

SEMESTER – I For Science Students

**ESDMS-419 Environmental Studies & Disaster
Management**

FOR POST GRADUATE COURSES

(2022-23)

CH-2

Section A: Environment

Unit – I Concept of Environment, Ecosystem, Biogeochemical Cycling and Pollution (5 periods x 1 hr)

The Environment: The Atmosphere, Lithosphere, Hydrosphere, Biosphere, Anthroposphere (01 period)

Ecosystem: Structure of Ecosystem, Function of Ecosystem, Energy flow in ecosystem. (01 period)

Biogeochemical cycle: The concept of Elemental Cycling; Carbon, Hydrogen, Nitrogen, Oxygen, Phosphorous, Sulphur cycles (01 period)

Pollution: Pollution, Pollutant and Thresholds; Ambient State and Polluted State; Water, Air, Soil, Radiation, Industrial, Noise, Social Pollution (02 periods)

Unit – II Climate Change & Sustainable Development (5 periods x 1 hr)

Drivers of Climate Change: Natural, Human Population Growth, Urbanization, Industrialisation (01 period)

Planetary Scale Changes: Causes, effects, Global Warming, Ozone Depletion, Carbon footprint and Environmental Protection (01 period)

Sustainable Development: Sustainable development concept, sustainable Development Goal (SDGs), Agenda 21 of Rio Earth Summit, Sustainable Montréal 2016-2020, COP 26 (01 Period)

Measures for sustainable Development: Recycle, Reuse, Efficiency enhancement, Policy Development, Performance and Management. (02 periods)

Section B: Disaster management

Unit- III Disaster Management (5 periods x 1 hr)

Concept of Disaster: Definition, Types of disasters, Classification of Disasters (01 periods)

Vulnerability Assessment and Risk Analysis: Risk assessment and analysis with respect to various disasters (Flood, Cyclone, Earthquake, Tsunami, Heat waves and Lightning) (01 periods)

Institutional Framework: National Disaster Management Authority (NDMA), State Disaster Management Authority (SDMA), District Disaster Management Authority (DDMA), National Disaster Response Force (NDRF) and Odisha Disaster Rapid Action Force (ODRAF) (01 periods)

Preparedness Measures: Disaster Management Models; Warning System, Management strategies, Corporate Social Responsibility (CSR) (02 periods)

Unit-IV Public Health Management (5 periods x 1 hr)

Brief idea on Epidemics and Pandemics

Non-communicable diseases with special reference to cardiovascular diseases, Cancer, Diabetes, Hypertension and Obesity and their prevention (01 period)

Communicable diseases with special reference to Covid-19, Dengue, Hepatitis and AIDS, their transmission (01 period)

Prevention of Epidemic/Pandemic Diseases: Prevention Measures (Quarantine, Sanitization, Personal Protective measures such as Hand washing and use of protective devices, Vaccination); Control Measures (Surveillance, Isolation, Contact Tracing) (01 period)

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Life Style management: Diet, Physical Exercise, Yoga and sleeping habit (01 period)
Role of different Sectors in Managing Health Disaster: Role of Government and Non Government agencies in health management. (01 period)

Suggested Books

1. Botkin, D. B. and E. A. Keller. Environmental Studies: The Earth as a Living Planet. Charles E. Merrill Publishing Co., Columbus, Ohio, 506 p.
2. Cunningham, W. and Cummmingham, M. (2017). Principles of Environmental Science: Inquiry and Applications. McGraw Hill Education; 4th edition., 410 p.
3. Dash, M.C. and Dash, S.P. (2009). Fundamentals of Ecology. (2009). McGraw-Hill Education (India) Pvt Limited. 370 p.
4. Miller G.T. (1992). Living in the Environment: An Introduction to Environmental Science. International Thomson Publishing; 7th Ed edition, 768 p.
5. NIDM (2022). Handbook of Disaster Management for Nodal officers, Ministry of Home Affairs, Government of India, New Delhi, 176 p.
6. Smith, K. and Petley, D.N. (2013). Environmental Hazards: Assessing risk and reducing hazards. Routledge (Taylor and Francis Group). London. 478 p.
7. Strahler, A.N. and Strahler, A.H. (1973). Environmental Geoscience: interaction between Natural Systems and Man. Hamilton Publishing Company, California. 511 p.
8. Sunder Lal Vikash (2022). Public Health Management Principles and Practice. CBS Publishers & Distributors, New Delhi, 348 p.

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