVE OPTICS

ADDITIONAL INPUTS

Interference of light:

Lloyd's single mirror, Phase change on reflection-Stokes' treatment.

Diffraction of light

Explanation of rectilinear propagation of light.

Polarisation of light:
Basic principle of LCDs.

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II B.Sc.: PHYSICS SEMESTER – III PAPER – III
WAVE OPTICS
ADDITIONAL INPUTS

II BSc – SEMESTER – 3 PAPER – III – WAVE OPTICS

- Astigmatism -- Curvature of field – distortion.
- Calculation of longitudinal chromatic aberration of a thin lens
- Non reflecting films
- Semi conductor laser -- Laser characteristics

II B.Sc.: PHYSICS SEMESTER – IV PAPER – IV
HEAT & THERMODYNAMICS
ADDITIONAL INPUTS

- Thermodynamics-scale of temperature.
- Characteristics of Ideal Refrigerant
- Principle of refrigeration
- Vapour compression type refrigerator
- Degrees of freedom
- Thermodynamic scale of temperature and its identity with perfect gas scale

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III B.Sc.: PHYSICS SEMESTER – V PAPER – V

ELECTRICITY, MAGNETISM AND ELECTRONICS

ADDITIONAL INPUTS

- Electric Flux
- Polar and non-polar dielectrics in an electric field
- Magnetic Shell,
- Divergence and curl of magnetic field
- Qualitative treatment,
- Magnetic properties of dia, para and Ferro magnetic materials
- Langevins theory of para magnetism
- Weiss theory of Ferro magnetism
- Energy losses and efficiency.
- Construction of single phase ac motor,
- Construction of single phase dc motor.
- Band theory of solids (qualitative) – Intrinsic and extrinsic semi conductors.
- Hybrid parameters, Determination of hybrid parameters from transistor characteristics

III B.Sc.: PHYSICS SEMESTER – V PAPER – VI

MODERN PHYSICS

ADDITIONAL INPUTS

- Bohr's atomic theory,
- Spectra of Hydrogen,
- Spectral terms and spectral notations, Selection rules, Intensity rules
- Photoelectric effect-Einstein photoelectric equation.
- Stability of atom.
- Bohr's principle of complementarity
- Limitations of old quantum theory.
- Particle in a box
- one dimensional harmonic oscillator
- Application of Schrodinger wave equation to particle in three dimensional boxes.
- Nuclear reaction,
- kinematics
- Calculation of Born coefficient and repulsive exponent. Born – Haber cycle.
- Persistent current, isotopic effect.
- Semi conductor nano particles
- carbon nano clusters
- BCS theory (elementary ideas only)