

**Manonmaniam Sundaranar University  
Tirunelveli – 627 012**

**University Departments**

**PG Degree Programmes**

**Even & Odd semester / Semester – II & III / –  
November 2017 – April 2018 &  
July – November 2018**

**List of Supportive Courses offered by University  
Departments**

## Department of Animal Science

2016-17 /MSU / Univ.Depts./ M.Sc. Zoology / Sem. –II / Supportive Course -1

### SERICULTURE

L	P	T	C
3	0	3	3

**Objective:** To provide knowledge on scope, importance of rearing and management practice of silkworm

**UNIT 1 : INTRODUCTION :** Scope and Importance of sericulture-sericulture in India-Role of central Silk Board-Life Cycle of *Bombyx mori*- Classification based in number of larval moults and voltinism and cocoon colour shape-Morphology of *Bombyx mori* (egg-larval-pupa-adult)-Silk gland –Non mulberry Silkworm. - 10 h

**UNIT II: MORICULTURE :** Morphology of mulberry plant-High yielding varieties-optimum conditions for mulberry growth-planting –irrigation- manuring – pruning –harvesting and storing of mulberry leaves-Common diseases of mulberry (causative agent, symptoms and treatment). – 12 h

**UNIT III: GRAINAGE TECHNOLOGY :** Egg breeding stations-procedure in Grainage-silkworm rearing –rearing house- rearing appliances-rearing operations.- 8 h

**UNIT IV: DISEASES OF SILKWORM :** Causative organism, symptoms and treatment for Bacterial diseases (Flacherie, Septicemia, Sotito)-fungal diseases (muscardine)Viral diseases (infectious flacherie, Gattine, Grasserie) and protozoan disease (Pebrine)-Genetic reistance of the silk worm, *Bombyx mori* to bacterial and viral diseases-silkworm transgenesis and application. - 12 h

**UNIT V: SILK REELING :** Cocoon marketing-characteristics of cocoon-cocoon stifling-Types and storage of stifled cocoons-reeling operations-reeling appliances (country charka, cottage basin)-raw silk testing.- 10 h

#### REFERENCES:

1. Ganga,G and Sulochan Chetty, 1991.An Introduction to Sericulture. Oxford IBH Publ. PVT. LTD., New Delhi.
2. Hisao Aruga. Principles of Sericulture. Oxford IBH Publ. PVT. LTD., New Delhi.
3. G.Rangasamy et al., (1972). Mulberry cultivation-Central Sericulture Research and Training Institute, Mysore.
4. Ullal,S. And narasimhana, M.N. Hand Book of Practical Sericulture-CSB, Bombay.

**PROBIOTICS**

L	P	T	C
3	0	3	3

- Unit I : Introduction to probiotics : Definition, History of Probiotics, Characteristics of probiotics, Uses of Probiotics, Probiotics in human and animal health, sources of Probiotics, Mode of action of probiotics. - 10 h
- Unit II : Isolation and screening of probiotics microbes : Isolation of probiotics microbes, screening of probiotic microbes (Enzyme production, antagonistic activity, *in vitro* and *in vivo* screening towards pathogenicity) – Production of probiotics. - 11 h
- Unit III : Probiotics in Human and Animal Health : Probiotics in Human Health. Probiotics in Animal Health : Probiotics as feed additives, Growth promoters and Immune modulators. Probiotics in Bioconversion. Probiotic Exoenzymes : Enzymes as feed additives. - 12 h
- Unit IV : Probiotic and Environment Health : Denitrifying, Ammonia oxidizing, Phosphate Solubilizing bacteria, Poly and hydrocarbon degrading bacteria, water probiotics. - 10 h
- Unit V : Prebiotics : Definition – Characteristics of probiotics – Synbiotics – Prebiotics in animal health (Growth Promoting Immune Modulation). Prebiotics in Human Health. - 11

**Reference**

1. Pillai, TVR. and M. N. Kutty., 2005. Aquaculture: Principles and Practices, Wiley-Blackwell.
2. Dr. S. A. Ali. 2010. Feed and Feed Technology Eds. (CIBA Publication).
3. Microbiology – Michael J. Pelczar, E. C. S. Chan and Noel R. Krieg, 5<sup>th</sup> Edn., Mc Graw – Hill Publishing Company Ltd., New Delhi.

