

## M.Sc Biotechnology

### BT T-401A: ENVIRONMENTAL BIOTECHNOLOGY

#### UNIT-I: ENVIRONMENT & MICROORGANISMS

Concept of environment – Structure, function and development. Brief account of the habitat for microorganisms – Soil, water and atmosphere. Microbiology of soil – Diversity, abundance of predominant microorganisms, methods of isolation and estimation. Beneficial and antagonistic interactions among microorganisms. Microbiology of air – Microorganisms and microbial propagules in air, techniques for microbial analysis of air, air-borne pathogens. Microbiology of water – Plankton populations, water-borne pathogens, detection methods for water-borne pathogens, methods of sampling and estimation of water microflora, control of enteric pathogens. BOD and COD measurements.

#### UNIT-II: ENVIRONMENTAL POLLUTION & MANAGEMENT

Microbial contribution to pollution - pollution by pathogenic microbes, pollution with oxygen-demanding carbonaceous materials, mineral pollutants, heat pollution, pollution by recalcitrant chemicals, oil pollution. Molecular approaches to environmental management – Extracellular genetic transfer, genetic modification, tracking genes in the environment, genetic ecology, application of biotechnology to assess and control pollution.

#### NIT-III: BIODEGRADATION & BIOREMEDIATION

Microbial degradation of environmental pollutants – Isolation of microorganisms degrading environmental pollutants by enrichment culture, Recalcitrance of pesticides in soils, their influence on soil microflora, microbial degradation of pesticides with special reference to DDT, genetic exchange in degradation of xenobiotic chemicals. Effect of acid rain on soil microbial processes. Petroleum Microbiology – Historical developments, environmental aspects, deterioration of products, petroleum and petrochemical spills, oil recovery, microbial oxidation of hydrocarbons, microbial products from hydrocarbon fermentations, biosynthetic and transformation products. Bioremediation, role of transgenic bacteria.

#### UNIT-IV: TREATMENT OF INDUSTRIAL EFFLUENTS

Treatment and disposal of industrial effluents – Physical, chemical, and biological treatment. Aerobic process – Trickling filters, towers, biologically-aerated filters (BAFs), rotating biological contactors (rotating disc contactors), rotating drums, fluidized-bed systems, activated sludge process. Anaerobic treatment – anaerobic digestion, anaerobic digesters, anaerobic filters, up-flow anaerobic sludge blankets (UASB). Newer approaches to sewage treatment - starter cultures for treatment processes. Aerobic sewage treatment – Air lift process; aeration with pure oxygen, methane production. Disposal of effluents into seas and rivers, lagoons (oxidation ponds), spray irrigation, well disposal, landfilling, incineration, disposal of effluents of sewers.

#### Recommended Books & References:

1. Environmental Microbiology by Mitchell. 2009, John Wiley and Sons.
2. Environmental Microbiology by Grant and Long. 1981, Wiley.

Press

#### 20RBTT105: INTELLECTUAL PROPERTY RIGHTS,

#### BIOSAFETY & BIOETHICS

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VIKRAMA SIMHAPURI UNIVERSITY

NELLORE - 524 324.

## **UNIT-I: INTELLECTUAL PROPERTY RIGHTS**

Introduction to IPR: Introduction to intellectual property; types of IP: patents, trademarks, copyright & related rights, industrial design, traditional knowledge, geographical indications, protection of new GMOs; International framework for the protection of IP; IP as a factor in R&D; IPs of relevance to biotechnology and few case studies; introduction to history of GATT, WTO, WIPO and TRIPS; plant variety protection and farmers rights act; concept of 'prior art': invention in context of "prior art"; patent databases - country-wise patent searches (USPTO, EPO, India); analysis and report formation.

## **UNIT-II: PATENTING**

Patenting: Basics of patents: types of patents; Indian Patent Act 1970; recent amendments; WIPO Treaties; Budapest Treaty; Patent Cooperation Treaty (PCT) and implications; procedure for filing a PCT application; role of a Country Patent Office; filing of a patent application; precautions before patenting-disclosure/non-disclosure - patent application- forms and guidelines including those of National Bio-diversity Authority (NBA) and other regulatory bodies, fee structure, time frames; types of patent applications: provisional and complete specifications; PCT and conventional patent applications; international patenting-requirement, procedures and costs; financial assistance for patenting-introduction to existing schemes; publication of patents-gazette of India; commercialization of patented innovations; licensing – outright sale, licensing, royalty; patenting by research students and scientists-university/organizational rules in India and abroad, collaborative research - backward and forward IP; benefit/credit sharing among parties/community, commercial (financial) and non-commercial incentives.

## **UNIT-III: BIOSAFETY**

Biosafety: Biosafety and Biosecurity - introduction; historical background; introduction to biological safety cabinets; primary containment for biohazards; biosafety levels; GRAS organisms, biosafety levels of specific microorganisms; recommended biosafety levels for infectious agents and infected animals; definition of GMOs & LMOs; principles of safety assessment of transgenic plants – sequential steps in risk assessment; concepts of familiarity and substantial equivalence; risk – environmental risk assessment and food and feed safety assessment; problem formulation – protection goals, compilation of relevant information, risk characterization and development of analysis plan; risk assessment of transgenic crops vs cisgenic plants or products derived from RNAi, genome editing tools.

## **UNIT-IV: BIOETHICS**

Bioethics: Introduction, ethical conflicts in biological sciences - interference with nature, bioethics in health care - patient confidentiality, informed consent, euthanasia, artificial reproductive technologies, prenatal diagnosis, genetic screening, gene therapy, transplantation. Bioethics in research – cloning and stem cell research, Human and animal experimentation, animal rights/welfare, Agricultural biotechnology - Genetically engineered food, environmental risk, labeling and public opinion. Sharing benefits and protecting future generations - Protection of environment and biodiversity – biopiracy. Patenting: Basics of patents: types of patents; Indian Patent Act 1970; recent amendments;

WIPO Treaties; Budapest Treaty; Patent Cooperation Treaty (PCT) and implications; procedure for filing a PCT application; role of a Country Patent Office; filing of a patent application; precautions before patenting-disclosure/non-disclosure - patent application- forms and guidelines including those of National Bio-diversity Authority (NBA) and other regulatory bodies, fee structure, time frames; types of patent applications: provisional and complete Patenting: Basics of patents: types of patents; Indian Patent Act 1970; recent amendments; WIPO Treaties; Budapest Treaty; Patent Cooperation Treaty (PCT) and implications; procedure for filing a PCT application; role of a Country Patent Office; filing of a patent application; precautions before patenting-disclosure/non-disclosure - patent application- forms and guidelines including those of National Bio-diversity Authority (NBA) and other regulatory bodies, fee structure, time frames; types of patent applications: provisional and complete

## **Recommended Books & References:**

Ganguli, P. (2001). Intellectual Property Rights: Unleashing the Knowledge Economy. New Delhi: Tata

McGraw-Hill Pub.

National IPR Policy, Department of Industrial Policy & Promotion, Ministry of Commerce, GoI.

3. Complete Reference to Intellectual Property Rights Laws. (2007). Snow White Publication Oct.

4. Kuhse, H. (2010). Bioethics: An Anthology. Malden, MA: Blackwell.

5. Office of the Controller General of Patents, Design & Trademarks; Department of Industrial Policy &

Promotion; Ministry of Commerce & Industry; Government of India. <http://www.ipindia.nic.in/>

## **BTTCF:HUMAN VALUES AND PROFESSIONAL ETHICS**

### **UNIT I**

#### **Value Education**

Definition Relevance to present day — Concept of human values — Self introspection — Self esteem. Family values — Components, Structure and responsibilities of family — Neutralization of anger Adjustability Threats of family life Status of women in family and society — Caring for needy and elderly — Time allotment for sharing ideas and concerns. (Theory only)

### **UNIT II**

#### **Medical Ethics:**

Views of Charaka, Sushruta and Hippocrates on moral responsibility of medical practitioners. Code of ethics for medical and healthcare professionals. Euthanasia, Ethical obligation to animals, Ethical issues in relation to health care professionals and patients. Social justice in healthcare, human cloning, problem of abortion. Ethical issues in genetic engineering and Ethical issues raised by new biological technology or knowledge. (Theory only)

### **UNIT III**

#### **BUSINESS ETHICS**

Ethical standards of business Immoral and illegal practices and their solutions. Characteristics of ethical problems in management, Ethical theories, causes of unethical behavior, Ethical abuses and work ethics. (Theory only)

### **UNIT IV**

#### **ENVIRONMENTAL ETHICS:**

Ethical theory, man and nature — Ecological crisis, Pest control. Pollution and waste, Climate change, Energy and pollution, Justice and environmental health. (Theory only)

### **UNIT V**

#### **SOCIAL ETHICS**

Organ trade, Human trafficking, Human rights violation and social disparities. Feminist ethics, Surrogacy pregnancy. Ethics of media Impact of Newspapers, Television, Movies and Internet (Theory only).

### **REFERENCES**

1. Johns S Mackenjie: A Manual of ethics
2. "The Ethics of Management" by Larue Tone Hosmer, Richard D. Irwin Inc.
3. Management Ethics – Integrity at work by Joseph A. Petrick and John F. Quinn, Response
4. Books, New Delhi.
5. "Ethics in Management" by S.A. Shelekar, Himalaya Publishing House.
6. Harold H. Titus: Ethics for Today
7. Maitra, S.K: Hindu Ethics
8. William Lilly: Introduction to Ethics
9. Sinha: A Manual of Ethics

Manu: Manava Dharma Sastra or the Institute of Manu: Comprising the Indian System of Duties: Religious and Civil (ed) G.C. Haughton.

## M.Sc Microbiology

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4. Kuhse, H. (2010). Bioethics: An Anthology. Malden, MA: Blackwell.

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Promotion; Ministry of Commerce & Industry; Government of India. <http://www.ipindia.nic.in/>

## **20RMB T-401A: ENVIRONMENTAL MICROBIOLOGY**

### **UNIT-I: ENVIRONMENT & MICROORGANISMS**

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**BOD and COD measurements.**

### **UNIT-II: ENVIRONMENTAL POLLUTION & MANAGEMENT**

Microbial contribution to pollution - pollution by pathogenic microbes, pollution with oxygen-demanding carbonaceous materials, mineral pollutants, heat pollution, pollution by recalcitrant chemicals, oil pollution. Molecular approaches to environmental management – Extracellular genetic transfer, genetic modification, tracking genes in the environment, genetic ecology, **application of biotechnology to assess and control pollution.**

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### **UNIT-IV: TREATMENT OF INDUSTRIAL EFFLUENTS**

Treatment and disposal of industrial effluents – Physical, chemical, and biological treatment. Aerobic process – Trickling filters, towers, biologically-aerated filters (BAFs), rotating biological contactors (rotating disc contactors), rotating drums, fluidized-bed systems, activated sludge process. Anaerobic treatment – anaerobic digestion, anaerobic digesters, anaerobic filters, up-flow anaerobic sludge blankets (UASB). Newer approaches to sewage treatment - starter cultures for treatment processes. Aerobic sewage treatment – Air lift process; aeration with pure oxygen, methane production. Disposal of effluents into seas and rivers, lagoons (oxidation ponds), spray irrigation, well disposal, landfilling, incineration, disposal of effluents of sewers.

