University of Kerala

Discipline	**BOTANY**				
Course Code	**UK3VACBOT201**				
Course Title	**GREEN INITIATIVES FOR SUSTAINABILITY**				
Type of Course	**VAC**				
Semester	**III**				
Academic Level	**200 - 299**				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours/Week
	03	03 Hours	-	-	03 Hours
Pre-requisites	No Pre-requisites				
Course Summary	Students will able to learn about green initiatives, water and waste management & air pollution. Students will learn about energy management, Afforestation, and mangrove conservation. Students know about biodiversity documentation and green audits.				

Detailed Syllabus:

Module	Unit	Content	Hrs
I		**Green Initiatives -Introduction**	09
	1	Green initiatives - Scope and importance for sustainability, Green initiative strategies for schools and higher education institutes, UN Sustainable Development Goals- 2030	
	2	Gardens and Conservatories: Botanic gardens, Zoological gardens, Ponds, Aquariums, Field gene banks, Butterfly parks, orchards.	
	3	Sustainable Agriculture: Definition, Principles and practices, Biological control, Biofertilizers and Biopesticides, Composting, Vermiculture, Farm tourism.	
II		**Water, Waste Management & Air Pollution**	09
	4	Irrigation and Water Management: Natural sources of water, Hydrological cycle, Irrigation methods- drip irrigation, Sprinkler method, Water conservation water harvesting.	
	5	Waste Management: Sources of waste, Types-Biodegradable, non-biodegradable, waste minimization, Solid waste management - Collection, Storage, Transport and Disposal of Wastes. Waste management methods- Recycling, incineration, landfill, Importance of 3Rs in waste management.	
	6	Air Pollution Reduction: Sources of air pollution, Air pollutants, Greenhouse gases, greenhouse effect and global warming, carbon footprint, Carbon sequestration - Biological, Air pollution - Control measures	
	7	Swachh Bharath Abhiyan: Gandhian philosophy of Cleanliness, Hygiene & Sanitation, Different phases of the SBA and its evaluation, Citizens' Responsibilities, Role of Swacchagrahi.	

III		**Energy Management:**	09
	8	Energy resources - Renewable and Non-renewable, Conventional - Thermal, Hydro, Nuclear fission, Non-conventional – Solar, Wind, Biomass, Energy from waste, Energy plantation.	
	9	Energy Audit – Types and Procedure, Energy Conservation Measures – Optimum performance of existing facilities, Energy Conservation opportunities in residential and commercial buildings-	
IV		**Afforestation & Mangrove Conservation**	09
	10	Afforestation: Techniques and practices, strategies- species selection, density and arrangement, Common plants for afforestation in Kerala, Agroforestry, Social forestry, Miyawaki forest.	
	11	Mangrove ecosystem – structure and function, floral and faunal diversity, mangroves and climate change, coastal defense, mangrove restoration, economic importance of mangroves.	
V		**Biodiversity documentation & Green audit**	09
	12	Biodiversity documentation: Assessment and monitoring of biodiversity, Methodology of assessment and analysis of different species groups, plant communities- Survey method, field study. Conservation strategies – In situ and Ex situ conservation, Peoples Biodiversity Register	
	13	Green Audit: Green Audit: Definition; Objectives; Scope, Coverage. GOI notification on Environmental Audit - Benefits to Industry. Reporting Environmental Audit Findings -Importance of Environmental Audit Reports to industry, the public, and the governments.	

Suggested Reading

1. Singh, M. P., Singh, J. K., & Mohanka, R. (2007). *Forest environment and biodiversity*. Daya Books.
2. Balooni, K., & Singh, K. (1994). *Role of NABARD in financing social forestry programmes including afforestation of wastelands in India*. Anand, India: Institute of Rural Management.
3. Mason, J. (2003). *Sustainable agriculture*. Landlinks Press.
4. Majumdar, D. K. (2001). *Irrigation water management: principles and practice*. PHI Learning Pvt. Ltd.
5. K R Gupta Environmental Legislation in India Atlantic Publishers & Dist, 2006 Atlantic Publishers & Dist, 2006
6. Afforestation M P Singh, B C Oraon, Narendra Prasad. APH Pub. Corp. 2011

Weblink

1. https://www.britannica.com/science/ecology
2. https://plato.stanford.edu/entries/ecology
3. https://www.cpcb.nic.in/https://www.free-ebooks.net/envirorumental-studies-academic
4. https://swachhbharatm ission.gov. in/SBMCMS/a bout-us.Htm