

**Rayat Shikshan Sanstha`s**  
**Sadguru Gadage Maharaj College, Karad**  
**(An Autonomous College)**  
**(An Affiliated to Shivaji University, Kolhapur)**  
**Choice Based Credit System**  
**Department of Geography**  
**B. A. II Syllabus (From 2023-24) / SEM-III Paper-III –**  
**SOIL GEOGRAPHY**  
**(Teaching Hours-60, Credit-04)**

**Preamble**

Soil Geography is the most important and comparatively neglected branch of Physical Geography, that has been introduced to B.A. Part II. In this course, the fundamental as well basic concepts and knowledge of Soil Geography have been included. The present syllabus of this course includes nature, scope, significance of Soil Geography and its relevance to pedology; factors of soil formation, soil formation process, soil erosion, soil degradation and conservation of soil; physical and chemical properties of soils, classification of soils and soil management.

**Course Outcomes:**

- CO-1. Explain the basic concept in Soil Geography
- CO-2. Categorize soils in different regions
- CO-3. Distinguish the soils on various basis
- CO-4. Formulate the soil map of India
- CO-5. Justify the need of soil management,
- CO-6. Experiment with soil testing process

**Expected Skills impartation (Through theory and practical`s)**

1. Reading Comprehension
2. Complex Problem Solving
3. Judgment and Decision Making
4. Quality Control Analysis
5. Social Perceptiveness
6. Thinking ability

**SEM-III**  
**Paper-III SOIL GEOGRAPHY**

**Module I: Introduction To Soil Geography (15)**

- 1.1 Meaning and definition,
- 1.2 Nature and Scope of Soil Geography
- 1.2 Relationship of Soil Geography with Pedology.
- 1.4 Significance of Soil Geography.

**Module II Formation And Properties of Soils (15)**

- 2.1 Jenny's Factorial Model of Soil Formation: Parent Material, Biotic, Climatic, Relief and Time factor.
- 2.2 Soil Profile
- 2.3 Physical Properties of Soils: Morphology, Texture, Structure, Water, Air, Temperature.
- 2.4 Chemical Properties of Soils : pH, Organic Matter ,NPK(Nitrogen, Phosphorous and Potassium)

**Module III Classification and Distribution of Soils (15)**

- 3.1 Genetic Classification of Soils
- 3.2 Characteristics and Distribution of Soils in India
- 3.3 Soil Erosion: Concept, Causes and affecting factors
- 3.4 Concept of Soil Conservation and Management

**Module IV: Practical (Theory Only) (15)**

- 4.1 Soil Sampling
- 4.2 Introduction to Soil testing Laboratory  
Soil Analysis: Saline and Alkaline
- 4.3 Sample of soil testing report
- 4.4 Vermi compost Process

**REFERENCES**

1. Backman, H.O and Brady, N.C.( 1960.)The Nature and Properties of Soils, Mc Millan New York.
2. Bennet, Hugh H.: Soil Conservation, McGraw Hill, New York .
3. Bunting, B.T.(1973) The Geography of Soils, Hutchinson, London.
4. Clarke G.R.(1957) Study of the Soil in the Field, Oxford University Press, Oxford.
5. Foth H.D. and Turk, L.M.(1972) Fundamentals of Soil science, John Wiley, New York.
6. Govinda Rajan, S.V. and Gopala Rao, H.G.(1978) Studies on Soils of India Vikas, New Delhi.
7. Mc. Bride, M.B.(1999)Environmental Chemistry of Soils, Oxford University Press, New York.
8. Nye, P.H. and Greene, D.J.(1960)The Soil under Shifting Cultivation Commonwealth Bureau of Soil Science, Technical Communication, No. 51; Harpender, England.
9. Raychoudhuri, S.P.(1958) Soils of India, ICAR, New Delhi.
10. Russell, Sir Edward J.:(1961) Soil Conditions and Plant Growth, Wiley, New York.