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### Recommended Textbooks & References:

1. Environmental Microbiology by Mitchell. 2009, John Wiley and Sons.
2. Environmental Microbiology by Grant and Long. 1981, Wiley.
3. Environmental Microbiology: A Laboratory Manual by Pepller, Gerba and Brendecke. 1995, Academic Press.
4. Microbial Ecology: Fundamentals and Applications (4th edition) by Atlas and Bartha. 1998, Pearson Education India.
5. Introduction to Soil of Microbiology (2<sup>nd</sup> edition) by Alexander. 1977, Wiley.
6. Brock's Biology of Microorganisms (9th edition) by Madigan, Martinko and Parker. 2010, Benjamin- Cummings Publishing Company.
7. Soil Microorganisms by Gray and Williams, 1971, Oliver and Boyd.
8. Microbiology of the Atmosphere by Gregory. 1973, Wiley.
9. Aquatic Microbiology by Skinner and Shewar.
10. Microbial Ecology by Campbell. 1977, Wiley.
11. Microbial Aspects of Pollution by Skyes and Skinner. 1971, Academic Press.
12. Experimental Microbial Ecology by Burns and Slater. 1982, Blackwell Scientific Publications.
13. Soils: An Introduction to Soils and Plant Growth by Miller and Donahue. 1990, Prentice Hall.
14. Soil Fertility and Fertilizers by Tisdale, Nelson, Beaton and Havlin.
15. Nitrogen in the Environment by: Nelson and McDonald. 1978, Academic Press.

## MBTFC:HUMAN VALUES AND PROFESSIONAL ETHICS

### UNIT I

#### Value Education

Definition Relevance to present day — Concept of human values — Self introspection — Self esteem. Family values — Components, Structure and responsibilities of family — Neutralization of anger Adjustability Threats of family life Status of women in family and society — Caring for needy and elderly — Time allotment for sharing ideas and

### UNIT II

#### Medical Ethics:

Views of Charaka, Sushruta and Hippocrates on moral responsibility of medical practitioners. Code of ethics for medical and healthcare professionals. Euthanasia, Ethical obligation to animals, Ethical issues in relation to health care professionals and patients. Social justice in healthcare, human cloning, problem of abortion. Ethical issues in genetic engineering and Ethical issues raised by new biological technology or knowledge. (Theory only)

### UNIT III

#### BUSINESS ETHICS

Ethical standards of business Immoral and illegal practices and their solutions. Characteristics of ethical problems in management, Ethical theories, causes of unethical behavior, Ethical abuses and work ethics. (Theory only)

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#### UNIT IV

##### **ENVIRONMENTAL ETHICS:**

Ethical theory, man and nature — Ecological crisis, Pest control. Pollution and waste, Climate change, Energy and pollution, Justice and environmental health. (Theory only)

#### UNIT V

##### **SOCIAL ETHICS**

Organ trade, Human trafficking, Human rights violation and social disparities. Feminist ethics, Surrogacy pregnancy. Ethics of media Impact of Newspapers, Television, Movies and Internet (Theory only).

##### **REFERENCES**

1. Johns S Mackenjie: A Manual of ethics
2. "The Ethics of Management" by Larue Tone Hosmer, Richard D. Irwin Inc.
3. Management Ethics – Integrity at work by Joseph A. Petrick and John F. Quinn, Response
4. Books, New Delhi.
5. "Ethics in Management" by S.A. Shelekar, Himalaya Publishing House.
6. Harold H. Titus: Ethics for Today
7. Maitra, S.K: Hindu Ethics
8. William Lilly: Introduction to Ethics
9. Sinha: A Manual of Ethics

Manu: Manava Dharma Sastra or the Institute of Manu: Comprising the Indian System of Duties: Religious and Civil (ed) G.C. Haughton.

  
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# M.Sc Food Technology

## 20RMSCFT401P: FOOD PRODUCT DEVELOPMENT, MARKETING & FOOD SAFETY STANDARDS AND QUALITY CONTROL

### UNIT I

**CONTENT Innovations in product Development:** Introduction to the Product development and formulation - Need, Classification, General, characteristics of New food product-Classification of Food products. Factors affecting; food product development - Corporate factors - Market place factors, technological pressures – Governmental issues and legislations.

### II

**Food Product Development Process:** Phases of new product development - Idea generation, Screening, Product concept, Product Profile, Product engineering, Product launch, Pre and post launch evaluation – case studies.

### III

**Standard and Specialized Nutrition Products:** Product development with reference to nutritional and health needs- Health foods, Sports drinks, Infant foods, Baby foods, Geriatric foods, Value added foods, Functional foods, Nutraceuticals, prebiotics and probiotics, Herbal foods, Convenience foods.

### IV

**Product Commercialization and Marketing:** Test Marketing; evaluating results and analyzing, Entrepreneurship: Plant location, investment, financing the project, Ethics in food product development, Intellectual property/Patents. Business Proposal and Cost Analysis for MSME.

### REFERENCES

1. Fuller, G.W.(1994) New Food Product Development: From Concept to Market place CRC Press, New York.
2. Man, C.M.D. and Jones A.A.(1994) Shelf life Evaluation of Foods. Blackie Academic and Professional, London.
3. Shapton, D.A. and Shapton, N.F. (1991) Principles and Practices for the Safe Processing of Foods, Butterworth Heinemann Ltd, Oxford.
4. Graf, E. and Saguy, I.S. (1991), Food Product Development: From Concept to the Market Place, Van Nostrand Reinhold New York.
5. Oickle, J.G. (1990) New Product Development and Value Added. Food Development Division Agriculture, Canada.
6. Proc. Food Processors Institute: A key to Sharpening your Competitive Edge. Food Processors Institute, Washington, DC.
7. Mike Stringer and Colin Dennis, "Chilled foods A comprehensive guide" 2nd edition. Wood head publishing limited, Cambridge, England, 2000.
8. Andrew J. Taylor, "Food Flavor Technology", Sheffield Academic Press, 2002.
9. Debashri Ray "Nutritional Challenge and Total Quality Management" 1st edition; Sarupand Sons, New Delhi, 2002.
10. Rita Singh "Food Biotechnology" Volume 1, 1st edition, Global Vision publishing house, Delhi, 2004.

Rita Singh "Food Biotechnology" volume 2, 1<sup>st</sup> edition, Global vision publishing house, Delhi

## 20RMSCFTFC105:HUMAN VALUES AND PROFESSIONALETHICS

### Value Education

Definition Relevance to present day — Concept of human values — Self introspection — Self esteem. Family values — Components, Structure and responsibilities of family — Neutralization of anger Adjustability Threats of family life Status of women in family and society — Caring for needy and elderly — Time allotment for sharing ideas and concerns. (Theory only)

### II



**Medical Ethics:**

Views of Charaka, Sushruta and Hippocrates on moral responsibility of medical practitioners. Code of ethics for medical and healthcare professionals. Euthanasia, Ethical obligation to animals, Ethical issues in relation to health care professionals and patients. Social justice in healthcare, human cloning, problem of abortion. Ethical issues in genetic engineering and Ethical issues raised by new biological technology or knowledge. (Theory only)

III

**BUSINESS ETHICS**

Ethical standards of business Immoral and illegal practices and their solutions. Characteristics of ethical problems in management, Ethical theories, causes of unethical behavior, Ethical abuses and work ethics. (Theory only)

IV

**ENVIRONMENTAL ETHICS:**

Ethical theory, man and nature — Ecological crisis, Pest control. Pollution and waste, Climate change, Energy and pollution, Justice and environmental health. (Theory only)

V

**SOCIAL ETHICS**

Organ trade, Human trafficking, Human rights violation and social disparities. Feminist ethics, Surrogacy pregnancy. Ethics of media Impact of Newspapers, Television, Movies and Internet (Theory only).

**REFERENCES**

1. Johns S Mackenjie: A Manual of ethics
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**20RMSCFT401: FOOD PRODUCT DEVELOPMENT AND MARKETING**

I

**Innovations in product Development:** Introduction to the Product development and formulation - Need, Classification, General, characteristics of New food product-Classification of Food products. Factors affecting; food product development - Corporate factors - Market place factors, technological pressures – Governmental issues and legislations.

II

**Food Product Development Process:** Phases of new product development - Idea generation, Screening, Product concept, Product Profile, Product engineering, Product launch, Pre and post launch evaluation – case studies.

III

**Standard and Specialized Nutrition Products:** Product development with reference to nutritional and health needs- Health foods, Sports drinks, Infant foods, Baby foods, Geriatric foods, Value added foods, Functional foods, Nutraceuticals, prebiotics and probiotics, Herbal foods, Convenience foods.

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**Product Commercialization and Marketing:** Test Marketing; evaluating results and analyzing, Entrepreneurship: Plant location, investment, financing the project, Ethics in food product development, Intellectual property/Patents. Business Proposal and Cost Analysis for MSME.

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4. Graf, E. and Saguy, I.S. (1991), Food Product Development: From Concept to the Market Place, Van Nostrand Reinhold New York.
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10. Rita Singh "Food Biotechnology" Volume 1, 1st edition, Global Vision publishing house, Delhi, 2004.

Rita Singh "Food Biotechnology" volume 2, 1<sup>st</sup> edition, Global vision publishing house, Delhi

## 20RMSCFTFC105:HUMAN VALUES AND PROFESSIONAL ETHICS

### Value Education

#### Unit I

Definition Relevance to present day — Concept of human values — Self introspection — Self esteem. Family values — Components, Structure and responsibilities of family — Neutralization of anger Adjustability Threats of family life Status of women in family and society — Caring for needy and elderly — Time allotment for sharing ideas and concerns. (Theory only)

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### SOCIAL ETHICS

Organ trade, Human trafficking, Human rights violation and social disparities. Feminist ethics, Surrogacy pregnancy. Ethics of media Impact of Newspapers, Television, Movies and Internet (Theory only).

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# Master of Social Work

## 20RMSW102: INDIVIDUAL AND SOCIETY

### Unit I

#### Society and State:

1. Meaning ; characteristics , functions ,
2. Types of societies- tribal, rural, urban - characteristics ,
3. Individuals and societies- relationship.
4. Social structure, social organization.

concepts of welfare state

### Unit II

#### Social Institutions :

1. Marriage – Meaning, Types, functions, Changes
2. Family type, characteristics & functions: Structure Transmission of values and in a proper development of the child.
3. Kinship- meaning, Characteristics, Functions, Changes
4. Economy, Meaning, Types of Economy, Functions of Economy
5. Modern Political Institutions, Legislative Violations, Liberty – Justice – Equality
6. Religion – Meaning, Types, Role, Functions – Modern religious

institutions

### Unit III

#### Socialization and Social Control:

1. Socialization – Meaning, Process and Mechanism
2. Agencies of Socialization, Problems of Socialization
3. Social Control and Social Deviance, Meaning, Nature

Agencies of Social Control – Custom, Tradition, Religion ,Morality, Law, Education and Public Opinion

### Unit IV

#### Social Stratification:

1. Social Groups – Types - Primary and Secondary in and out; Reference Groups
2. Society – Class, Caste, Creed, Untouchability
3. Rural, Urban and Tribal Communities – Characteristics
4. Cultural, Social, Economic Changes in all the three communities

Rural Migration and Tribal Unrest in India

### Unit V

#### Social Change:

1. Concept, Nature and Process : Factors of Social Change
2. Social Change Process in India
3. Components of Social Change, Social Change and Social development
4. Sanskritisation, Industrialization, Urbanization, Modernization, Westernization, Globalization, Liberalization and Secularization

Future shock due to Social Change

#### REFERENCES

1. Bottomore T.B. (1962) Sociology – A Guide to Problems and Literature, London: Allen and Unwin
2. Day, P. R. (1987) Sociology in Social Work Practice, London: Macmillan Education
3. Dube S.C (1955) Indian Village, London: Routledge and Kenganpaul
4. FurerHalmendarf C.V. (1982) Tribes in India: The Struggle for Survival. Delhi: OUP
5. Johnson H.M. (1978) Sociology – A Systematic introduction, Mumbai; Allied Publishers Pvt. Ltd.
6. Kapadia K.M. (Ed) (1959) Marriage and Family in India, Mumbai: OUP
7. Srinivas M.N. (1966) Social Change in Modern India, Mumbai: Allied pub

8. Maciver R.M. and Page C.H. (1985) Society an Introductory Analysis, Chennai: Macmillan India Ltd.

## 20RMSW104: WORK WITH INDIVIDUALS

### Unit I

#### Understanding Case Work as a method of SW:

1. Definition of Social case work, its scope in social work practice philosophical assumptions and values underlying case work practice. Case work process – Fact Finding Assessment, Intervention and Termination
2. Principles of case work
3. Techniques and skills of case work: Communication collecting information ; Need assessment; Establishing
4. Relationship; Partializing the problem for work; Establishing Contract for work ; Planning & Conducting home visits
5. Interviewing – Importance and skills in Interviewing. Focusing and Directing in Interviewing

### Unit II

#### Approaches to CW Practice:

1. Psycho – Social Approach
2. Problem – Solving Approach
3. Crisis Intervention
4. Eclectic Approach
5. Empowering Approach
6. Strengths Based Approach

### Unit III

#### Curative and Preventive aspects of Social case work:

1. The Multi Disciplinary approach in professional practice
2. Use of case work in different settings especially where complex Psycho – social problems are handled like health, school, Industry, Correctional Institutions and de-addiction programme

### Unit IV

1. Assessment in Case Work: Why & What of assessment, (Need & Importance of Assessment) areas of assessment ;
2. Assessment tools in Case Work – Genogram, Eco Map and Support Network Map.

### Unit V

#### Social Case Recording:

1. Need for Recording, Main Considerations in Recording, and Essential Qualities of a good record.
2. Types of Recording – Discussions of select case records.
3. Writing a case work record- process

Measurement of effectiveness of Social Case work

#### REFERENCES

- |                                       |   |
|---------------------------------------|---|
| Alissi, A.S., 1980                    | Perspectives on Social Group Work Practices. A Book of Readings. The Free Press : New York. |
| Aptekar, H.R.                         | Dynamics of Case Work and Counselling   |
| Balgopal, P.R. and Vassil, T.V., 1983 | Groups in Social Work – An Ecological Perspective, Macmillan Publishers, New York.          |
| Benjamin, Alfred, 1969                | The Helping Interviews, Houghton Mifflin Company.   |
| Bistek, F.P., 1958                    | The Case Work Relationship, George Allen and Unwin, London.                                 |
| Eileen Gambrill, 1997                 | Social Work Practice – A Critical Thinkers Guide, Oxford University Press, New York.        |
| Hamilton, G., 1956                    | Theory and Practice in Social Case Work, Columbia University Press, New York.               |

- Hamilton, G., 1956  
Theory and Practice in Social Case Work, Columbia University Press, New York.
- Harris, F.J., 1970  
Social Case Work, Nairobi : Oxford University Press.
- Hollis, F., 1964  
Case Work : A Psycho-social Therapy, Randon Houses, New York.
- Kadushin Alfred  
The Social Work Interview.
- Kemp, C.G., 1970  
Perspectives on the Group Process, Boston : Houghton Mifflin, C.
- Konapka, 1963  
Social Group Work : A Helping Process, Prentice Hall, Inc., JJ.
- National Association of Social Workers, 1964, 1965  
Encyclopedia of Social Work, Vol. 1, 2, 3, New York.
- Northern, H., 1968  
Social Work with Groups. Columbia University Press, New York.
- Okun, Barbara, 1976  
Effective Helping, Mass : Dunbury Press.
- Ferlman, H.H., 1957  
Social Case Work : A Problem Solving Process, Chicago : University of Chicago Press.
- Pippins, J., 1980  
Developing Case Work Skills. Calif : Sage Publications.
- Richmond, M.E., 1972  
What is Social Case Work : An Introduction Description, New York : Russel, Sage Publication.
- Timms, N., 1972  
Recording in Social Work, London : Sroutledege and Rean Paul.
- Tim Bond  
Standards and Ethics for Counselling in Action, Sage Publications, New Delhi, London.
- Toselane, R.W., Rivas, R.F., 1984  
An Introduction to Group Work Practice, New York : Macmillan Publication Co.
- Tom Douglas, 1979  
Group Process in Social Work – A Theoretical Synthesis, New York.
- Trecker, J. Herleigh, B., 1970  
Social Group Work Principles and Practice, Association Press, New York.
- Roberts, Robert and Robert Needs, 1970  
Theories of Social Case Work. Chicago, University of Chicago Press.
- Siporin, Max, 1975  
Introduction to Social Work Practice, New York, Macmillan Publications.
- Skid More Red, A., 1981  
Introduction to Social Work, New Hersey, Prentice Hall Inc.
- Sundel, M., Glasser, P., Sarri, R., Vinter, R., 1985  
Individual Change through Small Groups, New York : The Free Press.
- Sue Culley, 1991  
Integrative Counselling Skills in Action, New Delhi, Sage Publications.
- Turner, Francis (Ed.), 1974  
Social Work Treatment, New York, The Free Press.
- Young Husban, 1967  
Social Work and Social Values, London, George, Allen and Unwin Ltd.
- Zofia T. Butryn, 1976  
The Nature of Social Work, London, Macmillan Press.
- Karla Krogsrud Miley,  
Generalist Social Work Practice – An Empowering Approach, Allyn and Bacin, London.
- Michael O Mebia,  
Human Rights, Attractive Publishers and Distributors, New Delhi.
- D. Brede L. Dubois, 1995  
Social Policy and Social Work, Clarendon Press, Oxford.
- N. Jayapalan, 2000
- DevidDeovey, 1998

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**20RMSW204: WOMEN, CHILDREN AND YOUTH  
DEVELOPMENT**

**Unit I**

**Social Reform movements :**

- a. History of social reform in India in the 19<sup>th</sup> and 20<sup>th</sup> Centuries –
- b. Scope and range of social reform movements.
- c. Social reform movements in India pertaining to women, depressed classes, untouchability, contributions made by prominent social reformers in the various fields

**Unit II**

**Origin of social work:**

- a. Definition and scope of Social Work; origin of social work profession in the UK and USA;
- b. Social Work values and ethics; social work as a profession,
- c. Generic principles of social work;
- d. New approaches to social work – developmental and radical.

**Unit III**

**Growth of social work:**

- a. Concepts of social welfare and social services;
- b. Scientific basis for social work,
- c. Growth of professional social work in India; current social work practice in India – content and dimensions,
- d. Interface between professional and voluntary social work.

**Unit IV**

**Field work in social work:**

- a. Field work – its role and place in social work education;
- b. field work placement; supervision and evaluation;
- c. relationship of the student with Department and agency,
- d. Recording – purpose, types and uses of recording. Types of field work.

**Unit V**

**Fields of social work:**

- a. Practice of social work in various fields-community development
- b. Medical and psychiatric social work
- c. Correctional social work
- d. Family and child welfare
- e. Labour welfare
- f. School social work
- Gerontological social work.

**REFERENCES**

1. Billey R and Brake M (1975). Radical Social Work, London: Edward Arnold.
2. Dolgoff R (2005). An Introduction to supervisory practice in Human Services, New York: Allyn & Bacon.
3. Fink, A.E. (1945). The Field of Social Work
4. Friedlander, W.A. (1964). Introduction to Social Welfare, New Delhi: Prentice Hall of India.
5. Government of India (Publication Division) (1987). Encyclopaedia of Social Work, Vol.I, II, III and IV; New Delhi: Author.
6. Khinduka, A.A. (1977). Supervision in Social Work
7. Billey R and Brake M (1975). Radical Social Work, London: Edward Arnold.
8. Dolgoff R (2005). An Introduction to supervisory practice in Human Services, New York: Allyn & Bacon.

9. Fink, A.E. (1945). The Field of Social Work
  10. Friedlander, W.A. (1964). Introduction to Social Welfare, New Delhi: Prentice Hall of India.
  11. Government of India (Publication Division) (1987). Encyclopaedia of Social Work, Vol.I, II, III and IV; New Delhi: Author.
  12. Khinduka, A.A. (1977). Supervision in Social Work
  13. Billey R and Brake M (1975). Radical Social Work, London: Edward Arnold.
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  16. Friedlander, W.A. (1964). Introduction to Social Welfare, New Delhi: Prentice Hall of India.
  17. Government of India (Publication Division) (1987). Encyclopaedia of Social Work, Vol.I, II, III and IV; New Delhi: Author.
  18. Khinduka, A.A. (1977). Supervision in Social Work
  19. Khinduka, S.K. (1965). Social Work in India.
  20. Milly, K.K., O.Melia, M. and Dubois, B. (2007). Generalist Social Work Practice – An empowering approach, New York: Pearson, Allyon& Bacon.
  21. Mujumdar, A.M. Social Welfare in India.
  22. Mujumdar, D. History of Indian Social and Political Ideas.
  23. Nair, T.K. (ed). (1981) Social Work Education and Social Work Practice in India, Madras: ASSWI.
  24. Natarajan, S. (1964). Century of Social Reforms in India, Bombay: Asia Publishing House
  25. Singh, R.R. (1986). Field work in Social Work Education
  26. Stroup, H.H. (1965). Social Work: an Introduction to the Field.
  27. Sunna J.Wilson: Recording, Guidelines for Social Workers.
  28. Wadia, A.R. (1968). History and Philosophy of Social Work in India, Bombay: Allied.
- Khinduka, S.K. (1965). Social Work in India

## **20RMSW301: POPULATION AND ENVIRONMENTAL STUDIES**

### **Unit I**

#### **Population and Demographic Situation :**

- a. Demographic Characteristics of population in India: Population, determinants of growth.
- b. Global concerns - Characteristics of Indian Population – Distribution by age, sex, literacy and occupation – Fertility trends - Birth and death ratio.
- c. Population Policy, World Action Plan, Population Policy of India- Implementation; Initiatives – Government and NGO.

### **Unit II**

#### **Population Education:**

- a. Concept and Scope of Population education, family life education, sex education, and family planning education.
- b. Family Planning: Objectives, scope, methods, implementation, mechanisms and progress.
- c.
- d. Population and Environment: Interrelatedness of human life, living organisms.

### **Unit III**

#### **Natural Resources and Diversity:**



- a. Environment and natural resource – Environment, lifestyle, degradation. Environment management, maintaining, improving, enhancing – Current issues of Environment.
- b. Natural Resources and Diversity: Utilisation and management – Forest, land, water, air, energy sources - Pollution - Sources, treatment, prevention - Soil, water, air, noise - Waste matter - disposal, recycling, renewal, problems, issues - Programmes for forest, land and water management.

