

**VEER NARMAD SOUTH GUJARAT UNIVERSITY
SURAT**

B. Sc. ENVIRONMENTAL SCIENCE

Semester - II

SYLLABUS

With Effect from 2016-17

Semester II
CORE I
PAPER I
ENVIRONMENTAL SCIENCE - III
Env 201: ENVIRONMENTAL BOTANY

Total Hours : 30

UNIT-I

09 Hours

Fundamentals of classification: Basic unit of classification - Classification of Plants - Taxonomic hierarchy - Artificial and Natural classification.

Diversity of plant species : Trees, shrubs, herbs, grasses - halophytes, hydrophytes, mesophytes and xerophytes.

UNIT-II

09 Hours

Anatomy: Dicot - stem, root, monocot - stem, leaf.

Vegetation (Forest types):

Moist deciduous, dry deciduous, ever green, semi-evergreen, grassland, thorn, mangroves.

UNIT-III

06 Hours

Mendalism : Monohybrid and dihybrid cross,

Origin of life - Theories of Evolution. Lamarck, Charles Darwin and De - vries.

UNIT-IV

06 Hours

Economic Botany : Medicinal plants, edible oil seeds, pulses, vegetables, fruits, mushroom, single cell protein, Spirulina.

References :

1. Jeffery, C (1982) An Introduction of Plant Taxonomy, Cambridge, press.
2. Smith Gilbert, M (1995) Cryptogrammic Botany, VOL I &II, McGraw Hill,. New York,
3. Verma, P.S. and V.K. Agarwal, (1989) Principals of Ecology, S.Chand &Company,NewDelhi.
4. Hill, A.W. (1951) Economic Botany. McGraw Hill Publications.
5. Dash, M.C (1995) Fundamentals of Ecology, M.C.Graw Hill Publications.
6. Mitra, S. (1994) Genetics - A Blue Print of life. Tata McGraw Hill

Semester II
CORE I
PAPER II
ENVIRONMENTAL SCIENCE - IV
Env 202: BIODIVERSITY CONSERVATION AND ECOSYSTEM SERVICES

Total Hours : 30
08 Hours

Unit-I

Biodiversity: Basic concepts, importance and conservation needs.
Species diversity, Biological and phylogenetic species concept.
Basic concepts of speciation, species extinction.

Unit-II

Factors for decline of biological diversity.
Protection of wild flora, fauna and natural habitats.
Concept of threatened species.
Threatened and endangered animals of India.

06 Hours

Unit-III

Food, timber and medicinal plants non-timber forest produce.
Importance of tropical rain forests and wetlands.
Animal food and fisheries.
Wild life sanctuaries, National Parks and Biosphere Reserve.
Economic importance of wild life.

08 Hours

Unit-IV

Biodiversity convention.
International and national efforts and approaches to conserve biodiversity.
Socio-cultural aspects of biodiversity.
Biotechnological needs for biodiversity conservation.
Traditional knowledge and biodiversity conservation.

08 Hours

References:**BIODIVERSITY CONSERVATION AND ECOSYSTEM SERVICES**

1. Chandel, K.P.S., Shukla, G. And Sharma, N. (1996). Biodiversity in Medicinal and Aromatic Plants in India Conservation and Utilization, National Bureau of Plant Genetic Resources, New Delhi.
2. Council of Scientific and Industrial Research (1986). The Useful Plants of India Publication and Information Directorate, CSIR, New Delhi.
3. Nair, M.N.B. et. al. (Eds.) (1998). Sustainable Management of Non-wood Forest Products. Faculty of Forestry, University Putra. Malaysia. 434 004 PM Serdang, Selangor, Malaysia.
4. Soule, M.E. (ed.) (1986). Conservation Biology. The Science of Scarcity and Diversity. Sinaur Associates, Inc., Sunderland, Massachusetts.
5. Singh, J.S., Singh, S.P. and Gupta, S.R. 2006. Ecology, Environment and Resource Conservation, Anamaya Publishers, New Delhi.

Semester II
CORE I
PRACTICAL I
ENVIRONMENTAL SCIENCE - III

Env 203 : ENVIRONMENTAL BOTANY

1. Study on the morphology and anatomy of hydrophytes - Leaf, stem and petiole.
2. Study on the morphology and anatomy of xerophytes - Leaf and stem.
3. Study on the morphology and anatomy of mesophytes - Leaf and stem.
4. Study on the morphology of halophytes - fresh samples or Museum specimens.
5. To find out minimum size, density, frequency of the vegetation by quadrant method.
6. Comments on economic uses of plant material (as per syllabus).
7. Estimation of carbohydrates and protein in plants.

PRACTICAL II
ENVIRONMENTAL SCIENCE - IV
Env 204: BIODIVERSITY CONSERVATION AND ECOSYSTEM SERVICES

1. Study of Phytoplankton and diatoms.
2. Identification and salient features of animals available (Prepared slides or Museum specimens)
3. Submission of Economically important insects available (charts) in your habitat.
4. Qualitative and quantitative analysis of zooplankton.
5. Comments on life cycle of some economically important insects.
6. Preparation of field report based on the visit to a Wild Life Sanctuary / National Park / Zoo / Biosphere Reserve.