

## Syllabus of Value Added Course in Environmental Studies for UG programmes

Course Title: Environmental Studies

Credits-2

Max Marks: 100

Max Marks:100 Marks.

Duration:2 Hrs

Learning objectives: This course attempts to create pro-environment attitude and a behavioral pattern in student community and society that attaches importance and priority to create sustainable life style and awareness on various environmental issues.

Learning outcomes: This course is expected to inculcate a critical thinking on various dimensions of environment through knowledge, skill, critical thinking and problem-solving

### Unit 1: Understanding the Environment

- 1.1. Environment: concept, importance and components
- 1.2. Ecosystem: Concept and structure of Ecosystem
- 1.3 Functions of Ecosystem: Food chain, Food Web, Ecological Pyramids and Energy Flow
- 1.4. Ecosystem services: (Provisioning, regulating and cultural)

### Unit 2: Natural resources and Environmental Pollution

- 2.1. Natural resources: Renewable and non-renewable (Global status, distribution and production)
- 2.2. Management of natural resources: Individual, community and government managed
- 2.3. Air, water and soil pollution: Causes, consequences and control
- 2.4. Solid waste management: Collection, segregation, transportation and disposal; 3R's

### UNIT 3: Biodiversity and Issues in Environment

- 3.1 Concept of Biodiversity - levels, values and hot spots of Biodiversity
- 3.2 Threats to biodiversity and conservation of Biodiversity
- 3.3 Climate change, causes and consequences
- 3.4 Concept and objectives of Environmental Education, Environmental Ethics

### UNIT-IV Introduction to Environment

- 4.1. Introduction to Environment, components of Environment and need of Environmental Education
- 4.2. Environmental Pollution-Types and effects on human beings and Environment
- 4.3. Human Population explosion and exploitation of Natural resources

### UNIT V- Global Environmental issues

- 5.1. Global Warming and Climate Change, Ozone Depletion and Acid Rain.
- 5.2. Conventional and non-conventional Energy resources
- 5.3. Global Biodiversity loss and Species Extinction

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## Unit VI: Environmental law and policy

- 6.1 Constitutional provisions for environmental protection (article 21, 48A, 51A), Environment Protection Act, 1986
- 6.2 The National Green Tribunal Act, 2010
- 6.3 National Environment Policy-2006

## Unit VII: Environmental Protocols and Movements

- 7.1 Earth Summit and role of IPCC in Climate Change Monitoring
- 7.2 Kyoto Protocol and Montreal Protocol
- 7.3 Green Belt Movement and Chipko Movement

### 1. Suggested Reading:

1. Asthana, D. K. Text Book of Environmental Studies. S. Chand Publishing.
2. Basu, M., Xavier, S., Fundamentals Of Environmental Studies, Cambridge University Press, Basu, R. N. (Ed.) Environment. University of Calcutta, Kolkata.
3. Bharucha, E., Textbook of Environmental Studies for Undergraduate Courses. Universities Press.
4. Miller T.O. Jr., Environmental Science, Wadsworth Publishing Co. Wagner K.D. Environmental Management. W.B. Saunders Co. Philadelphia, USA
5. Conover, M. 2001 Resolving Human Wildlife Conflict, CRP Press.
6. Dickman, A.J. 2010. Complexities of Conflict: the importance of considering social factors for effectively resolving human-wildlife conflict, Animal Conservation 13:458-466.
7. Thangavel, P. & Sridevi, G. 2015. Environmental Sustainability: Role of Green Technologies. Springer Publications.
8. Shastri, S.C. 2015, Environmental Law, Eastern Book Company.
9. Rao, M.N. & Datta, A.K. 1987. Waste Water Treatment. Oxford and IBH Publishing Co. Pvt.Ltd.
10. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012. Environment. 8th edition. John Wiley & Sons.
11. Rosencranz, A., Divan, S., & Noble, M. L. 2001. Environmental law and policy in India. Tripathi 1992.
12. Sengupta, R. 2003. Ecology and economics: An approach to sustainable development. OUP.
13. Latifi, N.R., Akhter, S. 2022. Environmental Sciences, Wisdom Press.
14. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. Ecology, Environmental Science and Conservation. S. Chand Publishing, New Delhi.
15. Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. Conservation Biology: Voices from the Tropics. John Wiley & Sons.

### SCHEME OF EXAMINATION

The paper shall consist of 100 objective question of 100 marks. There are VII units in the syllabus paper setter have to take at least 10 question from each unit.

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## M.Sc. (Biotechnology)

### Course-IX

## Microbial, Industrial and Environmental Biotechnology

### Unit-I

**Introduction:** - Concepts, Growth curve, sterilization techniques, Isolation and Characterization. (2)

### UNIT II

**Microbes:** - Definition, classification, sources of useful microbes and their characteristics. (4)

### Unit-III

**Use of Microbes** in food and dairy, single cell proteins, physiological aspects SCP from CO<sub>2</sub>, waste materials and renewable resources, improvement in single cell protein production, Probiotic foods. (8)

### Unit-IV

**Industrial source of enzymes:** - Cellulases, Xylanases, Pectinases, Amylase, Lipase and Proteases their production and applications. (6)

### Unit-V

**Commercial production** of important antibiotics, amino acids, insulin, steroids, Fermentation and production of Ethanol, Acetone, Butanol, Glycerol, Vitamins and Alkaloid (8)

### Unit-VI

**Pollution:** - Types, causes, Prevention and Control, methods of reducing environmental impacts of chemicals, weedicides, Pesticides and fertilizers, Biotechnological advances in pollution control through GEMs, Sewage treatment, Newer approaches to sewage treatment, treatment of solid waste, Energy production- Bio-fuels. (8)

### Unit-VII

**Bioremediation and pollution control** through microbes and plants, Biodegradation of Natural Products, microbial desulphurization, biodegradation of xenobiotics, hydrocarbons. (8)

### Unit-VIII

**Biotechnology of fermentation:** Methods and types of fermentation, dual/multiple fermentation, continuous fermentation and late nutrient addition, growth kinetics of microorganisms, fermenter systems and fermentation. (6)

## (B.Sc. Microbiology)

## Course - XII. Environmental Microbiology

### Paper I. Microbial Ecology

**Unit - I :** Microorganisms in their natural environments.

a) Terrestrial environment.

b) Aquatic environment.

c) in atmosphere.

d) animal as an environment for microbes : microbial population of alimentary tract, skin and rumen.

**Unit - II :** Structure and development of microbial communities and ecosystems. (Succession of microflora on decomposing plant materials).

**Unit - III :** Biological Interactions :

a) Microbe-microbe interactions.

b) Microbe-plant interactions.

c) Microbe-animal interactions.

**Unit - IV :** Biogeochemical aspects of microbial ecology : Role of microorganisms in cycling of carbon, nitrogen, phosphorous, sulphur and iron.

**Unit - V :** Variations in the composition of sewage: kinds of sewage systems.

Microorganisms in sewage- fungi, protozoa, algae, bacteria and viruses.

COD and BOD of sewage and pollution problem.

### Book References :

Author : P.D. Sharma.

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## Paper-XXIII

### Environmental Biotechnology

75 Marks

Renewable and non-renewable resource, Conventional fuel and their environmental impacts (firewood and animal wastes, coal, petroleum and animal oil).

Modern fuels and their environmental impacts (methanogenic bacteria and biogas, microbial hydrogen production), conversion of sugars to ethanol, the gasohol experiment, solar energy converter-hopes from the photosynthetic pigments.

Possibility of plant petroleum industry and cellulose degradation for combustible fuel, treatment of municipal wastes and industrial effluents, degradation of pesticides and other toxic chemicals by microorganism, *B. thuringiensis* and biopesticides, enrichment of press-mud by microorganism (bioaccumulation and biomineralization).

Biofertilizers (nitrogen fixing microorganisms, mycorrhiza). Commercial production of biofertilizers, formulations and BIS specifications; their applications and limitations for Indian agriculture.

Environmental impact and assessment of transgenic organism.

Bio-assessment of environmental quality. SCP, bioremediation, phytoremediation.

### (M.Sc. Microbiology)

#### Course 9, Code- AM 204: Environmental Microbial Technology

**Unit I:** Microbial Ecology versus Environmental Microbiology; Historical perspectives; Major fields and modern Environmental Microbiology; Overall role of microbes in ecosystem. Aeromicrobiology; Allergic disorders; Bioaerosols; Biowarfare agents; Air sampling of bioaerosols; microbial indicators for air pollution.

