FYUGP FRAMEWORK WITH ENVIRONMENTAL SCIENCE AS A MAJOR

SEMESTER	COURSE CODE	COURSE TYPE	COURSE TITLE	CREDITS	
				THEORY	PRACTICAL
I	EVS124J	CT-1	**ENVIRONMENTAL SCIENCE:** ENVIRONMENT AND ECOLOGY	4	2
II	EVS224J	CT-1	**ENVIRONMENTAL SCIENCE:** NATURAL RESOURCES AND BIODIVERSITY	4	2
III	EVS324J	CT-1	**ENVIRONMENTAL SCIENCE:** ENVIRONMENTAL CHEMISTRY	4	2
IV	EVS422J1	CT-1	**ENVIRONMENTAL SCIENCE:** HUMAN AND ENVIRONMENT	3	1
V	EVS522J1	CT-1	**ENVIRONMENTAL SCIENCE:** ENVIRONMENTAL LAWS AND POLICIES	3	1
VI	EVS622J1	CT-1	**ENVIRONMENTAL SCIENCE:** ENVIRONMENTAL ECONOMICS AND SUSTAINABLE DEVELOPMENT	3	1
VII	EVS722J1	CT-1	**ENVIRONMENTAL SCIENCE:** ENVIRONMENTAL IMPACT ASSESSMENT AND AUDITING	3	1
VIII	EVS822J1	CT-1	**ENVIRONMENTAL SCIENCE:** CLIMATE CHANGE	3	1

HoD / CONVENOR BOUGS

BACHELORS WITH ENVIRONMENTAL SCIENCE AS MINOR (CT-1)
1st SEMESTER

EVS124N ENVIRONMENTAL SCIENCE_ENVIRONMENT AND ECOLOGY

CREDITS: THEORY-4, PRACTICAL -2

COURSE LEARNING OUTCOME: *This paper is designed to introduce the basic concepts of Environment and Ecology leading to better understanding of inter-connections of Environmental Science as a discipline. The course will introduce the students to different components of the environment, biotic and abiotic interactions, ecosystem structure and functions and role of humans in shaping the present-day ecology and environment.*

THEORY (4 CREDITS, 60 HOURS)

UNIT I. BASICS OF ENVIRONMENT

Environmental science: Scope and importance, Components of environment: atmosphere, lithosphere, hydrosphere, biosphere (structure and function), Brief account of cryosphere and anthroposphere (built environment).

UNIT II. POPULATION AND COMMUNITY

Concept of population, Population growth (Density dependent and density independent factors), Survivorship curves and age structure, Biotic potential and carrying capacity (r and k strategists), Population interactions: Mutualism, Protocooperation, Commensalism, Competition, Herbivory, Predation, Parasitism, Community: Concept and characteristics, Ecological succession.

UNIT III. ECOSYSTEMS

Ecosystem: Concept, Organization and significance, Types of ecosystems, Food chains, Food webs and trophic levels, Ecological pyramids, Energy flow in ecosystems, Ecosystem productivity, Decomposition, Biogeochemical cycles: carbon, nitrogen, phosphorus and sulphur.

UNIT IV. HUMAN ECOLOGY

Global and regional human population growth, Theories of human population growth (Malthusian and neo-malthusian), Drivers of human population change, Growth curves and population projections, Earth's carrying capacity and ecological footprint, Brief account of anthropocene.

PRACTICAL (2 CREDITS) 60 HOURS

1. Determination of latitude/ longitude/ altitude using GPS
2. Identification of major rock types
3. Estimation of moisture and field capacity in soils of different ecosystems
4. Estimation of pH and conductivity in soils of different ecosystems
5. Estimation of pH and conductivity in water samples of different ecosystems
6. Analysis of population age structure using demographic data
7. Schematic collection of data for depicting ecological pyramid in the college campus
8. Field /Environmental visit to understand various environmental components

SUGGESTED READINGS:

1. Ecology and Environment, P.D. Sharma (13th Ed.). 2023. Rastogi Publication.
2. Environmental Science, S.C. Santra. 2020. New Central Book Agency, Kolkotta
3. Population and Community Ecology, Sanjay Sheoran.2023. Academic Publication.
4. Environmental Biolog, K.C. Agarwal. 2008. Nidhi Publication.
5. Fundamentals of Ecology, E. Odum. (17th Ed.). Cengage India Pvt. Ltd.
6. Environment and Ecology, Dr. Sandeep Kumar Verma. 2024. Orange Books Publication.
7. Environmental Studies, Anubha Kaushik. 2018. New Age International Pvt. Ltd Publisher.