

# Course Curriculum of PG Programme

(Major and Non-credit courses)

## MASTER OF SCIENCE IN SOIL SCIENCE

### SEMESTER-III



SHRI VAISHNAV INSTITUTE OF  
AGRICULTURE, INDORE

SHRI VAISHNAV VIDYAPEETH  
VISHWAVIDYALAYA, INDORE

**SYLLABUS**  
**MASTER OF SCIENCE IN SOIL SCIENCE AND**  
**AGRICULTURAL CHEMISTRY**  
**SEMESTER-III**

<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CREDITS</b>
<b>MAJOR</b>		
SOIL 505	Soil Erosion and Conservation	2+1
SOIL 591	Master's Seminar	0+1
SOIL 599	Master's Research	0+12



**Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore**  
**Shri Vaishnav Institute of Agriculture**  
**M.Sc. (Ag.) Soil Science and Agricultural Chemistry**

Course Code	Course Name	TEACHING & EVALUATION SCHEME							
		Theory			Practical		Credits		
		END SEM University Exam	Mid term exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	P	Total
SOIL 505	Soil Erosion and Conservation	50	30	00	15	05	2	1	3

**1. Legends: L - Lecture; P – Practical**

**2. \*Teacher Assessment shall be based on following components: Quiz / Assignment / Project / Participation in Class.**

**Objective**

To enable students to understand various types of soil erosion and measures to be taken for controlling soil erosion to conserve soil and water.

**Theory**

**UNIT I**

History, distribution, identification and description of soil erosion problems in India.

**UNIT II**

Forms of soil erosion; effects of soil erosion and factors affecting soil erosion; types and mechanisms of water erosion; raindrops and soil erosion; rainfall erosivity estimation as EI30 index and kinetic energy; factors affecting water erosion; empirical and quantitative estimation of water erosion; methods of measurement and prediction of runoff; soil losses in relation to soil properties and precipitation.

**UNIT III**

Wind erosion- types, mechanism and factors affecting wind erosion; extent of problem in the country. Principles of erosion control; erosion control measures – agronomical and engineering; erosion control structures - their design and layout.

**UNIT IV**

Soil conservation planning; land capability classification; soil conservation in special problem areas such as hilly, arid and semi-arid regions, waterlogged and wet lands.

**UNIT V**

Watershed management - concept, objectives and approach; water harvesting and recycling; flood control in watershed management; socioeconomic aspects of watershed management; case studies in respect to monitoring and evaluation of watersheds; use of remote sensing in assessment and planning of watersheds, sediment measurement.

**Practical**

- Determination of different soil erodibility indices - suspension percentage, dispersion ratio, erosion ratio, clay ratio, clay/moisture equivalent ratio, percolation ratio, raindrop erodibility index
- Computation of kinetic energy of falling rain drops
- Computation of rainfall erosivity index (EI30) using rain gauge data
- Land capability classification of a watershed
- Visits to a watersheds

## Suggested Readings

- Biswas TD and Narayanasamy G. (Eds.) 1996. *Soil Management in Relation to Land Degradation and Environment*. Bull. Indian Society of Soil Science No. 17.
- Doran JW and Jones AJ. 1996. *Methods of Assessing Soil Quality*. Soil Science Society of America, Spl Publ. No. 49, Madison, USA.
- Gurmali Singh, Venkataramanan C, Sastry G and Joshi BP. 1990. *Manual of Soil and Water Conservation Practices*. Oxford & IBH.
- Hudson N. 1995. *Soil Conservation*. Iowa State University Press.
- Indian Society of Soil Science 2002. *Fundamentals of Soil Science*. ISSS, New Delhi.
- Oswal MC. 1994. *Soil Physics*. Oxford & IBH.

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