

INSTITUTE	FACULTY OF AGRICULTURE
PROGRAM	BACHELOR OF SCIENCE (Hons.) AGRICULTURE
SEMESTER	6
COURSE TITLE	RAINFED AGRICULTURE AND WATERSHED MANAGEMENT
COURSE CODE	16AS0602
COURSE CREDITS	2

Objective:

- 1 To aware students about basic knowledge of rainfed agriculture and watershed management.
- 2 To increase / stabilize production of crops, forage, fruits, fuel, and timber in rainfed areas through the introduction of improved soil and moisture conservation measures and better crop and range land management practices.

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

- 1 Student will acquaint with rainfed agriculture, rainfall distribution and collection of rainwater.
- 2 Student will develop ability to classify the crops and their growing regions according to the rainfall.
- 3 Student will execute the production techniques of crops and rainwater harvesting in rainfed areas.
- 4 Student will examine the seasonal rainfall and different types of watershed and its components.

Pre-requisite of course:Basic knowledge regarding Rainfed agriculture.

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
1	0	2	50	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	1 Rainfed agriculture: Introduction, types, history of rainfed agriculture and watershed in India	2
2	2 Problems and prospects of rainfed agriculture in India	1
3	3 Soil and climatic conditions prevalent in rainfed areas	1

Contents : Unit	Topics	Contact Hours
4	4 Soil and water conservation techniques	2
5	5 Drought: types, effect of water deficit on physio-morphological characteristics of the plants	2
6	6 Crop adaptation and mitigation to drought	1
7	7 Water harvesting: importance, its techniques	1
8	8 Efficient utilization of water through soil and crop management practices, management of crops in rainfed areas	3
9	9 Contingent crop planning for aberrant weather conditions, concept, objective, principles and components of watershed management, factors affecting watershed management	2
Total Hours		15

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	1 Studies on climate classification	2
2	2 Studies on rainfall pattern in rainfed areas of the country and pattern of onset and withdrawal of monsoons	2
3	3 Studies on cropping pattern of different rainfed areas in the country	2
4	4 Interpretation of meteorological data and scheduling of supplemental irrigation on the basis of evapo-transpiration demand of crops	2
5	5 Studies on cultural practices for mitigating moisture stress	2
6	6 Field demonstration on soil & moisture conservation measures	2
7	7 Field demonstration on construction of water harvesting and recharging structures	2
8	8 Visit to rainfed research station/watershed	2
Total Hours		16

Textbook :

- 1 NA, NA, NA, NA

References:

- 1 Dryland Agriculture, Dryland Agriculture, Jayanthi, C. and Kalpana, R., Kalyani Publishers, 2016
- 2 Watershed Management for Drought Mitigation, Watershed Management for Drought Mitigation, Dhruva Narayan, V. V., Singh, P. P., Bhardwaj, S. P., Sharma, U., Sikha, A. K., Vital, K. P. R. and Das, S. K., ICAR, New Delhi, 1987
- 3 Sustainable Development of Dryland Agriculture in India, Sustainable Development of Dryland Agriculture in India, Singh, R. P., Scientific Publishers, 1995
- 4 Crop Management Under Irrigated and Rainfed Conditions, Crop Management Under Irrigated and Rainfed Conditions, Singh, S. S., Kalyani Publishers, 1993

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking
25.00	25.00	30.00	10.00	5.00	5.00

Instructional Method:

- 1 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, brain storming, MOOCs etc.
- 2 The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.
- 3 Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.
- 4 Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory.