BANKURA UNIVERSITY

CBCS SYLLABUS

Ability-Enhancement Compulsory Course (AECC)

COURSE TITLE: Environmental Studies
COURSE CODE: ACSHP/ 104/ AECC-1

Marks: 50 (40+10) **Credit: 04**

FOR ALL STREAMS OF UNDER GRADUATE HONOURS AND PROGRAM COURSES (Arts, Science and Commerce)

Unit 1: Introduction to Environmental Studies

- Multidisciplinary nature of environmental studies
- Definition, Nature, Scope andImportance of environmental studies
- Types and Components ofenvironment
- Sustainable development

Unit 2: Ecosystems

- Concept of Ecology and Eco-system, Structure and Function of an Ecosystem
- Different types of ecosystem; Forest, Desert and Aquatic (Ponds and Oceans) Biomes
- Energy flow in the ecosystem, energy flowmodels
- Food chains, food weds and ecologicalpyramids
- Ecological Succession

Unit 3: Natural Resources: Renewable and Non- Renewable Resources

- Land resources: Land degradation, Landslides, Soilerosion
- Forest resources: Uses, types and importance, deforestation and itseffects, Forest biodiversity and tribal population
- Water resources: Distribution of water on Earth; Use and over-exploitation of surface and ground water; conflicts over water (international & inter-state)
- Energy resources: Renewable and Non-renewable energy sources; Use of alternative energy Sources

Unit 4: Biodiversity and conservation

- Introduction – Definition: Levels of biological diversity: Genetics, Species and Eco-System Diversity, Biodiversity hot spots and mega biodiversity countries.
- Threats to biodiversity; Value (services) of biodiversity; man-wildlife conflicts, biological invasions
- Conservation of biodiversity: *In situ* and *Ex situ* conservation ofbiodiversity; Endangered and endemic species of India

Unit 5: Environmental Pollution

- Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution
- Nuclearhazards and human health risks.
- Solid waste management: Control measures of urban and industrial waste.
- Fireworks Pollution

Unit 6: Environmental Policies & Practices

- Climate change, global warming, ozone layer depletion, acid rain and its impacts on human communities and agriculture
- Environment Laws: Environment Protection Act, 1986; Air (Prevention & Control of Pollution) Act, 1981; Water (Prevention and control of Pollution) Act, 1972; Wildlife Protection Act, 1972;

ForestConservation Act, 1920, 1988; International agreements: Montreal protocols, 1987 and Kyoto protocols, 1997 and Convention on Biological Diversity (CBD)

- Tribal populations and rights.

Unit 7: Human Communities and the Environment

- Human population growth: Population Explosion, Impacts on environment, human health and welfare.
- Disaster management: floods, earthquake, cyclones and landslides.
- Environmental movements: Chipko, Silent valley
- Environmental ethics: Role of Indian and other religions and cultures in environmentalConservation
- Environment and human health: Concept of health anddiseases (Vector Borne Diseases)
- Human Rights, Value Education, Role of Information Technology inEnvironment

Unit 8: Field Work (Project Work)

- Visit to an area to document environmental assets: river/ forest/ flora/fauna, etc.
- Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.
- Study of common plants, insects, birds and basic principles of identification
- Study of simple ecosystems-pond, river etc

Suggested Readings:

1. Carsen, R. 2002. Silent Spring, Houghton Mifflin,Harcourt.
2. Rao,M.N&DattaA.K.1987.WasteWaterTreatment,OxfordandIBHPublishingCo.Pvt. Ltd.
3. Raven, P.H Hassenzahl, D.M. & Berg L.R, 2012 Environment.8thEdition. John Wiley & Sons.
4. Singh, J.S.Singh, S.P. and Gupta, S.R. 2014.Ecology, Environmental Science and Conservation. S. Chand Publishing, NewDelhi.
5. Agarwal, K.C.2001 Environmental Biology, Nidi Publication .Ltd.Bikaner.
6. BharuchaErach, The Biodiversity Biology of India, Mapin Publishing Pvt. Ltd. Ahmedbad,India
7. Cunningham,W.P.Cooper,T.H.Gorhani,E&Hepworth,M.T.2001,Environmental Encyclopedia.JaicoPubl.House.Mumbai.1196p.
8. Heywood,V.h&Watson,R.T. 1995. Global Biodiversity Assessment. Cambridge UniversityPress.
9. Jadhav,H&BhosaleV.M.1995.EnvironmentalProtectionandLaws,HimalayaPublishing House,Delhi
10. Mckinney,M.L. &Schoch.R.M. 1996. Environmental Science systems & Solutions, Web enhancededition.
11. Saha T.K. 2010. Ecology and Environmental Biology, Books and Allied (P) Ltd. Kolkata.
12. Santra S.C. 2005. Environmental Science, New Central Book Agency (P) Ltd. Kolkata.
13. Singh, S. 1991. Environmental Geography, PrayagPustakBhawan, Allahabad.
14. Roy, S. 2003.Environmental Science, Publishing Syndicate, Kolkata
15. Sharma, P. D. 2012. Ecology and Environment, Rastogi Publication
16. Dash, M. C. 2001. Fundamentals of Ecology, Tata McGraw-Hill Publishing Company Ltd
17. Arora, Mohan P. 2009. Ecology, Himalaya Publishing House
18. Saha T.K. 2010. Ecology and Environmental Biology, Books and Allied (P) Ltd. Kolkata.
19. Santra S.C. 2005. Environmental Science, New Central Book Agency (P) Ltd. Kolkata.
20. Environmental Studies—Prof S.V.S Rana.--Rastogi Publication.
21. Text book of Ecology: The Experimental Analysis of distribution & abundance--(Charles J. Krebs).Pearson Education.
22. ErachBharucha, 2016. Text Book of Environmental Studies for Undergraduate Courses (Second Edition) for UGC. University Press.

Marks Division: **40** (Theory) + **10** (Project Work/Field Work/Internal) = **50** Marks