**Unit II:** Soil microorganisms and their significance in soil quality management. Microbial successions within and above the soil; biogeochemical cycles- C, N, S, P, Fe, Mn, Hg. Factors affecting microbial community in soil. Microbiomics and microbial interactions: Microflora of ruminants; Microbe-microbe interactions (Symbiosis, mutualism, commensalism, amensalism, competition, antibiosis)

**Unit III:** Microbes and heavy metal tolerance; Biocorrosion of metals; Microbe metal interactions (bioleaching, biomining, biohydrometallurgy); Containment of acid mine drainage applying biomining, abatement of heavy metal pollution, degradation of pesticides. Biosorption.

**Unit IV:** Microbial degradation, deterioration and bioremediation; Biodegradation of xenobiotics (biomagnifications) including pesticides and military chemicals (explosives and gases); Enhanced petroleum recovery; Integrated microbial bioremediation including oil spills; Role of biosurfactants. Role of microorganisms in organic matter decomposition (cellulose, hemicellulose, lignin).

**Unit V:** Microbes and water potability- Microbial growth patterns in aquatic environments. Purification of potable water; Sanitary analysis of water (indicator microbes and methods of their detection); Standards (tolerable levels) of water quality of fecal contamination. Microbes in solid waste and sewage management; Sanitary landfills and composting; Methods of sewage management (composition of sewage, small scale and modern sewage treatment methods – oxidation ponds, trickling filters, biodisc system); Measurement of water quality after sewage removal.

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# **SHRI RAM COLLEGE, MUZAFFARNAGAR**

## **DEPARTMENT OF FINE ARTS**

### **CROSS CUTTING ISSUES**

**Session- 2022-23**

S.NO.	SUBJECT NAME	CODE	COURSE/SEM.
1.	Environmental Studies	BFA - 008	BFA-1 <sup>st</sup> Year
2.	Environmental Concerns & Sustainability in Garment & Textile Industry	MFA-2005	MFA-2 <sup>nd</sup> SEM. Fashion/Textile
3	Design Ethics & Intellectual Property Rights in Fashion Textile	MFA- 2007	MFA-2 <sup>nd</sup> SEM. Textile design

  
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MFA-2<sup>nd</sup> Semester

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### Theory Course-III

Stream: Fashion Designing/Textile Designing

Environmental Concerns and Sustainability in Garment & Textile Industry

Code: MFA T-2005

Time: 3 Hrs

Total Marks 100 (Int. 50+Ext. 5)

#### Objectives:

- To understand various types of pollution, its causes and control measures
- To create awareness of various eco-parameters and environmental issues related to textiles and apparel industry
- To provide an understanding of impact of textiles and apparel industry on the environment and human beings
- To sensitize the students to environmental concerns and social responsibility
- To understand the concept of sustainability

#### Learning Outcomes

- Understand the cause and effect of various types of pollution
- Understand the ill effects of the textiles and apparel industry
- Become aware of increasing concerns over environmental pollution and social responsibility to save the environment for sustainable development
- Understand the importance of eco-parameters and regulations
- Be able to understand concept of corporate social responsibility and carbon footprinting
- Become aware of green design and green textiles

#### UNIT-I

Types of pollution- air pollution, water pollution, soil pollution, marine Pollution, noise pollution, thermal pollution, nuclear hazards, solid waste management, etc.

- Cause and effects of environmental pollution
- Control measures of urban and industrial waste
- Environment legislation in India Important Act

#### UNIT- II

##### Impact of Pollution Caused by Textiles and Apparel Industry

- Effect of textile and apparel industry on environment- water pollution, air pollution, thermal pollution, solid waste, etc
- Health hazards
- Textile effluents and their characteristics Methods of treatment of effluents
- Effluent treatment plant
- Reduction of effluent load Benefits of effluent management

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## UNIT-III

### Eco-Parameters and Regulations

Important eco-parameters and regulations.

Environment Management and Audit system (EMAS) - ISO 14000;

ECO-TEX Eco-testing, eco-marks/eco-labels.

Norms for eco-friendly apparels Eco-friendly apparels

## UNIT-IV

### Environmental Protection & Sustainability

Sustainability- a growing global concern

Role of designer in sustainability

Sustainability in design education

Design interventions and sustainability

Sustainable production process, technologies and ethical issues

Sustainable consumption and retail

Policy and environment

Corporate social responsibility

Carbon foot-printing

Water foot-printing

Sustainable textiles

Sustainable fashion

Sustainability in the apparel industry

Green design

## UNIT- V

### Recycling:

Definition and importance of recycling

Recycling consumer waste

Recycling industrial waste

Recycling textile and apparel

Public participation in recycling programmes

National and international organizations involved in recycling: Bureau of International Recycling (BIR), Natural Resources Defense Council (NRDC), Textile Recycling Association (TRA), Secondary Materials and Recycled Textiles Association (SMART), National Solid Waste Association of India (NSWAI), etc.

### Suggested Assignments

- Assignment 1: Design a 3-D campaign on Environmental Concerns and Sustainability.
- Assignment 2: Analysis of environmental issues and concerns after visiting a textile or garment production unit.
- Assignment 3: Design household products or accessories by using waste / leftover fabrics and materials.


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## Books Recommended:

1. Kumar, J., Pollution Control and Human Resource Management in Textile Industries, Pankaj Publication International, Delhi, 2010
  2. Slater, K. Environmental Impact of Textiles: Production, Processes and Protection, Woodhead Publishing
  3. Brown, P. & Rice, J., Ready-to-wear Apparel Analysis, Prentice-Hall, Inc., New Jersey, 2001
  4. Anita, A. Stamper, Sue Humphries Sharp, Linda B. Donnel, Evaluating Apparel Quality, Fairchild Publications, 1988
  5. Mehta, P., an Introduction to Quality Control for Apparel Industries, ASQC-Quality Press Mared Dekker, Inc.
  6. Kadolph, S. J., Quality Assurance for Textiles and Apparel, Fairchild Publications
  7. Mehta, P. V. & Khetan, B.K., Managing Quality in Apparel Industry, New Age International Publications, 1998
- Quality Control for Textile and Apparel Industries, workshop proceedings,  
Department of Textile Technology, New Delhi, 3-5 October, 1996

  
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MFA-2<sup>nd</sup> Semester

3

Theory Course-IV

Stream: Textile Designing

Design Ethics and Intellectual Property Rights in Fashion & Textile

Code: MFA T-2007

Time: 3 Hrs

Total Marks 100 (Int.50+Ext.50)

### Objectives

- To understand the ethics in business in general and apparel industry and its importance
- To sensitize young designers towards ethics in design
- To become aware of ethical fashion and issues
- To be aware of Intellectual Property Rights (IPR) in the field of design and understand its benefits
- To understand the procedure of registration of designs under Intellectual Property Rights (IPR)
- Understand the need and importance of ethics in business and fashion industry
- Become aware of ethical fashion and sustainability in design
- Understand the Intellectual Property Rights and its types
- Get an awareness of importance of copyright of designs
- Become aware of requirements and procedures of getting copyright

### UNIT- I

Ethics in Business

Ethical business

Ethical compulsions in modern society

Ethical compulsions in business

Ethical dimensions of ambition and competition

Ethics in negotiation and contracts – fair and unfair trade practices

Emergence of environmental ethics

Regulations on Apparel Industry Business Practices

### UNIT- II

Ethics in Design

Importance of ethics in design

Role of the designer

Ethical fashion

Ethical issues- working conditions, exploitation, fair trade, sustainable production, the environment and animal welfare

Sustainability and the triple bottom line-social, environmental and commercial

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- 40 40
- Criteria for ethical fashion
  - Sustainability and the ethical challenges for designers
  - Ethical Fashion forum and other organizations- their role and initiatives

### UNIT- III

#### Intellectual Property Rights

Concept and history of Intellectual Property Rights (IP rights)

Types of intellectual property-right-

Patents

Copyright

Industrial design rights

Trademarks

Trade dress

Trade secrets

Geographical indications

Objectives of IP rights

Ethics of intellectual property

Benefits of intellectual property

### UNIT -IV

#### Legislation and Procedure of IP Right

Design Acts

Benefit of design registration

Requirements for registration

Procedure of registration of designs

Duration of protection

### UNIT- V

#### Practice of Design ethics in Indian Apparel Industry

Companies following professional ethics

Companies practicing design ethics

Case study of manufacturer and designer

#### Suggested Assignments:

Assignment 1: Conduct a study to find out the level of awareness of design ethics and Intellectual Property Rights among the fashion designers and garment manufacturers.