## Department of Biotechnology

2016-17 / MSU /Univ.Depts. / M.Sc. Biotechnology /Sem.-II & III / Supportive Course - 1

### 1. DNA FINGER PRINTING

L	P	T	C
3	0	3	3

Unit 1

8 Hrs

Diversity of cell size and shape. Cell theory. Isolation and growth of cells. Nucleus size and shape, Chemical composition of DNA.

Unit 2

8 Hrs

DNA sequence, single letter code for nucleotide, comparison of DNA sequences. Similarity and variation between individuals.

Unit 3

8 Hrs

*In vivo* and *in vitro* Stability of DNA. Isolation of DNA from various sources. Storage of DNA.

Unit 4

8 Hrs

Human chromosome: Gene repeats in the DNA genome. DNA characterization: DNA sequencing technique, Polymerase chain Reaction (PCR),

Unit 5

8 Hrs

Forensic DNA analysis: Restriction length Polymorphism (RFLP), Autosomal Short Tandem Repeats (STR), Y-chromosome autosomal Short Repeats (YSTRs), Single Nucleotide Polymorphisms (SNPs)

#### **Reference:**

1. *DNA Cloning: a Practical Approach*, D.M. Glover and B.D. Hames, IRL Press, Oxford, 1995.
2. *Molecular and Cellular Methods in Biology and Medicine*, P .B. Kaufman, W. Wu.D.Kim and L.J.Cseke, CRC Press, Florida, 1995.
3. *DNA Science*, A First Course in Recombinant Technology, D.A. Mickloss and GA. Freyer, Cold Spring Harbor Laboratory Press, New York, 1990. .
4. *Molecular Biotechnology* (2IKi Edn), S.B. Primrose, Blackwell Scientific Publishers, Oxford, 1994.
5. *Milestones in Biotechnology*. Classic papers on Genetic Engineering, J.A. Davies and W.S. Reznikoff, Butterworth-Heinemann, 8Qston, 1992
6. *Genetic Engineering* Introduction to gene analysis an exploitation in eukryotes, S.M.Kingsman and A.J. Kingsman, Blackwell Scientific Publications, Oxford, 1998

**2. STEM CELLS AND REGENERATIVE BIOLOGY**

L	P	T	C
3	0	3	3

## Unit 1

8 Hrs

Stem cell, embryonic stem cells, embryonic germ cell, Bone marrow stem cells, Adult stem cell, Differentiation. Introduction to concepts in stem cell biology (renewal, potency, etc.). Stem cell characterizations: isolation & characterizations, markers & their identification, growth factor requirements and their maintenance in culture. Pluripotency and Reprogramming.

## Unit 2

8 Hrs

Hematopoietic Stem Cell. Induced pluripotent stem (Ips) cell technology. Epigenetic memory in iPS cells. Epigenetic controls of stem cells. Early embryonic development. Lymphoid cell differentiation and maturation. Cell cycle regulators in stem cells. Molecular mechanisms of self-renewal, pluri/multipotency and lineage differentiation. Molecular basis of pluripotency and stem cell niche.

## Unit 3

8 Hrs

The human umbilical cord: A source of stem cells. Isolation of mesenchymal stem cell (MSCs) from the umbilical cord. *In vitro* Differentiation potential of Umbilical cord mesenchymal stem cell. *In vivo* applications of UCSC. Cord blood stem cells transplantation: Advantages and disadvantages. Cord blood banking.

## Unit 4

8 Hrs

Generation and Manipulation of Mouse Embryonic Stem Cells. Generation and Manipulation of Human Embryonic Stem Cells. Animal Models of Regeneration (Hydra, Planaria, Earthworm, Zebra fish, etc.).

## Unit 5

8 Hrs

Cancer stem cell- The origin of cancer stem cells, the impact of cancer stem cell concept on cancer therapy. Epigenetics and Reprogramming in Stem Cell Biology. Stem Cell Gene Therapy. Stem cell therapy for neurodegenerative diseases. Stem cell therapy for cardiac regeneration. Clinical cell transplantation for leukemia. Ethical issues associated with stem cell biology.

