

Lecture Plan		
Name of the College: Government College of Arts, Science and Commerce, Sanquelim - Goa		
Name of Faculty: Ms. Hema Umesh Sawant	Subject: Geography	
Paper code & Title: GOS-112 & Climate Change and Natural Resource Management	Program: F.Y.B.Sc.	Division: NIL
Academic year: 2024-25	Semester: II	Total Lectures: 34
<b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. Provide an understanding of the causes and consequences of climate change.</li> <li>2. Explore the concept of natural resource management and its relationship with sustainable development.</li> <li>3. Examine the impacts of climate change on various natural resources, including water resources, biodiversity, forestry, agriculture, and fisheries.</li> <li>4. Discuss adaptation strategies for climate change, focusing on ecosystem-based approaches.</li> <li>5. Explore sustainable land management practices as a means of climate change adaptation.</li> </ol>		
<b>Course Outcome:</b> <p>· By the end of this course, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Understand the concepts of natural resource management and sustainable development and their interplay with climate change.</li> <li>2. Assess the impacts of climate change on water resources, biodiversity, forestry, agriculture, and fisheries.</li> <li>3. Evaluate ecosystem-based approaches to adaptation and their effectiveness in managing climate change impacts.</li> <li>4. Evaluate national policies and strategies for natural resource management and climate change adaptation.</li> <li>5. Understand the role of multilateral environmental agreements in shaping natural resource management practices.</li> <li>6. Assess case studies of policy development and implementation in</li> </ol>		

different countries and their outcomes.

**Student Learning Outcome:**

These learning outcomes suggest a comprehensive curriculum focusing on **Climate Change Adaptation and Mitigation**. Here's a breakdown of what students could learn from each:

**1. Ecosystem-based Approaches to Adaptation:**

- **Understanding:** How ecosystems (forests, wetlands, mangroves) can naturally buffer climate impacts (e.g., coastal erosion, floods, droughts).
- **Learning:** Techniques for restoring and conserving ecosystems to enhance resilience to climate change.
- **Examples:** Mangrove reforestation for coastal protection, sustainable forest management for carbon sequestration.

**2. Sustainable Land Management Practices:**

- **Understanding:** How land use practices (agriculture, forestry) can contribute to climate change mitigation (carbon sequestration) and adaptation (soil conservation).
- **Learning:** Techniques like agroforestry, conservation agriculture, and sustainable grazing.
- **Examples:** Implementing no-till farming to reduce soil erosion and increase carbon storage.

**3. Renewable Energy Technologies and Low-Carbon Development:**

- **Understanding:** The principles of renewable energy sources (solar, wind, hydro, geothermal, bio-energy).
- **Learning:** How to transition to a low-carbon economy by promoting renewable energy and energy efficiency.
- **Examples:** Evaluating the feasibility of solar power installations, analyzing the economic benefits of energy-efficient buildings.

**4. Mitigation Strategies for Greenhouse Gas Emissions:**

- **Understanding:** The sources and impacts of greenhouse gas emissions (GHG) from various sectors (energy, transportation, industry, agriculture).
- **Learning:** Strategies for reducing GHG emissions, such as carbon capture and storage, afforestation, and improving industrial processes.
- **Examples:** Developing a carbon footprint assessment for a local community, analyzing the effectiveness of different mitigation policies.

Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
December	09/12/2024	14/12/2024	02 per week	Introduction to the Syllabus  Ecosystem-based approaches to adaptation	Read more on adaptation and mitigation strategies	Google Maps, Videos & PPT	<a href="https://www.doi.gov/library/internet/climate">https://www.doi.gov/library/internet/climate</a>
December	16/12/2024	23/12/2024		Sustainable land management practices	List out the sustainable land practices in your locality.	Google Maps, PPT & Videos	
January	01/01/2025	04/01/2025	2 lectures per week	Renewable energy technologies and low-carbon development	Discuss on real-world case study of a successful renewable energy project	Google Maps, PPT & Videos	<a href="https://www.doi.gov/library/internet/climate">https://www.doi.gov/library/internet/climate</a>

