

Syllabus for Bachelor of Agriculture

AGRO -METEOROLOGY

Subject code: 16AS0103

Subject Name: **Introductory Agro Meteorology and Climate Change**

B. Sc. (Hons.) Agri., **First year (Sem.-I)**

Objective:

To acquire the basic knowledge of climate and weather and its impact on agriculture.

Credit Earned: 1+1= 2 Credits

Course Outcomes:

After completion of this course, student will be able to:-

1. Articulate and retain knowledge relevant to Meteorology
2. Gain the information of weather and climate which are considered as basic input in agricultural planning *viz.*, land preparation, ploughing, harrowing *etc.*
3. Explain Weather hazards, Weather forecasting and impact of climate change on agriculture.
4. Acquaint with the meteorological instruments and recording the observation from the agro meteorological observatory.

Teaching and Evaluation Scheme:

Teaching Scheme (hours)		Credits	Theory Marks			Practical Marks		Total Marks
Theory	Practical		ESE (E)	IA	CSE	Viva (V)	Term Work (TW)	
1	2	2	50	30	20	25	25	150

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Contents:

Unit	Topics	Contact Hours
Theory		
1.	Meaning and scope of agricultural meteorology	
2.	Earth atmosphere its composition, extent and structure	
3.	Atmospheric weather variables	
4.	Atmospheric pressure, its variation with height	
5.	Wind, types of wind, cyclone, anticyclone, Land breeze and sea breeze	
6.	Atmospheric temperature, Atmospheric humidity, concept of saturation, vapor pressure, process of condensation	
7.	Formation of dew, fog, mist, frost and cloud	
8.	Precipitation, types of precipitation such as rain, snow, sleet and hail.	
9.	Cloud formation and classification	
10.	Monsoon mechanism and importance in Indian agriculture	
11.	Weather hazards- drought, floods, frost, tropical cyclones and extreme weather conditions such as heat-wave and cold wave	
12.	Agriculture and weather relations	
13.	Weather forecasting- types of weather forecast and their uses	
14.	Climate change, global warming, causes of climate change and its impact on regional and National agriculture	

Unit	Topics	Contact Hours
Practical		
1.	Measurement of Bright sunshine hours, total, shortwave and long wave radiation	
2.	Measurement of maximum, minimum air temperature and soil temperature	
3.	Measurement of wind speed and wind direction, preparation of wind rose	
4.	Determination of vapor pressure and relative humidity	
5.	Measurement of rainfall	
6.	Analysis of rainfall data for climatological studies	
7.	Measurement of Pressure	
8.	Estimation of heat indices	
9.	Measurement of open pan evaporation	
10.	Computation of PET and AET	

Reference Books:

1. Fundamentals of Agrometeorology
Mahi, G.S. and Kingra, P.K. 2015 Publisher: Kalyani Publishers, New Delhi.
2. Agrometeorology
Reddy, S. R. and Reddy, D.S. 2014 Publisher: Kalyani Publishers New Delhi.
3. Comprehensive Agrometeorology
Mahi, G.S. and Kingra, P.K.
4. Introduction to Agriculture and Agrometeorology
Reddy, S. R. 2014 Publisher: Kalyani Publishers New Delhi.

Instructional Method:

- a. The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board may also use any of tools such as demonstration, role play, quiz, brainstorming, MOOCs *etc.*
- b. The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.
- c. Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.
- d. Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory.