

KAKATIYA UNIVERSITY
B.SC I YEAR SEMESTER-I - CBCS
Ability Enhancement Compulsory Course (AECC)

ENVIRONMENTAL STUDIES

(2 hrs./week)

Credits – 2

UNIT - I : Ecosystem, Biodiversity & Natural Resources

(15 hrs.)

1. Definition, Scope & Importance of Environmental Studies.
2. Structure of Ecosystem – Abiotic & Biotic components Producers, Consumers, Decomposers, Food chains, Food webs, Ecological pyramids)
3. Function of an Ecosystem :Energy flow in the Ecosystem (Single channel energy flow model)
4. Definition of Biodiversity , Genetic,Species & Ecosystem diversity , Hot-spots of Biodiversity, Threats to Biodiversity , Conservation of Biodiversity (Insitu & Exsitu)
5. Renewable & Non – renewable resources, Brief account of Forest , Mineral & Energy (Solar Energy & Geothermal Energy) resources
6. Water Conservation , Rain water harvesting & Watershed management.

UNIT – II: Environmental Pollution , Global Issues & Legislation

(15 hrs.)

1. Causes, Effects & Control measures of Air Pollution, Water Pollution
2. Solid Waste Management
3. Global Warming & Ozone layer depletion.
4. Ill – effects of Fire- works
5. Disaster management – floods, earthquakes & cyclones
6. Environmental legislation :-
(a) Wild life Protection Act (b) Forest Act (c) Water Act (d) Air Act
7. Human Rights
8. Women and Child welfare
9. Role of Information technology in environment and human health

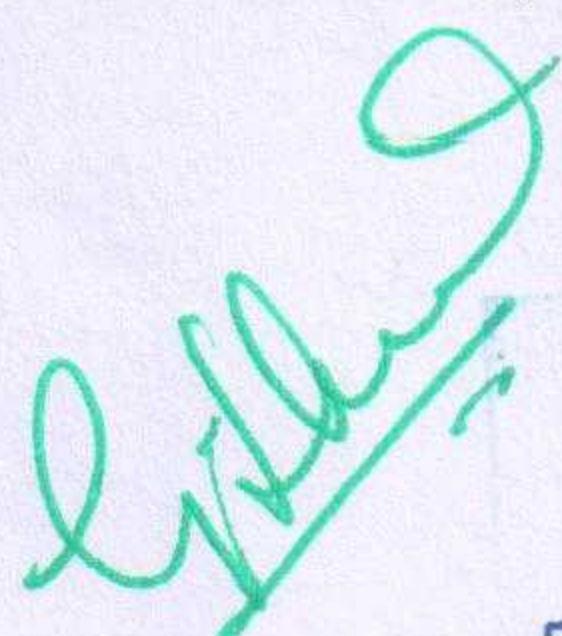
❖ **Field Study:**

(5 hours)

- Pond Ecosystem
- Forest Ecosystem

REFERENCES:

- Environmental Studies - from crisis to cure – by R. Rajagopalan (Third edition) Oxford University Press.
- Text book of Environmental Studies for undergraduate courses (second edition) by Erach Bharucha
- A text book of Environmental Studies by Dr.D.K.Asthana and Dr. Meera Asthana



Dr. G. SHAMITHA
Chairperson
Board of Studies
Department of Zoology & Sericulture Unit
KAKATIYA UNIVERSITY - WGL-506009 (T.S)

KAKATIYA UNIVERSITY, WARANGAL
B.Sc. Programme
Under CBCS System wef A.Y: 2020-21
Second Year :: Semester - IV
BS-402/ SEC-4 (Common to all Science Courses)

Remedial Methods of Pollution - Drinking Water & Soil Fertility

[2HPW, #Credits: 2, Marks:50 (Internal:10, External:40)]

(Taught by: Chemistry Department)

UNIT I: Remedial Methods for Pollution:

Prevention and control of air pollution: Ozone hole - Causes and harm due to ozone depletion, Effect of CFC's in Ozone depletion and their replacements, Global Warming and Green-house effect, Precaution measures to control global warming, Deleterious effect of pollutants, Endangered monuments, Acid rain, Precautions to protect monuments, Sources of Radiation pollution, Chernobyl accident and its consequences. Radiation effect by usage of cell phones and protection tips, Deleterious effects of cell phone towers and health hazards.