				or a low-carbon development initiative.		
06/01/2025	11/01/2025		Renewable energy technologies and low-carbon development	Discuss on real-world case study of a successful renewable energy project or a low-carbon development initiative	Google Maps, PPT & Videos	
13/01/2025	18/01/2025			· Describe the natural and human-caused sources of this gas.  · Explain how it contributes to climate change.	Google Maps, PPT & Videos	Climatology by D. S. Lal (2011) <a href="https://www.doi.gov/library/internet/climate">https://www.doi.gov/library/internet/climate</a>
20/01/2025	25/01/2025		Mitigation strategies for greenhouse gas emissions	· Describe the natural and human-caused sources of this gas.  · Explain how it contributes to climate change.	Google Maps, T & Videos	Climatology by D. S. Lal (2011) <a href="https://www.doi.gov/library/internet/climate">https://www.doi.gov/library/internet/climate</a>
27/01/2025	31/01/2025		Case studies of			Climatology by D. S. Lal (2011)

				successful adaptation and mitigation strategies			<a href="https://www.doi.gov/library/internet/climate">https://www.doi.gov/library/internet/climate</a>
February	01/02/2025	08/02/2025	2 lecture s per	Natural Resource Management and Climate Change Policy	Discuss on the consequences of resource depletion or the beauty and value of a healthy ecosystem.	Google Maps, PPT & Videos	Climatology by D. S. Lal (2011) <a href="https://www.doi.gov/library/internet/climate">https://www.doi.gov/library/internet/climate</a>
	10/02/2025	15/02/2025		Natural Resource Management and Climate Change Policy	Discuss on the consequences of resource depletion or the beauty and value of a healthy ecosystem.	Google Maps, PPT & Videos	Climatology by D. S. Lal (2011) <a href="https://www.doi.gov/library/internet/climate">https://www.doi.gov/library/internet/climate</a>
	17/02/2025	22/02/2025		Climate change policy frameworks and international agreements	Write a policy brief that outlines the key challenges and	Google Maps, PPT & Videos	Climatology by D. S. Lal (2011) <a href="https://www.doi.gov/library/internet/climate">https://www.doi.gov/library/internet/climate</a>
	24/02/2025	28/02/2025		Climate change policy frameworks and international agreements	opportunities for a specific country or region in meeting its climate change commitments under international agreements.	Google Maps, PPT & Videos	Climatology by D. S. Lal (2011) <a href="https://www.doi.gov/library/internet/climate">https://www.doi.gov/library/internet/climate</a>
						Google Maps, PPT & Videos	Climatology by D. S. Lal (2011) <a href="https://www.doi.gov/library/internet/climate">https://www.doi.gov/library/internet/climate</a>
March	01/03/2025	8/03/2025		National policies and strategies for natural resource management	Prepare a presentation on a specific	PPT & PDF	Climatology by D. S. Lal (2011) <a href="https://www.doi.gov/library/internet/climate">https://www.doi.gov/library/internet/climate</a>

	10/03/2025	15/03/2025
	17/03/2025	22/03/2025
	24/03/2025	31/03/2025
April	01/04/2025	05/04/2025
	07/04/2025	11/04/2025
Assessment Rubrics	<b>Component</b>	<b>Max Marks</b>
	ISA 1	10
	ISA 2	10
	Practical	NIL
	Project	NIL
	Semester End	80

2  
lectures  
per  
week

and climate change adaptation	national policy or strategy, highlighting its key features and implications.		
National policies and strategies for natural resource management and climate change adaptation		Google Maps, PPT & Videos	Climatology by D. S. Lal (2011) <a href="https://www.doi.gov/library/internet/climate">https://www.doi.gov/library/internet/climate</a>
Multilateral environmental agreements and their implications for natural resource management		Google Maps, PPT & Videos	Climatology by D. S. Lal (2011) <a href="https://www.doi.gov/library/internet/climate">https://www.doi.gov/library/internet/climate</a>
Multilateral environmental agreements and their implications for natural resource management	List out the major agreement of the world.	Google Maps, PPT & Videos	Climatology by D. S. Lal (2011) <a href="https://www.doi.gov/library/internet/climate">https://www.doi.gov/library/internet/climate</a>
Case studies of policy development and implementation in different countries	Write the summary.	Google Maps, PPT & Videos	Climatology by D. S. Lal (2011) <a href="https://www.doi.gov/library/internet/climate">https://www.doi.gov/library/internet/climate</a>
Revision	Study for the exam.	PPT & PDF	

Exam	
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