#### **Unit IV**

#### **Legislations Relating To Environment Protection:**

- a. Environment Protection Laws and Role of Social Worker: Acts related to environmental protection
- b. Forest conservation- Water pollution – Standards and tolerance levels – Unplanned urbanization- Environmental movements in India -

#### **Unit V**

#### **Environment Protection -Role of different Stakeholds:**

- a. Role of NGOs in Environmental issues – Government agencies in environmental protection and water management –
- b. Social work initiatives at different levels.

#### **REFERENCES**

India Population, Economy and Society, London: Macmillan.

Family planning Counseling Guide, of India Population Reports Service Series J.N 35 and 36

Towards Sustainable Development

(Struggling over India's Narmada River), New Delhi:  
Rawat Publications.

This Fissured Land – An Ecological History of India: Delhi: Oxford University Press.

Family Planning Handbook for Doctors, Hertford: IPPF

Air Pollution and Control, Kakinada: Kaushal and Co.

Living in the Environment, California: Armstrong. 1982 Wordsworth International Group.

“Urbanization in India's Future”, Population and Development Review, Vol. 11(4)

Our Common Future, Delhi: Oxford University Press.

10. Prasad, R.K Population Planning, Policy and Programmes, New Delhi: Deep and Deep Publications

  
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## **20RMSCZOO106 :HUMAN VALUES AND PROFESSIONAL ETHICS**

### **Value Education**

#### **Unit I**

Definition Relevance to present day — Concept of human values — Self introspection — Self esteem. Family values — Components, Structure and responsibilities of family — Neutralization of anger Adjustability Threats of family life Status of women in family and society — Caring for needy and elderly — Time allotment for sharing ideas and concerns. (Theory only)

#### **Unit II**

### **Medical Ethics:**

Views of Charaka, Sushruta and Hippocrates on moral responsibility of medical practitioners. Code of ethics for medical and healthcare professionals. Euthanasia, Ethical obligation to animals, Ethical issues in relation to health care professionals and patients. Social justice in healthcare, human cloning, problem of abortion. Ethical issues in genetic engineering and Ethical issues raised by new biological technology or knowledge. (Theory only)

#### **Unit III**

### **BUSINESS ETHICS**

Ethical standards of business Immoral and illegal practices and their solutions. Characteristics of ethical problems in management, Ethical theories, causes of unethical behavior, Ethical abuses and work ethics. (Theory only)

#### **Unit IV**

### **ENVIRONMENTAL ETHICS:**

Ethical theory, man and nature — Ecological crisis, Pest control. Pollution and waste, Climate change, Energy and pollution, Justice and environmental health. (Theory only)

#### **Unit V**

### **SOCIAL ETHICS**

Organ trade, Human trafficking, Human rights violation and social disparities. Feminist ethics, Surrogacy pregnancy. Ethics of media Impact of Newspapers, Television, Movies and Internet (Theory only).

### **REFERENCES**

1. Johns S Mackenzie: A Manual of ethics
2. "The Ethics of Management" by Larue Tone Hosmer, Richard D. Irwin Inc.
3. Management Ethics – Integrity at work by Joseph A. Petrick and John F. Quinn, Response Books, New Delhi.
4. "Ethics in Management" by S.A. Shelekar, Himalaya Publishing House.
5. Harold H. Titus: Ethics for Today
6. Maitra, S.K: Hindu Ethics
7. William Lilly: Introduction to Ethics
8. Sinha: A Manual of Ethics

Manu: Manava Dharma Sastra or the Institute of Manu: Comprising the Indian System of Duties: Religious and Civil (ed) G.C. Haughton'

  
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## **20RMSCZOO301: ENVIRONMENTAL BIOLOGY & BIODIVERSITY**

### **BIOLOGY OF DIFFERENT ENVIRONMENTS: Unit I**

Environment: definition, Types of environment. General account of biomes and their environments.

Types of Ecosystems: Marine and Fresh water Ecosystem – classification and characteristics and stratification of the ecosystem. Terrestrial Ecosystem– classification and characteristic and stratification of the ecosystem.

Energetics of Ecosystem: tropic dynamic view of ecosystem. Energy flow – primary productivity and secondary productivity. Factors influencing productivity. Biomagnification.

1. Energy Budget: Estimation of Energy Budget and Methods of measuring productivity for different Ecosystems – harvesting method, CO<sub>2</sub> assimilation method, oxygen production method, chlorophyll method.

## Unit II

### POLLUTION, EPIDEMIOLOGY, ENVIRONMENTAL MONITORING AND ASSESSMENT BIOREMEDIATION

**Concept of Pollution:** Types, composition, impact, treatment and disposal of pollutants. Aquatic Pollution; Agricultural waste and Heavy Metal **Pollution:** Hg, Pb, Cd, Cr as sources; and Impact on biota - Related episodes in India and abroad.

**Epidemiology:** Role of environmental epidemiological studies and health indices in evaluation of environmental health hazards. Environmental epidemiological episodes in India and abroad.

**Environmental Impact Assessment (EIA):** Methods for EIA assessment, Socio-economic effects and impacts. Environmental Laws.

**Bioremediation:** Need and Scope of Bioremediation, environmental applications of bioremediation. Phyto-remediation – Biotechnological cleaning up of the environment.

## Unit III

### BIODIVERSITY AND CONSERVATION

**Introduction:** Definition, Scope and Importance of biodiversity. Levels of biodiversity; Values of Biodiversity and Its importance at Global, National and Local level.

Threats to Biodiversity; Causes for loss of biodiversity. Types of listing of threatened biodiversity – IUCN categoris, Red data book; Endemism.

**Conservation:** Definition, Need and Importance of conservation of Biodiversity.

**Types of Conservation:** *In-situ* and *Ex-situ* conservation.

Conservation Tools and their Role: Biological parks, Zoos, Zoological Parks, Wildlife Sanctuaries, Forest Research Institutes and Agricultural Research Institutions, Gene Pools, Cryopreservation Centers, Interpretation Centers, National Parks & Tiger Reserves.

## Unit IV

### WILDLIFE PROTECTION ACTS AND ORGANIZATIONS

**Bio-geographic realms of the world;** Bio-geographic Zones of India and Current status of biodiversity (flora and fauna) ; Hotspots in the world and in India; Biosphere Reserves in India.

Conservation approaches of Indian animals. Captive breeding (Lion tailed macaque, white tiger and vultures) and reintroduction (Tiger, rhinoceros, gaur). Wildlife Protection Acts.

Government Organizations - Wildlife Institute of India, Ministry of Environment and Forests (MoEF), National Biodiversity Authority (NBA), Zoological Survey of India (ZSI), Botanical

Survey of India (BSI), Salim Ali Centre for Ornithology and Natural History (SACON), Centre for Ecological Sciences (CES) - their role in Conservation of Biodiversity.

NGOs –Bombay Natural History Society (BNHS), Worldwide Fund for Nature (WWF), Wildlife Trust of India (WTI), Nilgiri Wildlife and Environment Association (NWEA), Wildlife Conservation Society (WCS) - their role in Conservation of Biodiversity

### REFERENCES

1. Practical methods in Ecology & Environmental Science, R. K. Trivedy, Goel, Trisal, 1997.
2. Environmental Physiology of desert organism. Ed. by N.F. Hadley-Dowden Huchinson and Ross, Inc. Penn. USA.
3. The Ecology of wastewater treatment - H. A. Hawkes pergoman press, 1963.
4. Biochemical ecology and water pollution - PRDugan, plenum press, London, 1972.
5. Pesticides in the environment – R. White Stevrens, Marcel Dekker Inc. New York, 1971.
6. Environmental Science Research Volu mes: Vol.1. Indicators of environmental quality - WA. Thomas, 1972. Vol. 3. Environmental pollution by pesticides - C. A. Edwards, 1974. Vol. 5. Environmental dynamics of pesticides - R. Hague and V. H. Preed, 1975.
7. Ecology & Environment - P. D. Sharma, 1991.
8. Field Biology & Ecology - Allen H Benton & E. Werner, J R, 1980.
9. Encyclopedia of environmental pollution and control, enviromedia, Karad , Vol. 1 & 2, R. K Trivedi.
10. Ecotechnology for pollution control and environmental management, enviromedia, Karad, R K. Trivedi.
11. Health hazards and human environment, World Health Organization (WHO) 1972.
12. Current pollution research in India - R K. Trivedy and P.K. Goel. Karad.
13. Environmental Biology and Toxicology -P. D. Sharma, Rastogi Publications, Meerut (India), 1998.
14. Biodegradation & Bioremediation - 2<sup>nd</sup> editon, Martein Alexander - AcademicPress, 1999, USA.
15. A.k Pandey – Taxonomy and Biodiversity.
16. Biodiversity Principles & Conservation, Kumar & Asija- Published by Upadesh Purohit by Agrobios (India), Jodhpur, 2002.
17. Conservation Biology, Peggy I. Fieldler & Peter M. Kareiva, 1997.
18. Environmental impact assessment & managment. Editors B.B. Hosetti & A. Kumar, 1998, Daya Publishing House, Delhi.
19. Hosetti, B.B. Venkateswarlu, M. Trends in wildlife Biodiversity Conservation and Management.Kumar & Sija., Biodiversity Principles & Conservation, Published by Upadesh Purohit by Agrobios (India), Jodhpur, 2002.

## 20RMSCZOO405: WILDLIFE CONSERVATION BIOLOGY

### Unit I

#### Wildlife Biology

Wildlife: Basic concepts and principles of wildlife, Importance and Values of wildlife; Wildlife heritage of India, Reasons for wildlife depletion in Indian context.

Concept of threatened fauna – IUCN categories of species; Distribution of wildlife in India.

Human and animal Conflicts: Basic concepts, reasons for conflicts, Identification of damages caused by wild animals and control measures, Socio-economic issues related to human – wildlife interactions.

Animal Relationships: Mutualism; Commensalisms; Parasitism; Ammensalism; Predation and Competition with relevant examples.

## Unit II

### Wildlife Conservation Biology

Conservation of wildlife – Types of Conservation; Case studies – Wildlife sanctuary, National parks, Zoological parks, Biosphere reserves, Tiger reserves etc.

Government and Non-government organizations and their role; Important NGO movements – Chipko movement, Narmada Bachavo Andolan, seed movement, Pani panchayat).

Wildlife protection Acts; Wildlife management before and after implementation of Wildlife (Protection) Act, 1972.

Projects undertaken for protection of wildlife: Project Tiger, Project Lion, Project Crocodile, Project elephant etc. Translocation of wild animals – Principles, methods and application

## Unit III

### Field Biology

Vegetative analyses – Quadrat method, Point centered quadrat, Strip transect; Habitat manipulation: Food, Water, Shade, impact and removal of invasive alien species

Basic survey techniques of Habitats: Map reading, Google map, satellite images (types of forests, hilly areas, Valleys, boundaries, drainages, buildings, roads etc.)

Population Estimation: Basic concepts and applications - Direct count (block count; transect methods, Point counts, visual encounter survey, waterhole survey).

Indirect count (Call count, track and signs, pellet count, pugmark, nests, camera trap, DNA finger printing and aerial photography).

## Unit IV

### Application of Information Technology in Wildlife

Audio records: Various audio recording techniques, sonogram evaluation, Applications of audio recordings (Bird songs, insect calls, habitat usage by bats etc.)

Use and application of GPS (Global Positioning System) – Way points, tracks etc.

Use and applications of GIS (Geographic Information System) software's.

Use and applications of Remote Sensing in wildlife conservation – Satellite

## REFERENCES

1. Principles of Gene Manipulation and genomics: An Introduction to genetic engineering. 2007, by Primrose and Twyman.
2. Fundamental Molecular Biology.2007, by Lizabeth A. Allison. Blackwell publishing.
3. Molecular Biology of the gene by Watson et al.,5thEdition,2004, Addison Wesley Longman.
4. The foundations of Biochemistry by Lehninger,4thEdition
5. Principles of Genetics by Snustad, Simmons, 4thEdition,2006.
6. Instant notes in Molecular Biology by P.C.Turner et al. Viva Books Pvt.Ltd.

7. Advanced Molecular Biology by A Concise reference.1998, by R.M. Twyman. Viva Book Pvt. Ltd.
8. Molecular Biology by David Fdreifelder, 1995 Narosa Publ. House.
9. Molecular Cell Biology by Lodish et al., 2003, Scientific American books, W.H.Freeman and Company.
10. Gene VI by Lewin,1997, Oxford University Press.

## **CBCS :HUMAN VALUES AND PROFESSIONAL ETHICS**

### **Value Education**

Definition Relevance to present day — Concept of human values — Self introspection — Self esteem. Family values — Components, Structure and responsibilities of family — Neutralization of anger Adjustability Threats of family life Status of women in family and society — Caring for needy and elderly — Time allotment for sharing ideas and concerns. (Theory only)

#### II

### **Medical Ethics:**

Views of Charaka, Sushruta and Hippocrates on moral responsibility of medical practitioners. Code of ethics for medical and healthcare professionals. Euthanasia, Ethical obligation to animals, Ethical issues in relation to health care professionals and patients. Social justice in healthcare, human cloning, problem of abortion. Ethical issues in genetic engineering and Ethical issues raised by new biological technology or knowledge. (Theory only)

#### III

### **BUSINESS ETHICS**

Ethical standards of business Immoral and illegal practices and their solutions. Characteristics of ethical problems in management, Ethical theories, causes of unethical behavior, Ethical abuses and work ethics. (Theory only)

#### IV

### **ENVIRONMENTAL ETHICS:**

Ethical theory, man and nature — Ecological crisis, Pest control. Pollution and waste, Climate change, Energy and pollution, Justice and environmental health. (Theory only)

#### V

### **SOCIAL ETHICS**

Organ trade, Human trafficking, Human rights violation and social disparities. Feminist ethics, Surrogacy pregnancy. Ethics of media Impact of Newspapers, Television, Movies and Internet (Theory only).

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**M.Sc Analytical Chemistry**

## 20RMSCAC403: APPLICATIONS OF ANALYTICAL CHEMISTRY IN ENVIRONMENTAL SCIENCE

### Unit -I :Environment and Analytical Chemistry

Concept of Environmental Chemistry, Environment, Changes in Environment with time, Interference of man with Environment, Segments of Environment, Biochemical cycles in Environment, Concept of pollution, Natural and man made pollution, Role of Analytical Chemistry in Environmental studies, List of Analytical methods and principles.

### UNIT – II: Green Chemistry and Toxicology

**(a) Introduction to Green Chemistry:** Definition of Green Chemistry, Twelve Principles of Green Chemistry, Experimental systems. Historical approach, tools of green Chemistry, Catalysis and biocatalyses of Green Chemistry, examples of Green Chemistry, Pharmaceutical industry and Green Chemistry, Pesticides, Solvents, Green Chemistry, Sugar and distilleries, wastes and future trends in Green Chemistry.

**(b) Environmental Toxicological Chemistry:** Introduction to toxicological chemistry, dose response relationship, relative toxicities. Teratogenesis, mutagenesis, carcinogenesis, Immune system effects, Health hazards, Toxic elements and elemental forms, Toxic inorganic compounds, Toxicology of organic compounds, Effect of Toxic chemicals on enzymes, biochemical effects of As, Cd, Hg and Oxides of Sulphur and nitrogen.

### UNIT – III: Air Pollution Monitoring Methods & Instrumental Techniques

**(a) Air Pollution Monitoring Methods:** Analysis of gaseous pollutants –SO<sub>2</sub>, H<sub>2</sub>S, NO-NO<sub>x</sub>, NH<sub>3</sub>, CO, CO<sub>2</sub>, Ozone, organic gases and vapours. Continuous monitoring of air pollutants – principles, monitoring instruments, monitoring of SO<sub>2</sub>, H<sub>2</sub>S, NO-NO<sub>x</sub>, CO, CO<sub>2</sub>, hydrocarbons ozone suspended particulate matter, chemical and photo chemical reactions in atmospheres.

**b) Instrumental Techniques in Environmental Chemical Analysis:** Basic Principles, Instrumentation, outlines of procedures and applications of the following techniques

1. AAS and ICP AES
2. X-ray fluorescence SPECTROMETRY
3. Neutron activation analysis
4. Other radioanalytical techniques

### UNIT – IV: Industrial Pollutants

#### (a) Petrochemical Industry and Pollution Control Methods

Introduction, Raw materials, Saturated hydro carbons from natural gas, Uses of saturated hydro carbons, Unsaturated hydro carbons-Acetylene, Ethylene, Propylene, Butylenes. Aromatic hydro carbons, Toluene Xylene, Chemical processing of paraffin hydro carbons, Chemical processing of ethylene hydro carbons, Chemical processing of acetylene, Chemical processing of Aromatic hydrocarbons.

Pollution control in petro chemical manufacture; water pollution control, air pollution control, solid waste disposal.

**(b) Sugar Industry, Paper and pulp industry, polymer drugs, radio nuclide analysis, disposal of waste and their management.**

### References

1. Environmental Chemistry by Moore & Moore.
2. Environmental Chemistry by Mahanan, VI<sup>th</sup> Edition, Lewis Publications.
3. Environmental Chemistry by B.K.Sharma. Goel Publications.
4. Environmental Chemistry by Ohra&Thyogi.
5. Environmental Chemistry by Benargi.

6. Environmental Pollution and control in chemical process and industries by S.K.Bhatia.
7. Environmental Pollution by S.S.Dara.
8. Environmental Pollution analysis by S.M.Khopkar.
9. Industrial chemistry by B.K Sharma;Goel Publications
10. Introduction to Nanoscalescience.and technology(ed)Massimiliano D. Ventra kluwer academic.
11. Environmental Solution Analysi, S.M. Khopkar, Willey Eastern.
12. Basic concepts of Analytical Chemistry, S.M. Khopkar, Willey Eastern.

  
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**Master of Business Management**



## **20RMBAD108 :HUMAN VALUES AND PROFESSIONAL ETHICS**

### **Value Education**

Definition Relevance to present day — Concept of human values — Self introspection — Self esteem. Family values — Components, Structure and responsibilities of family — Neutralization of anger Adjustability Threats of family life Status of women in family and society — Caring for needy and elderly — Time allotment for sharing ideas and concerns. (Theory only)

II

### **Medical Ethics:**

Views of Charaka, Sushruta and Hippocrates on moral responsibility of medical practitioners. Code of ethics for medical and healthcare professionals. Euthanasia, Ethical obligation to animals, Ethical issues in relation to health care professionals and patients. Social justice in healthcare, human cloning, problem of abortion. Ethical issues in genetic engineering and Ethical issues raised by new biological technology or knowledge. (Theory only)

III

### **BUSINESS ETHICS**

Ethical standards of business Immoral and illegal practices and their solutions. Characteristics of ethical problems in management, Ethical theories, causes of unethical behavior, Ethical abuses and work ethics. (Theory only)

IV

### **ENVIRONMENTAL ETHICS:**

Ethical theory, man and nature — Ecological crisis, Pest control. Pollution and waste, Climate change, Energy and pollution, Justice and environmental health. (Theory only)

V

### **SOCIAL ETHICS**

Organ trade, Human trafficking, Human rights violation and social disparities. Feminist ethics, Surrogacy pregnancy. Ethics of media Impact of Newspapers, Television, Movies and Internet (Theory only).

### **REFERENCES**

1. Johns S Mackenjie: A Manual of ethics
2. "The Ethics of Management" by Larue Tone Hosmer, Richard D. Irwin Inc.
3. Management Ethics – Integrity at work by Joseph A. Petrick and John F. Quinn, Response
4. Books, New Delhi.
5. "Ethics in Management" by S.A. Shelekar, Himalaya Publishing House.
6. Harold H. Titus: Ethics for Today
7. Maitra, S.K: Hindu Ethics
8. William Lilly: Introduction to Ethics
9. Sinha: A Manual of Ethics

Manu: Manava Dharma Sastra or the Institute of Manu: Comprising the Indian System of Duties: Religious and Civil (ed) G.C. Haughton

## **20RMBAD207 HUMAN VALUES AND PROFESSIONAL ETHICS – II**

### **UNIT -I**

Definition – Relevance to present day – Concept of human values - Self introspection – Self esteem. Family values-Components, Structure and responsibilities of family- Neutralization of anger – Adjustability – Threats of family life – Status of women in family and society – Caring for needy and elderly – Time allotment for sharing ideas and concerns.(Theory only)

### **UNIT -II**

Views of Charaka, Sushruta and Hippocrates on moral responsibility of medical practitioners. Code of ethics for medical and healthcare professionals. Euthanasia, Ethical obligation to animals, Ethical issues in relation to health care professionals and patients. Social justice in health care, human cloning, problem of abortion. Ethical issues in genetic engineering and Ethical issues raised by new biological technology or knowledge. (Theory only)

#### UNIT -III

Ethical standards of business – Immoral and illegal practices and their solutions. Characteristics of ethical problems in management, Ethical theories, causes of unethical behavior, Ethical abuses and work ethics. (Theory only)

#### UNIT -IV

Environmental Ethics – Ethical theory, man and nature - Ecological crisis, Pest control, Pollution and waste, Climate change, Energy and pollution, Justice and environmental health. (Theory only)

#### UNIT-V

Social ethics – Organ trade, Human trafficking, Human rights violation and social disparities, Feminist ethics, Surrogacy/pregnancy. Ethics of media – Impact of Newspapers, Television, Movies and Internet (Theory only)

### REFERENCES

1. Johns S Mackenzie: A Manual of ethics
2. "The Ethics of Management" by Larue Tone Hosmer, Richard D. Irwin Inc.
3. Management Ethics – Integrity at work by Joseph A. Petrick and John F. Quinn, Response Books, New Delhi.
4. "Ethics in Management" by S.A. Shelekar, Himalaya Publishing House.
5. Harold H. Titus: Ethics for Today
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REGISTRAR  
VITKAWA SIMHAPURI UNIVERSITY  
NELLORE - 524 324.