## References:

1. Principles of Regenerative Medicine 2nd Edition (Anthony Atala, Robert Lanza, James A. Thomson & Robert Nerem. 2010)
2. Stem Cells (Anna Wobus & Kenneth Boheler. 2008)
3. Essentials of Stem Cell Biology 2nd Edition (Robert Lanza. 2009)

4. Kursad Turksen, *Adult and Embryonic Stem Cells*, Humana press.
5. Carlson, B. M. (2007). *Principles of Regenerative Biology*. Elsevier Inc.. pp. 400. ISBN 978-0-12-369439-3.
6. Reddien, P. W.; Alvarado, A. S. (2004). "Fundamentals of planarian regenerations". *Annual Review of Cell and Developmental Biology* 20: 725–757.
7. Reya, T; Morrison, SJ; Clarke, MF; Weissman, IL (2001 Nov 1). "Stem cells, cancer, and cancer stem cells.". *Nature* 414 (6859): 105–11.
8. Heppner, GH; Miller, BE (1983). "Tumor heterogeneity: biological implications and therapeutic consequences". *Cancer metastasis reviews* 2 (1): 5–23.

### 3. VERMI BIOTECHNOLOGY

L	P	T	C
3	0	3	3

#### Unit 1

8 Hrs

Soil edaphology – Geography of soil – Soil groups – Soil genesis – Soil profile – Soil complex – Soil texture – structure – Physical properties –Organic matter – Humus – Soil water, aeration, temperature, pH and buffer action and Electrical conductivity – Soil bioreactive system – fauna, microflora and its role – Soil pollution – erosion and conservation – sustaining of soil fertility – fertilizer – organic and inorganic.

#### Unit 2

8 Hrs

Vermibiology – Introduction – Historical perspectives – Taxonomy – Systemic position – Ecological types of earthworms, commonly occurring Indian Earthworms – Exotic earthworms – Earthworm as a natural bioreactor – Heavy metals uptake in earthworms.

#### Unit 3

8 Hrs

Vermiculture – Introduction – State of Art of Vermiculture techniques (Laboratory and field) –Working model of typical vermiculture bed – Maintenance, monitoring and harvest – Vermiwash – Preparation and application – Vermibiotechnology for solid waste management.

#### Unit 4

8 Hrs

Vermicomposting – Introduction - Vermicomposting methods – Earthworm cast – its importance in soil amelioration – Physico – Chemical properties – Casts of different species – Green waste, animal waste composting – Evaluation of the best suited worm – Advantages of vermicompost over natural Farm Yard Manure.

#### Unit 5

8 Hrs

Economic importance of Earthworms- Earthworm as a source of food – Live feed – Vermimeal preparation method – Chemical composition of vermimeal - earthworm as a source of drugs – Pharmacologically active materials derived from worms – Antipyretic and Anti-inflammatory activity of earthworm.

**References:**

1. Biology and ecology of Earthworms (1996) – Edwards and Bohlen, Chapman and Hall, London.
2. Vermiculture Biotechnology (1995) – Bhawalkar and Bhawalkar, BERI, Puner
3. Vermicology- Sultan A. Ismail, Orient Longman.
4. Earthworms (1985) – K. L. Lee, Academic Press, London.
5. Earthworm Ecology from Darwin to Vermiculture (11983) – Ed. J. Esatchell, Chapman and Hall, London.
6. Bioconversion of waste materials to industrial products (1991) – Ed: A.M. Martin, Elseveir Applied Science, London, New York.
7. Vermiculture Ecotechnology (1996) – U.S Bhawalkar, BERI, London.



#### 4. CANCER BIOLOGY

L	P	T	C
3	0	3	3

##### Unit 1

8 Hrs

Origin of life, types of cells, Genetic material and their stability. Isolation, culturing and maintenance of cells. Growth factors and signal transduction.

##### Unit 2

8 Hrs

Genomic integrity: Importance of maintenance of genomic integrity. Carcinogenesis and mutagenesis. Proteins associated with genomic integrity. Cell cycle checkpoint: Density arrest, Intra- S, G2/M and Spindle check points.

##### Unit 3

8 Hrs

Tumor suppressors: p53, Rb, ATM, P53 BP, p10 and apoptosis. Oncogenes: cMyc, and vMyc, Aurora A, AKT, PI3K, TRK. The cancer stem cell theory. Metastasis. Tumor viruses. Cell immortalization.

##### Unit 4

8 Hrs

Phenotype of cancerous cell: Aneuploidy, abnormal centrosome, loss of cell cycle arrest upon loss of genomic integrity. Philadelphia chromosome. Hyperplasia, dysplasia, neoplasia, metaplasia.

