



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Agriculture
Choice Based Credit System (CBCS) Scheme in the light of NEP-2020
Undergraduate Multi-Disciplinary Generic Elective Course

AGGE302: Introduction to Soil and Environmental Sustainability (4+0=4)

Course Code	Course Name	TEACHING & EVALUATION SCHEME							
		THEORY			PRACTICAL		L	P	CREDITS
		END SEM University Exam	Two term exam*	Teachers Assessment*	END SEM University Exam	Teachers Assessment*			
AGGE302	Introduction to Soil and Environmental Sustainability	60	20	20	00	00	4	0	4

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

2. ***Teacher Assessment** shall be based on following components: Quiz / Assignment / Project / participation in class.

Course Objective:

- Introduce the basic concepts and importance of soil as a natural resource.
- Explain the relationship between soil, plants, water, and the environment.
- Develop awareness of soil health, degradation, and conservation.
- Understand the role of soil in environmental sustainability and food security.
- Promote responsible management and conservation of soil resources.

Course Outcomes:

CO1: Explain the basic concepts of soil science and soil formation.

CO2: Describe the role of soil in supporting ecosystems, plant growth, and environmental quality.

CO3: Identify the major causes of soil degradation and suggest basic conservation measures.

CO4: Explain the importance of soil in food security, climate change mitigation, and sustainable development.

CO5: Recognize emerging approaches and community participation in sustainable soil management.

Unit-I: Introduction to Soil Science

Concept and importance of soil, soil as a natural resource, soil formation, components of soil, soil profile, basic soil properties (texture, structure and colour), importance of soil in ecosystem functioning and human well-being.

Unit-II: Soil, Plants and Environment

Soil diversity and major soil types, soil water, soil air and soil temperature, soil and plant growth, soil organic matter, soil organisms, soil biodiversity, soil health and its importance in maintaining ecosystem productivity.

Unit-III: Soil Degradation and Conservation

Soil erosion, land degradation, soil pollution, causes and impacts of soil degradation, human activities affecting soil, soil and water conservation practices, sustainable land management.



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Unit-IV: Soil and Sustainable Development

Soil and food security, soil and climate change, carbon sequestration, sustainable soil management, ecosystem services provided by soil, role of soil in achieving the Sustainable Development Goals (SDGs).

Unit-V: Emerging Trends in Soil Management

Digital soil information, digital technologies in soil management, climate-smart agriculture, sustainable land management, citizen participation in soil conservation, future challenges and opportunities in sustainable soil management.

Suggested References

1. Brady, N. C. and Weil, R. R. *The Nature and Properties of Soils*. Pearson Education.
2. Das, D. K. *Introductory Soil Science*. Kalyani Publishers.
3. Indian Society of Soil Science. *Fundamentals of Soil Science*. IARI, New Delhi.
4. Lal, R. *Soil Health and Climate Change*. Springer.
5. FAO. *Status of the World's Soil Resources*. Food and Agriculture Organization of the United Nations.

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Board of Studies,
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

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