4. Coupled Human and Environment System

Course Objectives:

1. Various dimensions of concepts, components and theories of coupled human environment system.
2. Detailed analysis of different biogeochemical cycles.
3. Understanding of the concept of lowland and highland interaction.

Learning Outcome:

1. Detailed exposure of climate change and related issues.
2. In-depth knowledge of interactions and impact between human and natural systems.
3. Understanding the management and policies related to human and environment system.

Course Content:

1. Concepts, components and theories of coupled human environment system.
2. Biogeochemical cycles: Interactions and impact between human and natural systems.
3. Global and regional case studies: Himalaya-Ganga system; Atmosphere-water system; Surface and ground water and Coastal-water interaction.
4. Integrated Assessment of Vulnerability Risk; Resilience and Sustainability.
5. Management, Governance and Policies.

References:

Essential:

1. Clarke, G. L. (1967). *Elements of ecology*. New York, USA: John Wiley Pub.
2. Haden-Guest, S., Wright, J. K., and Teclaff, E. M. (1956). *World Geography of Forest Resources*. New York, USA: Ronald Press Co.
3. Hoyt, J.B. (1992). *Man, and the Earth*. USA: Prentice Hall.
4. Lapedes, D.N. (1974). *Encyclopaedia of Environmental Science (eds.).* USA: McGraw Hill.
5. Parmesan, C., Yohe, G. (2003). *A globally coherent fingerprint of climate change impacts across natural systems*. UK: Nature, 421 (6918), 37–42.
6. Singh, R.B., Schickhoff, U., and Mal, Suraj. (2016). *Climate Change, Glacier*

Response and Vegetation Dynamics in the Himalaya. Switzerland: Springer.

7. Trewartha G. T. (1980). *An Introduction to Climate*. NY, USA: McGraw Hill Company.

Suggestive:

1. Singh Savindra., (2015). *ParyawaranBhoogol (Hindi)*. Allahabad, India: PrayagPushtakBhawan.
2. Singh, R.B., Prokop, Pawel., (Eds.) (2016). *Environmental Geography of South Asia*. Tokyo, Japan : Springer.
3. Sivaperuman, Chandrakasan. et al. (2018). *Biodiversity and Climate Change Adaptation in Tropical Islands*. London, UK: Academic Press.

Teaching Learning Plan

Week 1: Unit I

Week 2: Unit I

Week 3: Unit II

Week 4: Unit II

Week 5: Unit III

Week 6: Mid-Semester Examinations

Week 7: Mid-Semester Break

Week 8**:** Unit III

Week 9: Unit IV

Week 10: Unit IV

Week 11: Unit V

Week 12: Unit V

Assessment Methods:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
I	Introduction to the basic concepts of human environment system	Classroom Lectures, PPTs, documentaries, discussions and tutorials.	Assignments, presentations, discussions.
II	Detailed discussion of different biogeochemical cycles	Classroom Lectures, PPTs, documentaries, discussions and tutorials.	Assignments, presentations, discussions.
III	Deep understanding of case studies from different altitude and regions	Classroom Lectures, PPTs, documentaries, discussions, fieldworks and tutorials.	Assignments, presentations, discussions.
IV	Detailed analysis of assessment of vulnerability risk; resilience and sustainability	Classroom Lectures, PPTs, documentaries, discussions and tutorials.	Assignments, presentations, discussions and debates.
V	Understanding the management and policies related to human environment system	Classroom Lectures, PPTs, documentaries, discussions and tutorials.	Assignments, presentations, discussions and debates.

Keywords: Environment, Cycles. Region, Sustainability, Management