**Rayat Shikshan Sanstha`s**  
**Sadguru Gadage Maharaj College, Karad**  
**(An Autonomous College)**  
**Choice Based Credit System**  
**Department of Geography**  
**B. A. II Syllabus (From 2023-24) / SEM-III Paper-IV –**  
**RESOURCE GEOGRAPHY**  
(Teaching Hours-60, Credit-04)

**PREAMBLE:-**

Resource Geography is a major and developing branch of Economic Geography. The world countries are trying to make overall development with blindly utilizing different resources. The growing population exerts its pressure on present resources, which generates various problems in front of countryside. The syllabus of this paper includes Definition, Scope, concept, classification and significance of Resource Geography. It also includes major resources such as water, forest, energy and human resources with its distribution, utilization and problems. Newly evolved concept, sustainable development is studied with said resources. This paper (Resource Geography) will be helpful to the students of B. A. Part-II to think over resources for their and next generations features.

**Course Outcomes:**

- CO-1. Demonstrate their knowledge of resources
- CO-2. Understand the dynamic interactive relationship between man and resources.
- CO-3. Understanding the distribution, utilization and problems of major resources
- CO-4. Familiarize concept of sustainable resource development
- CO-5. Make assessment related to resources.
- CO-6. Familiarize the students with cartographic techniques.

**Expected Skills impartation (Through theory and practical`s)**

1. Acquiring geographic information
2. Classify resources
3. Organizing geographic information
4. Analyzing resources information

### **SEM-III**

#### **Paper-IV RESOURCE GEOGRAPHY**

##### **Module I: Introduction to Resource Geography (15)**

- 1.1 Definition and Meaning of Resource Geography
- 1.2 Nature and scope of Resource Geography
- 1.3 Approaches to study the Resource Geography
- 1.4 Importance of Resource Geography

##### **Module II: Major Resources (15)**

- 2.1 Resource: Concept and Classification
- 2.2 Water Resources: Distribution, Utilization and Problems
- 2.3 Forest Resources: Distribution, Utilization and Problems
- 2.4 Human Resources: Distribution, Utilization and Problems

##### **Module III: Sustainable Resource Development (15)**

- 3.1 Concept of Sustainable Resource Development
- 3.2 Sustainable Water Resource Development
- 3.3 Sustainable Forest Resource Development
- 3.4 Sustainable Human Resource Development

##### **Module IV: Practical (Theory Only) (15)**

- 4.1 Divided Circle
- 4.2 Choropleth Map
- 4.3 Dot Map
- 4.4 Water Quality Index

#### **REFERENCES :**

1. Chiras, D.D., Reganold, J.P. 2009. Natural Resource Conservation: Management for a Sustainable Future, 10th ed, Pearson.
2. Cutter S. N., Renwick H. L., and Renwick W., (1991): Exploitation, Conservation, Preservation: A Geographical Perspective on Natural Resources Use, John Wiley and Sons, New York.
3. Gadgil M. and Guha R., (2005): The use and Abuse of Nature: Incorporating This Fissured Land: An Ecological History of India and Ecology and Equity, Oxford University Press, USA.
4. George W., B., and Scolt, (2013): Principles of Human Resource Management, Cengage.
5. Gregory, D., Johnston, R., Pratt, G., Watts, M., Whatmore, S. (Eds) 2009. The Dictionary of Human Geography, 5th ed, Wiley.
6. Holechek J. L. C., Richard A., Fisher J. T. and Valdez R., (2003): Natural Resources: Ecology, Economics and Policy, Prentice Hall, New Jersey.
7. Jones G. and Hollier G., (1997): Resources, Society and Environmental Management, Paul Chapman, London.
8. Klee G., (1991): Conservation of Natural Resources, Prentice Hall, Englewood.
9. Mather A. S. and Chapman K., (1995): Environmental Resources, John Wiley and Sons, New York.
10. Mather, A.S., Chapman, K. 1995. Environmental Resources, John Wiley and Sons.