Assignment 2: Case study of an Indian designer practicing design ethics.

#### Books Recommended:

1. Allhoff, F. and Vaidya, A., Business Ethics: Professional ethics, SAGE Publications, 2005
2. Brown, P. & Rice, J., Ready-to-wear Apparel Analysis, Prentice Hall, Inc., New Jersey, 2001
3. Gupta, T. S., Intellectual Property Law in India, Kluwer Law International, Netherland, 2011

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**Cross cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics in to the Curriculum**

S. No.	Name of Department	Programme	Course *				
			Environment Issues	Gender Issues	Sustainability	Professional Values	Human Values
1	Agriculture	B. Sc Agriculture	Environmental Science Agro Ecology ( Subject Code: D 394, Semester: 3 <sup>rd</sup> )	Rural Sociology and Educational Psychology (Subject Code: D 196, Semester: 1 <sup>st</sup> )	Farming system and sustainable agriculture crop planning farm manage and sustainable agriculture (Subject Code: D 694, Semester: 6 <sup>th</sup> )	Fundamentals of Extension Education and Rural Development (Subject Code: D 292, Semester: 2 <sup>nd</sup> )	Agricultural Finance, Business Management and Trade (Subject Code: D 695, Semester: 6 <sup>th</sup> )
			Agriculture Metrology (Subject Code: D 195, Semester: 1 <sup>st</sup> )	Elements of Genetics (Subject Code: D 193, Semester: 1 <sup>st</sup> )			
			Environmental Studies Fundamental Course (Subject Code: 008, Semester: 1 <sup>st</sup> )				
			Environmental Studies and Disaster Management (Subject Code: 0348008, Semester: 3 <sup>rd</sup> )	Rural Sociology & Educational Psychology (Subject Code: 0148005, Semester: 1 <sup>st</sup> )	Environmental Studies and Disaster Management (Subject Code: 0348008, Semester: 3 <sup>rd</sup> )	Environmental Studies and Disaster Management (Subject Code: 0348008, Semester: 3 <sup>rd</sup> )	<b>Human Value and Ethics</b> (Code: 0248010, Semester: 2 <sup>nd</sup> )
			<b>Agrochemicals an Elective Course</b> (Semester: 5 <sup>rd</sup> )		Farming System, Precision Farming & Sustainable Agriculture (Subject Code: 0648001, Semester: 6 <sup>th</sup> )		Environmental Studies and Disaster Management (Subject Code: 0348008, Semester: 3 <sup>rd</sup> )

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## Course- IV

Semester- III

2+1=3

### ENVIRONMENTAL SCIENCE AGRO ECOLOGY

1. Ecology - definition, division and significance.
2. The Environment - environmental management and control of pollution, affecting plant growth a biotic and blanic isotere interaction.
3. Ecosstom major ecosystems, energy and its flow in ecosystem biochemical cycles and nutrient cycles.
4. Plant community - classification composition, and study of plant community structure.
5. Plant adoption - ecological classification of plants and their morphological anatomical and pysiological adaptations to adverse environments hyd rophytes, xerophytes, mesophytes, apiphytes and holophyos
6. Ecological problems of major crops-cereals, millets, pulse and oilseeds  
Practical
  1. To record temperature, relative humidity and light intensity value of the atmosphere.
  2. To study the community by quadrat method by determining plant structure different specie crops.
  3. To study the getution of the givne area by a phyoloycoinic method biological spectrum method.
  4. To determine the biomass producers in the given area.
  5. To record abiotic components- pH, temperature, light intensity, turbidity is pond ecosystem.

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## Course-VI

Semester- I

1+1=2

### AGRICULTURAL METEROLOGY

Different meteorological variables related to agriculture.

Rainfall- Hydrologic cycle and it's components. Types and forms of precipitation. Storms, occurrence, variation and measurement of rainfall. Rain guages, Computation and analyses of data. Plotting of mass curve and rainfall, intensity curve.

Run-off- Definition, types, factors affecting, estimation and measurement of run-off.

Atmosphere - Definition and structure, climatre and weather, atmospheric pressure, factors affecting, measurement.

Elementary idea of insolation, Temperature, kinds and measuring instruments, evaporation, factors affecting, measurement

Humidity, definition, windvane, Anemo-meter.

Indian Agro Climatic Zones

Elementry idea of weather forecasting.

#### Practical

1. Computation of average rainfall.
2. Mass Curve
3. Plotting Bargraph for rainfall data.
4. Rainfall intensity curve.
5. Measurement of rainfall by Raingauge.
6. Measurement of Atmospheric Pressure.
7. Plotting line graphs for illustrating climatic factor such as temperature.
8. Measurement of Relative Humidity.
9. Study of wind vane and Anemometer.
10. Measurement of Evaporation by USDA evaporation pan.

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## Course-V

### Semester- I

1+1=2

### RURAL SOCIOLOGY AND EDUCATIONAL PSYCHOLOGY

1. Definition and scope of rural sociology.
2. Basic concept of society, community and groups
3. Characteristics and Differences of rural and Urban communities
4. Basic rural institutions and their role in Agriculture development.
5. Definition and types of rural leadership and their role.
6. Definition, nature and importance of psychology in the development of human behaviour.
7. Meaning of habit and habit development.
8. Basic Psychological concepts; motivation, Social Interaction, Attitudes, Emotions, Prejudices and Social Perception.
9. Personality- definition and development.

### Practical

1. Socio-economic survey of village communities.
2. Developing schedules and questionnaires.
3. Practical knowledge about the working of basic rural institutions.
4. Identification of important value systems in the rural setting as a means of social control.
5. Identification of rural personality traits that affect the development of personality in rural situation.

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Course- IV

Semester- I

1+1=2

**ELEMENTS OF GENETICS**

1. Definition, significance and historical development in genetics.
2. Mendel's Law's of heredity.
3. Chromosomal theory of inheritance, meiosis and mitosis.
4. Linkage and crossing over-types, mechanism and significance,
5. Nucleic acid as genetic material-structure, replication, genetic code and translation.
6. Mutation-spontaneous and induced.
7. Chromosomal changes-molecular structure and numerical.
8. Multiple factor inheritance and multiple alleles, blood groups in man and body coat colour in rabbits.
9. Sex chromosomes and its determination in man and drosophila, sex linked characters.
10. Cytoplasmic inheritance-plasma and nuclear, gene inter-action.

**Practical**

1. Preparation of temporary cytological slides (mitosis and meiosis)
2. Genetical problems on mono and dihybrid ratios with their modifications.
3. Chi-square test and goodness of fit of Mendelian modified ratios.
4. Practical record
5. Viva-voce

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**Course-IV**

**Semester- VI**

**2+0=2**

**FARMING SYSTEM AND SUSTAINABLE AGRICULTURE CROP  
MANAGING FARM MANAGEMENT AND SUSTAINABLE AGRIC (ICAR)**

1. Farming systems- Definition, types and methods of farming.
2. Definition, scope and advantage of sustainable agriculture.
3. Modern agriculture in relation to sustainable agriculture.
4. Sustainable agriculture in relation to tillage fertilizers, irrigation, weed management and plant protection measures.
5. Important cropping systems for sustainable agriculture.

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**Course- II**

**Semester- II**

**2+1=3**

**FUNDAMENTALS OF EXTENSION EDUCATION  
AND RURAL DEVELOPMENT**

**1. Extension Education:**

- (a) Meaning, definition, objectives, Principles, Scope, Philosophy and its distinguishing features.
- (b) Extension Teaching and Learning : Teaching, Teaching Elements, steps in Teaching, Learning, Learning Situation, Basic Principles of Teaching and Learning.
- (c) Early Extension Efforts in India.
- (d) Comparative study of Extension Service in India and USA.

**2. Community Development:**

- (a) Meaning, Definition and objectives of community development.
- (b) Organisational set up and Activities of Community development at State, District, Block and Village level.
- (c) Extension and Rural Development Programmes : Including T & V system, National Demonstration, IRDP, Jawahar Rojgar Yozana.

