

**VEER NARMAD SOUTH GUJARAT UNIVERSITY
SURAT**

**B. Sc. ENVIRONMENTAL SCIENCE
F. Y. B. Sc.
Semester - I and II
SYLLABUS**

With Effect from 2016-17

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B. Sc. ENVIRONMENTAL SCIENCE

Semester - I

SYLLABUS

With Effect from 2016-17

Semester I
CORE - I
PAPER - I
ENVIRONMENTAL SCIENCE - I
Env 101 : ENVIRONMENTAL ECOLOGY

Total Hours: 30

UNIT-I

02 Hours

Importance and Scope of Ecology: Environmental factors - Climate - Temperature - Light - Humidity – Edaphic and Biotic factors.

UNIT-II

10 Hours

Habitat and ecological niche: Basic concepts, components of ecosystem, Study of pond, grass land, forest, mangrove ecosystem - Trophic levels, food chain, food web and ecological pyramids, ecosystem functions, Energy flow in ecological systems, energy efficiencies.

UNIT-III

13 Hours

Population & Ecology: Basic concept of population - Natality, Mortality - Age distribution - Survivorship curves - Ecotone and edge effect.

Community ecology: Definition - Ecological dominance, Ecotone - Edge Effect, Ecological equivalents, indicators, succession and climax.

UNIT-IV

05 Hours

Animal Association: Interspecific interactions and Intraspecific interactions - Symbiosis, Mutualism, Antagonism, Commensalism, Predation and Parasitic relationships.

References:

1. Odum, E. P., (1971) Fundamentals of Ecology, W. B., Saunders Company, Philadelphia.
2. Shiva, V and Bandyopadhyaya, J, (1986) Chipko, the INTACH, New Delhi.
3. Sharma, P. D. 1998, Ecology and Environment, Rastogi publication, Meerut
4. Jeyaraj, M. S. and Veer Bala Rastogi, (1998) Animal Ecology and Distribution of Animals.
5. Verma, P.S., and V. K. Agarwal, (1983) Principles of Ecology, S. Chand and Company Ltd., New Delhi.

Semester I
CORE I
PAPER II
ENVIRONMENTAL SCIENCE - II
Env 102 : FUNDAMENTALS OF EARTH SCIENCE

Total Hours : 30

UNIT-I :

12 Hours

Earth - Its interior and surface: The Universe - Big Bang theory - Meteors - The origin, shape and size of the earth - The solar system - Planets - Eclipses - Solar, Lunar - Rotation and Revolution of the earth - Seasons - Latitude and Longitude - Layers of the earth - Sial, Sima, Nife - History of the Earth's surface - Precambrian, Paleozoic, Mesozoic, Neozoic and Quaternary era.

UNIT-II :

06 Hours

Earth's Crust: Formation of Rocks - Igneous rocks: Intrusive and Extrusive; Plutonic rocks - Dyke rocks: Acid and Basic rocks - Sedimentary rocks: Inorganic and Organic - Sand stones, clay shale, gravels, pebbles, breccias - Metamorphic rocks - Regional and contact metamorphism.

UNIT-III:

06 Hours

Major land forms and their transformation: Theories and stages of mountain building
Classification of mountains - Types of Plateaus : Intermontane, Piedmont, Continental - Hill lands
- Plains - Classification - coastal - Destructional and Depositional plains.

UNIT-IV:

06 Hours

Soil and its types: Composition, formation and types of soils - Origin of the soil- Texture of the soil - Soil horizons and profiles - Soils of the world: Laterites, Red soil, Black cotton soil, Podsol, Praire soils, Chestnut soils - Laterisation.

Reference

1. Das Gupta, A and A. N. Kapoor (Eds) (1999) Principles of Physical Geography.
Twentieth edition. S. Chand and Co ltd., New Delhi.
2. Keller, E. A. (2005) Introduction to Environmental Geology. Prentice Hall Pub., NY.
3. De Blij, H. J., and Peter O. Muller (1993) Physical Geography of the Environment.
John Willey and sons, Inc. Brisbane.
4. Strahler and Strahler (1970) Environmental Geology. Willey and Sons, NY

**Semester I
CORE I
PRACTICAL I**

ENVIRONMENTAL SCIENCE - I

Env 103 : ENVIRONMENTAL ECOLOGY

1. Measurement of atmospheric humidity.
2. Diagrammatic representation of solar, lunar eclipses, day and night.
3. Study of vegetation by Chart Quadrant, Frequency and Relative Frequency methods.
4. Estimation of species diversity by Shannon - Weiner diversity index method.
5. Study of fauna of local area/college campus.
6. Preparation of field report based on the survey of local flora.

PRACTICAL II

ENVIRONMENTAL SCIENCE - II

Env 104 : EARTH SCIENCE

1. Identification of Soil texture - clay, sand, loamy by sieve method.
2. Identification of Soil types - red soil, black soil.
3. Determination of water holding capacity of soil
4. Determination of water transparency by Secchi disc method.
5. To study pore space, field capacity and bulk density of soil.
6. Identification of coal fields - Economic aspects, availability of coal or
Usage of topographic maps - to study about land forms