**Rayat Shikshan Sanstha`s**  
**Sadguru Gadage Maharaj College, Karad**  
**(An Autonomous College)**  
**Choice Based Credit System**  
**Department of Geography**

**B. A. II Syllabus (From 2023-24) / SEM-III Paper-IDS (Generic Elective)**

**IDS Paper No. I: - CONCEPTS IN TOURISM GEOGRAPHY**

(Teaching Hours-60, Credit-04)

**Preamble:-**

All of us are part and parcel of the earth's environment. We will act as responsible citizens and participate proactively in all tourism activity to preserve the natural and cultural environment and leave for future generations in its nativeness.

**Objectives**

- 1) To familiarize the students with aspects of tourism which have a relation with the subject matter of Geography
- 2) To orient the students to the logistics of tourism industry and the role of tourism in regional development.
- 3) To understand the impact of tourism on physical and human environments.
- 4) To familiarize the students with local, regional and national tourism.

**Module I: Introduction to Tourism Geography (15)**

- 1.1 Definition of Tourism and Tourist
- 1.2 Nature of Tourism Geography
- 1.3 Scope of Tourism Geography
- 1.4 Historical development of Tourism
- 1.5 Significance of Tourism Geography

**Module II: Component of Tourism (15)**

- 2.1 Geographical components
- 2.2 Social components
- 2.3 Cultural components
- 2.4 Other components

**Module III: Classification and Recent Trends in Tourism (15)**

- 3.1 Classification on the basis of Nationality, Time, Number of tourist, Objectives, Transportation, Season, and Nature of Tourism.
- 3.2 Recent trends in Tourism

**Module IV: Impact of Tourism (15)**

- 4.1 Economic impact
- 4.2 Socio-Cultural impact
- 4.3 Impact on Environment
- 4.4 Sustainable development of Tourism

**REFERENCES:**

1. Bhatia A.K. : International Tourism
2. Bhatia A.K. : Tourism Development
3. DevManoj : India – A Tourist Paradise
4. DharPranath : Development of Tourism and Travel Industry
5. Gupta V.N. : Tourism in India
6. Negi Jagmohan : Tourism Development and Resource Conservation 28
7. Pearce Douglas : Tourism Development

8. Robinson R. : Geography of Tourism
9. Sharma K.C. : Tourism : Policy, Planning strategy.
10. Seth Pran :Enlessful Tourism Manament
11. Sinha P.C. : Tourism Marketing
12. Singh Shawni : Principles of Indian Tourism
13. Singh S.N. : Geography of Tourism and Recreation
14. Singh Ratandeeep : Tourism Today Vol. 1,Tourism Today Vol. 2,Tourism Today Vol. 3
- 15 Geography of Tourism – Distance Education Department, Shivaji University, Kolhapur.

**Rayat Shikshan Sanstha`s**  
**Sadguru Gadage Maharaj College, Karad**  
**(An Autonomous College)**  
**Choice Based Credit System**  
**Department of Geography**  
**B. A. II Syllabus (From 2023-24) / SEM-IV, Paper-V –**  
**OCEANOGRAPHY**  
(Teaching Hours-60, Credit-04)

**Preamble**

Oceanography is the most important and comparatively neglected branch of Physical Geography that has been introduced to B.A. Part II. In this course, the fundamental as well basic concepts and knowledge of oceanography have been included. The present syllabus of this course includes definition nature, scope, history and significance of Oceanography and its relevance to the earth and atmospheric sciences; properties and dynamics of oceanic water, Oceanic currents and their influence and applied oceanography.

**Course Outcomes:**

- CO-1. Explain the basic concept of oceanography
- CO-2. Illustrate the maps of sea and ocean
- CO-3. Distinguish the various marine movements
- CO-4. Formulate various diagrams related to oceanography
- CO-5. Demonstrate the ocean currents
- CO-6. Write the influencing factors in oceanography

**Expected Skills impartation (Through theory and practical`s)**

1. Map Reading skills
2. Interpersonal communication
3. Critical Thinking ability
4. Problem solving

**SEM-IV**  
**Paper-V – OCEANOGRAPHY**

**Module I: Introduction to Oceanography (15)**

- 1.1 Definition, Nature and Scope of Oceanography
- 1.2 History of Oceanography.
- 1.3 Relationship of Oceanography with other branches of Earth Sciences
- 1.4 Significance of Oceanography.

