

**Detailed Course Scheme**  
**Bachelor of Science (Hons.)**  
**Agriculture**

**Semester- II**  
**(2020- 21)**

DOC202002250016



**RNB GLOBAL UNIVERSITY**

RNB Global City, Ganganagar Road,  
Bikaner, Rajasthan 334601

## **OVERVIEW**

RNB Global University follows Semester System along with Choice Based Credit System as per latest guidelines of University Grants Commission (UGC). Accordingly, each academic year is divided into two semesters, **Odd (July-December)** and **Even (January-June)**. Also, the university follows a system of continuous evaluation along with regular updating in course curricula and teaching pedagogy.

The Curriculum for B. Sc Agriculture Program along with examination pattern is as follows:

### **Course Scheme**

#### **Semester -II**

<b>S. No.</b>	<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
1.	20001200	Plant Biochemistry	2	0	0	2
2.	20001300	Plant Biochemistry Lab	0	0	2	1
3.	20001400	Microbiology	2	0	0	2
4.	20001500	Microbiology Lab	0	0	2	1
5.	20001600	Introduction to Entomology and Nematology	2	1	0	3
6.	20001700	Introduction to Entomology and Nematology Lab	0	0	2	1
7.	20001800	Irrigation & Water Management	2	1	0	3
8.	20001900	Rural Sociology and Educational Psychology	2	1	0	3
9.	20002000	Natural Resources and Farm Management	2	0	0	2
10.	20002100	Fundamentals of Plant Breeding	2	0	0	2
11.	20002200	Fundamentals of Plant Breeding Lab	0	0	2	1
12.	99001900	Environmental Studies	3	1	0	4
13.	20002300	Ability and Skill Enhancement - II	2	0	0	2
14.	99002800	Workshops & Seminars	-	-	-	1
15.	99002700	Human Values & Social Service/NCC/NSS	-	-	-	1
<b>Total</b>			<b>19</b>	<b>4</b>	<b>8</b>	<b>29</b>

## **EVALUATION SCHEME - THEORY**

The evaluation of the theory paper of B.Sc. Agriculture program would be based on Internal and External Assessments. Internal Assessment would consist of 50% of the marks (50 marks) and external assessment (in form of End Term Exam) would consist of remaining 50% marks (50 marks). Detailed scheme of Internal and External Assessments as follows:

### **Internal Assessment**

The distribution of Internal Assessment Marks is as follows:

Type	Details	Marks
Mid Term	Two Mid-term Sessional of 15 marks each (15+15)	30
Marks obtained in various Tests, Assignments, Presentations, Quiz, Tutorials, etc.	Average of marks obtained	15
Attendance	75%+ : 5 marks	5
<b>TOTAL</b>	<b>50</b>	

### **External Assessment**

Type	Marks
Theory	50

## **EVALUATION SCHEME - PRACTICAL**

The evaluation of the practical paper of B.Sc. Agriculture program would be based on Internal and External Assessments. Internal Assessment would consist of 50% of the marks (50 marks) and external assessment (in form of End Term Exam) would consist of remaining 50% marks (50 marks). Detailed scheme of Internal and External Assessment is as follows:

### **Internal Assessment**

Type	Details	Marks
Marks obtained in various manuals, practical file, participation, any model prepared, output of practical	Average of marks obtained	45
Attendance	75%+ : 5 marks	5
<b>TOTAL</b>	<b>50</b>	

### **External Assessment**

Type	Marks
Practical	50

### **EVALUATION SCHEME- WORKSHOPS & SEMINARS & NCC/NSS**

1. NCC/NSS will be completed from Semester I – Semester IV. It will be evaluated internally by the institute. The credit for this will be given at the end of Semester.
2. The students have to join club/clubs with the active participation in different activities of club. The students would be continuously assessed from Semester-I to Semester-IV and credits and marks would be given after the end of Semester.

### **CURRICULUM**

**Course Name: Plant Biochemistry**

**Course Code: 20001200**

#### **Course Outline**

##### **Unit I**

Biochemistry –Introduction and importance. Plant cell-Structure & organellar functions. Bio-molecules – Structure, Properties & reactions: amino acids, peptides and proteins, lipids, carbohydrates, nucleotides and nucleic acids.

## **Unit II**

Enzymes – Factors affecting the activity, classification, immobilization and other industrial applications.

## **Unit III**

Metabolism – Basic concepts, glycolysis, citric acid cycle, pentose phosphate pathway, b-oxidation of fatty acid, electron transport and oxidative phosphorylation. General reactions of amino acid degradation.

Metabolic regulation. Secondary metabolites-terpenoids alkaloids, phenolic

## **Suggested Readings**

1. Plant Biochemistry- V. Arun Kumar, N. Senthil Kumar and K. Siva Kumar, 2010, APH Publishing Corporation, New Delhi.
2. Biotechnology-Expanding Horizons, B.D. Singh, 2014, Kalyani Publishers, Ludhiana
3. Principles and Techniques of Biochemistry and Molecular Biology, Eds. Keith Wilson and John Walker, 7th Edition, 2010, Cambridge University Press
4. A Textbook of Biotechnology, Revised Edition, 2014, R.C. Dubey, S. Chand Publishing Company, New Delhi
5. Lehninger Principles of Biochemistry by Albert Lehninger, David Nelson and Michael Cox, Seventh Edition, 2017 Macmillan Publishers.

**Course Name: Plant Biochemistry Lab**

**Course Code: 20001300**

## **Practical**

1. Protein denaturation- heat, pH, precipitation of proteins with heavy metals,
2. Estimation of crude protein,
3. Estimation of protein by Lowry method;
4. Enzyme assay; Extraction of nucleic acids;
5. Extraction of oil from oilseeds;
6. Estimation of crude fat;
7. Estimation of iodine number and saponification value of an oil;
8. Quantitative determination of sugars;
9. Paper chromatography for the separation of sugars;
10. Determination of phenols, chlorophyll, phosphorus and ascorbic acid

## **Course Name: Microbiology**

**Course Code: 20001400**

### **Course Outline**

#### **Unit-I**

Introduction. Microbial world: Prokaryotic and eukaryotic microbes. Bacteria: cell structure, chemoautotrophy, photo autotrophy, growth. Bacterial genetics: Genetic recombination transformation, conjugation and transduction, plasmids, transposon. Role of microbes in soil fertility and crop production: Carbon, Nitrogen, Phosphorus and Sulphur cycles.

#### **Unit-II**

Biological nitrogen fixation- symbiotic, associative and asymbiotic. Azolla, blue green algae and mycorrhiza. Rhizosphere and phyllosphere. Microbes in human welfare: silage production, biofertilizers, biopesticides, biofuel production and biodegradation of agro-waste.

### **Suggested Readings**

1. Biswas, T.D. and Mukherjee, S.K. 1990. Text Book of Soil Sciences, Tata McGraw-Hill Publishing Company Limited, New Delhi.
2. Mukherjee, N. and Ghosh T. 1998. Agricultural Microbiology, Kalyani Publishers, New Delhi.
3. Pelczar, Jr. Michel J. Chan, E.C.S. and Krieg, Noel R. 1997. Microbiology. Tata McGraw -Hill Edition, 1993. India.
4. Rangaswami, G. and Bagyaraj, D.J. 2010. IInd ed. Agricultural Microbiology. Prentice Hall of India Pvt. Limited, New Delhi.
5. Rao, N.S. 2000. Soil Microbiology, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
6. Vishunavat, K. and Kolte, S.J. 2005. Essentials of Phytopathological Techniques. Kalyani Publishers, New Delhi
7. Prescott, 2014. Microbiology. McGraw Hill & Co.
8. R.P. Singh, 2013. Plant Pathology. Kalyani Publishers

## **Course Name: Microbiology Lab**

**Course Code : 20001500**

## **Practical**

1. Introduction to microbiology laboratory and its equipments;
2. Microscope- parts, principles of microscopy, resolving power and numerical aperture.
3. Methods of sterilization.
4. Nutritional media and their preparations.
5. Enumeration of microbial population in soil- bacteria, fungi, actinomycetes.
6. Methods of isolation and purification of microbial cultures.
7. Isolation of Rhizobium from legume root nodule.
8. Isolation of Azotobacter from soil. Isolation of Azospirillum from roots.
9. Isolation of BGA. Staining
10. Microscopic examination of microbes.
11. Mehrotra, R.S. and Aggarawal, A. 2012. 12th ed. Plant Pathology. Tata McGraw Hill Publishing Co. Ltd., New Delhi

