SIDHO-KANHO-BIRSHA UNIVERSITY

CURRICULUM AND CREDIT FRAMEWORK

(In accordance with NEP-2020)

3/4-year Undergraduate Degree Programme

SEMESTER-I

Paper Code	Course Title	Course Type	Credit
101	Introduction to Physical Geography & Elementary Practical in Geography	ML-1	6
102	One from List of Minor Elective (ME) Minor -1 Subjects	ME-1	4
103	One from the List of Multidisciplinary Courses	MDC-1 (GR-1)	3
104	One from List of SEC	SEC-1	3
105	Environmental Studies	VAC-1	4

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SEMESTER-I

Course Type: **MJ-1**
Course Code: **BGEOMJ01C**
Course Title: **Introduction to Physical Geography & Elementary Practicals in Geography**
(L-P-Tu): **4-2-0**
Credit: **6**
Practical/Theory: **Combined**

Course Title: Introduction to Physical Geography
Paper Type: Theoretical Course Credit: 4

Unit I: Our Earth and the Physical Environment [26 Hours]

1.1 Interior of the Earth; Earth's tectonic and structural evolution through Geological Time Scale (6 lectures)

1.2 Earth's atmosphere: Insolation; Pressure Belts; Planetary wind System; Greenhouse Effect and Global Warming. (8)

1.3 Earth's hydrosphere: Global hydrological cycle; Ocean circulation – major ocean currents. (4 lectures)

1.4 Earth's Biosphere: Biogeographical realms of the world; Soils – Zonal, Azonal and Intrazonal; Classification of forest (Champion). (8 lectures)

Unit II: Landforms and Landscape [26 Hours]

2.1 Landforms: Types & Order. Concept & Theory of Isostasy (Airy & Pratt). Geomorphic Processes (6 lectures)

2.2 Landforms due to Endogenic forces: Plate Tectonics and associated Landforms; Seismicity & Vulcanicity; Landform evolution in Uniclinal, Folded and Faulted structure (8 lecture)

2.3 Landforms due to Exogenic Processes: Weathering & Mass Movement (4 lectures)

2.4 Fluvial, Glacial, Aeolian, Coastal and Karst landscapes; Landscape evolution models: Davis, Penck and Hack (8 lectures)

Selected References:

1. Singh, Savindra 2020 Physical Geography. Pravalika Publications
2. Frisch, W., Meschede, M., Blakey, R.C. 2011. Plate Tectonics: Continental Drift and Mountain Building. Springer.
3. Goudie, A.S. (Ed) 2004. Encyclopedia of Geomorphology, vol. 1 and 2, Routledge.
4. Kale, V.S., Gupta, A. 2001. Introduction to Geomorphology, Orient Longman.
5. Selby, M.J. 1986. Earth's Changing Surface, Oxford University Press.
6. Strahler, A. 2016. Introducing Physical Geography, 6th ed, Wiley.
7. Summerfield, M.J. 2003. Global Geomorphology: An Introduction to the Study of landforms, Longman.
8. Thornbury, W.D. 1969. Principles of Geomorphology, 2nd ed, Wiley-India / CBS.
9. Barry, R.G., Chorley R.J. 2009. Atmosphere Weather and Climate. 9th Ed, Routledge.
10. Critchfield, H. J. 1983. General Climatology. Prentice Hall India Ltd (2010 Reprint).
11. Lal, D.S. 2012. Climatology. Sharda Pustak Bhawan.

12. Oliver, J.E., Hidore, J.J. 2002. Climatology: An Atmospheric Science, Pearson Education India.
13. Parihar, S & Bunett RB 2019 Physical Geography through Diagrams Pearson Education; Fourth edition

Course Title: Elementary Practicals in Geography

Paper Type: Practical Course Credit: 2

Unit I: Scale, Minerals and Rocks [22 Hours]

1.1 Concept and classification of Map Scales

1.2 Construction and use of scales: Simple linear, Comparative linear, Diagonal and Vernier

1.3 Megascopic identification of Mineral samples: Bauxite, Calcite, Chalcopyrite, Feldspar, Galena, Gypsum, Hematite, Magnetite, Mica, Quartz, Talc, Tourmaline

1.4 Megascopic identification of Rock samples: Granite, Basalt, Dolerite, Laterite, Limestone, Shale, Sandstone, Conglomerate, Slate, Phyllite, Schist, Gneiss, Quartzite, Marble.

Unit II: Interpretation of Geological Map [30 Hours]

2.1 Basic ideas and conventional symbols. Choice of section line; series and unconformity; strike and dip; topography; rules of three-point problems for measuring dip.