## Political Science and Public Administration

20RMAPSPA106 :HUMAN VALUES AND PROFESSIONAL ETHICS

## **Value Education**

Definition Relevance to present day — Concept of human values — Self introspection — Self esteem. Family values — Components, Structure and responsibilities of family — Neutralization of anger Adjustability Threats of family life Status of women in family and society — Caring for needy and elderly — Time allotment for sharing ideas and concerns. (Theory only)

II

## **Medical Ethics:**

Views of Charaka, Sushruta and Hippocrates on moral responsibility of medical practitioners. Code of ethics for medical and healthcare professionals. Euthanasia, Ethical obligation to animals, Ethical issues in relation to health care professionals and patients. Social justice in healthcare, human cloning, problem of abortion. Ethical issues in genetic engineering and Ethical issues raised by new biological technology or knowledge. (Theory only)

III

## **BUSINESS ETHICS**

Ethical standards of business Immoral and illegal practices and their solutions. Characteristics of ethical problems in management, Ethical theories, causes of unethical behavior, Ethical abuses and work ethics. (Theory only)

IV

## **ENVIRONMENTAL ETHICS:**

Ethical theory, man and nature — Ecological crisis, Pest control. Pollution and waste, Climate change, Energy and pollution, Justice and environmental health. (Theory only)

V

## **SOCIAL ETHICS**

Organ trade, Human trafficking, Human rights violation and social disparities. Feminist ethics, Surrogacy pregnancy. Ethics of media Impact of Newspapers, Television, Movies and Internet (Theory only).

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6. Harold H. Titus: Ethics for Today
7. Maitra, S.K: Hindu Ethics
8. William Lilly: Introduction to Ethics
9. Sinha: A Manual of Ethics

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**NELLORE - 524 324.**

## **Master of Education**

### **M.Ed2.5 :HUMAN VALUES AND PROFESSIONAL ETHICS**

#### **Value Education**

Definition Relevance to present day — Concept of human values — Self introspection — Self esteem. Family values — Components, Structure and responsibilities of family — Neutralization of anger Adjustability Threats of family life Status of women in family and society — Caring for needy and elderly — Time allotment for sharing ideas and concerns. (Theory only)

## II

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## III

### **BUSINESS ETHICS**

Ethical standards of business Immoral and illegal practices and their solutions. Characteristics of ethical problems in management, Ethical theories, causes of unethical behavior, Ethical abuses and work ethics. (Theory only)

## IV

### **ENVIRONMENTAL ETHICS:**

Ethical theory, man and nature — Ecological crisis, Pest control. Pollution and waste, Climate change, Energy and pollution, Justice and environmental health. (Theory only)

## V

### **SOCIAL ETHICS**

Organ trade, Human trafficking, Human rights violation and social disparities. Feminist ethics, Surrogacy pregnancy. Ethics of media Impact of Newspapers, Television, Movies and Internet (Theory only).

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6. Harold H. Titus: Ethics for Today
7. Maitra, S.K: Hindu Ethics
8. William Lilly: Introduction to Ethics
9. Sinha: A Manual of Ethics

Manu: Manava Dharma Sastra or the Institute of Manu: Comprising the Indian System of Duties: Religious and Civil (ed) G.C. Haughton

### **Med4B.7 : ENVIRONMENTAL EDUCATION AT**

#### **SECONDARY LEVEL**

#### **UNIT -I**

#### **Introduction to Environmental Education**

1. Concept, importance and scope, Aims and objectives
2. Guiding Principles and Foundations
3. Relationship between ,man and environment
4. Sociological and psychological Perspectives

## II

#### **Environmental Hazards**

1. Environmental pollution: physical, air water, noise, chemical
2. Extension of flora & fauna, deforestation, soil erosion.

3. Need for Conservation, preservation and protection of Rich environmental heritage.

2.4 Programme of environmental education for secondary and higher education

### III

#### Environment and Eco-system

1. Natural systems, earth & Bio-sphere, a biotic and biotic components
2. Natural resources, abiotic resources.
3. Human systems-human beings as part of environment, human adaptations to environmental resources.
4. Systems – Industrial growth, Technological and scientific growth, Technological inventors and their impact on the environmental system.

### IV

#### Environmental Problems, Legislation and Education

1. Effect of manmade and natural disaster on environment. Role of educational institutions in disaster management. Concept and importance of sustainable development.
2. Global Environmental Problems: Global warming, ozone depletion, e-waste and population explosion. Waste management: e-waste, medical waste, nuclear waste, solid and liquid waste.
3. International Conferences For Environmental Protection: Stockholm Conference (1972), Rio Conference (1992) and Johannesburg Conference(2002). Environmental Movements : Chipko, silent valley, Narmada Bachao.
4. Legislation: Indian forest act of 1927 & Wildlife protection act of 1972. Archeological and historic preservation act of 1974. The water (Prevention and control of pollution) act of 1974. The air (Prevention and Control of pollution) act of 1981. The environment (Protection) act of 1986.

### REFERENCES

1. Desh Bandhu & R. Dyal (1999): Environmental education for a sustainable future. Indian environmental Society. New Delhi.
  2. Purushottam Reddy K & Narasimha Reddy D (2002): Environmental education, Neelkamal publications Pvt.Ltd. Hyderabad.
  3. Singh R.B. & Suresh Misra (1996): Environmental law in India – Issues and responses Concept Publishing Company, New Delhi.
  4. Trivedi P.R.Sharma P.L.& Sudershan K.N.(1994): Natural environment and constitution of India. Ashish Publishing house,New Delhi.
  5. Deshbandhu and G.Berberet (1987) : Environmental Education for conservation and Development, Indian Environment Society, New Delhi.
  6. Gregory, K.J.and walling, D.E.(1981) Man and Environment Process, Butterworths,London.
  7. Kumar, V.K.(1982) A study of Environmental pollution, Tara Book Agency,Varanasi.
  8. Sapru, R.K.(1987) Environmental Management in India, Ashish Publishing, Delhi.
  9. Saxena, A.B. (1986) Environmental Education, National Psychological corporation,Agra.
  10. Dani,H.M.(1986): Environmental Education, Chandigarh,Publication Bureau,Punjabuniversity.
  11. Nanda,K.v.(1997), Environmental Education,New Delhi,:APH Publishing Corpn.
  12. Saxena,A.B.(1986), Environmental Education,Agra : National Psychological corpn.
  13. Sharma, R.C.(1981), Environmental Education, NewDelhi : Metropolitan Book Co.,
  14. NCERT,(2000) National Curriculum Framework 2000.New Delhi.NCERT Press.
- NCTE,(2005), Environmental Education Curriculum Frame working for Teachers & Teacher Education. New Delhi : NCERT Press.

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VIGNANA SIMHAPURI UNIVERSITY  
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## **M.Sc Botany**

**20RMSCBOT107 :HUMAN VALUES AND PROFESSIONAL ETHICS**

**Value Education :**

**Unit I**

  
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VTKRANA SIMHAPURI UNIVERSITY  
NELLORE - 524 324.

Definition Relevance to present day — Concept of human values — Self introspection — Self esteem. Family values — Components, Structure and responsibilities of family — Neutralization of anger Adjustability Threats of family life Status of women in family and society — Caring for needy and elderly — Time allotment for sharing ideas and concerns. (Theory only)

#### Unit II

##### **Medical Ethics:**

Views of Charaka, Sushruta and Hippocrates on moral responsibility of medical practitioners. Code of ethics for medical and healthcare professionals. Euthanasia, Ethical obligation to animals, Ethical issues in relation to health care professionals and patients. Social justice in healthcare, human cloning, problem of abortion. Ethical issues in genetic engineering and Ethical issues raised by new biological technology or knowledge. (Theory only)

#### Unit III

##### **BUSINESS ETHICS**

Ethical standards of business Immoral and illegal practices and their solutions. Characteristics of ethical problems in management, Ethical theories, causes of unethical behavior, Ethical abuses and work ethics. (Theory only)

#### Unit IV

##### **ENVIRONMENTAL ETHICS:**

Ethical theory, man and nature — Ecological crisis, Pest control. Pollution and waste, Climate change, Energy and pollution, Justice and environmental health. (Theory only)

#### Unit V

##### **SOCIAL ETHICS**

Organ trade, Human trafficking, Human rights violation and social disparities. Feminist ethics, Surrogacy pregnancy. Ethics of media Impact of Newspapers, Television, Movies and Internet (Theory only).

##### **REFERENCES**

1. Johns S Mackenzie: A Manual of ethics
2. "The Ethics of Management" by Larue Tone Hosmer, Richard D. Irwin Inc.
3. Management Ethics – Integrity at work by Joseph A. Petrick and John F. Quinn, Response
4. Books, New Delhi.
5. "Ethics in Management" by S.A. Shelekar, Himalaya Publishing House.
6. Harold H. Titus: Ethics for Today
7. Maitra, S.K: Hindu Ethics
8. William Lilly: Introduction to Ethics
9. Sinha: A Manual of Ethics

Manu: Manava Dharma Sastra or the Institute of Manu: Comprising the Indian System of Duties: Religious and Civil (ed) G.C. Haughton

## **20RMSCBOT 303 (B): BIO DIVERSITY AND CONSERVATION**

### UNIT I

**Concept and Importance of Biodiversity:** Status in India, World Centers of Primary Diversity, Types of Bio-diversity, Causes for Loss of Species and Genetic Diversity: Arborescence, Palmata.

### UNIT II

**Status and Analysis of Species Diversity:** Remote sensing – Concept, Principles, Application and Role in Study and Identification of Phyto Diversity and Natural Resources. GIS, Application of Microwaves and Radiation.

### UNIT III

**Principles of Diversity:** Concepts of Phyto Geography, Continental drift, Plate Tectonics of World and India, Endemism, Hotspots, Species rarity and Extinction, Red Data Book, Exploration, invasions, introduction of Species, Status of Species based on IUCN.

#### UNIT IV

**Strategies for Conservation of Diversity:** In situ Conservation – Scantuaries, National Parks, Biosphere Reserves, MPCA, MPDA, Mangroves, Coral Reefs, Sacred Groves, Ex-situ Conservation – Botanical Gardens, Gene Banks, Seed Banks, Traditional Role of National and International Organizations – WWF, IPGN, LUCN, NBPGR, BSI, ICAR, CSIR, DBT, DST, NGOs.

