ENVIRONMENTAL STUDIES COURSE OUTLINE

UNIT 1: THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

CHAPTER 1 – INTRODUCTION

Definition, scope and importance

Need for public awareness. (2 lectures)

CHAPTER 2 – COMPONENTS OF ENVIRONMENT

UNIT 2: NATURAL RESOURCES

CHAPTER 3 – NATURAL RESOURCES

Renewable and Non-renewable Resources

- **Natural resources and associated problems.**
  - Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
  - Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
  - Mineral resources: Use and exploitation, environmental effects of extracting and using
  - mineral resources, case studies.
  - Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, Case studies.
  - Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Case studies.
  - 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

CHAPTER 4 – ECOLOGY

- 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:
  - Forest ecosystem
  - Grassland ecosystem
  - Desert ecosystem
  - Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estauries) (6 lectures)

Unit 4: Biodiversity and Its Conservation

CHAPTER 5 – BIODIVERSITY

- 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

CHAPTER 6 – ENVIRONMENTAL POLLUTION

CHAPTER 9 – SCIENCE OF ENVIRONMENT

- Definition
- Causes, effects and control measures of
  - Air pollution
  - Water pollution
  - Soil pollution
  - Marine pollution
  - Noise pollution
  - Thermal pollution
  - Nuclear hazards
- Solid waste management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies.
- Diaster management: Foods, 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 rahabilitation 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)

CHAPTER 7 – SOCIAL ISSUES AND THE ENVIRONMENT

UNIT 7: HUMAN POPULATION AND THE ENVIRONMENT

CHAPTER 8 – 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.
- Women and Child Welfare.
- Role of Information Technology in environment and human health.
- Case Studies. (6 lectures)