**3. Extension Programme Planning, Monitoring and Evaluation:**

- (a) Meaning, Principles and Procedure of Programme Planning.
- (b) Definition : purpose, types, criteria and steps involved in monitoring and evaluation.

**Practical**

- 1. Practice in Conducting Survey
- 2. Practice in preparing schedule and Questionnaire for studying the organisational set up of community development.
- 3. Contact with the farmers and educating them in new technology of Agriculture.
- 4. Development programme for a village & a Block.
- 5. Preparation of an outline and practice on evaluation of a programme.
- 6. Classification, Tabulation and diagrammatic representation of data.
- 7. Writing study Reports.

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**Course-V**

**Semester- VI**

**2+1=3**

**AGRICULTURAL FINANCE, BUSINESS MANAGEMENT AND  
TRADE**

**A. Agricultural Finance**

1. Credit, Meaning, Importance and credit control.
2. Definition, need for finance in agriculture, characteristics of good agriculture finance (credit)
3. Decision on the use of credit, Principles of farm credit (Equity or increasing Risk, Added Cost and Added Return, Cost of Credit and no loss no profit goal of farming and opportunity cost Principle)
4. Types of loans and classification of agricultural credit.
5. Qualifications of a borrower, Analysis and three R's and credit (Return, Repayment Capacity and Risk-Bearing Capacity). Analysis of three G's of credit (character, capacity and capital).
6. Types of loan, according to liquidity, budgeted loan, loan amortization, Even payment method, Decreasing method.
7. Crop index reflecting use and farm finance.
8. Role and Rural Credit Institutions (Recommendations of the Banking Commission integrated Scheme of Rural Finance (Credit), Institutional Agencies, Taccan.
9. Sources of agricultural finance (Commercial banks, RRB, Lead Bank, Lead) Bank, NABARD, Cooperative Credit (PACs, Land Development Banks, National cooperative Federation, Farmers Service Cooperatives).

**B. Business Management**

1. Meaning of management, functions of management role of managers and scope of management in agricultural business. Role and objectives in management references.
2. Decision making by individuals as also by groups.

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# SOIL CONSERVATION

## 1. Introduction to Forestry (New)

2(1+1) AG-106

### Theory

Introduction - definitions of basic terms related to forestry, objectives of silviculture, forest classification, salient features of Indian Forest Policies. Forest regeneration, Natural regeneration - natural regeneration from seed and vegetative parts, coppicing, root suckers; Artificial regeneration - objectives. choice between natural and artificial regeneration. essential preliminary considerations. Crown classification. Tending operations - weeding, cleaning. thinning - mechanical, ordinary, crown and advance thinning. Forest mensuration - objectives, diameter measurement, instruments used in diameter measurement; measurement of volume of felled and standing trees, age determination of trees. Agroforestry - definitions. importance, criteria of selection of trees in agroforestry, different agroforestry systems prevalent in the country, shifting cultivation, taungya, alley cropping, wind breaks and shelter belts, home gardens. Cultivation practices of two important fast growing tree species of the region.

### Practical

Identification of tree-species. Diameter measurements using calipers and tape. Volume measurement of logs using various formulae. Nursery lay out, seed sowing, vegetative propagation techniques. Forest plantations and their management. Visits of nearby forest based industries.

## 2. Environmental Studies and Disaster Management

2(1+1) AG-308

### Theory

Multidisciplinary nature of environmental studies Definition, scope and importance. 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 forest 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: 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

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needs, renewable and nonrenewable 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. 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), Biodiversity and its conservation: - Introduction, definition, genetic, species & ecosystem diversity and 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. Environmental Pollution: definition, cause, 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. Solid Waste Management: causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Social Issues and the Environment: Water conservation, rain water harvesting, watershed management. Environmental ethics: Issues and possible solutions, climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, dies, 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. 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.

### **Disaster Management**

Natural Disasters- Meaning and nature of natural disasters, their types and effects. Floods, drought, cyclone, earthquakes, landslides, avalanches, volcanic eruptions, Heat and

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cold waves, Climatic change: global warming, ozone depletion. Man Made Disasters- Nuclear disasters, chemical disasters, biological disasters. building fire, coal fire, forest fire, oil fire, air pollution, water pollution, deforestation, industrial waste, water pollution. Disaster Management- Effect to migrate natural disaster at national and global levels. International strategy for disaster reduction. Concept of disaster management, national disaster management framework; financial arrangements; role of N(it)s, community - based organizations and media. Central, state, district and local administration.

#### **Practical**

Pollution case studies. Case Studies- 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 and study of simple ecosystems-pond, river, hill slopes, etc.

### **3. Fundamental of Soil and Water Conservation**

**3(2+1) AG-310**

#### **Theory**

Introduction to Soil and Water Conservation. causes of soil erosion. Definition and agents of soil erosion. water erosion: Forms of water erosion. Gully classification and control measures. Soil loss estimation by universal Loss Soil Equation. Soil loss measurement techniques. Principles of erosion control: Introduction to contouring. strip cropping. Contour bund. Graded bund and bench terracing. Grassed water ways and their design. Water harvesting and its techniques. Wind erosion: mechanics of wind erosion, types of soil movement. Principles of wind erosion control and its control measures.

#### **Practical**

General status of soil conservation in India. Calculation of erosion index. Estimation of soil loss. Measurement of soil loss. Preparation of contour maps. Design of grassed water ways. Design of contour bunds. Design of graded hunds. Design of bench terracing system. Problem on wind erosion.

### **4. Introductory Agro-meteorology & Climate Change**

**2(1+1) AG-409**

#### **Theory**

Meaning and scope of agricultural meteorology; Earth atmosphere- its composition, extent and structure; Atmospheric weather variables; Atmospheric pressure, its variation with height; Wind, types of wind, daily and seasonal variation of wind speed, cyclone, anticyclone,

## ELECTIVE COURSES

### 1. Agri-business Management

3(2+1) AGE-51

#### Theory

Transformation of agriculture into agribusiness, various stakeholders and components of agribusiness systems. Importance of agribusiness in the Indian economy and New Agricultural Policy. Distinctive features of Agribusiness Management: Importance and needs of agro-based industries, Classification of industries and types of agro based industries. Institutional arrangement. procedures to set up agro based industries. Constraints in establishing agro-based industries. Agri-value chain: Understanding primary and support activities and their linkages. Business environment: PEST & SWOT analysis. Management functions: Roles & activities, Organization culture. Planning, meaning, definition, types of plans. Purpose or mission, goals or objectives, Strategies, policies procedures, rules, programs and budget. Components of a business plan. Steps in planning and implementation. Organization staffing, directing and motivation. Ordering, leading, supervision, communications. control. Capital Management and Financial management of Agribusiness. Financial statements and their importance. Marketing Management: Segmentation, targeting & positioning. Marketing mix and marketing strategies. Consumer behavior analysis, Product Life Cycle (PLC). Sales & Distribution Management. Pricing policy, various pricing methods. Project Management definition, project cycle, identification, formulation, appraisal, implementation, monitoring and evaluation. Project Appraisal and evaluation techniques.

#### Practical

Study of agri-input markets: Seed, fertilizers, pesticides. Study of output markets: grains. fruits, vegetables, flowers. Study of product markets. retails trade commodity trading, and value added products. Study of financing institutions- Cooperative, Commercial banks, RRBs, Agribusiness Finance Limited, NABARD. Preparations of projects and Feasibility reports for agribusiness entrepreneur. Appraisal/evaluation techniques of identifying viable project- Non-discounting techniques. Case study of agro-based industries. Trend and growth rate of prices of agricultural commodities. Net present worth technique for selection of viable project. Internal rate of return.

### 2. Agrochemicals

3(2+1) AGE-52

#### Theory

An introduction to agrochemicals, their type and role in agriculture, effect on environment, soil, human and animal health. merits and demerits of their uses in agriculture.

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management of agrochemicals for sustainable agriculture. Herbicides-Major classes, properties and important herbicides. Fate of herbicides. Fungicides-Classification-Inorganic fungicides-characteristics, preparation and use of sulfur and copper, Mode of action-Bordeaux mixture and copper oxychloride. Organic fungicides- Mode of action- Dithiocarbamates-characteristics, preparation and use of Zineb and maneb.