##### Unit 5

8 Hrs

Genes associated with cancers: Stomach, colon, breast, lung, cervical, and oral cancers. Techniques of cancer biology: Biochemical and imaging technique., early detection of cancer: Therapeutic aspects of cancer.

##### Reference

1. Reya, T; Morrison, SJ; Clarke, MF; Weissman, IL (2001 Nov 1). "Stem cells, cancer, and cancer stem cells". Nature 414 (6859): 105–11.
2. Heppner, GH; Miller, BE (1983). "Tumor heterogeneity: biological implications and therapeutic consequences.". Cancer metastasis reviews 2 (1): 5–23.
3. Dunmock N.J and Primrose S.B., "Introduction to Modern Virology", Blackwell Scientific Publications, Oxford, 1988.

## 5. BIOTECHNOLOGY AND HUMAN HEALTH

L	P	T	C
3	0	3	3

### Unit 1

8 Hrs

Infectious diseases: The background information, cause, symptoms, possibility of treatment, prevention and control of Typhoid, Leprosy, Tuberculosis and Malaria

### Unit 2

8 Hrs

Viral diseases: The background information, cause, symptoms, possibility of treatment, prevention and control of Jaundice, Flu, Micelles, AIDS, Japanese Encephalitis, Chikungunya and Ebola

### Unit 3

8 Hrs

Metabolic and cardiac diseases: The background information, causes, symptoms, possibility of treatment, prevention and control of Diabetes and Heart attack

### Unit 4

8 Hrs

Genetic diseases: The background information, cause, symptoms, possibility of treatment, prevention and control of Aging, Cancer, Alzheimer and Parkinson

### Unit 5

8 Hrs

Developmental and Neuronal diseases: The background information, cause, symptoms, possibility of treatment, prevention and control of Attention Deficit Hyperactivity Disorders (ADHD), Autism, Down syndrome and Transgender

### References:

1. Essential of Human Diseases – Leonard V. Crowley, 2014
2. Viruses and Human Diseases – James H. Strauss and Ellen G. Strauss, 2007
3. Human Genetic Diseases – A Practical Approach – K.E.Davier, 2000
4. Biotechnology in Medical Sciences – Firdos Alan Khan, 2014
5. Aging Theory and Potential Therapies – Joseph Panno, 2005

## Department of Chemistry

2016-17 MSU / Univ. Depts. /M.Sc. (Chemistry) Sem.-II / Supportive Course-1

### Paper I –Chemistry and Environment (3 Credits)

#### **Unit I – Environment and Ecology (09 hrs.)**

Introduction to environment – concept and scope, environmental segments. Ecosystem and environment. The natural cycles ( $H_2O$ ,  $O_2$ ,  $N_2$ ) of environment. Environmental pollution and its classification.

#### **Unit II – Air Pollution (09 hrs.)**

Atmosphere – composition, structure and evolution; green house effect and global warming; photochemical smog and acid rain. Ozone hole and El Nino phenomenon. Different types of air pollutants and sources; air quality standards.

#### **Unit III – Water Pollution (09 hrs.)**

Different types of water pollutants and sources. Eutrophication; heavy metal ions (Hg, Pb and Cr) poisoning; fluoride and defluoridation. Water quality standards.

#### **Unit IV – Soil Pollution (09 hrs.)**

Composition of soil; micro and macronutrients; wastes and pollutions in soil; disposal of municipal, medical and industrial wastes. Plants as indicators of soil pollution.

#### **Unit V- Environmental restoration (09 hrs.)**

Environmental restoration; recycling and further use of waste. Conservation of forests and wild life. The state of global environment and earth summit.

#### **References:**

1. A.K. De, Environmental Chemistry, New Age publishers, New Delhi, 3, 4 & 5<sup>th</sup> Edn., 2003.
2. B.K. Sharma and H.Kaur, Environmental Chemistry, Goel Publishing House, Meerut, 3<sup>rd</sup> Edn., 1996.
3. G.S. Sodhi, Environmental Chemistry, Narosa Publishing House, New Delhi, 2000.

**Paper II – Chemistry and Industry (3 credits)**

**Unit I – Petroleum Products (09 hrs.)**

Petroleum – its occurrence, mining, composition and classification; distillation of crude petroleum; gasoline for motor and aeroplanes, diesel and kerosene, knocking and anti-knocking; octane and cetane number; pyrolysis of heavy oil and production of gasoline.