#### REFERENCES

1. Chandel, K.P.S, Shukla, G. and Sharma, N. 1996. Biodiversity in Medicinal and Aromatic Plants in India: Conservation and Utilization. National Bureau of Plant Genetic Resources, New Delhi.
2. Chaudhuri, A.B & Sarkar, D.D. 2002. Biodiversity Endangered. Scientific Publishers, New Delhi
3. Clive Hambler, 2004. Conservation. Cambridge University Press, Cambridge, UK
4. Frankel, O.H, Brown, A.H.D & Burdon, J.J. 1995. The Conservation of Plant Diversity, Cambridge University Press, Cambridge, U.K
5. Gobriel Melchias. 2001. Biodiversity and Conservation. Oxford IBH Publishers, New Delhi.
6. Christopher, D., Cook, K. 1996. Aquatic and Wet Land Plants of India Oxford University Press, New Delhi, India.
7. Mehra, K.L. Arora, R.K. 1982. Plant Genetic Resources of India – Their Diversity & Conservation, Vol III, Chapman Hall, U.K
8. Manilal, K.S. 1988. Flora of Silent Valley Mathrubhumi Press, Calicut.
9. Nayar, M.P. 1996. Hot Spots of Endemic Medicinal Plants of India, Nepal & Bhutan, Tropical Botanical Garden & Research Institute, Palode, Tiruvananthapuram, Kerala.
10. Negi, S.S. 2005. Biodiversity & Its Conservation in India. Indus Publishing Company, New Delhi.
11. Prasad, B.N 2000. Biotechnology & Biodiversity in Agriculture/Forestry. Oxford University Press.
12. Pullaiah, T. 2002 – 2005 Biodiversity, in india. Vol. 1 –IV. Regency Publications, New Delhi.
13. Rajiv K. Sinha. 1996. Global Biodiversity, INA Shree Publications, Jaipur, India.
14. Santapau, H. 1970. Endangered Plant Species and their Habitat Status. IUCN Publications, Switzerland. Sinha, R.K. Biodiversity – Global Concerns. 1996. Commonwealth Publishers, New Delhi
15. Nayar, M.P. 1996. Hot Spots of Endemic Medicinal Plants of India, Nepal & Bhutan, Tropical Botanical Garden & Research Institute, Palode, Tiruvananthapuram, Kerala.
16. Negi, S.S. 2005. Biodiversity & Its Conservation in India. Indus Publishing Company, New Delhi.
17. Prasad, B.N 2000. Biotechnology & Biodiversity in Agriculture/Forestry. Oxford University Press.
18. Pullaiah, T. 2002 – 2005 Biodiversity, in india. Vol. 1 –IV. Regency Publications, New Delhi.
19. Rajiv K. Sinha. 1996. Global Biodiversity, INA Shree Publications, Jaipur, India.
20. Santapau, H. 1970. Endangered Plant Species and their Habitat Status. IUCN Publications, Switzerland.
21. Sinha, R.K. Biodiversity – Global Concerns. 1996. Commonwealth Publishers, New Delhi.
22. Supriya Chakraborty, 2004. Biodiversity. Pointer Publishers, Jaipur. Walter, K.S. and Gillett, H.J. 1998. 1997 IUCN RedList of Threatened Plants IUCN, the World Conservation Union IUCN, Gland, Switzerland, and Cambridge, UK.

### M.Sc Economics

20RMAECO104: ECONOMICS OF ENVIRONMENT

#### UNIT I

**Nature and Scope of Environmental Economics:**

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VIKRANTIA SIMHAPURI UNIVERSITY  
NELLORE - 524 324.



Environmental Economics–Nature and Scope of Environmental Economics-Economic Growth and Environmental Degradation–Environmental Kuznets Curve -Limits to Growth-Sustainable Development–Environmental Quality and Economic Development.

#### UNIT II

##### **Environmental Degradation and Resource Depletion:**

Natural Resources–Renewable and Non-renewable Resources–Approaches to Natural Resources–Theories of Natural Resources–Depletion of Resources–Tragedy of Commons - Causes for Environmental Degradation.

#### UNIT III

##### **Sources and Effects of Pollution:**

Sources and Types of Pollution: Air, Water, Noise and Solid Waste Pollution–Industrial Pollution–Marine Pollution–Thermal Pollution–Nuclear Pollution–Urban Pollution–Effects of Environmental Pollution on Health, Economic and Social Aspects.

#### UNIT IV

##### **Environmental Policy and Principles:**

Objectives of Environmental Policy–National Environment Policy, 2006–Policy Measures to Control Environment Pollution–Polluter-Pays-Principle–Pigovian Analysis of Externalities–Taxes and Subsidies – Pollution Permits–Hedonic Pricing Principle.

#### UNIT V

##### **Environmental Laws and Management Strategies:**

Environmental Laws and Regulations–Air Act, Water Act, Environment Protection Act and Wildlife Protection Act in India–Global Environmental Policies – International Conferences on Environment–Environmental Strategies: Development of Clean Production Technologies, Forest Conservation, Conservation and Management of Common Property Resources and Environmental Education–Social Forestry–Community Participation–Earth Summit.

#### REFERENCES

1. Dales. J.H.(2002), Pollution, Property and Prices, Toronto University Press, Toronto.
2. David Pearce. W.D(2000), “Economics and Environment–Essays on Ecological Economics and Sustainable Development”-Edward Elgar Publishers Ltd. UK.
3. Karpagam, M.(2019), “Environmental Economics” 3<sup>rd</sup> Edition, Sterling Publishers Private Ltd, New Delhi.
4. Katar Singh and Anil Shishodia (2007), Environmental Economics-Theory and Applications- Sage Publications, New Delhi.
5. Rabindra N. Battacharya (2001), “Environmental Economics–An Indian Perspective”-Oxford University Press, New Delhi. \
6. Ulganathansankar (2001), “Environmental Economics (Ed)”-Oxford University Press, New Delhi.
7. Jhingan M L(2009), “Environmental Economics”, Virinda Publications. Muthu Krishnan Subashini (2015), “Economics of Environment”, PHI Learning Publisher.

  
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NELLORE - 524 324.

## **20RMBA107 :HUMAN VALUES AND PROFESSIONAL ETHICS**

### **Value Education**

Definition Relevance to present day — Concept of human values — Self introspection — Self esteem. Family values — Components, Structure and responsibilities of family — Neutralization of anger Adjustability Threats of family life Status of women in family and society — Caring for needy and elderly — Time allotment for sharing ideas and concerns. (Theory only)

## II

### **Medical Ethics:**

Views of Charaka, Sushruta and Hippocrates on moral responsibility of medical practitioners. Code of ethics for medical and healthcare professionals. Euthanasia, Ethical obligation to animals, Ethical issues in relation to health care professionals and patients. Social justice in healthcare, human cloning, problem of abortion. Ethical issues in genetic engineering and Ethical issues raised by new biological technology or knowledge. (Theory only)

## III

### **BUSINESS ETHICS**

Ethical standards of business Immoral and illegal practices and their solutions. Characteristics of ethical problems in management, Ethical theories, causes of unethical behavior, Ethical abuses and work ethics. (Theory only)

## IV

### **ENVIRONMENTAL ETHICS:**

Ethical theory, man and nature — Ecological crisis, Pest control. Pollution and waste, Climate change, Energy and pollution, Justice and environmental health. (Theory only)

## V

### **SOCIAL ETHICS**

Organ trade, Human trafficking, Human rights violation and social disparities. Feminist ethics, Surrogacy pregnancy. Ethics of media Impact of Newspapers, Television, Movies and Internet (Theory only).

### **REFERENCES**

1. John S Mackenzie: A Manual of ethics
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3. Management Ethics – Integrity at work by Joseph A. Petrick and John F. Quinn, Response Books, New Delhi.
4. "Ethics in Management" by S.A. Shelekar, Himalaya Publishing House.

## **20RMBA402: INDIAN ETHOS AND BUSINESS ETHICS**

### UNIT I

**Indian Ethos-** Meaning, Features, Need, History, Relevance, Principles Practised by Indian Companies, Requisites, Elements, Role of Indian Ethos in Managerial Practices- Management Lessons from Scriptures

### UNIT II

**Ethos and Values-** Meaning, Levels, Dimensions, Steps, Factors Responsible for Poor Work Ethos. **Values:** Meaning, Features, Values for Indian Managers, Relevance of Value Based Management in Global Change, Impact of Values on Stakeholders: Employees, Customers, Government, Competitors and Society. Values for Managers, Trans-Cultural Human Values in Management and Management Education, Secular v/s Spiritual Values in Management, Importance of Value System in Work Culture

### UNIT III

**Ethics, culture and values:** Importance of culture in organisations; Indian ethos and value systems; concepts of Dharma; Nishkama karma and Purusharthas; Model of management in the Indian socio-political environment; world ethos, Indian heritage in production and consumption

### UNIT IV

**Business Ethics and Corporate Ethics** – Meaning, Importance, functions, Unethical Practices and ethical dilemma, Ethical theories and Approaches, Ethics for manager

### UNIT V

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VIKRAMA SIMHAPURI UNIVERSITY  
NELLORE - 524 324.

**Ethics management:** Role of organisational culture in ethics; structure of ethics management; Ethics Committee; Ethics Officers and the CFO; Communicating ethics; Ethical Audit; Corporate Governance; Transparency International and other Ethical bodies.

#### REFERENCES

1. Chakraborty, S.K.: Foundations of Managerial Work – Contributions from Indian Thought, Himalaya Publishing House, Delhi 1998.
  2. Chakraborty, S.K.: Ethics in Management: Vedantic Perspectives, Oxford University Press, Delhi 1995.
  3. Boatright, John R: Ethics and the Conduct of Business, Pearson Education, New Delhi 2005.
  4. Trevion and Nelson: Managing Business Ethics, John Wiley and Sons, 1995.
  5. Nandagopal, Ajith Sankar RN: Indian Ethics and Values in Management, Tata Mc Graw Hill
  6. Bhatta, S.K., Business Ethics & Managerial Values.
  7. Khandelwal, Indian Ethos and Values for Managers, Himalaya Publishing House, 2009
  8. Biswanath Ghosh, Ethics In Management and Indian Ethos, Vikas Publishing House, 2009
  9. Joseph Des Jardins, An Introduction to Business Ethics , Tata Mc Graw Hill, 2009.
  10. Business Ethics –An Indian perspective, Fernando, Pearson Education.
- “Perspectives in Business Ethics”, Laura P Hartman, Tata McGraw Hill.

  
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NELLORE - 524 324.

## M.Sc Physics

**PHY105 :HUMAN VALUES AND PROFESSIONAL ETHICS**

## Unit I

### Value Education

Definition Relevance to present day — Concept of human values — Self introspection — Self esteem. Family values — Components, Structure and responsibilities of family — Neutralization of anger Adjustability Threats of family life Status of women in family and society — Caring for needy and elderly — Time allotment for sharing ideas and concerns. (Theory only)

## Unit II

### Medical Ethics:

Views of Charaka, Sushruta and Hippocrates on moral responsibility of medical practitioners. Code of ethics for medical and healthcare professionals. Euthanasia, Ethical obligation to animals, Ethical issues in relation to health care professionals and patients. Social justice in healthcare, human cloning, problem of abortion. Ethical issues in genetic engineering and Ethical issues raised by new biological technology or knowledge. (Theory only)

## Unit III

### BUSINESS ETHICS

Ethical standards of business Immoral and illegal practices and their solutions. Characteristics of ethical problems in management, Ethical theories, causes of unethical behavior, Ethical abuses and work ethics. (Theory only)

## Unit IV

### ENVIRONMENTAL ETHICS:

Ethical theory, man and nature — Ecological crisis, Pest control. Pollution and waste, Climate change, Energy and pollution, Justice and environmental health. (Theory only)

## Unit V

### SOCIAL ETHICS

Organ trade, Human trafficking, Human rights violation and social disparities. Feminist ethics, Surrogacy pregnancy. Ethics of media Impact of Newspapers, Television, Movies and Internet (Theory only).

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3. Management Ethics – Integrity at work by Joseph A. Petrick and John F. Quinn, Response
4. Books, New Delhi.
5. "Ethics in Management" by S.A. Shelekar, Himalaya Publishing House.

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## M.Sc Marine biology

20RMSCMB101: Introduction to Marine Biology and Ecology

### UNIT I

**Marine Environment:** The Seas biological environment – Classification of the marine environment – biotic and abiotic divisions.

#### UNIT II

**PhytoPlankton :** Classification, composition, and adaptations to planktonic life, factors affecting distribution and abundance, Red tide phenomena – causes and effects; biological productivity, primary production – methods of measuring primary production, factors affecting primary production

#### UNIT III

**Zoo Plankton:** Classification, composition, and adaptations; factors affecting distribution and abundance. Phytoplankton, zooplankton relationships, diurnal vertical migrations. Indicator species among zooplankton.

