ST. JOSEPH’S COLLEGE FOR WOMEN (AUTONOMOUS) VISAKHAPATNAM

B.SC.(HONORS) AGRICULTURE AND RURAL DEVELOPMENT WITH SINGLE MAJOR

# II SEMESTER **AGRICULTURE AND RURAL DEVELOPMENT** Time: 30hrs/week

AGRD103 (2)  **AGRO METEOROLOGY AND CLIMATIC CHANGE** Marks:100

## w.e.f AK 2023-2024 (Admitted batch)

**OBJECTIVES:**

* To study about climatic resources of a given area for effective crop planning
* To evolve weather based effective farm operations
* To study crop weather relationship
* To understand roles of agro meteorology in agriculture

**COURSE OUTCOMES**

At the end of the course, students will be able to

**CO1:** Explain the earth’s atmosphere and weather variables.

**CO2:** Outline types of precipitation

**CO3:** Summarize artificial rain making, monsoon mechanism and weather hazards.

**CO4:** Relate weather conditions to agriculture.

**CO5:** Discuss weather forecasting and impact of climate change on agriculture.

**UNIT – I: (6Hrs.)**

1. Earth atmosphere, composition, extent and structure; Atmospheric weather variables; Atmospheric pressure, its variation with height

  2. Wind, types of wind, daily and seasonal variation of wind speed, cyclone, anticyclone, land breeze and sea breeze.

**UNIT – II: (6Hrs.)**

1. Atmospheric humidity, concept of saturation, vapour pressure, process of condensation, formation of dew, fog, mist, frost, cloud.

 2. Precipitation, process of precipitation, types of precipitation such as rain, snow, sleet, and hail, cloud formation and classification.

**UNIT – III: (6Hrs.)**

1. Artificial rainmaking; Monsoon, mechanism and importance in Indian agriculture. Weather hazards, drought, floods, frost, tropical cyclones and extreme weather conditions such as heat-wave and cold wave;

2. Agriculture and weather relations, modifications of crop microclimate, climatic normal for crop and livestock production.

**UNIT – IV: (6Hrs.)**

1. Atmospheric temperature, temperature inversion, lapse rate, daily and seasonal variations of temperature, vertical profile of temperature, energy balance of earth;

2. Nature and properties of solar radiation, solar constant, depletion of solar radiation, short wave, long wave and thermal radiation, net radiation, albedo. **(6Hrs.)**

**UNIT-V:**

1. Weather forecasting, types of weather forecast and their uses.

2. Climate change, climatic variability, global warming, causes of climate change and its impact on regional and national Agriculture.

**REFERENCES TEXT BOOKS:**

1. Radha Krishna Murthy,V.2016. Principles and practices of agricultural disaster management. B.S Publications, Koti, Hyderabad.

2. Reddy, S.R.2014. Introduction to Agriculture and Agrometeorology. Kalyani Publishers, Ludhiana, Punjab.  \*\* \*\* \*\*