**Unit II – Plastics (09 hrs.)**

Natural and Synthetic polymers, plastics – thermosetting and thermoplastic and their general methods of preparation; synthesis of important plastics and their applications – polythene, polypropylene, nylon, polyester, PVC and Bakelite.

**Unit III – Soaps and Detergents (09 hrs.)**

Soap – hard & soft – manufacture; toilet, laundry, shaving and other types of soaps; cleaning action of soap.

Detergents – their different types and manufacture.

**Unit IV – Fertilizers (09 hrs.)**

Fertilizers – different types and their requirement; manufacture of urea, ammonium phosphate, superphosphate and potassium sulphate and their utilization; complex fertilizers; micronutrients.

**Unit V – Cement (09 hrs.)**

Portland and other types of cement; manufacture of Portland cement-wet and dry processes; setting of cement; cement industry in India.

**References:**

1. B.K. Sharma, Industrial Chemistry, Goel publication, 1st revised Edn., 1993.
2. M.G. Arora, M. Singh, Industrial Chemistry Vol. 1 & 2 Anmol publication, 1st Edn., 1994
3. B.N. Chakrabarty, Industrial Chemistry, Oxford & IBH, 5<sup>th</sup> reprint 1991.

## **Department of Commerce**

MSU / 2017-18 / Univ-Dept / M.Com/ II- Semester / Supportive Course

### **Entrepreneurial Development ( For the Students of other Departments)**

#### **Unit I**

Evolution, Characteristics, Types, Functions of Entrepreneur – Distinction between an Entrepreneur and a Manager, Concept, Growth of Entrepreneurship in India, Role of Entrepreneurship in Economic Development.

#### **Unit II**

Rural Entrepreneurship: Concept, Need, Problems, Rural Industrialization in Retrospect, How to Develop Rural Entrepreneurship, NGOs and Rural Entrepreneurship

#### **Unit III**

Women Entrepreneurship – Concept, functions, Growth of Women Entrepreneurs, Problems, Development of Women Entrepreneurs – Recent Trend.

#### **Unit IV**

Entrepreneurial Motivation- Concept, Theories, factors, Entrepreneurial Competencies Concept, Major Entrepreneurial Competencies

#### **Unit V**

Small Enterprises : Definition, Characteristics, Relationship between Small and Large Units, Rationale, Objectives, Scope, Opportunities for an Entrepreneurial Career, Role of small Enterprise in Economic development, problems of SSIs.

*Note* : The Question Paper should consists of 100% Theory.

#### ***References:***

1. Dr.Vasant Desai, “Small Scale industries and entrepreneurship”, Himalayan Publishing House
2. Dr.Vasant Desai, “Dynamics of entrepreneurial development and Management”
3. Corporate Entrepreneurship – Paul Burns
4. The Oxford Handbook of Entrepreneurship
5. Entrepreneurship in the New Millenium – Kutatko Hodgetts
6. Collins ipand Lazier W, “Beyond entrepreneurship”, Prentice Hall, New Jersey, 1992

**Management of Small Enterprises  
(For the Students of other Departments)**

**Unit I**

Meaning and Definition (evolution)- Role and importance – Policies governing SMEs- Organisational structure – Steps in setting up a small unit.

**Unit II**

Preparation of Business Plans - SME funding. Requirement of capital (fixed and working) – Factors- determining Capital requirements- Importance of fixed and working capital.

**Unit III**

Sources of finance – Capital Structure- Term-loan- Sources of Short term Finance- Capitalization- Venture capital – Export Finance- Commercial Banks- Other financial institutions like IDBI, IFCI, ICICI, IRBI, LIC, UTI, SFCs, SIDCs, SIDBI, EXIM Bank.

**Unit IV**

Institution Support: Need for Institutional Support – Small Entrepreneurs: NSIC, SIDO, SSIB, SSICS, SISI, DICs, Industrial Estates Specialized Institutions, TCOs.

**Unit V**

Marketing mechanism in SMEs- Human Resource Issues, Export potential of SMEs- TQM, Problems of SMEs and prospects – Growth Strategies- Small Enterprises in International Business.

*Note:* The Question Paper should consist of 100% Theory.

**Reference Books**

1. Dr.Vasant Desai, “Management of small scale industries”, Himalayan Publishing House.
2. J.C.Saboo, Megha Biyani, “Management of small scale industries”, Himalayan Publishing House.