## **Course Name: Introduction to Entomology and Nematology**

**Course Code: 20001600**

### **Course Outline:**

#### **Unit-I**

Introduction to phylum arthropoda Importance of class Insect dominance History of entomology in India Importance of entomology in different fields. Definition, division and scope of entomology Comparative account of external morphology-types of mouth parts, antennae, legs, wings and genitalia. Structure, function of cuticle & moulting and body segmentation,

#### **Unit II**

Anatomy of digestive, Circulatory, Sensory, respiratory, glandular, excretory, nervous and reproductive systems Types of reproduction. Postembryonic development-eclosion. Metamorphosis. Types of egg larvae and pupa Classification of insects upto orders, sub-order and families of economic importance and their distinguished characters. Plant mites – morphological features, important families with examples

#### **Unit III**

History and economic importance of plant parasitic nematodes; Characters of Phylum Nematoda and systematic position of plant parasitic nematodes (outline classification up to Generic level); General morphology, ecology and biology; Plant nematode relationship; Kinds of parasitism and symptomology; Nematode interaction with other micro-organisms; Nematode diseases of crop plants of economic importance in State with special reference to *Meloidogyne* sp. *Heterodera* spp., *Anguina* spp. and

Rotylenchulus reniformis Tylenchulus semipenetrans; Principles of nematode management

### **Suggested Readings**

1. Nayar. K.K, Ananthakrishnan .T.N. and David.B.V. 1976.General and Applied Entomology.Mcgraw Hill publishing Co. Ltd. New Delhi.
2. Richards O.W. and Davies R.G. 1977. Imm's General Text Book of Entomology, Vol.I & II. Chapman and Hall, London.
3. Pant. N.C. and Ghai, S. 1981. Insect Physiology and Anatomy, ICAR, New Delhi.
4. Chapman .R.F.1974. Insect Structure and Function, ELBS Publishers New Delhi.
5. Snodgrass.R.E .2001. Principles of Insect Morphology.
6. Mathur and Upadhyay, 2000. A Text Book of Entomology, Aman Publishing House, Meerut.
7. Reddy, P.P. (1993). A treatise on phyto nematology, Agricol.Publ. Academy, N. Delhi.
8. Walia, R.K. and Bajaj, H.K. (2003). Introduction plant Nematology, ICAR Publication, KrishiBhawan, New Delhi.
9. Laboratory Manual of Elementary Nematology (Correspondence to course No. NEMAT-411) by Dr. R.L. Midha and Dr. G.L. Sharma (2007).

**Course Name: Introduction to Entomology and Nematology Lab**

**Course Code: 20001700**

### **Course Outline**

1. Insect collection and preservation. Identification of important insects.
2. General body organization of insects. Study on morphology of grasshopper or cockroach. Preparation of permanent mounts of mouth parts, antennae, legs and wings.
3. Dissection of grasshopper and caterpillar for study of internal morphology.
4. Observations on metamorphosis of larvae and pupae.
5. Dissection of cockroaches.
6. Study of compound microscope along with other laboratory necessities,
7. Survey and Collection of soil and plant samples,
8. Extraction of nematodes from soil and roots, killing and fixing of nematodes, staining and separation of nematodes in plants tissue,
9. Preparation of temporary and semi-permanent mounts of nematodes,
10. Identification of important plant parasitic nematodes,
11. Collection and preservation of nematode diseased plant samples;
12. Nematicides and their uses.



## **Course Name: Irrigation and Water Management**

**Course Code: 20001800**

### **Course Outline**

#### **Unit I**

Irrigation: definition and objectives; Water resources and irrigation development in India and Rajasthan; Soil moisture constants and theories of soil water availability; Methods of soil moisture estimation; Evapo transpiration and crop water requirement; Scheduling of irrigation;

#### **Unit-II**

Methods of irrigation: surface, sprinkler and drip irrigation; Irrigation efficiency and water use efficiency, Irrigation water quality and its management including conjunctive use of water; Water management of different crops (rice, wheat, maize, groundnut, sugarcane, pearl millet, chickpea, mustard); Agricultural drainage.

