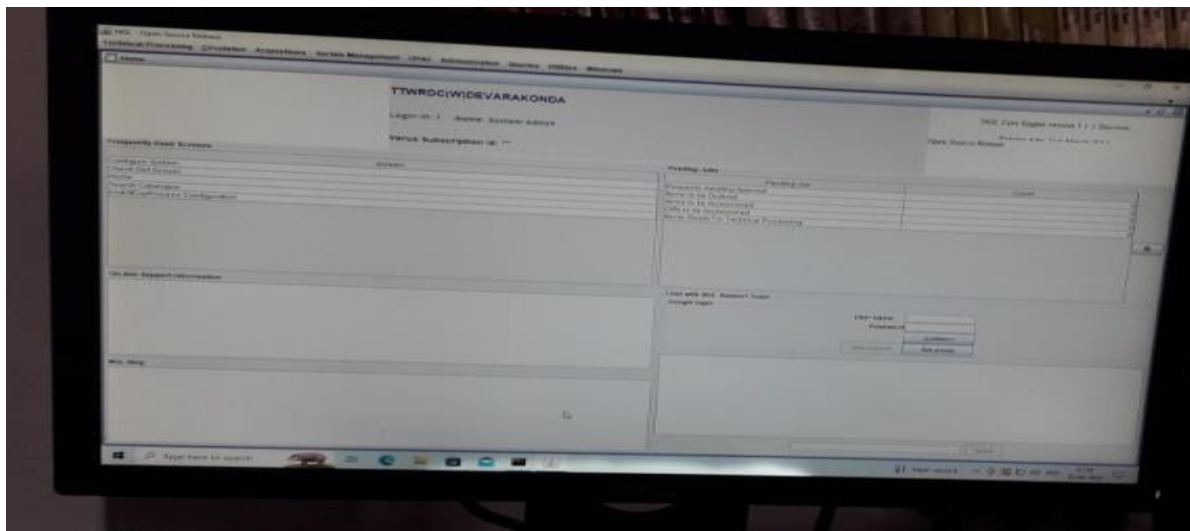




**TELANGANA TRIBAL WELFARE RESIDENTIAL DEGREE COLLEGE
(WOMEN)**
HRD campus, DEVARAKONDA, NALGONDA-508248 (College code: 4133)
Recognized by UGC, India; Affiliated to Mahatma Gandhi University, Nalgonda.
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Choice Based Credit System of Common Core Syllabus

B. Sc. (Physics)

SEMESTER IIIrd : Theory Paper-III

Thermal Physics

Work load : 52 hrs per semester

4 hrs/week

UNIT-I

1. KINETIC THEORY OF GASES: (4)

Introduction-Deduction of Maxwell's law of distribution of molecular speeds, Transport Phenomena-Viscosity of gases-thermal conductivity-diffusion of gases.

2. THERMODYNAMICS: (9)

Basics of Thermodynamics-Kelvin's and Clausius statements-Thermodynamic scale of temperature-Entropy, physical significance-Change in entropy in reversible and irreversible processes-Entropy and disorder-Entropy of universe-Temperature-Entropy (T-S) diagram-Change of entropy of a perfect gas-change of entropy when ice changes into steam.

UNIT-II

3. THERMODYNAMIC POTENTIALS AND MAXWELLS EQUATIONS: (7)

Thermodynamic potentials-Derivation of Maxwell's thermodynamic relations- Clausius-Clayperon's equation-Derivation for ratio of specific heats-Derivation for difference of two specific heats for perfect gas. Joule Kelvin effect-expression for Joule Kelvin coefficient for perfect and Van der Waal's gas.

4. LOW TEMPERATURE PHYSICS: (6)

Joule Kelvin effect-liquefaction of gas using porous plug experiment. Joule expansion-Distinction between adiabatic and Joule Thomson expansion-Expression for Joule Thomson cooling-Liquefaction of helium, Kapitza's method-Adiabatic demagnetization- Production of low temperatures-Principle of refrigeration, vapour compression type.

UNIT-III

5. QUANTUM THEORY OF RADIATION: (13)

Black body - Ferry's black body - distribution of energy in the spectrum of a Black body - Wien's

(iii)

ANALYTICAL SOLID GEOMETRY



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