#### UNIT IV

**Benthos and Deep Sea:** Benthos- Methods of collection and analysis; benthic communities; Meiobenthos; Deep-Sea- Life and environmental conditions. Adaptations of the deep sea fauna. Marine Bio-deterioration - Fouling and boring organisms.

#### REFERENCES

1. Nybakken, J.W. Marine Biology An ecological approach. Harper Collins College Publishers, New York.
2. Fincham, A.A. Basic Marine Biology. Cambridge University Press.
3. Sverdrup, H.U., M.W. Johnson and R.H. Fleming. The oceans, their physics, chemistry and general biology. Prentice Hall, Englewood Cliffs.
4. Boaden, J.S. and R. Seed. An Introduction to coastal Ecology, Chapman and Hall, New York.
5. Raymont, J.E.G. Plankton and Productivity in the Oceans. Pergamon Press, New York.
6. Wickstead, J.H. An introduction to the study of tropical plankton. Hutchinson
7. Introduction to Marine Biology S.N. Prasad
8. C.B.L. Srivastava. A text book of fishery science and Indian fisheries.
9. Jhingran, V.G. 1985 fish and fisheries of India, Hindustan publishing corporation, New Delhi.
10. Begon, M., J.L. Harper and C.R. Townsend. Ecology, Individuals, Populations and Communities. Blackwell Science, Oxford, UK
11. Koromondy, E.J. Concepts of ecology, Prentice and Hall, New Delhi.
12. Clarke, G.L. Elements of Ecology, New York: John Wiley and sons
13. Odum, E.P., Fundamentals of Ecology. Philadelphia; W.B. Saunders
14. Krebs, C.J. Ecology. Harper & Row, New York.

#### 20RMSCMB102: Biological Oceanography

##### UNIT I

**Upwelling ecosystems:** Major upwelling areas in the world causes and mechanism of upwelling, Biological significance of upwelling – phytoplankton production

##### UNIT II

##### **Intertidal ecosystems:**

Zonation, Environmental conditions- Tides- Temperature- wave action – salinity- other factors- adaptations of intertidal organisms- Rocky – Sandy and Muddy shores.

##### UNIT III

##### **Estuarine ecosystems:**

Classification and origin of estuaries, Physical and chemical environmental factors, Flora and fauna of estuaries, Estuarine productivity, adaptations (morphological, anatomical and physiological) ecological role – estuarine food web.

##### UNIT IV

**Mangroves, Seagrasses and salt marshes:**

REGISTRAR

VIJAYAN SIMHAPURI UNIVERSITY

NELLORE - 524 324.

Distribution – adaptations (morphological, anatomical and physiological), ecological role, uses, need for conservation. Coral reef biome.

#### REFERENCES

1. Wimpenny, R.S., 1966. Plankton of the Sea. Feber and Feber Limited London.
  2. Raymont, J.E.G., 1973. Plankton and Productivity in the Oceans Pergamon Press, London.
  3. Boney, A.D., 1975. Phytoplankton. Edward, Arnold, London.
  4. Chapman, V.J., 1976. Mangrove Vegetation. J. Gramer, Berlin.
  5. Chapman, V.J. and D..T. Chapman, 1980. Seaweeds and Their Uses Chapman & Hall London Ltd.
  6. Spoel S. Vander and R.P. Heyman, 1983. Comparative Atlas of Zooplankton Biological Patterns in the Oceans. Springer – Verlag Berlin.
  7. Tomilson, P.B., 1986. The Botany of Mangroves. Cambridge University Press
  8. Nybakken, J.W., 1997. Marine Biology – An Ecological Approach. Fourth Edition. Addison Wesley Edu. Pub. Inc.
  9. Jeffrey S. Levinton. 2001. CD Marine Biology: Function. Biodiversity, Ecology pp. 515.
- Kathiresan, K. and S.Z. Qasim, 2005. Biodiversity of Mangrove Ecosystems. Elsevier Limited

  
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**20RMSCMB301: Coastal Aquaculture**

**UNIT I**

**Shrimp Hatchery Management:**

Importance of Coastal aquaculture - global scenario, present status of shrimp farming in India; Natural collection and resources of shrimp seed. Shrimp hatchery management, techniques of induced breeding, larval rearing, packing and transportation. Selection criteria for shrimp seed; seed quality rating

## UNIT II

### **Shrimp Culture Management:**

Culture practices - Traditional, extensive, semi - intensive and intensive; Culture systems - Monoculture and polyculture. Shrimp culture management – Pre-stocking, stocking and Post stocking management - water quality management, feed management. Best management Practices (BMP,s) in shrimp farming

## UNIT III

### **Design & Construction of shrimp farms and Hatcheries:**

Selection of site: topography, water availability and supply, soil conditions. Design and layout of shrimp farms- water intake system, drainage system. Design and construction of shrimp hatcheries; structure and construction, Different accessories used in coastal aquafarms and hatcheries

## UNIT IV

### **Diseases and Health Management:**

Control of predators and parasites. Viral and Bacterial diseases in shrimp - causes, symptoms, prophylactic and therapeutic treatments. Nutritional deficiency diseases, environmental stress diseases. Role of Probiotics in diseases prevention. Disease diagnosis: Microbiological, immunological and molecular diagnosis methods

## REFERENCES

1. Pillay, T.V.R., 1990. Aquaculture principles and Practices. Fishing News Books.
2. Samuel Paulraj, 1994. Shrimp Farming Techniques: Problems and Solutions. Palani pub.
3. Anand S., Upadhyay, 1995. Handbook on Design, Construction and Equipments in Coastal Aquaculture. Blackie Academic Pub.
4. Stickney, 1995. Introduction to Aquaculture. John Wiley & Sons, New York.
5. Coche, G. and J.F. Muir, 1996. Simple Methods for Aquaculture Pond Construction for Freshwater Fish Culture : Pond farm structures and layouts. Daya Pub.
6. Conroydas, R. and L. Heruman, 1997. Text Book of Fish Disease. Narendra Pub
7. John E. Bardach, 1997. Sustainable Aquaculture. John Wiley & Sons, New York.
8. James, W. Meade, 1998. Aquaculture Management, CBS pub., New Delhi.
9. Robert R. Stickney (ed.), 2000. Encyclopedia of Aquaculture. John Wiley and Sons, Inc., New York.
10. Joachim W. Hertrampf and Felicitas Piedad-Pascal, 2000.
7. Samuel Paulraj, 1994. Shrimp Farming Techniques: Problems and Solutions. Palani pub.
8. Anand S., Upadhyay, 1995. Handbook on Design, Construction and Equipments in Coastal Aquaculture. Blackie Academic Pub.
9. Stickney, 1995. Introduction to Aquaculture. John Wiley & Sons, New York.
10. Coche, G. and J.F. Muir, 1996. Simple Methods for Aquaculture Pond Construction for Freshwater Fish Culture : Pond farm structures and layouts. Daya Pub.
11. Conroydas, R. and L. Heruman, 1997. Text Book of Fish Disease. Narendra Pub
10. John E. Bardach, 1997. Sustainable Aquaculture. John Wiley & Sons, New York.
11. James, W. Meade, 1998. Aquaculture Management, CBS pub., New Delhi.

12. Robert R. Stickney (ed.), 2000. Encyclopedia of Aquaculture. John Wiley and Sons, Inc., New York.
- Joachim W. Hertrampf and Felicitas Piedad-Pascal, 2000. Handbook on Ingredients for Aquaculture Feeds. Kluwer Academic Publishers, London.

## **20RMSCMB302: POLLUTION AND TOXICOLOGY**

### **UNIT I**

#### **Marine Pollution & Toxicology:**

Marine Pollution - definition - major pollutants - sources, transport path, dynamics. Toxicology - lethal and sub-lethal effects of pollutants to marine organisms, bioconcentration, bioaccumulation and biomagnification - methods of toxicity testing, factors influencing toxicity - synergistic and antagonistic effects.

### **UNIT II**

#### **Sewage and Plastic Pollution:**

Sewage pollution - Industrial, agricultural and domestic, impact on marine environment, treatment methods. Eutrophication and ecological significance. Plastics and Litter; source and impact in the marine Environment

### **UNIT III**

#### **Heavy Metal & Pesticide Pollution:**

Heavy Metal pollution - sources, distribution, ecological impacts and analytical approaches; Pesticide pollution - classification, sources, distribution, and ecological impacts with special reference to marine fishes, birds and mammals

### **UNIT IV**

#### **Oil, Thermal and Radioactive Pollution:**

Oil Pollution - composition, sources, biological impacts on fishes, birds, mammals, treatment techniques. Thermal pollution - sources and ecological impacts. Radioactive pollution - sources (natural and artificial) biological effects of radiation

### **REFERENCES**

1. Clark R. B. 1992. Marine pollution 3rd edition Clarendon, Press Oxford.
  2. Williams 1996. Introduction to Marine Pollution Control. John Wiley.
  3. Michael J. Kennish 1994. Practical Handbook on Estuarine and Marine Pollution.
  4. Johnston, R. (ed), 1976. Marine Pollution, Academic Press, London.
  5. Goldberg, E. D. 1974. The Health of the oceans, UNESCO Press. Paris.
- Park, P. K., Kester D. R., J. W. Deudall and B. H. Ketchum, 1983. Wastes in the Ocean. Vols. 1 to 3. Wiley Interscience Publishers, New York.



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## **20RMSCMB305: COASTAL AND MARINE BIODIVERSITY**

### **UNIT I**

Introduction to Marine Biodiversity:



Origin of conservation biology, divisions of biodiversity, Understanding the marine biodiversity and conservation, keystone species, ecosystem functioning, world's marine biological diversity, marine hot spots-cold species, hydrothermal hotspots, marine biosphere reserves and their importance in India, Values of biodiversity-ecological, economic, ethical, and conservation feasibility values

#### UNIT II

Threats to Marine Biodiversity:

Species diversity, species richness, species evenness, factors affecting species diversity. Biodiversity with reference to mangroves and coral reefs. Species extinction vulnerability to extinction, habitat destruction degradation and fragmentation with reference to coral reefs and mangroves, maximum sustainable yield (MSY), alien species, global climate change-coral bleaching

#### UNIT III

Conservation Strategies:

Importance of conservation, IUCN and their importance, various conservation strategies- germplasm banks, cryopreservation, marine protected areas, sea ranching, mesh size regulation, TED, fishing holidays, conservation and development at national international level

#### UNIT IV

Conservation policies and Legislations :

Various legislations and regulations in conservation of marine biodiversity the role of MoEn and Finconservation, NGO's involvement in conservation and various case studies related to coastal marine conservation science and policy with reference to Indian maritime states

#### REFERENCES

1. Biodiversity measurement and estimation. Chapman & Hall, 140pp. Qubiroga, H., 2006.
2. Marine biodiversity, SP Kringer, 353pp. Richard B. Primack., m2002.
- Essentials of conservation biology-32nd edition, Sinauer Assoc. Inc. Pub., USA, 698pp. Ruth, 2002.
4. Dynamic modelling for marine conservation. Springer, 446pp, Singh, J.S., S.P. Singh and S.R. Gupta., 2006.
- Ecology, Environment and Resource conservation., Anamaya pub., New Delhi, 688pp.

  
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