



# **TRIPURA UNIVERSITY**

**(A Central University)  
Suryamaninagar-799022**

**Syllabus**

**For**

**Semester – II**

**Environmental Science**

**Year 2014**

**TRIPURA UNIVERSITY**  
(A Central University)  
B.Sc. Environmental Science Syllabus - 2014  
(Elective)

**Second Semester, Paper – 2A**

**Unit – I (ES05) Analytical Techniques and Environmental Statistics**

Principles and Applications: Titrimetry, Spectrophotometry, Flame Photometry, Electrophoresis, Atomic

Absorption Spectrophotometry, Gas Chromatography, Microscopy: SEM, TEM and Image analysis; Sampling, Measures of Central tendency (mean, median, mode), SD, SE, Probability, Types of error, test of significance (Student t- test, F-test, Least Significant Difference), Correlation, regression

**Unit –II (ES06): Biodiversity Conservation**

Concept of Biodiversity, hierarchical levels (genetic diversity, species diversity, ecosystem diversity); Gradients of biodiversity (Latitudinal change); Biodiversity as a resource; Causes of biodiversity loss,

Rare, Threatened and Endangered flora and fauna, Concept of Endemism and Invasive species, Global

Biodiversity Hotspots, Strategies for Biodiversity Conservation Ex-situ, In-situ (Wild life sanctuaries, National Parks and Biosphere reserves, Gene and Seed bank), Biodiversity documentation, Convention on Biological Diversity.

**Suggested Readings:**

1. Adhikari, K. and Bhattacharjee, D. 2003. Statistics – Theory and Applications (including fundamentals of Computer). Bibhu Ranjan Paul, Silchar.
2. Alvi, Z. 2005. Statistical Geography – Methods of Application. Oxford University Press. New Delhi.
3. Asthana, B.N. 1996. Elements of Statistics (Part One). Tenth Edition. Chaitanya Publishing House, Allahabad.
4. Botkin, D.B. and Keller, E.A. 2011. Environmental Science: Earth as a Living Planet. John Wiley and Sons, New Delhi.
5. Cunningham, W.P. and Cunningham, M. 2011. Environmental Science: A Global Concern. McGrawHill, Boston.
6. Cunningham, W.P. and Saigo, W.B. 2005. Environmental Science. McGraw Hill, New York. Delhi.
7. Leon, A. and Leon, M. 2009. Fundamentals of Information Technology. Second Edition. Leon Press, Chennai.
8. Pal, S.K. 1999. Statistics for Geo-Scientists – Techniques and Applications. Concept, New Delhi.
9. Rajaraman, V. 1999. Fundamentals of Computers. Third Edition. Prentice-Hall of India Pvt. Ltd., New
10. Santra, S.C. 2005. Environmental Science. Second Edition. New Central Book Agency (P) Ltd., Kolkata.
11. Sharma, B.K. and Kaur, H. 1996. An Introduction to Environmental Pollution. GOEL Publishing House, Meerut.
12. Singhal, M. 2009. Elements of Statistics (Theory and Practice). Fourth Edition. Lakshmi Narain Agarwal, Educational Publishers, Agra.

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**Second Semester, Paper – 2B (Practical)**

1. Identification of rocks
  2. Climatic maps – drawing of Hythergraph and Climograph
  3. Identification of important minerals.
  4. Study of meteorological parameters: light intensity, ambient temperature, wind velocity and relative humidity
  5. Estimation of moisture, temperature and conductivity of soil
  6. Determination of transparency, temperature and conductivity of water
  7. Determination of requisite size and number of quadrates to be laid down for studying vegetation
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8. Determination of Density, Abundance and Frequency of component species in a Grassland community
  9. Measurement of primary productivity of a pond ecosystem
  10. Estimation of population size from population chart by quadrat method
  11. Computation of Mean, Median, Mode and Variance of the given environmental data set.
  12. Working on Word Processing software
  13. Preparation of Power point presentation for seminar

**Suggested readings:**

1. Misra, R. 1968. Ecology Workbook. Oxford & IBH Publications Co., New Delhi.
2. Michael, P. 1990. Ecological Methods for Field and Laboratory Investigation. Tata McGraw Hill, New Delhi.
3. Maiti, S.K. 2003. Hand Book of Methods in Environmental Studies. Vol. I & II. ABD Publishers, Jaipur.
4. Tripathi, B.D. and Govil, S.R. 2001. Water Pollution (An Experimental Approach). CBS Publishers and Distributors, New Delhi.
5. Sharma, P.D. 2003. Ecology and Environment. Rastogi Publications, Meerut.
6. Singh, R.L. 1997. Elements of Practical Geography. Kalyani Publishers, New Delhi.
7. Awasthi, D.D. 2000. A Handbook of Lichens. Bishen Singh Mahendra Pal Singh, Dehradun.