Climate Change and Sustainable Development

Objective

To impart the theoretical and practical knowledge of climate change and their sources.

Theory

Climate change and global warming: definitions of terms; causes of climate change and global warming; greenhouse gases, ozone depletion; past records, present trends, extreme weather events and future projections; astronomical predictions: lunar cycle, sunspot cycle, soil-lunar tides, Chandlers compensation, blocking highs.

Impacts of climate change on various systems: impacts resulting from projected changes on agriculture and food security; hydrology and water resources; terrestrial and freshwater ecosystems; coastal zones and marine ecosystems; human health; human settlements, energy, and industry; insurance and other financial services; climate change and crop diversification, loss of biodiversity, microbes and pest dynamics; climate change and storage, climate change and weed management.

Sensitivity, adaptation and vulnerability: system's sensitivity, adaptive capacity and vulnerability to climate change and extreme weather events; regional scenarios of climate change and variability; evaluation of large scale climate variability; key physical processes in climate sensitivity.

Climate Change Modeling: Simple climate models; Climate change data and downscaling, models available for local and regional and global climate change; reliability of models in future projection of climatic change

Applications of RS/GIS on Catchment climate Change modeling : Spatial data requirements for climate change analysis; SDSM; Application of Global Climate change (GCM) and RCM for flood, Agricultural, catchment hydrology modeling using GIS; collaborative mapping tools; Climate projections using GIS.

References

Sushil Kumar. (2007). Climate change: An Indian perspective. Cambridge
Burroughs, W.J. (2007). Climate change: A multidisciplinary approach (2nd edition.). Cambridge University Press. Dash,
Lillisand, Thomas, Ralph W. Kiefer and Jonathan Chipman. 2007. Remote Sensing and Image Interpretation. Wiley India.

Outcome:

To apply the downscaled climate data on various applications
To implement the impact factors in watershed management and agriculture applications.

GUIDE

71

CHAIRMAN.

Senate
RIS