## Department of Communication

**2016-17 MSU /Univ. Depts / M.A. Journalism & Mass Communication) Sem.-II /Supp.  
Course**

### **BASIC PHOTOGRAPHY**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

#### **UNIT I**

Foundation of historical photographic knowledge.

**(9 hrs)**

#### **UNIT II**

Basic camera operations.

**(9 hrs)**

#### **UNIT III**

Basic compositional elements.

**(9 hrs)**

#### **UNIT IV**

Basics of exposure and image capture

**(9 hrs)**

#### **UNIT V**

Basic understanding of lighting.

**(9 hrs)**

**(Total – 45 hrs)**

#### **REFERENCE BOOKS:**

1. Micheal Langford, (2000). Basic Photography, Focal Press.
2. Anna Fox, Richard Sawdon Smith, (2016) Langford's Basic Photography: The Guide for Serious Photographers, CRC Press.
3. Nanette Salvaggio, Leslie D. Stroebel, &Richard D. Zakia, (2009). Basic Photographic Materials and Processes, Taylor & Francis.
4. John Freeman, (2005). Photography: The New Complete Guide to Taking Photographs : from Basic composition to the latest digital techniques, Franz Steiner Verlag.
5. John Paul Schaefer, (1999). The Ansel Adams Guide: Basic Techniques of Photography, Volume 2 Little, Brown.

**FILM APPRECIATION**

L	T	P	C
3	0	0	3

**UNIT I**

History of Cinema –German expressionism, French new wave, Italian neorealism, Indian new wave and the Soviet montage, kinds of film.

**(9 hrs)**

**UNIT II**

Film form (narrative and non narrative systems), film style (dimensions of mis-en-scene, types of framing/editing methods) and the questions of representations.

**(9 hrs)**

**UNIT III**

Elements of film making - Production, Direction, Script-writing, photography, Editing, Art Direction, Sound, Mixing etc.

**(9 hrs)**

**UNIT IV**

History of early cinema with special reference to India, development of the classical Indian film narratives. Film appreciation, Film reviews, Film criticism

**(9 hrs)**

**UNIT V**

World cinema – Cinema movements, Film festivals, Indian cinema, moguls of Indian Cinema-Indian studio system- the dynamics of the cinema-society interface in Tamil Nadu.

**(9 hrs)**

**(Total – 45 hrs)**

**REFERENCE BOOKS**

1. David Bordwell and Kristin Thompson, Film Art: An Introduction, McGraw Hill, (recent edition).
2. Gerald Mast, Marshall Cohen and Leo Braudy, Film Theory and Criticism, Oxford, (recent edition).
3. John Hill and Pamela Church Gibson, The Oxford Guide to Film Studies, Oxford,1998.
4. Satyajit Ray, Our Films, their Films, Disha Books,1992.
5. NasreenMunniKabir, Talking Films, Oxford,1999.
6. Lucy Fisscher Shot/Countershot , Film tradition and women's Cinema
7. James Monaco, How to read a Film



L	T	P	C
3	0	0	3

## HUMAN RIGHTS REPORTING

### UNIT I

Definition of Human Rights - Nature, Content, Legitimacy and Priority - Historical Development of Human Rights - International Human Rights - Prescription and Enforcement upto World War II - Human Rights and the U .N .O.

**(9 hrs)**

### UNIT II

Media and Contemporary Issues on Human Rights: Children's Rights - International standards on reporting human rights violations relating to Women's Rights - Dalit's Rights - Bonded Labour and Wages - Refugees - Capital Punishment

**(9 hrs)**

### UNIT III

Universal Declaration of Human Rights - International Covenant on Civil and Political Rights - International Covenant on Economic, Social and Cultural Rights and Optional Protocol – Human rights organizations

**(9 hrs)**

### UNIT IV

National and State Human Rights Institutions – National Human Rights Commission - National Women's Commission - powers and functions – remedial measures – prominent HR issues dealt

**(9 hrs)**

### UNIT V

course teacher to assign reporting assignments on human rights violations at state and national level

**(9 hrs)**

**(Total – 45 hrs)**

## **REFERENCE BOOKS:**

1. International Bill of Human Rights, Amnesty International Publication, 1988.
2. Human Rights, Questions and Answers, UNESCO, 1982
3. Desai, A.R. - Violation of Democratic Rights in India
4. Pandey - Constitutional Law.
5. Timm. R.W. - Working for Justice and Human Rights.
6. Human Rights, A Selected Bibliography, USIS.
7. J.C.Johari - Human Rights and New World Order.
8. G.S. Bajwa - Human Rights in India.
9. Amnesty International, Human Rights in India.
10. P.C.Sinha& - International Encyclopedia of Peace, Security
11. K. Cheous (Ed) Social Justice and Human Rights (Vols 1-7).
12. Devasia, V.V. - Human Rights and Victimology.

