

**TELANGANA TRIBAL WELFARE RESIDENTIAL DEGREE COLLEGE  
FOR WOMEN (TTWRDCW), SURYAPET**

**COURSE: "INTRADUCTION TO ATMOSPHERIC AND SPACE SCIENCES"**

**Academic Year 2022 - 2023**

**Total Teaching Hours: 30 hours**

**Total Marks: 30**

**Course Objectives:**

- Critical Thinking – analyzing, evaluating and synthesizing information.
- Empirical and Quantitative skills – manipulation and analysis of numerical or observable data resulting in informed conclusions.
- Demonstrate knowledge of the scientific method and contrast it with other ways of understanding the world.

**Course Outcomes**

On successful completion of the course the students will be able to:

- Apply their understanding of the forces of motion to explain the flow of air in the atmosphere on various space and time scales.
- Apply their understanding of adiabatic processes and atmospheric stability to explain processes related to cloud formation.
- Use surface observations to evaluate numerical parameters related to atmospheric moisture
- Identify and explain various aspects of theories related to such topics as tornado-genesis and natural/anthropogenic climate change.

**SYLLABUS**

- **Introduction of Atmospheric evolution**
  - Present day atmospheric constituents.
  - Solar radiation
  - Various stages in the evolution of the earth's atmosphere.
- **Fundamental Forces**
  - Momentum equations governing the motions in the atmosphere.
  - Non-Inertial forces
  - Various scales of atmospheric motions
- **Hydrostatic Equilibrium**
  - Variation of temperature with height
  - Classification of atmosphere based on temperature & pressure
  - Thermodynamic system and Equilibrium state.
- **Atmospheric Stability Conditions**
  - Unstable and neutral atmosphere
  - Adiabatic process
  - Mixing ratio and specific humidity.
- **Earth's Upper Atmosphere**
  - Various layers of ionosphere
  - Hydrogen ionosphere and Cloud classification.

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Vice Principal

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