**Module II: Ocean Bottom Relief and Properties (15)**

- 2.1 Ocean bottom relief
- 2.2 Oceanic Temperature: Daily and Annual Range
- 2.3 Factors Affecting on Oceanic Temperature and its distribution
- 2.4 Salinity of Oceans and Seas.: Meaning and Concept, Affecting Factors ,Salinity of Inland Seas and Lakes

**Module III: Ocean water movements (15)**

- 3.1 Ocean water movements
- 3.2 Tides
- 3.3 Factors Responsible for Origin of Currents.
- 3.4 Oceanic Currents: Currents of the Atlantic, Pacific and Indian Oceans.

**Module IV: Practical Oceanography (Theory Only) (15)**

- 4.1 Hypsographic Curve
- 4.2 Nautical Chart Symbols and Abbreviations
- 4.3 Isohalines
- 4.4 Isotherms

**REFERENCES**

1. Anikouchine, W.A. and Sternberg, R.W. (1973) The World Oceans - An Introduction to Oceanography, Englewood Cliffs, N.J.
2. Grald, S. (1980) General Oceanography - An Introduction, John Wiley & Sons, New York.
3. Garrison, T. (1998) Oceanography. Wadsworth.com. USA .
4. King, C.A.M. (1972) Beaches and Coasts, E. Arnold, London.
5. King, C.A.M (1975) Oceanography for Geographers E. Arnold, London .
6. Sharma, R. C. Vatel M. (1986) Oceanography for Geographers, Chetnya Publishing House, Allahabad.
7. Shepard, F.P.(1948) Submarine Geology, Harper & Sons, New York.
8. Thurman, H.B.(1984) Introductory Oceanography, Charles Webber E. Merril Publishing Co.
9. Weisberg, J. and Howard (1976) Introductory Oceanography, McGraw-Hill Book Co., New York.
10. Davis, Richard J.A. (1986) "Oceanography - An Introduction to the Marine Environment". Wm. C. Brown Iowa.
11. Duxbury, C.A and Duxbury B.(1996) An Introduction to the world's Oceans -C.Brown. Iowa , 2nd ed.
12. Garrison, T.(2001) "Oceanography - An Introduction to Marine Science, Books/Cole, Pacific Grove, USA.
13. Gross, M.Gran (1987) Oceanography: A View of the Earth, Prantice - Hall Inc. New Jersey.



**Rayat Shikshan Sanstha`s**  
**Sadguru Gadage Maharaj College, Karad**  
**(An Autonomous College)**  
**Choice Based Credit System**  
**Department of Geography**  
**B. A. II Syllabus (From 2023-24) / SEM-IV, Paper-VI –**  
**AGRICULTURAL GEOGRAPHY**  
(Teaching Hours-60, Credit-04)

**PREAMBLE:**

Agriculture Geography is a major and developing branch of Economic Geography. The world countries are trying to make overall development with blindly utilizing different resources. The growing population exerts its pressure on agriculture, which generates various problems in front of countryside. The present syllabus of this paper includes definition, Scope, concept, classification and significance of Agriculture Geography, determinants of agriculture, recent trends, land use theories and modern agriculture, agriculture regionalization and problems. It also covers field visits in agriculture.

**Course Outcomes:**

- CO-1. Conceptualize the agriculture and its determinants
- CO-2. Understand land use theories
- CO-3. Application of modern agricultural systems
- CO-4. Identify agricultural regionalization and agricultural problems
- CO-5. Familiarize the students with field visit to agro-based industries, Dairy farming etc.