#### **Unit-III**

Importance of water in crop production Soil Moisture constant Estimation of potential evapo-transpiration and consumptive use Water requirement of crops and factors affecting it Approaches of irrigation scheduling , . Systems and methods of irrigation – drip, sprinkler and mist Irrigation, Quantity and quality of irrigation, Measurement of irrigation water, Elementary idea of drainage on farms.

#### **Suggested Readings:**

1. Land and Water Management Engineering. 1982. Murthy V.V.N. Kalyani Pubhliers, New Delhi.
2. Irrigation: Theory and Practices.2012. Michael A.M. Vikas Publishing House Pvt. Ltd., New Delhi.
3. Principles of Agricultural. Engineering. Vol. II. 2012. Michael A.M. and T.P. Ojha. Jain Brothers, New Delhi.
4. Soil and Water Conservation Water Management. 2010. Mahnot, S.C., Singh P.K. and Chaplot, P.C.,. Apex Publication House, Udaipur.

## **Course Name: Rural Sociology and Educational Psychology**

**Course Code: 20001900**

### **Course Outline**

#### **Unit-I**

Sociology and Rural Sociology- Meaning, Definition, Scope, Importance of rural sociology in Agricultural Extension and Interrelationship between Rural Sociology and

Agricultural Extension. Indian Rural Society, Important characteristics, differences & Relationship between Rural and Urban societies.

Social Groups: Meaning, Definition, Classification, Factors considered in formation and organization of groups. Social Stratification – Meaning, Definition, Functions, Forms of Social stratification.

### **Unit-II**

Cultural concepts - Culture, Customs, Folkways, Mores, Taboos, Rituals and Traditions - Meaning, Definition and their role in Agricultural Extension. Social Values and Attitude - Meaning, Definition, Types and Role of social values and Attitudes in Agricultural Extension.

Social Institutions - Meaning, Definition, Major institutions in Rural society, Functions. Social Control - Meaning, Definition, Need and Means of Social control. Social change - Meaning, Definition, Nature of Social change and factors of social change. Leadership- Meaning, Definition, Classification, Roles of Leader, Methods of selection of leaders.

### **Unit-III**

Psychology and Educational psychology- Meaning, Definition, Scope and Importance of Educational Psychology in Agricultural Extension. Intelligence - Meaning, Definition, Types, Factors affecting intelligence. Personality- Meaning, Definition, Types, Factors influencing the Personality and Role of Personality in Agricultural Extension.

Teaching- Learning process- Meaning and Definition of Teaching, Learning, Learning experience and Learning situation, Elements of learning situation and its characteristics

### **Suggested Readings**

1. Chitambar, J.B. 1973. Introductory rural sociology. New York, John Wiley and Sons.
2. Desai, A.R. 1978. Rural sociology in India. Bombay, Popular Prakashan, 5th Rev. ed.
3. Doshi, S.L. 2007. Rural sociology. Rawat Publishers, Delhi.
4. Jayapalan, N. 2002. Rural sociology. Altanic Publishers, New Delhi.
5. Sharma, K.L. 1997. Rural society in India. Rawat Publishers, Delhi.
6. Bhatia, H.R. 1965. A Text Book of Educational Psychology, Asia Publishing House, New Delhi.
7. Pujari, D. 2002. Educational Psychology in Agriculture, Agrotech Publishing Academy, Udaipur (Raj.)
8. Bhushan, V. and Sachdeva, D.R. 2010. An introduction to Sociology, Kitab Mahal, New Delhi.
9. Rao, C.N.S. 2015. Sociology, S.Chand & Company, New Delhi.
10. Maslow, A.H. 1970. Motivation and personality. Harper and Row publishers, New York.
11. Mondal, S. 2014. Text Book of Rural Sociology and Educational Psychology. Kalyani Publishers, New Delhi.
12. Sharma O. P. and Somani L. L. 2012. Fundamentals of Rural Sociology and Educational Psychology. Agrotech Pub. Co., Udaipur.