Systemic fungicides- Benomyl, carboxin, oxycarboxin, Metalaxyl, Carbendazim. characteristics and use. Introduction and classification of insecticides: inorganic and organic insecticides Organochlorine, Organophosphates, Carbamates, Synthetic pyrethroids Neonicotinoids. Hiorationals. Insecticide Act and rules, Insecticides banned, withdrawn and restricted use, Fate of insecticides in soil & plant. IGRs Biopesticides, Reduced risk insecticides, Botanicals, plant and animal systemic insecticides their characteristics and uses. Fertilizers and their importance. Nitrogenous fertilizers: Feed stocks and Manufacturing of ammonium sulphate, ammonium nitrate, ammonium chloride, urea. Slow release N- fertilizers. Phosphatic fertilizers: feedstock and manufacturing of single superphosphate. Preparation of bone meal and basic slag. Potassic fertilizers: Natural sources of potash, manufacturing of potassium chloride, potassium sulphate and potassium nitrate. Mixed and complex fertilizers: Sources and compatibility-preparation of major, secondary and micronutrient mixtures. Complex fertilizers: Manufacturing of ammonium phosphates, nitrophosphates and NPK complexes. Fertilizer control order. Fertilizer logistics and marketing. Plant bio-pesticides for ecological agriculture, Bio-insect repellent.

### Practical

Sampling of fertilizers and pesticides. Pesticides application technology to study about various pesticides appliances. Quick tests for identification of common fertilizers. Identification of anion and cation in fertilizer. Calculation of doses of insecticides to be used. To study and identify various formulations of insecticide available in market Estimation of nitrogen in Urea. Estimation of water soluble  $P_2O_5$  and citrate soluble  $P_2O_5$  in single super phosphate. Estimation of potassium in-Muriate of Potash/ Sulphate of Potash by flame photometer. Determination of copper content in copper oxychloride. Determination of sulphur content in sulphur fungicide. Determination of thiram. Determination of ziram content.

### 3. Commercial Plant Breeding

3(1+2) AGE-53

#### Theory

Types of crops and modes of plant reproduction. Line development and maintenance breeding in self and cross pollinated crops (A/B/R and two line system) for development of hybrids and seed production. Genetic purity test of commercial hybrids. Advances in hybrid

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# AGRICULTURAL EXTENSION

## 1. Rural Sociology & Educational Psychology

2(1+1) AG-105

### Theory

Sociology and Rural sociology: Definition and scope. its significance in agriculture extension, Social Ecology, Rural society, Social Groups, Social Stratification, Culture concept, Social Institution, Social Change & Development. Rural Leadership: concept and definition, types of leaders in rural context. Educational psychology: Meaning & its importance in agriculture extension. Behavior: Cognitive, affective. psychomotor domain, Personality, Learning, Motivation, Theories of Motivation, Intelligence.

### Practical

Socio-economic survey of village communities. Developing schedules and questionnaires. Visit and gaining of Practical knowledge about the working of basic rural institutions. Identification of important value systems in the rural setting as a means of social control. Identification of rural personality traits that affect the development of personality in rural situation.

## 2. Fundamentals of Agricultural Extension Education 3(2+1) AG-208

### Theory

Education: Meaning, definition & Types: Extension Education- meaning, definition, scope and process; objectives and principles of Extension Education; Extension Programme planning- Meaning, Process, Principles and Steps in Programme Development. Extension systems in India: extension efforts in. pre-independence era (Sriniketan, Martbandam, Firka Development Scheme, Gurgaon Experiment, etc.) and post-independence era (Etawah Pilot Project, Nilokheri Experiment, etc.); various extension/ agriculture development programmes launched by ICAR/ Govt. of India (IADP, IAAP, HYVP, KVK, IVLP, ORP, ND, NATP, NAIP, etc.). New trends in agriculture extension: privatization extension, cyber extension/ e-extension, market-led extension, farmer-led extension, expert systems, etc.

Rural Development: concept, meaning, definition: various rural development programmes launched by Govt. of India. Community Dev-meaning. definition, concept & principles, Philosophy of C.D. extension administration: meaning and concept, principles and functions. Monitoring and evaluation: concept and definition, transfer of technology: concept and models, capacity building of extension personnel; extension teaching methods: meaning, classification, individual, group and mass contact methods, ICT Applications in TOT.

### Practical

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### **Theory**

Origin, geographical distribution, economic importance, soil and climatic requirements, varieties, cultural practices and yield of Rabi crops; cereals -wheat, barley and oat, pulses-chickpea, lentil, peas. oilseeds-rape seed, mustard, linseed and sunflower; sugar crops-sugarcane; other crop-Potato. Forage crops-berseem, lucerne and oat.

### **Practical**

Sowing methods of wheat and sugarcane, identification of weeds in rabi season crops. Numerical problems on seed requirement of rabi crop. Study of yield contributing characters of rabi season crops, study of important agronomic experiments of rabi crops at experimental farms. Study of rabi forage experiments, visit to research stations of related crops.

## **4. Farming System, Precision Fanning and Sustainable Agriculture 2(1+1) AG-601**

### **Theory**

Farming System-scope, importance, and concept, Types and systems of farming system and factors affecting types of farming, Farming system components and their maintenance, Cropping system and pattern, multiple cropping system, Efficient cropping system and their evaluation, Sustainable agriculture-problems and its impact on agriculture. conservation agriculture strategies. HEIA, LELA and LEISA and its techniques for sustainability, Integrated farming system components of IFS and its advantages, farming system and environment.

### **Practical**

- Tools for determining productions & efficiencies in cropping and farming systems.
- Indicators of sustainability of cropping & Farming systems
- Site specific development of IFS models for different agro-climatic zones.
- Visit of IFS models in different agro climatic zones of nearby state Universities/Institutes and farmer fields.

## **5. Practical Crop Production-I (Kharif Crops)**

**2(0+2) AG-302**

### **Practical**

Crop planning, raising field crops in multiple cropping systems: Field preparation, seed, treatment, nursery raising. sowing. nutrient, water and weed management and management of insect-pests diseases of crops, harvesting, threshing, drying winnowing, storage and marketing of produce. The emphasis will be given to seed production. mechanization, resource conservation and integrated nutrient, insect-pest and disease management technologies. Preparation of balance sheet including cost of cultivation. net returns per student as well as per team of 8-10 students.

## **6. Practical Crop Production-II (Rabi Crops)**

**2(0+2) AG-402**

### **Practical**

## **Human Value and Ethics**

**1(1+0) AG-210**

### **Theory**

Values and Ethics-An Introduction. Goal and Mission of Life. Vision of Life. Principles and Philosophy. Self Exploration. Self Awareness. Self Satisfaction. Decision Making. Motivation. Sensitivity. Success. Selfless Service. Case Study of Ethical Lives. Positive Spirit. Body, Mind and Soul. Attachment and Detachment. Spirituality Quotient. Examination. Course title: **Educational Tour2(0+2)**

  
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**COURSE - III**  
**Environmental Studies**  
**Qualifying Course**  
**(Theory)**

**1<sup>st</sup> Year /Semester I<sup>st</sup>**

Paper Code- **B.SC. HOME SCIENCE 008**

Time: 3 Hrs  
Max Marks: 100

**Unit-1: The Multidisciplinary Nature of Environmental Studies:**  
Definition, Scope and Importance, Need for Public Awareness.

**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 effect 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:**

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

**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)

**Unit-4: Biodiversity and Its Conservation**

**Introduction -**

**Definition:** genetic, species and ecosystem diversity.

Bio geographical classification of India

**Value of biodiversity:** Consumptive use, productive use, social, ethical, and aesthetic and option values.

Biodiversity at global, National and local levels.

India as a mega-diversity nation

Hot-spots of biodiversity.

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**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.

**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 pollution,

**Solid 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.

**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

**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

Women and Child Welfare

Role of Information Technology in Environment and human health

Case Studies

**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).

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## BASIC SCIENCE DEPARTMENT

### CROSS CUTTING ISSUES REPORT 2022-23

In the B.Sc. NEP (New Education Policy 2020) syllabus for 2022-2023 there is an emphasis on cross-cutting issues like:

- Gender sensitivity
- Environment and sustainability
- Human values and professional ethics

Yes, these topics are generally included.

