SYLLABUS

Earth atmosphere – its composition, extent and structure; Atmospheric weather variables; Atmospheric pressure, its variation with height; Wind, types of wind, daily and seasonal variation of wind speed, cyclone, anticyclone, land breeze and sea breeze; Nature and properties of solar radiation, solar constant, depletion of solar radiation, short wave and thermal radiation, net radiation, albedo; Atmospheric temperature, temperature inversion, daily and seasonal variations of temperature, heat balance of earth; Atmospheric humidity, concept of saturation, vapor pressure, process of condensation, formation of dew, fog, mist, frost, cloud; Precipitation, process of precipitation, types of precipitation such as rain, snow, sleet, and hail, cloud formation and movement; Artificial rainmaking. Weather hazards - drought, floods, frost, storms, tropical cyclones and extreme weather conditions. Agriculture and weather relations; Modifications of crop microclimate, climatic normals for crop and livestock production. Weather forecasting – types of weather forecast and their uses.

Basic components of remote sensing, characteristics of electromagnetic radiation and its interaction with matters, passive and active remote sensing, remote sensing sensors and satellites; Use of remote sensing in Agriculture.

Geographical Information System (GIS) – definition, concepts, elements, scope and benefits of GIS; GIS applications in Agriculture.

Global Positioning System (GPS) – function and uses.

SYLLABUS

Sr.	Topic	Lect.
1.	Introduction: Weather variables and their importance in agriculture.	1
2.	Earth atmosphere: Composition, extent and structure of the atmosphere	1
3.	Solar radiation: Nature and properties of solar radiation, solar constant depletion of solar radiation, laws governing solar radiation, short wave and thermal radiation, net radiation, albedo.	2
4.	Atmospheric temperature: Concept of thermal stability, adiabatic process, vertical temperature distribution, Horizontal temperature distribution and factors affecting it, temperature inversion, daily and seasonal variations of temperature, heat balance of earth.	3
5.	Atmospheric pressure: Definition, variation with height, horizontal distribution of atmospheric pressure and factors affecting it, global pressure belts and general pattern of air circulation; Wind- causes of wind, wind speed and direction, factors affecting wind direction, types of winds, cyclones, anticyclones, local winds.	3
6.	Atmospheric Humidity: Concept of saturation, water vapors in the atmosphere, vapor pressure, process of condensation, formation of dew, fog, mist, frost, clouds.	2
7.	Cloud: Formation of cloud and movement, classification of clouds	1
8.	Precipitation: Definition, process of precipitation, forms of precipitation such as rain, snow, sleet, and hail, type of rainfall, Artificial rainmaking.	2
9.	Weather hazards: Definition and different type of weather hazards such as drought, floods, frost, storms, tropical cyclones and extreme weather conditions.	2

SYLLABUS

Sr.	Topic	Lect.
9.	Agriculture and weather relations: Crop-weather relationship, evaporation, evapotranspiration, modification of microclimate, use of climatic normals for crop production and livestock production.	3
10.	Weather forecasting- Different types of weather forecast and their uses.	1
11.	Remote sensing: Definition, concept and scope of remote sensing, characteristics of electromagnetic radiation and its interaction with matters.	3
12.	Passive and active remote sensing, remote sensing sensors and satellites.	1
13.	Use of remote sensing in Agriculture.	1
14.	Geographical Information System (GIS): Definition, concepts, elements, scope and benefits of GIS.	3
15.	GIS applications in Agriculture.	1
16.	Role of Remote sensing and GIS in land use planning.	2
17.	GPS: Function and Principles, use of GPS in generation of geo-referenced information.	2
Total		**34**
Hourlies		**02**
		36