**Expected Skills impartation (Through theory and practical`s)**

1. Acquiring geographic information
2. Evaluating theories
3. Adopting suitable techniques for agricultural regionalization

## SEM-IV

### Paper-VI –AGRICULTURAL GEOGRAPHY

#### **Module I: Introduction to Agricultural Geography (15)**

- 1.1 Definition and Meaning
- 1.2 Nature, Scope and Significance
- 1.3 Determinants of Agriculture: Physical and Human
- 1.4 Recent trends in Agricultural Geography

#### **Module II: Land Use theory and Modern Agricultural Systems (15)**

- 2.1 Von Thunen's Theory
- 2.2 Floriculture
- 2.3 Horticulture
- 2.4 Dairy Farming

#### **Module III: Agriculture Regionalization and Problems (15)**

- 3.1 Crop Combination
- 3.2 Crop Diversification
- 3.3 Agricultural Problems
- 3.4 Sustainable Agriculture

#### **Module IV: Field Work in Agriculture (15)**

- 4.1 Importance of Field Work
  - 4.2 Agro – based Industries
  - 4.3 Dairy Farming
  - 4.4 Poultry Farming
- (Visit to any one)

#### REFERENCES:

1. Alka Gautam (2012): Agricultural Geography, Sharda PustakBhawan, Allahabad.
2. Bayliss Smith, T.P. : The Ecology of Agricultural Systems. Cambridge University Press, London, 1987
3. Berry, B.J.L. et. al. : The Geography of Economic Systems. Prentice Hall, New York, 1976
4. Brown, L.R. : The Changing World Food Prospects – The Nineties and Beyond. World Watch Institute, Washington D.C., 1990
5. Cantor L.M. : A World Geography of Irrigation. Oliver and Bord, London, 1967.
6. Desai G.N. and Vaidhanathan A : Strategic Issues in Future Growth of Fertilizer Use in India. McMillan Pub., New Delhi, 1998.
7. Gregor, H.P. : Geography of Agriculture. Prentice Hall, New York, 1970
8. Grigg D.B. : The Agricultural Systems of the World. Cambridge University Press, New York, 1974.
9. Hussain, M. (1999): Systematic Agricultural Geography, Rawat publications, Jaipur.(India)
10. Morgan W.B. and Norton, R.J.C. : Agricultural Geography. Mathuen, London, 1971.
11. Nelson, Paul : Greenhouse Operation and Management. Reston Publishing, Virginia, 1985.

12. Sarkar, A.K. : Practical Geography : A Systematic Approach. Oriental Longman, Calcutta, 1997.
13. Sauer, C.O. : Agricultural Origins and Disparities. M.I.T. Press, Mass, U.S.A., 1969. 12. Singh, J and Dhillon, S.S. : Agricultural Geography. Tata McGraw Hill Pub., New Delhi, 1988.
14. Shafi M. (1983): Agricultural Productivity and Regional Imbalances a Study of Uttar Pradesh, Concept, New Delhi.
15. खतिब के. ए.: कृषी भूगोल, संजोग प्रकाशन, कदमवाडी, कोल्हापूर-२०१८
16. गुरव दीपक: कृषी भूगोल, निराली प्रकाशन, पुणे - २०१९
17. धारपुरे विठ्ठल : कृषी भूगोल, पिंपलापुरे अंड कंपनी पब्लिशर्स, नागपूर - २०००
18. फुले सुरेश : कृषी भूगोल, श्री विद्याभारती प्रकाशन लातूर - २००२
19. साळुंखे विजया : कृषी भूगोल, शेठ पब्लिशर्स, मुंबई -२००३
20. सावंत प्रकाश : कृषी भूगोल, फडके प्रकाशन, कोल्हापूर - २०२०

**Rayat Shikshan Sanstha`s**  
**Sadguru Gadage Maharaj College, Karad**  
**(An Autonomous College)**  
**Choice Based Credit System**  
**Department of Geography**  
**B. A. II Syllabus (From 2023-24) / SEM-IV Paper-IDS (Generic Elective)**  
**IDS Paper No. II: - DEVELOPMENT AND PLANNING OF TOURISM**  
**(Teaching Hours-60, Credit-04)**

**Preamble:-**

All of us are part and parcel of the earth's environment. We will act as responsible citizens and participate proactively in all tourism activity to preserve the natural and cultural environment and leave for future generations in its nativeness.