However, they are **not always** part of the "core science" papers like Physics, Chemistry, Mathematics, and Biology.

Instead, they usually appear in:

- Ability Enhancement Courses (AEC)
- Skill Enhancement Courses (SEC)
- Value Added Courses (VAC)
- Environmental Studies (compulsory in many universities)

While In the traditional B.Sc. syllabus for 2022-2023 for the human values –(0380101) sports and physical education paper (B003) in III year is used.

Cross-cutting Issue	Common Paper Names	Code	Sem/year
Environment and Sustainability	Human Values and Environment studies	0380101	IV sem
Human Values and Ethics	Human Values and Environment studies	0380101	IV sem
	Sports and physical Education	B003	III year

  
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# Department of Higher Education

## U.P. Government, Lucknow

National Education Policy-2020

Common Minimum Syllabus for all U.P. State Universities

**Co-curricular course: Semester-3**

**Course Title: Human Values and Environment studies**

Name	Designation	Affiliation
<b>Steering Committee</b>		
Mrs. Monika S. Garg, (I.A.S.), Chairperson Steering Committee	Additional Chief Secretary	Dept. of Higher Education U.P., Lucknow
Prof. Poonam Tandan	Professor, Dept. of Physics	Lucknow University, U.P.
Prof. Hare Krishna	Professor, Dept. of Statistics	CCS University Meerut, U.P.
Dr. Dinesh C. Sharma	Associate Professor	K.M. Govt. Girls P.G. College Badalpur, G.B. Nagar, U.P.

### Syllabus Developed by:

S.No.	Name	Designation	Department	College University
1.	Dr. Ajai Prakash	Astt. Professor	Business Administration	University of Lucknow
2.	Dr. Manuka Khanna	Professor	Political Science	University of Lucknow
3.	Dr. Amita Kannaujia	Professor	Zoology	University of Lucknow
4.	Dr. Rashi Kesh	Sr. Astt. Professor	HRD, FMS	VBS Purvanchal University, Jaunpur
5.	Dr. Jyoti Prakash	Sr. Astt. Professor	Amity Institute of Biotechnology	Amity University, Lucknow

### Syllabus: Human Values and Environment studies

Programme/Class: Certificate	Year: Second	Semester: Third
Co-Curricular Course		
Course Code: Z030301	Course Title: Human Values and Environment studies	
Course outcomes: The mission of the course on Human Values and Environmental Studies is to create morally articulate solutions to be truthful and just and to become responsible towards humanity. The course seeks to establish a continuous interest in the learners to improve their thought process with intent to develop a new generation of responsible citizens capable of addressing complex challenges faced by the society due to disruptions in human interactions effecting human values. This course works towards		
<ul style="list-style-type: none"><li>• Building fundamental knowledge of the interplay of markets, ethics, and law,</li><li>• Look at various challenges faced by individual to counter unethical issues</li><li>• Look at core concepts for business ethics</li><li>• Look at core concepts of anti-corruption</li><li>• Look at core concepts for a morally articulate solution evolver to management issues in general,</li><li>• Issues of sustainable development for a better environment.</li><li>• To know how environmental degradation has taken place.</li><li>• Be aware of negotiations and international efforts to save environment.</li><li>• How to develop sustainably?</li><li>• Efforts taken up by UN in Sustainable Development.</li></ul>		

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<ul style="list-style-type: none"> <li>• Efforts taken by India in Sustainable Development.</li> <li>• The course intends to create a sense of how to be more responsible towards the environment.</li> </ul> <p>Upon finishing of the course students will be able to come up with using ethical reasoning for decision making and frame ethical issues as well as operationalise ethical choices. The course integrates various facets of human values and environment.</p>		
Credits: 2		
Max. Marks: 100		Min. Passing Marks:40
<p>Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 2-0-0</p> <p>As the course requires two areas of Human Values and Environment Studies institutions can even opt for a parallel delivery</p>		
Unit	Topics	No. of Lectures Total=30
I	<b>Human Values-</b> Introduction- Values, Characteristics, Types ,Developing Value system in Indian Organisation , Values in Business Management , value based Organisation , Trans –cultural Human values in Management. Swami Vivekananda's philosophy of Character Building, Gandhi's concept of Seven Sins, APJ Abdul Kalam view on role of parents and Teachers.	02
	<b>Human Values and Present Practices – Issues :</b> Corruption and Bribe , Privacy Policy in Web and Social Media, Cyber threats ,Online Shopping etc. Remedies UK	02
	<b>Bribery Act, Introduction to sustainable policies and practices in Indian Economy.</b>	03
	<b>Principles of Ethics</b> <b>Secular and Spiritual Values in Management- Introduction-</b> Secular and Spiritual values, features , Levels of value Implementation. Features of spiritual Values , <b>Corporate Social Responsibility-</b> Nature, Levels ,Phases and Models of CSR, Corporate Governance. CSR and Modern Business Tycoons Ratan Tata, Azim Premji and Bill Gates.	
II	<b>Holistic Approach in Decision making-</b> Decision making, the decision making process , The Bhagavad Gita: Techniques in Management , Dharma and Holistic Management.	03
	<b>Discussion through Dilemmas –</b>	03
	Dilemmas in Marketing and Pharma Organisations, moving from Public to Private – monopoly context , Dilemma of privatisation, Dilemma on liberalization, Dilemma on social media and cyber security , Dilemma on Organic food , Dilemma on standardization ,Dilemma on Quality standards. <b>Case Studies</b>	02
III	Ecosystem: Concept, structure & functions of ecosystem : producer, consumer, decomposer, foodweb, food chain, energy flow, Ecological pyramids Conservation of Biodiversity- In-situ & Ex- situ conservation of biodiversity Role of individual in Pollution control Human Population & Environment Sustainable Development India and UN Sustainable Development Goals Concept of circular economy and entrepreneurship	7
IV	Environmental Laws? International Advancements in Environmental Conservation Role of National Green Tribunal Air Quality Index	8

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	Importance of Indian Traditional knowledge on environment Bio assessment of Environmental Quality Environmental Management System Environmental Impact Assessment and Environmental Audit	
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#### Suggested Readings:

1. A foundation course in Human Values and Professional Ethics by RR. Gaur, R. Sangal et.al
2. JUSTICE: What's the Right Thing to Do? Michael J. Sandel.
3. Human Values by A. N. Tripathi New Age International
4. Environmental Management by N.K. Uberoi
5. <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>
6. <https://www.india.gov.in/my-government/schemes>
7. <https://www.legislation.gov.uk/ukpga/2010/23/contents>
8. Daniel Kahneman, Thinking, Fast and Slow; Allen Lane Nov 2011 ISBN: 9780141918921

#### Suggested Continuous Evaluation Methods:

In addition to the theoretical inputs the course will be delivered through case studies and dilemmas. Assignments, Presentation, Group Discussions. This will instill in student a sense of decision making and practical learning. The course participants can be evaluated on the following structure.

- Assignments ( 10)
- Presentation (10)
- Attendance ( 5)
- Final exam ( 75)

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## **SPORTS & PHYSICAL EDUCATION**

- Unit I:** Education and Physical Education :  
Meaning and Definition of Education and Physical Education, Aims and Objectives, Scope of Physical Education, Need and Importance of Physical Education.
- Unit II:** Health Education and Nutrition :  
Meaning, Definition and Dimensions of Health, Meaning, Definition, Objectives and Principles of Health Education, Balanced Diet, its Elements and Sources, Mal-nutrition and Adulteration.
- Unit III:** Biological Basis of Physical Education :  
Meaning of Growth and Development, Factors affecting Growth and Development Heredity and Environment, Effect of Heredity and Environment of Growth and Development.
- Unit IV:** Psychological Basis of Physical Education :  
Meaning and Definition of Psychology, Meaning and Definition of Personality, Psychological Factors affecting Physical Performance.
- Unit V:** Olympic Games, Asian Games, Afro-Asian Games and Commonwealth Games : Ancient Olympic Games, Modern Olympic Games, Afro-Asian Games, Commonwealth Games.

### **PRACTICAL**

Maximum Marks : 50

1. Historical Development of The Games/Sports—Indian Asia, World.
2. Governing Body of the Games/Sports—At Distt., State, National, International Level.
3. Facility of the Games/Sports—Measurements of the Field/Court, Preparation of the Field/Court, Maintenance of the Field/Court.
4. Basic Qualities of the Athlete.