Sources of water pollution: (i) Pollution due to pesticides and inorganic chemicals, (ii) Thermal pollution (iii) Ground water pollution (iv) Eutrophication.

Methods for control of water pollution and water recycling: Dumping of plastics in rivers and oceans and their effect on aquatic life, Determination of (i) Dissolved oxygen and (ii) Chemical Oxygen demand in polluted water, Illustration through charts (or) demonstration of experiments,

Sources of soil pollution: (i) Plastic bags (ii) Industrial and (iii) Agricultural sources, Control of soil pollution, Environmental laws in India, Environmental benefits of planting trees.

UNIT II: Drinking Water and Soil Fertility Standards and Analysis:

Water quality and common treatments for private drinking water systems, Drinking Water Standards: 1. Primary drinking water standards: Inorganics, Organics and Volatile Organic Chemicals, 2. Secondary drinking water standards: Inorganics and Physical Problems, Water testing, Mineral analysis, Microbiological tests, Pesticide and Other Organic Chemical Tests, Principle involved in Water Treatment Techniques: (i) Reverse Osmosis (ii) Disinfection methods such as Chlorination, Ultraviolet light, ozonation etc... (iii) Chemical oxidation and iv) Ion exchange (water softeners). Visit to nearby drinking water plants and interaction at sites.

Introduction to Soil Chemistry: Basic Concepts. Effect of P^H on nutrient availability, Macronutrients and their effect on plants, Carbon, Hydrogen, Oxygen, Nitrogen and Phosphorus, other macronutrients, Calcium, Magnesium and Sulfur, Micronutrients and their effect on plants, Boron ($B_4O_7^{2-}$), Copper (Cu^{2+}), Iron (Fe^{2+} , Fe^{3+}), Manganese (Mn^{2+}), Molybdenum (MoO_4^{2-}), Zinc (Zn^{2+}), Cobalt (Co^{2+}), Chlorine (Cl^-) and others. Determination of soil nitrogen by Kjeldahl method, Illustration through charts and demonstration of experiment, Visit to nearby agricultural farms and interaction with farmers, Discussion with farmers on the use of 'Soil Analysis Kits'.

KAKATIYA UNIVERSITY, WARANGAL-506 009

B.Sc. Under CBCS System wef A.Y: 2021-22

Third Year : : Semester - V

GENERIC ELECTIVE (Common to all students)

WATER RESOURCES MANAGEMENT

(4 hrs/week) (Taught by ant Science Dept) (Credits:4) (Marks:100)

UNIT-I:

Introduction to water resources management, different types of water resources, water resources and its importance, Global distribution of water. Hydrological cycle, Conservation of water, recycling of water.

Unit-II:

Rain water harvesting, methods of roof top rain water harvesting in urban setting: Direct method - Storing rain water in tanks for direct use; indirect methods - Recharge pits, bore wells/dug wells, Recharge trenches. Over use of surface and ground water and control measures.

UNIT-III:

Importance of water shed and water shed management, Rain water harvesting in rural setting: Check dams, percolation tanks, gabion structure, continuous contour trenches, staggered contour trenches, farm ponds. Surface water and ground water pollution, control measures.

UNIT-IV :

Mission Bhagiratha: Telangana government water grid project for drinking water supply - aims and objectives and method of implementation. Mission Kakatiya: Telangana government project for the restoration of minor irrigation tanks, aims and objectives and method of implementation.

Text books:

- 1) Water Resources, Conservation and Management by Chatterjee, S.N.
- 2) Groundwater hydrology by Todd
- 3) Watershed management by J.V.S.Murthy
- 4) Applied Hydrogeology by Fetter.

KAKATIYA UNIVERSITY - WARANGAL - TELANGANA

B.Sc. Programme under CBCS

With effect from the A.Y: 2019

Optional Paper

(Common to all Science Courses)

III Year SEMESTER – VI

PUBLIC HEALTH AND HYGIENE

UNIT-I: Nutrition, Environment and Health

- 1.1 Classification of foods – Carbohydrates, Proteins, Lipids and Minerals.
- 1.2 Nutritional deficiencies and disorders of Carbohydrates, Proteins, Lipids and Minerals.
- 1.3 Concept, Steps and Applications of Environment and Health Impact Assessment.
- 1.4 Industrial, Agricultural and Urban Health. Environmental Pollution and Associated Health Hazards.

