

INSTITUTE	FACULTY OF AGRICULTURE
PROGRAM	BACHELOR OF SCIENCE (Hons.) AGRICULTURE
SEMESTER	2
COURSE TITLE	INTRODUCTORY SOIL AND WATER CONSERVATION ENGINEERING
COURSE CODE	16AS0205
COURSE CREDITS	2

Objective:

- 1 To understand the principles, theoretical aspects and developing skills in protected cultivation.
- 2 To give knowledge about green house technology, planning, design of greenhouse, construction material with equipment.

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

- 1 students will able to find out soil and water conservation techniques and provide knowledge about soil erosion, their causes and agents.
- 2 Develop the knowledge about water erosion, Gully classification, their control and soil loss measurement techniques
- 3 Develop the knowledge and understanding of the mechanical measure for controlling soil and water erosion
- 4 Develop the skills about water harvesting, their techniques, wind erosion and their control

Pre-requisite of course: To create the awareness of the students about soil and water conservation practices.

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	Introduction to soil and water conservation causes of soil erosion Introduction to soil and water conservation causes of soil erosion	1
2	Definition and agents of soil erosion, water erosion: Forms of water erosion Definition and agents of soil erosion, water erosion: Forms of water erosion	2

Contents : Unit	Topics	Contact Hours
3	Gully classification and control measures. Gully classification and control measures.	1
4	Soil loss estimation by universal loss soil equation. Soil loss estimation by universal loss soil equation.	1
5	Soil loss measurement techniques, principles of erosion control Soil loss measurement techniques, principles of erosion control	1
6	Introduction to contouring, strip cropping Introduction to contouring, strip cropping	1
7	Contour bund. Graded bund and bench terracing. Water ways and their design Contour bund. Graded bund and bench terracing. Water ways and their design	2
8	Water harvesting and its techniques Water harvesting and its techniques	1
9	Wind erosion: mechanics of wind erosion, types of soil movement Wind erosion: mechanics of wind erosion, types of soil movement	1
10	Principles of wind erosion and its control measures Principles of wind erosion and its control measures	1
11	Surveying: Field area calculation. Machineries required for land leveling Surveying: Field area calculation. Machineries required for land leveling	2
Total Hours		14

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	General status of soil conservation in India General status of soil conservation in India	2
2	Calculation of erosion index. Calculation of erosion index.	2
3	Estimation of soil loss, Measurement of soil loss Estimation of soil loss, Measurement of soil loss	2
4	Preparation of contour maps of grassed water ways Preparation of contour maps of grassed water ways	2
5	Design of contour bunds. Design of graded bunds. Design of bench terracing system Design of contour bunds. Design of graded bunds. Design of bench terracing system	2
6	Problems on wind erosion Problems on wind erosion	2

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
7	Water lifting pump capacity, power calculation required. Water lifting pump capacity, power calculation required.	2
Total Hours		14

Textbook :

- 1 NA, NA, NA, NA

References:

- 1 Soil and Water Conservation Engineering, Soil and Water Conservation Engineering, Suresh, R., Standard Publisher Distributors, 2014
- 2 Soil and Water Conservation and Watershed Management, Soil and Water Conservation and Watershed Management, Mahnot, S, C., International Books and Periodicals Supply Service, 2014
- 3 Introduction to Soil and Water Conservation Engineering, Introduction to Soil and Water Conservation Engineering, Mal, B. C., Kalyani Publishers, 2014

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	20.00	10.00	10.00	10.00

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 white 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 class-rooms
- 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.