## **Course Name: Natural Resources and Farm Management**

**Course Code: 20002000**

### **Course Outline:**

#### **Unit-I**

Concept, Subject matter and importance of natural resource economics, Classifications of natural resources and basic terms and concepts of natural resource economics: ecology-ecosystem, biomass, biosphere, reserves, environment, pollution, etc.

#### **Unit-II**

Natural resources management and conservation, issues in natural resources and management. Approaches to natural resource problems. Important issues in economics and management of land, water and forest resource and the environment. Factors mitigating natural resources scarcity.

Natural resources administration and policy formulations. International environmental issues, climate change.

### **Suggested Readings**

1. Environmental and natural resource economics: Theory, policy and the sustainable society: M.E. Sharpe, Armonk NY
2. The economics of natural resource use :Hartwick JM and Olewiler ND
3. Natural resource economics : Theory and applications in India- Korr JM, Marothia D.K., Katar Singh, Ramaswamy C. and Bentley WR.
4. Environmental and natural resource economics :Tietonberg T. S

## **Course Name : Fundamentals of Plant Breeding**

**Course Code: 20002100**

### **Course Outline**

#### **Unit 1**

Historical development, concept, nature and role of plant breeding, objectives of plant breeding, major achievements and future prospects; Genetics in relation to plant breeding, modes of reproduction, pollination and apomixes, self – incompatibility and male sterility- genetic consequences, cultivar options. Domestication, Acclimatization, introduction; Centre of origin/diversity.

#### **Unit II**

Component of Genetic variation; Heritability and genetic advance; Genetic basis and breeding methods in self- pollinated crops- mass and pure line selection, pedigree, bulk, SSD and backcross methods, hybridization techniques and handling of segregating population; Multiline concept.

Concepts of population genetics and Hardy-Weinberg Law, Genetic basis and methods of breeding cross pollinated crops, modes of selection; Heterosis and inbreeding depression, development of inbred lines and hybrids, composite and synthetic varieties;

### **Unit III**

Breeding methods in asexually propagated crops, clonal selection and hybridization; Wide hybridization and pre-breeding; Polyploidy in relation to plant breeding, mutation breeding-methods and uses;

Breeding for important biotic and abiotic stresses; Biotechnological tools-DNA markers and marker assisted selection. Participatory plant breeding; Development and release of varieties

### **Suggested Readings:**

1. Alard, R.W. 2000.Principles of Plant Breeding. John Willey & Sons, New York.
2. Chahel, G.S. and S.S. Ghosal.2002.Principles and Procedures of Plant Breeding, Biotechnological and Conventional Approaches. Narosa Publishing House, New Delhi.
3. Singh, B.D. 2005. Plant Breeding.Kalyani Publishing House, New Delhi.
4. Singh, P. 2001.Essentials of Plant Breeding-Principles and Methods. Kalyani Publishing House, New Delhi.
5. Jain,H.K. and M.C. Kharkwal.2004. Plant Breeding- Mendelian to Molecular Approach.Narosa Publishing House, New Delhi.
6. Sharma, A.K. 2005. Breeding Technology of Crop Plants (Edt.).Yash Publishing House, Bikaner.
7. Shekhawat, S. S. (ed) (2016). Advances and Current Issues in Agriculture, Vol.III. Shiksha Prakashan, S. M. S. Highway, Jaipur.

**Course Name: Fundamentals of Plant Breeding Lab**

**Course Code: 20002200**

### **Practical:**

1. Plant Breeder's kit, Study of germplasm of various crops.
2. Study of floral structure of self pollinated and cross pollinated crops.
3. Emasculation and hybridization techniques in self & cross pollinated crops.
4. Consequences of inbreeding on genetic structure of resulting populations.
5. Study of male sterility system.
6. Handling of segregating populations.
7. Methods of calculating mean, range, variance, standard deviation, heritability.
8. Designs used in plant breeding experiment, analysis of Randomized Block Design and components of genetic variance.
9. To work out the mode of pollination in a given crop and extent of natural out crossing. Prediction of performance of double cross hybrids.