2.2 Drawing of geological section - Horizontal, Uniclinal with unconformity, and Simple folded structure.

2.3 Interpretation of geological section based on a) topography; b) sequence of beds; c) attitude of beds d) structure of beds e) correlation between structure and topography; f) geological history

Project File

a) Construction of Scales: Simple linear, Comparative scale, Diagonal & Vernier.
b) Identification of Minerals and Rocks.
c) Drawing and interpretation of geological section - Horizontal, Uniclinal with unconformity, & Simple folded structure.

Selected References:

1. Basak, N.N. 2017. Surveying and Levelling, 2nd ed, McGraw Hill Education.
2. Kanetkar, T.P., Kulkatni, S.V. 1988. Surveying and Levelling, Part I, Pune Vidyarthi Griha Prakashan.
3. Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan Pvt. Ltd.
4. Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers
5. Subramanian, R. 2012. Surveying and Levelling, 2nd ed, Oxford University Press.

Course Type: **VAC-1**
Semester: **1**
Course Code: **BVACENV01T**
Course Title: **ENVIRONMENTAL STUDIES**
(L-P-Tu): **2-2-0**
Credit: **4**
Practical/Theory: **Theory**

Unit 1: Basics of Environmental Studies: (05)

Definition, Nature, Scope and Importance; Components of environment: Environmental education

Unit 2: Natural Resources: Renewable and Non-renewable Resources (10)

Nature and natural resources their conservation and associated problems:

- Forest resources: Uses, types and importance, Joint Forest Management & Tribal population, Deforestation and its effects
- Water resources: Distribution of water on Earth; Use, over exploitation of surface and ground water; Dams: Benefits and problems; Flood and Drought
- Mineral resources: Mineral resources in India; Use and exploitation, Social impacts of mining
- Food resources: World food problems and food insecurities.
- Energy resources: Renewable and Nonrenewable energy sources; Use of alternate energy sources - Case studies
- Land resources: Land as a resource; Land degradation, landslides, soil erosion, desertification
- Use of resources for sustainable development

Unit 3: Ecology and Ecosystems (08)

Concept of ecology, Population ecology, Community ecology

- Concept of an ecosystem, different types of ecosystem
- Food chains, food weds and ecological succession
- Energy flow in the ecosystem and energy flow models

Unit 4: Biodiversity and its conservation (08)

Biodiversity: Levels of biological diversity

- Values of biodiversity
- Hot-Spots of biodiversity, Mega-biodiversity countries
- Threat to biodiversity
- Threatened and endemic species of India
- Conservation of biodiversity (*In- situ* and *Ex-situ)*
- Ecosystem services: Ecological, Economic, Social, Ethical, Aesthetical and Informational values

Unit 5: Environmental Pollution and Management (08)

(a) Nature, Causes, Effects and Control measures of – Air pollution, Water pollution, Soil pollution, Noise pollution

(b) Solid waste management: Causes, effects and disposal methods; Management of biomedical and municipal solid wastes

Disaster management: Floods, Earthquake, Cyclone and Landslides

Unit 6: Environmental Policies and Practices (10) Constitutional Provisions for protecting environment- Article 48 (A), 51A (g)

- Environmental Laws: The Environment (Protection) Act, 1986; The Air (Prevention and Control of Pollution) Act, 1981; The Water (Prevention and Control of Pollution) Act 1974; Forest (Conservation) Act, 1980
- The wildlife Protection Act, 1972
- Climate change, Global warming, ENSO, Acid rain, Ozone layer depletion; Montreal and Kyoto Protocols

Unit 7: Human Communities and Environment (06)

- Human population growth; Impacts on environment
- Environment and human health: Concept of health and disease; Common communicable and Non- communicable diseases; Public awareness
- Environment movements in India: Chipko Movements, Silent Valley Movement, *Narmada Banchao Aandolan*.

Unit 8: Field Work Report/Project Report/Term paper (based on any one of the following topics and to be evaluated by internal teachers only) (05)

- Environmental assets - River/Forest/Grassland/Hill/Mountain *etc*.
- Environmental pollution - Urban/Rural/Industrial/Agricultural
- Study of common Plants/Insect /Birds/Wild life *etc*.
- Study of simple ecosystems: Pond/River/Hill slope *etc*.

Suggested Books

1. Environmental Science: S.C. Santra, New Central Book Agency
2. Ecology and Environment: P.D. Sharma., Rastogi Publication.
3. Fundamentals of Environmental Studies-Mahua Basu (Cambridge University Press)
4. Agrawal, Sikdar and Deb (2002): A Text book of Environment; MacMillan
5. Textbook of Environmental Studies: Erach Bharucha; University Grants Commission; University Press2013
6. Environmental Studies; Anindita Basak; Pearson India
7. A Text Book on Environmental Studies, Goswami, Mandal, Singh; Ashok Book Stall