Semester Lecture Plan

Name of the College: Government College of Arts, Science & Commerce, Sanquelim, Goa - 403505

Name of Faculty: Ms. Madhavi Gauns	**Academic Year:** 2024-25	**Semester:** II	**Program:** FYBSC

Division:	**Subject:** Geography	**Total Lectures:** 20

Paper Code: GOS-112	**Paper Name:** Climate Change and Natural Resource Management

Course Objectives:
1. Provide an understanding of the causes and consequences of climate change.
2. Explore the concept of natural resource management and its relationship with sustainable development.
3. Examine the impacts of climate change on various natural resources, including water resources, biodiversity, forestry, agriculture, and fisheries.
4. Discuss adaptation strategies for climate change, focusing on ecosystem-based approaches.
5. Explore sustainable land management practices as a means of climate change adaptation.

Expected Course Outcome:
By the end of this course, students will be able to:
1. Understand the concepts of natural resource management and sustainable development and their interplay with climate change.
2. Assess the impacts of climate change on water resources, biodiversity, forestry, agriculture, and fisheries.
3. Evaluate ecosystem-based approaches to adaptation and their effectiveness in managing climate change impacts.
4. Evaluate national policies and strategies for natural resource management and climate change adaptation.
5. Understand the role of multilateral environmental agreements in shaping natural resource management practices.
6. Assess case studies of policy development and implementation in different countries and their outcomes.

Student Learning Outcome:
LO 1: Understand the relationship between natural resource management, sustainable development, and climate change.
LO 2: Analyze climate change impacts on ecosystems and communities.
LO 3: Apply adaptation and mitigation strategies for managing climate change.
LO 4: Evaluate policies and case studies on climate change and resource management.

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	03	**Introduction to Climate Change and Natural Resource Management** • Definition, scope, importance, and interrelation between climate change and resource management.	Students list how climate change impacts their local community. Discuss	Power Point presentation, Smart Board	CBD. (2014). Connecting Global Priorities: Biodiversity and Human Health.

Month							
				Causes of Climate Change • Natural and anthropogenic factors, greenhouse gases, and global warming. **Consequences of Climate Change** • Global and regional impacts, extreme weather events, rising sea levels, biodiversity loss.	connections to resource management. Assign roles (e.g., CO_2, methane, deforestation). Students simulate interactions leading to climate change. In groups, map climate change consequences globally or in a chosen region (e.g., droughts, floods, migration).		Secretariat of the Convention on Biological Diversity. UNDP. (2019). Nature-Based Solutions for Climate Change: A Guide for the Tropics. United Nations Development Programme.
December	16/12/2024	21/12/2024	02	**Link between Natural Resource Management and Climate Change** • Overexploitation, deforestation, water scarcity, and degradation of resources. **Introduction to Sustainable Development** • Principles, relevance to climate change, and resource conservation.	Students list local resources (water, forest, energy) and discuss how climate affects their management. Assign Sustainable Development Goals (SDGs) to groups. They research and present links to climate change.	Power Point presentation, Smart Board	IPCC. (2014). Climate Change 2014: Impacts, Adaptation, and Vulnerability. Cambridge University Press. IPCC. (2018). Global Warming of 1.5°C. Summary for policymakers. Intergovernmental Panel on Climate Change. UNEP. (2020). Emissions Gap Report 2020. United Nations Environment Programme.

December & January	30/12/2024	04/01/2025	-----	**Christmas Break**	-----	-----	-----
January	06/01/2025	11/01/2025	01	**Sustainable Natural Resource Management Practices** • Case studies on forestry, water, land, and energy resource management.	Provide case studies of successful resource management. Students analyze challenges and solutions.	Power Point presentation, Smart Board	FAO. (2020). The State of the World's Forests 2020. Forests, biodiversity and people - In brief. Food and Agriculture Organization of the United Nations. World Bank. (2019). Enhancing Forest Resilience to Climate Change. World Bank Group. CBD. (2014). Connecting Global Priorities: Biodiversity and Human Health. Secretariat of the Convention on Biological Diversity.
January	13/01/2025	18/01/2025	01	**Adaptation and Mitigation Strategies** • Practical approaches to managing climate impacts and reducing emissions.	Groups design a mitigation or adaptation plan for a hypothetical local issue (e.g., water scarcity, urban flooding).	Power Point presentation, Smart Board	FAO. (2020). The State of the World's Forests 2020. Forests, biodiversity and people - In brief. Food and Agriculture Organization of the United Nations. World Bank. (2019). Enhancing Forest Resilience to Climate Change. World Bank

Month	Start Date	End Date	No.	Content	Activity	Tools	References
							Group. CBD. (2014). Connecting Global Priorities: Biodiversity and Human Health. Secretariat of the Convention on Biological Diversity.
January	20/01/2025	25/01/2025	01	**Community Involvement in Climate Action** • Importance of local participation and traditional knowledge in resource management.	Simulate a community meeting with roles like policymakers, farmers, and conservationists. Discuss a local issue.	Power Point presentation, Smart Board	FAO. (2020). The State of the World's Forests 2020. Forests, biodiversity and people - In brief. Food and Agriculture Organization of the United Nations. World Bank. (2019). Enhancing Forest Resilience to Climate Change. World Bank Group. CBD. (2014). Connecting Global Priorities: Biodiversity and Human Health. Secretariat of the Convention on Biological Diversity.
January & February	27/01/2025	01/02/2025	01	**Global and Regional Climate Trends** • Using data to analyze patterns and predict future climate scenarios	Provide climate data (e.g., temperature or CO_2 trends). Students interpret trends and predict future impacts.	Power Point presentation, Smart Board	FAO. (2020). The State of the World's Forests 2020. Forests, biodiversity and people - In brief. Food and Agriculture Organization of the