**2016-17 MSU /Univ. Depts / M.A. Journalism & Mass Communication) Sem.-III /Supp.  
Course -1**

**CITIZEN JOURNALISM**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

**UNIT I**

Basic Reporting- What is news? Who and what is journalism for?The three sources of information: observation, interviews, documents.The Basic Journalism Story Structure

**(9 hrs)**

**UNIT II**

Foundations of journalistic credibility- Factuality, Fairness, Authority, and Verification, the Building Blocks: Statistics, Quotes, and Anecdotes-News stories, feature stories, pegs.

**(9 hrs)**

**UNIT III**

Art of Interviewing -Getting interviews with public figures, handling difficult interviews,how to take notes in an interview, when to tape record an interview, asking for quotes vs. asking for information

**(9 hrs)**

**UNIT IV**

Informing vs. Entertaining- Good reporting is the basis of good writing, Write as you speak, then rewrite, Clarity is the ultimate writing virtue, three writing rules you'll ever need

**(9 hrs)**

**UNIT V**

Reporting issues and trends – observation, documents, interviews, and more story structures - Analysis pieces, profiles, backgrounders, curtain-raisers, sidebars, reporter's notebook, narratives, etc. discovering bogus issues and trends.

**(9 hrs)**

**(Total – 45 hrs)**

**REFERENCE BOOKS:**

1. Noah Wardrip&Fruin and Nick Montfort, (2003).The New Media Reader, Ed., The MIT Press,Cambridge,
2. Callhan, Pearson/Allyn and Bacon, (2007). A Journalist Guide to the Internet: The Net as a Reporting Tool,
3. Jagdish Chakraborty, (2005) Cyber Media Journalism: Emerging Technologies, Authors Press, New Delhi.
4. Jim Hall, (2001). Online Journalism: A Critical Primer, , Pluto press, London.
5. John Street, PalegraveMcmillan, Hampshire, (2011). Mass Media, Politics andDemocracy,
6. Ryan M. Thornburg, (2011). Producing Online News: Stronger Skills, Stronger Stories, CQ Press,Washington.

**RADIO JOURNALISM**

L	T	P	C
3	0	0	3

**UNIT I**

History of Radio in India-Roles of AIR and private broadcasters

**(9 hrs)**

**UNIT II**

Radio News; News Editor; Producer, Radio Reporter; Radio Interview; Radio News Reels; Radio Feature;

**(9 hrs)**

**UNIT III**

Applications of Audio Equipments and Software; Radio Talk; Audience Research

**(9 hrs)**

**UNIT IV**

Skills of speaking over the radio as reporter, presenter, interviewing, narrating, radio jockeying- Conversation outside broadcasts

**(9 hrs)**

**UNIT V**

Radio newsroom organization & structure - Newsroom organization and structure and functions

**(9 hrs)**

**(Total – 45 hrs)**

**REFERENCE BOOKS:**

1. Broadcasting in India, GC Awasthy, Allied, Bombay, 1965
2. Indian Broadcasting, HK Luthra, Publications Division, New Delhi, 1987
3. Broadcasting and the People, MehraMasani, NBT, New Delhi, 1985
4. Basic Radio Journalism, Paul Chantler& Peter Stewart, Oxford, 2003
5. Writing for Broadcast Journalists, Rick Thomson, Routledge, New York, 2010

**2016-17 MSU /Univ. Depts / M.A. Journalism & Mass Communication) Sem.-III /Supp.  
Course -3**

**MEDIA LITERACY**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
3	0	0	3

**UNIT I**

Media and Society: Functions of Mass communication –Contemporary importance of Media in modern society

**(9 hrs)**

**UNIT II**

Media's influence on audiences' thinking and social behavior: Media dependency-Pluralistic media and Indian society. Media in Democratic Society- Political economy mass media

**(9 hrs)**

**UNIT III**

Media, politics and ideology: Market oriented media and social dilemma, culture and communication –mass-mediated culture- Communication and social conflicts- Religion and communication – Popular culture

**(9 hrs)**

**UNIT IV**

Mass Media Dysfunctions: stereotyping, cultural alienation, impact on children; Portrayal of women and children – vulnerable groups

**(9 hrs)**

**UNIT V**

Communication across cultures – new communication technologies - New media context, access, control and use – Digital Divide - Cybercrime – challenges - Regulatory mechanism.