नोट— पाठ्यक्रम बहुत ही सावधानी से प्रकाशित किया गया है। फिर भी किसी त्रुटि के लिए प्रकाशक, मुद्रक, विक्रेता उत्तरदायी नहीं है। कृपया विश्वविद्यालय द्वारा प्रकाशित पाठ्यक्रम से अवश्य चेक कर लें।

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## Cross Cutting

1. Environmental Education
2. Gender, School & Society

Submitted By:

Dr. Munendra Kumar,

Head of Department,

Department of Teacher Education

Shri Ram College, Muzaffarnagar,

Uttar Pradesh, INDIA

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1. **COURSE STATUS**      **CORE COURSE (CC-6)**
2. Course Number X
3. Course Title      **GENDER, SCHOOL AND SOCIETY**
4. Course Code      **0258002**
5. Period per week      **3**
6. Weightage      **50 marks**
7. Course Objectives      **To enable students-teachers to :**

- Sensitize the future teachers towards basic understanding of various key concepts of gender studies.
- Learn about gender issues in school, curriculum and textual materials across disciplines, pedagogical process and its interaction with class, caste, religion and region.
- Help them understand the contribution of women in social, economic & political development of the society.
- Apply the conceptual tools learn regarding gender & sexuality to understand issues related to sexual harassment at the workplace and child sexual abuse.

**UNIT 1: Gender Issues- Key Concepts:**

- Concept of Sex, Gender and Sexuality in cross cultural perspectives
- Patriarchy, Masculinity and Femininity, Feminism- waves and kinds.
- Gender Bias, Gender Stereotyping and Gender Intersectionality.
- Equity and Equality in relation with cast, class, religion, ethnicity, disability and region.

**UNIT 2: Gender Inequality in Schools:**

- In the Structure of Knowledge
- In the Development of Curriculum and Hidden Curriculum
- In Text and Context
- In Class Rooms
- In the Management of Schools
- Role of a teacher as an Agent of Change

**UNIT 3: Women in Indian Society:**

- Situational Analysis of women in Indian Society (with Reference to - Sex ratio pattern, Education, Health, Work- Participation, Violence against Women).

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- Women's Access to and Participation in Formal and Non- Formal education-Gender Bias in Enrolment and Drop outs)
- Human Rights and Empowerment of Women

#### UNIT 4: Theories of Feminism-

- Socialization Theory of feminism
- Gender Difference Theory of feminism
- Structural Theory of Feminism
- Deconstructive Theory of feminism
- Feminism in Indian Context

#### UNIT 5: Sexual Harassment and Abuse:

- Linkage and Difference between Reproductive Rights and Sexual Rights
- Understanding the Importance of Addressing Sexual Harassment in Family, Neighborhood and other Formal Informal Institutions.
- Agencies Perpetuating Violence: Family, School, Work- Place and Media (Print and Electronic)
- Institutions Redressing Sexual Harassment and Abuse.

#### Task and Assignments (any one)

- Preparing analytical report on portrayal of women in print and electronic media.
- Analysis of textual material from the perspective of gender bias and stereotype.
- Field visit to school, to observe the schooling processes from a gender perspective
- Critical analysis of any theme of the course content in about eight to ten pages

1. **COURSE STATUS** **CORE COURSE (CC-7)**
2. Course Number XI
3. Course Title KNOWLEDGE, LANGUAGE & CURRICULUM
4. Course Code 0258003
5. Period per week 03
6. Weightage 50 Marks
7. Course Objectives To enable student's teacher :
  - To examine the Epistemological basic of education
  - To understand the concept and principles of curriculum development

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#### Unit IV :Career Information and Training

- Information about Education and Training opportunities of primary, elementary and secondary levels school.

#### Unit V : Career Information and School

- Personal-social information at every school level.

#### Task and Assignments:

- Prepare a student profile in terms of Intelligence, Interests, Aptitude, Personality and Self-Concept and giving him/her proper vocational Guidance.
- A survey /project on any related problem.
- Critical analysis of any theme of the course content in about eight to ten pages

1. Course Status PEDAGOGY COURSE : PC-4 (OPTIONAL COURSE-ANY ONE )

2. Course Number XIV

3 Course Title ENVIRONMENT EDUCATION

4 Course Code 0258008

5 Period per week 03

6 Weightage 50 marks

7 Course Objectives To enable student-teachers to-

- Enable the student teacher understand about the concept of environmental education.
- Develop in the student teacher a sense of awareness about the environmental pollution, and possible hazards and its causes and remedies.
- Develop a sense of responsibility towards conservation of environment, bio-diversity and sustainable development.
- Develop reasonable understanding about the role of school and education in fostering the idea and learning to live in harmony with nature.
- Enable the students to understand about the various measures available to conserve the environment for sustaining the development.

#### Unit I: Basic Concept of Environmental Education

- Meaning and nature of environment. Natural and Man-made Environment.
- Environmental Education: Meaning, Scope and Objectives.

#### Unit II: Environmental Awareness and Attitude change

- Concept of Environmental Awareness and Attitude change
- Programmes of Environmental Awareness and Attitude change at Secondary School Level

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### Unit III: Biodiversity and its conservation

- Meaning and values of Biodiversity, Major Natural Resources in India.
- Threats to Biodiversity-habitat loss, poaching of wild life, man-wildlife conflicts.
- Conservation of genetic diversity, an important environment priority: learning to live in harmony with nature.

### Unit IV: Environment Issues and Its Preventive Measures

- Causes and effects of environmental hazard, global and local Environmental pollution and its remedies. Air, Water, Soil, Marine, Noise, Thermal and Nuclear Pollution.
- Climate Change- Global Warming, Acid Rain, Ozone layer depletion, Polar Melting.
- Natural Disasters-Flood, Earthquake, Cyclone and Landslides.

### Unit V: Environment Management

- Environmental Ethics and Values.
- Environmental Acts, Rule and Regulations.
- Role of school in environmental conservation and sustainable development.

### Task and Assignments (any one) :

- To submit a report after surveying a typically degraded area and to suggest necessary remedial measures with latest statistical data. The area of this task is to include any one of the following topics :

- Noise Pollution
- Water Pollution
- Air Pollution
- Deforestation
- Role of the Pollution control boards
- Role of Voluntary Organizations.
- Critical analysis of any theme of the course content in about eight to ten pages

1. Course Status PEDAGOGY COURSE : PC4 (OPTIONAL COURSE-ANY ONE )

2. Course Number XIV

3. Course Title COMPUTER EDUCATION

4. Course Code 0258009

5. Period per week 03

6. Weightage 50 marks

7. Course Objectives To enable student-teachers to –

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**Year -I, Semester-I**

Semester	Paper	Course Code	Course Title	Th/ Pr	Credits	(MM-100)		Min Marks	Min Marks
						IE	UE	UE	Total
BCA-1 SEM	1	0127001	Mathematical Foundation for Computer Science	TH	4	25	75	25	40
	2	0127002	Computer Fundamental & Office Automation	TH	4	25	75	25	40
	3	0127003	Programming in "C"	TH	4	25	75	25	40
	4	0127004	Digital Electronics & Computer Organization	TH	4	25	75	25	40
	5	0127005	Business Communication	TH	4	25	75	25	40
	6	0127080	C & OFFICE LAB	PR	4	-	100		40
	7	0120008	<b>Value added course</b> Environmental Studies	TH	2 Qualifyi ng		100		33

**Year- I, Semester-II**

Semester	Paper	Course Code	Course Title	Th/ Pr	Credits	(MM-100)		Min Marks	Min Marks
						IE	UE	UE	Total
BCA-2 SEM	1	0227001	Mathematics-I	TH	4	25	75	25	40
	2	0227002	Advance C-Programming	TH	4	25	75	25	40
	3	0227003	Computer Architecture & Assembly language	TH	4	25	75	25	40
	4	0227004	Principle of Management	TH	4	25	75	25	40
	5	0227005	Financial Accounting with Tally	TH	4	25	75	25	40
	6	0227080	C Prog. & Tally LAB	PR	4	-	100		40

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BCA Syllabus Maa Shakumbhari University Saharanpur implemented from session 2023-24

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## Syllabus of Value Added Course in Environmental Studies for UG programmes

Course Title: Environmental Studies

Credits-2

Max Marks: 100

Max Marks: 100 Marks.