							United Nations. World Bank. (2019). Enhancing Forest Resilience to Climate Change. World Bank Group. CBD. (2014). Connecting Global Priorities: Biodiversity and Human Health. Secretariat of the Convention on Biological Diversity.
February	02/02/2025	08/02/2025	01	**History of International Climate Agreements** • From the Kyoto Protocol to the Paris Agreement	Students create a timeline of major climate agreements and identify key milestones.	Power Point presentation, Smart Board	UNFCCC. (2015). Paris Agreement. United Nations Framework Convention on Climate Change. UNEP. (2020). Emissions Gap Report 2020. United Nations Environment Programme. UN Water. (2018). Water and Climate Change. United Nations.
February	10/02/2025	15/02/2025	01	**United Nations Framework Convention on Climate Change (UNFCCC)** • Goals, structure, and implementation mechanisms.	Groups represent different nations and negotiate climate targets based on assigned scenarios.	Power Point presentation, Smart Board	UNFCCC. (2015). Paris Agreement. United Nations Framework Convention on Climate Change. UNEP. (2020). Emissions Gap Report

							2020. United Nations Environment Programme. UN Water. (2018). Water and Climate Change. United Nations.
February	17/02/2025	22/02/2025	01	**National and Regional Policies on Climate Change** • Examples of policies from developed and developing countries.	Provide real-world policy documents. Students analyze strengths and areas for improvement.	Power Point presentation, Smart Board	UNFCCC. (2015). Paris Agreement. United Nations Framework Convention on Climate Change. UNEP. (2020). Emissions Gap Report 2020. United Nations Environment Programme. UN Water. (2018). Water and Climate Change. United Nations.
February & March	24/02/2025	01/03/2025	01	**Challenges in Implementing Climate Policies** • Political, economic, and social barriers.	Students brainstorm solutions to overcome specific barriers to implementing policies (e.g., funding, political will).	Power Point presentation, Smart Board	UNFCCC. (2015). Paris Agreement. United Nations Framework Convention on Climate Change. UNEP. (2020). Emissions Gap Report 2020. United Nations Environment Programme. UN Water. (2018). Water and Climate Change. United Nations.

March	02/03/2025	08/03/2025	01	**Climate Change and Resource Conflicts** • How climate stress exacerbates competition for natural resources.	Groups debate whether climate change is the primary driver of resource conflicts.	Power Point presentation, Smart Board	UNFCCC. (2015). Paris Agreement. United Nations Framework Convention on Climate Change. UNEP. (2020). Emissions Gap Report 2020. United Nations Environment Programme. UN Water. (2018). Water and Climate Change. United Nations.
March	10/03/2025	15/03/2025	01	**Innovative Solutions for Climate Change and Resource Management** • Renewable energy, circular economy, and climate-smart agriculture.	Students propose innovative solutions for a climate issue and present them in a mock conference.	Power Point presentation, Smart Board	UNFCCC. (2015). Paris Agreement. United Nations Framework Convention on Climate Change. UNEP. (2020). Emissions Gap Report 2020. United Nations Environment Programme. UN Water. (2018). Water and Climate Change. United Nations.
March	17/03/2025	22/03/2025	01	**Case Studies on Successful Climate and Resource Management Initiatives** • Highlight global and local examples of impactful programs.	Students research and map locations of successful climate/resource management programs.	Power Point presentation, Smart Board	UNFCCC. (2015). Paris Agreement. United Nations Framework Convention on Climate Change. UNEP. (2020).

						Emissions Gap Report 2020. United Nations Environment Programme. UN Water. (2018). Water and Climate Change. United Nations.
March	24/03/2025	29/03/2025	01	**Integration of Climate Policies with Development Goals** • Aligning national development plans with climate resilience.	Students draft a development plan for a region/country that integrates climate resilience.	Power Point presentation, Smart Board	UNFCCC. (2015). Paris Agreement. United Nations Framework Convention on Climate Change. UNEP. (2020). Emissions Gap Report 2020. United Nations Environment Programme. UN Water. (2018). Water and Climate Change. United Nations.
March & April	31/03/2025	05/04/2025	01	**Recap of Key Topics** • Interactive discussions, key takeaways, and Q&A session.	Use an interactive quiz to test key topics covered throughout the course.	Power Point presentation, Smart Board	
April	07/04/2025	12/04/2025	01	**Practice Questions and Case Study Analysis** • Testing understanding through examples and feedback.	Provide a case study with guided questions. Discuss answers and provide feedback.	Power Point presentation, Smart Board	

* Assessment Rubrics

Component	Max Marks
ISA 1	10
ISA 2	10
Practical	NIL
Project	NIL
Semester End Exam	80