**Objectives**

- 1) To familiarize the students with aspects of tourism which have a relation with the subject matter of Geography
- 2) To orient the students to the logistics of tourism industry and the role of tourism in regional development.
- 3) To understand the impact of tourism on physical and human environments.
- 4) To familiarize the students with local, regional and national tourism.

**Module I: Development and Planning of Tourism in India (15)**

- 1.1 Tourism in ancient period
- 1.2 Tourism in modern period
- 1.3 Role of tourism in national economy
- 1.4 Tourism planning in India

**Module II: Tourism Centers in India (15)**

- 2.1 Natural tourism centers in India
- 2.2 Religious tourism centers in India
- 2.3 Cultural tourism centers in India
- 2.4 Historical tourism centers in India

**Module III: Development and Planning of Tourism in Maharashtra (15)**

- 3.1 Development of tourism in Maharashtra
- 3.2 Planning of tourism in Maharashtra

**Module IV: Tourism Centers in Maharashtra (15)**

- 4.1 Natural tourism centers in Maharashtra
- 4.2 Religious tourism centers in Maharashtra
- 4.3 Cultural tourism centers in Maharashtra
- 4.4 Historical tourism centers in Maharashtra

**REFERENCES**

1. Bhatia A.K. : International Tourism
2. Bhatia A.K. : Tourism Development
3. DevManoj : India – A Tourist Paradise
4. DharPramnath : Development of Tourism and Travel Industry
5. Gupta V.N. : Tourism in India
6. NegiJagmohan : Tourism Development and Resource Conservation 28
7. Pearce Donglas : Tourism Development
8. Robinson R. : Geography of Tourism
9. Sharma K.C. : Tourism : Policy, Planning strategy.
10. Seth Pran : Enlessful Tourism Manament

11. Sinha P.C. : Tourism Marketing
12. Singh Sharni : Principles of Indian Tourism
13. Singh S.N. : Geography of Tourism and Recreation
14. Singh Ratandeeep : Tourism Today Vol. 1, Tourism Today Vol. 2, Tourism Today Vol. 3
15. Geography of Tourism – Distance Education Department, Shivaji University, Kolhapur

**Rayat Shikshan Sanstha`s**  
**Sadguru Gadage Maharaj College, Karad**  
**(An Autonomous College)**  
**[Affiliated to Shivaji University, Kolhapur]**  
**Choice Based Credit System**  
**Department of Geography**  
**Syllabus For**  
**Environmental Studies**  
**Compulsory Paper for all Undergraduate Courses**  
**From 2023-24**  
**(Teaching Hours-60, Credit-04)**

**Module I: Nature of Environmental Studies: (3 lectures)**

Definition, scope and importance, Multidisciplinary nature of environmental studies  
Need for public awareness, Concept of sustainability, Sustainable development and it's goals with Indian context.

**Module II: Ecosystems: (9 lectures)**

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, characteristics 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)  
Degradation of the ecosystems and it's impacts.

**Module III: Natural Resources and Associated Problems: (8 lectures)**

a) Forest resources: Use and over-exploitation, deforestation, dams and their effects on forests and tribal people.  
b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.  
c) Mineral resources: Usage and exploitation. Environmental effects of extracting and using mineral resources.  
d) Food resources: World food problem, changes caused by agriculture, effect of modern agriculture, fertilizer-pesticide problems.  
e) Energy resources: Growing energy needs, renewable and non-renewable energy resources, use of alternate energy sources. Solar energy, Biomass energy, Nuclear energy.  
f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Consumerism, ecological foot prints, carbon foot prints, carbon credits.  
Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

**Module IV: Biodiversity and its conservation: (8 lectures)**

Introduction- Definition: genetic, species and ecosystem diversity, Bio-geographical classification of India.

Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. India as a mega-diversity nation. Western Ghat as a biodiversity region. 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. Convention on Biological Diversity.