Duration: 2 Hrs

Learning objectives: This course attempts to create pro-environment attitude and a behavioral pattern in student community and society that attaches importance and priority to create sustainable life style and awareness on various environmental issues.

Learning outcomes: This course is expected to inculcate a critical thinking on various dimensions of environment through knowledge, skill, critical thinking and problem-solving

### Unit 1: Understanding the Environment

- 1.1. Environment: concept, importance and components
- 1.2. Ecosystem: Concept and structure of Ecosystem
- 1.3 Functions of Ecosystem: Food chain, Food Web, Ecological Pyramids and Energy Flow
- 1.4. Ecosystem services: (Provisioning, regulating and cultural)

### Unit 2: Natural resources and Environmental Pollution

- 2.1. Natural resources: Renewable and non-renewable (Global status, distribution and production)
- 2.2. Management of natural resources: Individual, community and government managed
- 2.3. Air, water and soil pollution: Causes, consequences and control
- 2.4. Solid waste management: Collection, segregation, transportation and disposal; 3R's

### UNIT 3: Biodiversity and Issues in Environment

- 3.1 Concept of Biodiversity - levels, values and hot spots of Biodiversity
- 3.2 Threats to biodiversity and conservation of Biodiversity
- 3.3 Climate change, causes and consequences
- 3.4 Concept and objectives of Environmental Education, Environmental Ethics

### UNIT-IV Introduction to Environment

- 4.1. Introduction to Environment, components of Environment and need of Environmental Education
- 4.2. Environmental Pollution-Types and effects on human beings and Environment
- 4.3. Human Population explosion and exploitation of Natural resources

### UNIT V- Global Environmental issues

- 5.1. Global Warming and Climate Change, Ozone Depletion and Acid Rain.
- 5.2. Conventional and non-conventional Energy resources
- 5.3. Global Biodiversity loss and Species Extinction

### Unit VI: Environmental law and policy

- 6.1 Constitutional provisions for environmental protection (article 21, 48A, 51A)





## Department of Higher Education

### U.P. Government, Lucknow

National Education Policy-2020

Common Minimum Syllabus for all U.P. State Universities

**Co-curricular course: Semester-3**

**Course Title: Human Values and Environment studies**

Name	Designation	Affiliation
<b>Steering Committee</b>		
Mrs. Monika S. Garg, (I.A.S.), Chairperson Steering Committee	Additional Chief Secretary	Dept. of Higher Education U.P., Lucknow
Prof. Poonam Tandan	Professor, Dept. of Physics	Lucknow University, U.P.
Prof. Hare Krishna	Professor, Dept. of Statistics	CCS University Meerut, U.P.
Dr. Dinesh C. Sharma	Associate Professor	K.M. Govt. Girls P.G. College Badalpur, G.B. Nagar, U.P.

#### Syllabus Developed by:

S.No.	Name	Designation	Department	College University
1.	Dr. Ajai Prakash	Astt. Professor	Business Administration	University of Lucknow
2.	Dr. Manuka Khanna	Professor	Political Science	University of Lucknow
3.	Dr. Amita Kannaujia	Professor	Zoology	University of Lucknow
4.	Dr. Rashi Kesh	Sr. Astt. Professor	HRD, FMS	VBS Purvanchal University, Jaunpur
5.	Dr. Jyoti Prakash	Sr. Astt. Professor	Amity Institute of Biotechnology	Amity University, Lucknow

#### Syllabus: Human Values and Environment studies

Syllabus: Human Values and Environment studies		
Programme/Class: Certificate	Year: Second	Semester: Third
Co-Curricular Course		
Course Code: Z030301	Course Title: Human Values and Environment studies	
Course outcomes:		
<p>The mission of the course on Human Values and Environmental Studies is to create morally articulate solutions to be truthful and just and to become responsible towards humanity. The course seeks to establish a continuous interest in the learners to improve their thought process with intent to develop a new generation of responsible citizens capable of addressing complex challenges faced by the society due to disruptions in human interactions effecting human values. This course works towards</p> <ul style="list-style-type: none"><li>• Building fundamental knowledge of the interplay of markets, ethics, and law,</li><li>• Look at various challenges faced by individual to counter unethical issues</li><li>• Look at core concepts for business ethics</li><li>• Look at core concepts of anti-corruption</li><li>• Look at core concepts for a morally articulate solution evolver to management issues in general,</li><li>• Issues of sustainable development for a better environment.</li><li>• To know how environmental degradation has taken place.</li><li>• Be aware of negotiations and international efforts to save environment.</li><li>• How to develop sustainably?</li><li>• Efforts taken up by UN in Sustainable Development.</li></ul>		

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- Efforts taken by India in Sustainable Development.
- The course intends to create a sense of how to be more responsible towards the environment.

Upon finishing of the course students will be able to come up with using ethical reasoning for decision making and frame ethical issues as well as operationalise ethical choices. The course integrates various facets of human values and environment.

Credits: 2

Max. Marks: 100

Min. Passing Marks:40

Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 2-0-0

As the course requires two areas of Human Values and Environment Studies institutions can even opt for a parallel delivery

Unit	Topics	No. of Lectures Total=30
I	<b>Human Values-</b> Introduction- Values, Characteristics, Types ,Developing Value system in Indian Organisation , Values in Business Management , value based Organisation , Trans –cultural Human values in Management. Swami Vivekananda's philosophy of Character Building, Gandhi's concept of Seven Sins, APJ Abdul Kalam view on role of parents and Teachers.	02
	<b>Human Values and Present Practices – Issues :</b> Corruption and Bribe , Privacy Policy in Web and Social Media, Cyber threats ,Online Shopping etc. Remedies UK	02
	<b>Bribery Act, Introduction to sustainable policies and practices in Indian Economy.</b>	03
	<b>Principles of Ethics</b> <b>Secular and Spiritual Values in Management- Introduction-</b> Secular and Spiritual values, features , Levels of value Implementation. Features of spiritual Values , <b>Corporate Social Responsibility-</b> Nature, Levels ,Phases and Models of CSR, Corporate Governance. CSR and Modern Business Tycoons Ratan Tata, Azim Premji and Bill Gates.	
II	<b>Holistic Approach in Decision making-</b> Decision making, the decision making process , The Bhagavad Gita: Techniques in Management , Dharma and Holistic Management.	03
	<b>Discussion through Dilemmas –</b>	03
	Dilemmas in Marketing and Pharma Organisations, moving from Public to Private – monopoly context , Dilemma of privatisation, Dilemma on liberalization, Dilemma on social media and cyber security , Dilemma on Organic food , Dilemma on standardization ,Dilemma on Quality standards. <b>Case Studies</b>	02
III	Ecosystem: Concept, structure & functions of ecosystem : producer, consumer, decomposer, foodweb, food chain, energy flow, Ecological pyramids Conservation of Biodiversity- In-situ & Ex- situ conservation of biodiversity Role of individual in Pollution control Human Population & Environment Sustainable Development India and UN Sustainable Development Goals Concept of circular economy and entrepreneurship	7
IV	Environmental Laws? International Advancements in Environmental Conservation Role of National Green Tribunal Air Quality Index	8

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	Importance of Indian Traditional knowledge on environment Bio assessment of Environmental Quality Environmental Management System Environmental Impact Assessment and Environmental Audit	
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#### **Suggested Readings:**

1. A foundation course in Human Values and Professional Ethics by RR. Gaur, R. Sangal et.al
2. JUSTICE: What's the Right Thing to Do? Michael J. Sandel.
3. Human Values by A. N. Tripathi New Age International
4. Environmental Management by N.K. Uberoi
5. <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>
6. <https://www.india.gov.in/my-government/schemes>
7. <https://www.legislation.gov.uk/ukpga/2010/23/contents>
8. Daniel Kahneman, Thinking, Fast and Slow; Allen Lane Nov 2011 ISBN: 9780141918921

#### **Suggested Continuous Evaluation Methods:**

In addition to the theoretical inputs the course will be delivered through case studies and dilemmas. Assignments, Presentation, Group Discussions. This will instill in student a sense of decision making and practical learning. The course participants can be evaluated on the following structure.

- > Assignments ( 10)
- > Presentation (10)
- > Attendance ( 5)
- > Final exam ( 75)

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