### **Suggested Readings:**

1. Alard, R.W. 2000.Principles of Plant Breeding. John Willey & Sons, New York.
2. Chahel, G.S. and S.S. Ghosal.2002.Principles and Procedures of Plant Breeding, Biotechnological and Conventional Approaches. Narosa Publishing House, New Delhi.
3. Singh, B.D. 2005. Plant Breeding.Kalyani Publishing House, New Delhi.
4. Singh, P. 2001.Essentials of Plant Breeding-Principles and Methods. Kalyani Publishing House, New Delhi.
5. Jain,H.K. and M.C. Kharkwal.2004. Plant Breeding- Mendelian to Molecular Approach.Narosa Publishing House, New Delhi.
6. Sharma, A.K. 2005. Breeding Technology of Crop Plants (Edt.).Yash Publishing House, Bikaner.
7. Shekhawat, S. S. (ed) (2016). Advances and Current Issues in Agriculture, Vol. III. ShikshaPrakashan, S. M. S. Highway, Jaipur.

## **Course Name: Environmental Studies**

**Course Code: 99001900**

### **Course Outline**

#### **Unit I**

The Multidisciplinary Nature of Environmental Studies Definition, scope and importance need for public awareness. Natural Resources Renewable and Non-renewable Resources: Natural resources and associated problems. (a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people. (b) Water resources: Use and over-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 II**

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 III**

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

### **Unit IV**

Environmental Pollution. Definition. Causes, effects and control measures of (a) Air pollution (b) Water pollution (c) Soil pollution (d) Marine pollution (e) Noise pollution (f) Thermal pollution (g) Nuclear hazards. 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 V**

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. Waste land 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 VI**

Human Population and the Environment. Population growth, variation among nations. Population explosion—Family Welfare Programme. Environment and human health. Human rights. Value education. HIV/AIDS. Women and Child Welfare. Role of Information Technology in environment and human health. Case Studies. Field Work. Visit to a local area to document environmental assets - river/forest/grassland/hill/mountain. Visit to a local polluted sites - Urban/Rural/Industrial/Agricultural. Study of common plants, insects, birds. Study of simple ecosystems—pond, river, hill slopes, etc .

### **Suggested Readings**

1. Environmental Geography, H.M. Saxena, Rawat Pub.
2. A Textbook of Environment, K.M. Agrawal; P.K. Sikdar; S.C. Deb, McMillan Pub.
3. A Textbook of Environmental Studies, D K Asthana & Meera Asthana, S. Chand Pub.
4. Environmental Studies, V. K. Ahluwalia, The Energy and Resources Institute, Pub, (2012).
5. Environmental Chemistry, A.K. Dey, New Age Pub.

6. Environmental Biology, K.C. Agarwal, Nidi Pub. Ltd. Bikaner

## **Course Name: Ability and Skill Enhancement - II**

**Course Code: 20002300**

### **Course Outline - Final Assessment – Debate/Group Discussion**

#### **Unit I: Phonetics**

Phonetic symbols and the International Phonetic Alphabets (IPA), The Description and Classification of Vowels (Monophthongs & Diphthong) Consonants, Phonetic Transcription & Phonology, Syllable, Stress & Intonations, and Reading aloud, recording audio clips.

#### **Unit II: Vocabulary Building**

Idioms and Phrases, Words Often Confused, One word Substitution, Word Formation: Prefix & Suffix.

#### **Unit III: Ethics & Etiquettes**

What are ethics, what are values, difference between ethics and morals, Business ethics, workplace ethics, what are virtues for e.g. civic virtues, etc. Human ethics and values- 5 core human values are: right conduct, living in peace, speaking the truth, loving and care, and helping others. Etiquette awareness, Importance of First Impression, Personal Appearance & Professional presence, Personal Branding, Dressing Etiquette, Dining Etiquette.

#### **Unit IV: Reading & Writing Skills**

Reading Comprehension, News Reading, Picture Description, Paragraph Writing, News Writing.

#### **Unit V : Listening & Speaking Skills**

Public Speaking, Debate, Inspirational Movie Screening, Skit Performance.

**Note:** The review of Syllabus happens on periodic basis for the benefit of the students. In case there are changes in curriculum due to review, students would be intimated in writing.

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