**Module V: Environmental Pollution:****(8 lectures)**

Definition: Causes, effects and control measures of: Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear hazards.

Global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Solid waste Management: Causes, effects and control measures of urban and industrial wastes. Solid waste management control rules. Role of an individual in prevention of pollution.

**Module VI: Social Issues and the Environment:****(9 lectures)**

Human population growth, impact on environment. Human Health and welfare. Environmental ethics: Role of Indian religious traditions and culture in conservation of the environment.

Environmental movements- Chipko Movement, Appiko Movement, Silent Valley. Resettlement and rehabilitation of people; its problems and concerns. Water conservation, rain water harvesting, watershed management. water conservation by Dr.Rajendra Singh, Anna Hazare etc. Disaster management: floods, earthquake, cyclone, tsunami and landslides. Wasteland reclamation. Environmental communication and public awareness, case studies.

**Module VII: Environmental Protection- Policies and practises:****(5 lectures)**

Environmental Protection Act: Air (Prevention and Control of Pollution) Act, Water (Prevention and control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act, National and International conventions and agreements on environment.

**Module VIII: Field Work:****(10 lectures)**

Visit to a local area to document environmental assets-  
River/forest/grassland/hill/mountain.

or

Visit to a local polluted site – Urban/Rural/Industrial/Agricultural

or

Study of common plants, insects, birds.

or

Study of simple ecosystems - ponds, river, hill slopes, etc.

(Field work is equal to 10 lecture hours)

**References:**

- 1) Agarwal, K.C.2001, Environmental Biology, Nidi Pubi. Ltd., Bikaner.
- 2) Bharucha Erach, The Biodiversity of India, Mapin Publishing pvt. Ltd., Ahmedabad
- 3) Brunner R.C.,1989, Hazardous Waste Incineration, McGraw Hill Inc., 480p
- 4) Clank R.S. Marine Pollution, Clanderson Press Oxford (TB)
- 5) Cunningham, W.P. Cooper, T.H.Gorhani, E. & Hepworth, M.T.2001,
- 6) Environmental Encyclopedia, Jaico Publ. Hpise, Mumbai, 1196p
- 7) De A.K., Environmental Chemistry, Wiley Wastern Ltd.
- 8) Down to Earth , Cebtre fir Scuebce and Environment (R)
- 9) Gleick, H.,1993, Water in crisis, Pacific Institute for studies in Dev.,Environment & Security. Stockholm Env. Institute. Oxford Univ. Press 473p
- 10) Hawkins R.e., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
- 11) Heywood, V.H.& Watson, R.T.1995, Global Biodiversity Assessment,Cambridge

- Univ. Press 1140p.
- 12) Jadhav, H.& Bhosale, V.M.1995, Environmental Protection and Laws, Himalaya Pub. Hcuse, Delhi 284p.
  - 13) Mickinney, M.L.& School. R.M.1196, Environmental Science Systems & Solutions, Web enhanced edition, 639p.
  - 14) Mhaskar A.K., Mastter Hazardous, Techno-Science Publications (TB)
  - 15) Miller T.G.Jr., Environmental Science. Wadsworth Publications Co. (TB)
  - 16) Odum, E.P.1971, Fundamentals of Ecology, W.B.Saunders Co. USA, 574p.
  - 17) Rao M.N.& Datta, A.K.1987, Waste Water Treatment, Oxford & IBH Publ. Co. Pvt. Ltd., 345p
  - 18) Sharma B.K., 2001, Environmental Chemistry, Gokel Publ. Hkouse, Meerut 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 anfd II, Environmental Media (R)
  - 21) Trivedi R.K. and P.K. Gokel, Intriduction to air pollution, Tecgbi-Science Publications (TB)
  - 22) Wagner K.D.,1998, Environmental management, W.B. Saunders Co.Philadelphia, USA 499p.
  - 23) Paryavaran shastra – Gholap T.N.
  - 24) Paryavaran Sahastra – Gharapure

**(M) Magazine (R) Reference (TB) Textbook**