UNIT-II : Communicable and Non-Communicable Diseases

- 2.1 Causes, symptoms, diagnosis, treatment and prevention of Communicable Diseases (Malaria, Filariasis, Tuberculosis and AIDS).
- 2.2 Causes, symptoms, diagnosis, treatment and prevention of Non-Communicable Diseases (Hypertension, Coronary Heart Diseases, Diabetes and Obesity).
- 2.3 Symptoms, treatment and prevention measures of Water Borne Diseases (Diarrhea, Typhoid, Hepatitis and Amebiasis).
- 2.4 Symptoms, treatment and prevention measures Air Borne Diseases (COVID-19, Influenza, Whooping cough and Chickenpox).

UNIT-III :Food and Diet Systems

- 3.1 Definition of Food, Types of foods (Texturized foods, Novel foods and Organic foods).
- 3.2 Food safety system and issues; Physical, chemical and microbiological contaminants; The significance of foodborne diseases.
- 3.3 Principles of diet in diseases, Classification of diets according to nutrients.
- 3.4 Etiology, Symptom and Dietary Management in Obesity, Underweight, Hypertension, Diabetes Mellitus, Atherosclerosis.

UNIT-IV : Personal Hygiene and Sanitation

- 4.1 Definition of Hygiene and Sanitation, Personal Hygiene of food handler, Techniques of Washing Hands, Pest control and Garbage Disposal.
- 4.2 Definition of Public Health, Hygiene, Social and Preventive Medicine, Basic aspects of Personal Hygiene and Disposal of Waste.
- 4.3 The Hygiene Practices of the different categories of family members (children, parents and aged members)
- 4.4 Definition of Sanitation, Environmental Sanitation, Sanitation of Food Serving Institution, The importance of proper sanitation practices.

Suggested Readings:

SYLLABUS

GENDER SENSITISATION

Unit – I (Theory) 1 credit – 1 hour of instruction per week.

1. Gender: Definition, Nature and Evolution, Culture, Tradition, Historicity.
2. Gender Spectrum: Biological, Sociological, Psychological Conditioning.
3. Gender based division of labour – domestic work and use value.
4. Gender, Human Rights and Parity (parallel progress of both genders).

Unit – II (Practical Activity) 1 credit – 2 hours of activity per week.

Group discussion, Presentation, Role play, Survey, Case studies, Group project based on following issues:

- Respect and Co-Existence.
- Social, Biological, Psychological, Political, Economic, Cultural, Health issues.
- Domestic Violence, Evc-teasing, Sexual Harassment.
- Real Life Experiences of Gender Interaction.
- Print and Electronic Media and Gender Inequalities.
- Contemporary Challenges.

-000-

Course on Human Values and Professional Ethics
B.A., B.Com, B.Sc Degree Examination
I Year - I Semester, November 2018
Human Values and Professional Ethics, Paper I

Syllabus

Unit-1

1. Value Education, Definition, Concept and need for Value Education
2. The Content and Process of Value Education
3. Self-exploration as a means of Value Education
4. Happiness and Prosperity as Parts of Value Education

Unit-2

1. Human being as more than just the Body
2. Harmony of the Self ("I") with the "Body".
3. Understanding "Myself" as the coexistence of the Self and the Body.
4. Understanding the Needs of the self ("I") and the Needs of the Body.

Unit-3

1. Family as a Basic Unit of Human Interactions and Values in Human Relationships
2. The Basics of Human Values and Today's Crisis: Affection, Care, Guidance, etc.
3. Comprehensive Human Goal and Five Dimensions of Human Endeavour

Unit-4

1. The Basics of Ethical Human Conduct
2. Defects in Ethical Human Conduct
3. Holistic Alternatives and Universal Order
4. Universal Human Order and Ethical Conduct

Unit-5

1. Value Based Life and Profession
- u