



AMITY UNIVERSITY
 ——— UTTAR PRADESH ———

FORMAT FOR COURSE CURRICULUM

Course Title: CROP ECOLOGY AND AGROMETEOROLOGY

Course Code:AGRI608

Course Level: PG

Credit Units:3

L	T	P/S	SW/FW	No. of PSDA	TOTAL CREDIT UNITS
1	-	2	2	4	3

Course Objectives:

The objective of the course is to familiarize the students about the crop ecology and agrometeorology

Pre-requisites:

Fundamental understanding of crop ecology and agrometeorology

Course Contents/Syllabus:

	Weightage (%)
Module I Introduction	20%

<p>Descriptors/Topics</p> <p>Concept of crop ecology, ecosystem characteristics, energy flow in ecosystem, succession and climax concept, adaptation of crops, agro-ecological regions.</p> <p>Agrometeorology – aims, scope and development in relation to environment. Historical aspects of meteorology / climatology.</p>	
<p>Module II Agro-ecological Concepts</p>	<p>30%</p>
<p>Descriptors/Topics</p> <p>Physiological response of crop plants to weather variables (light, temperature, CO₂, moisture and solar radiation). Atmospheric pollution and its effect on climate. Global climate change and its impact on agriculture.</p> <p>Competition in crop plants, environmental manipulation through agronomic practices, agro-climatic indices. Improvement of unproductive lands through crop selection and management.</p>	
<p>Module III Stress Management</p>	<p>35%</p>
<p>Descriptors/Topics</p> <p>Stress and strain terminology; nature of stress injury and resistance, causes of stress. Low temperature stress - freezing injury and resistance in plants, chilling injury and resistance in plants, practical ways to overcome the effect of low temperature stress. High temperature or heat stress - meaning of heat stress, heat injury and resistance in plants, practical ways to overcome the effect of heat stress through soil and crop manipulations.</p>	
<p>Module IV Agro-meteorological Concepts</p>	<p>15%</p>
<p>Descriptors/Topics</p>	

Monsoons – their origin and characteristics. Weather hazards and their mitigation. Artificial rain making. Weather forecasting in India – short, medium and long range. Remote sensing – aerospace science and weather forecasting. Benefits of weather services to agriculture.	
--	--

Course learning outcome:

Student will be able to:

- Understand about the Agro-meteorology and Ecology.
- Study the challenges of aberrant weather conditions.

Pedagogy for Course Delivery:

The course pedagogy will include lectures, discussion on applications of the topics covered.

List of Professional Skill Development Activities (PSDA):

- Study of weather reports, working principle of automatic weather station
- Understand the various meteorological parameters affecting crops
- Remote sensing and familiarization with agro-advisory service bulletins

Lab/ Practicals details:

- Measurement/estimation of evapo-transpiration by various methods.
- Measurement/estimation of soil water balance. Rainfall variability analysis.
- Agro-climatic indices - determination of heat- unit / photo-thermal unit's requirement.
- Remote sensing and familiarization with agro-advisory service bulletins.
- Study of weather reports
- Working principle of automatic weather station.

Assessment/ Examination Scheme:

Theory L/T (%)	Lab/Practical/Studio
----------------	----------------------

	(%)
66.7	33.3

Theory Assessment (L&T):

Continuous Assessment/Internal Assessment (40%)					End Term Examination (60%)
Components (Drop down)	HA	Q	C	A	End Sem Exam
Linkage of PSDA with Internal Assessment Component, if any	PSDA-1 to 4		PSDA-1 to 4		
Weightage (%)	10	15	10	05	60

Lab/ Practical/ Studio Assessment:

Continuous Assessment/Internal Assessment					End Term Examination
Components (Drop down)	Q	Viva Voce	P	A	End Sem Exam
Weightage (%)	15	10	10	5	60

Mapping Continuous Evaluation Components/PSDA with CLOs:

Bloom's Level >	Remembering	Understanding, Applying and Analysing	Evaluating and Creating
Course Learning Outcomes	CLO1	CLO2	CLO3
Assessment type/PSDA			
Assessment Component 1	✓		✓
•		✓	
•	✓		
•	✓	✓	✓
•			
•			✓
Assessment Component 'n'	✓	✓	

Text Reading:

References:

- Chadha, K.L. and Swaminathan, M.S. 2006. *Environment and Agriculture*. Malhotra Publ. House. Critchfield, H.J. 1995. *General Climatology*. Prentice Hall of India.
- Hemantarajan, A. 2007. *Environmental Physiology*. Scientific Publ. Kumar, H.D. 1992. *Modern Concepts of Ecology*. 7th Ed. Vikas.Publ. Lal, D.S. 1998. *Climatology*. ShardaPustakBhawan.
- Lenka, D. 1998. *Climate, Weather and Crops in India*. Kalyani Publ. Menon, P.A.1991. *Our Weather*. National Book Trust Publ.
- Sahu, D.D. *Agrometeorology and Remote Sensing: Principles and Practices*. Sharma, P.D. 1998. *Ecology and Environment*. Rastogi Publ.
- Varshneya, M.C. and Balakrishana Pillai, P. 2003. *Textbook of Agricultural Meteorology*. ICAR Publ.

Additional Reading:

Any other Study Material:

