

M.D.UNIVERSITY, ROHTAK
SCHEME OF STUDIES, SYLLABUS & EXAMINATION OF ENVIRONMENTAL
STUDIES

(Common For All UG Courses)

| Course No. | Course Title | Teaching Schedule | | | Marks Theory | Exam. Schedule Practical Exam | Total Marks | Duration |
|---------------|----------------------------------|-------------------|---|---|-----------------|----------------------------------|----------------|----------|
| | | L | T | P | | | | |
| GES 106F | Environmental 3hrs Studies | 3 | 0 | 1 | 4 | 75 | 25 | 100 |

GES-106-F: ENVIRONMENTAL STUDIES

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| Theory | 75 Marks |
| Field Work | 25 Marks (Practical) |

Unit-1 The Multidisciplinary nature of environmental studies. Definition, scope and importance.

Unit-2 Natural Resources :

Renewable and non-renewable resources : Natural resources and associated problems.

- a) Forest resources : Use and over-exploitation : deforestation, case studies. Timber extraction, mining dams and their effects on forests and tribal people.
 - b) Water resources : Use and over-utilisation of surface and ground water, floods, drought, conflicts over water, dams- benefits and problems.
 - c) Mineral resources : Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
 - d) Food resources : World food problems, changes, caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, Water logging, salinity, case studies.
 - e) Energy resources : Growing energy needs; renewable and non- renewable energy sources, use of alternate energy sources, case studies.
 - f) Land resources : Land as a resource, land degradation, man induced landslides, soil erosion and desertification.
- * Role of an individual in conservation of natural resources.
 - * Equitable use of resources for sustainable lifestyles.

(8 lectures)

Unit-3 Ecosystems :

- * Concept of an ecosystem.
- * Structure and function of an ecosystem.
- * Producers, consumers and decomposers.
- * Energy flow in the ecosystem.
- * Ecological succession.
- * Food chains, food webs and ecological pyramids.
- * Introduction, types, characteristic features, structure and function of the following ecosystem :
 - a. Forest ecosystem.
 - b. Grassland ecosystem.
 - c. Desert ecosystem.
 - d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

(6 lectures)

Unit-4 Biodiversity and its conservation

- * Introduction - Definition : Genetic, Species and ecosystem diversity.
- * Biogeographical classification of India.
- * Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values.
- * Biodiversity at global, National and local levels.
- * India as a mega-diversity nation.
- * Hot-spots of biodiversity.
- * Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.
- * Endangered and endemic species of India.
- * Conservation of biodiversity : In-situ and ex-situ conservation of biodiversity.

(8 lectures)

Unit-5 Environmental pollution :

Definition, causes, effects and control measures of :

- a) Air pollution.
 - b) Water pollution
 - c) Soil pollution
 - d) Marine pollution
 - e) Noise pollution
 - f) Thermal pollution
 - g) Nuclear hazards
- * Solids waste management : causes, effects and control measures of urban and industrial wastes.
 - * Role of an individual in prevention of pollution.
 - * Pollution case studies.
 - * Disaster management : floods, earthquake, cyclone and landslides.

(8 lectures)

Unit-6 Social issues and the Environment :

- * From unsustainable to sustainable development.
- * Urban problems related to energy.
- * Water conservation, rain water harvesting, watershed management.
- * Resettlement and rehabilitation of people : its problems and concerns case studies.
- * Environmental ethics : Issues and possible solutions.

- * Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- * Wasteland reclamation.
- * Consumerism and waste products.
- * Environment Protection Act.
- * Air (Prevention and Control of pollution) Act.
- * Water (Prevention and Control of pollution) Act.
- * Wildlife Protection Act.
- * Forest Conservation Act.
- * Issues involved in enforcement of environmental legislation.
- * Public awareness. (7 lectures)

Unit-7 Human population and the Environment.

Population growth, variation among nations. Population explosion- Family Welfare Programme. Environment and human health. Human Rights. Value Education. HIV/AIDS. Woman and Child Welfare

Role of Information Technology in Environment and human health.

Case Studies. (6 lectures)

Unit-8 Field Work :

- * Visit to a local area to document environmental assets - river/forest/grassland/hill/mountain.
- * Visit to a local polluted site-urban/Rural/ Industrial/ Agricultural.
- * Study of common plants, insects, birds.
- * Study of simple ecosystems- pond, river, hill slopes, etc. (Field work equal to 5 lecture hours).

References

1. Agarwal, K.C. 2001 Environmental Biology, Nidi Pub. Ltd. Bikaner.
2. Bharucha, Frach, The Biodiversity of India, MApin Publishing Pvt. Ltd. Ahmedabad-380013, India, E-mail : mapin@icenet.net (R).
3. Brunner R.C. 1989, Hazardous Waste Incineration, Mc. Graw Hill Inc. 480p.

4. Clark R.S., Marine pollution, Slanderson Press Oxford (TB).
5. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Pub. House, Mumbai 1196 p.
6. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
7. Down to Earth, Centre for Science and Environment (R).
8. Gleick, H.P., 1993. Water in crisis, Pacific Institute for Studies in Dev. Environment & Security Stockholm Env. Institute, Oxford Univ. Press, 473p.
9. Hawkins R.E. Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R).
10. Heywood, V.H. & Watson, R.T. 1995. Global Biodiversity Assessment, Cambridge Uni. Press 1140p.
11. Jadhav, H & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284p.
12. Mackinney, M.L. & Schoch, RM 1996, Environmental Science systems & solutions, Web enhanced edition. 639p.
13. Mhaskar A.K., Mayyer Hazardous, Tekchno-Science Publications (TB)
- 14 Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB).
15. Odum, E.P. 1971, Fundamentals of Ecology. W.B. Saunders Co. USA, 574p.
16. Rao M.N. & Datta, A.K. 1987 Waste Water Treatment. Oxford & TBH Publ. Co. Pvt. Ltd. 345p.
17. Sharma, B.K. 2001, Environmental Chemistry, Goal Publ. House, Meerut.
18. Survey of the Environment, The Hindu (M).
19. Townsend C., Harper J. and Michael Begon. Essentials of Ecology, Blackwell Science (TB).
20. Trivedi R.K., Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol. I and II Enviro Media (R).
21. Tridevi R.K. and P.K. Goal, Introduction to air pollution, Techno

Science Publications (TR).

22. Wagner K.D., 1998, Environmental Management, W.B. Saunders co. Philadelphia, USA 499p.
23. A text book environmental education G.V.S. Publishers by Dr. J.P. Yadav.
(M) Magazine
(R) Reference
(TB) Textbook

The scheme of the paper will be as under :

The subject of Environmental Studies will be included as a qualifying paper in all UG Courses (including professional courses also) and the students will be required to qualify the same otherwise the final result will not be declared and degree will not be awarded. Annual System : The duration of the course will be 50 lectures. The examination will be conducted along with with the annual examinations. Wherever semester system prevails the environmental Course of 50 lectures will be conducted in the second semester and the examination shall be conducted at the end of the second semester.

Exam. Pattern : In case of awarding the marks, the question paper will carry 100 marks. Theory: 75 marks, Practical: 25 marks. The structure of the question paper will be:

Part- A: Short Answer Pattern : 25 marks

Part- B : Essay Type with inbuilt choice: 50 marks

Part- C : Field Work (Practical) : 25 marks

Instructions for Examiners:

Part- A : Question No. 1 is compulsory and will contain ten short- answer type question of 2.5 marks each covering the entire syllabus

Part- B : Eight essay type questions (with inbuilt choice) will be set from the entire syllabus and the candidate will be required to answer any four of them. Each question will be of 12.5 marks.

The examination of the regular students will be conducted by the concerned college/Institute. Each student will be required to score minimum 35% marks separately in theory and practical. The marks in this qualifying paper will not be included in determining the percentage of marks obtained for the award of degree. However, these marks will be shown in the detailed marks certificate of the students.