**(9 hrs)**

**REFERENCE BOOKS:**

**(Total – 45 hrs)**

1. Communication and culture – A World View. K.S.Seetharam.MC Graw hill Publishers. New Delhi, 1991.
2. Mass Media and Political Thought (Ed) SidneyKrans and Richards Perlof, Sage 1985
3. Mass Mediated Culture, Micheal R. Real, Prentice Hall, 1977
4. Communication and Media: Constructing a Cross Discipline –GeorageN.Gordon, Hasting House, 1975
5. Information Inequality, Hebert T. Shiller, Routelge, 1996
6. Television Audience and Cultural Studies, David morley, Routledge, 1998

# **Department of Computer Science & Engineering**

**MSU/2016-17/ M.Sc. Comp.Science /Univ.Depts/Semester –II/ Supportive - I**

## **Office Automation**

### **Unit I: MS Word**

Exploring Word 2007: Working in the Word Environment – Opening, Moving Around in, and closing Document – Creating and Saving A Document – Previewing and Printing Document – Editing and Proofreading Documents: Making Changes to document – Inserting Saved Text – Finding the Most Appropriate Word – Reorganizing a Document Outline – Finding and Replacing Text – Correcting Spelling and Grammatical errors – Finalizing Document.

### **Unit II: MS Word**

Changing the Look of Text: Quickly Formatting Text and Paragraphs – Manually changing the look of characters – Manually changing the look of paragraphs – Creating and modifying Lists-Presenting Information in Columns and Tables : Presenting Information in Columns – Creating Tabular List –Presenting Information in a Table – Formatting Table Information – Performing Calculations in a Table- Using a Table to control Page Layout.

### **Unit III: MS Excel**

Setting Up a Workbook : Creating Workbooks – Modifying Workbooks - Modifying Worksheets – Working with Data and Data Tables : Entering and Revising Data – Moving Data within a Workbook- Finding and Replacing Data – Correcting and Expanding Upon Worksheet Data – Defining a Table – Performing Calculations on Data : Naming Groups of Data – Creating Formulas to Calculate Values – Summarizing Data that meets Specific Conditions –Finding and Correcting Errors in Calculations- Changing Document Appearance.

### **Unit IV – MS Access**

Creating a Database –Creating a Database from a template, Manually - Simplifying Data Entry by Using Forms : Creating a form –changing the arrangements – Adding controls – Entering Data in a form –Adding Sub form to a form – Locating Specific Information : Sorting Information in a Table – Filtering Information – Locating Information that matches Multiple Criteria – Creating a Query – Performing Calculations.

### **Unit V: MS PowerPoint**

Starting a New Presentation – Working with Slide Text : Entering Text – Editing Text – Adding and Manipulating Text Boxes –Correcting and Sizing text – Checking Spelling – Finding and replacing text and fonts – Changing the size, Alignment, Spacing – Adjusting the Slide Layout, Order and Look : Changing the Layout of a slide – Rearranging Slides in a Presentation – Applying a theme -Switching to a Different Color Scheme – Adding Shading and texture to the background of a slide – Delivering a Presentation Electronically.

### **Text Book:**

Step by Step 2007 Microsoft Office System -Joyce Cox, Curtis Frye, M.Dow Lambert III , Steve Lambert ,Joan Preppernau and Katherine Murray

**ODD Semester**

**Supportive Course II (DTP) (Desk Top Publishing)**

**Unit – I**

Photoshop – Working Environment: Using Toolbox – The History Palette. Opening and Saving a File: Opening images in Photoshop – TIFF Format – JPEG Format – saving files – creating a new file – closing files. Getting Started with Images: Rotating an image – Resizing without resampling – Resampling updown – Cropping an image – Image modes.

**Unit – II**

Defining Colors: Foreground and Background colors – The Color Palette. The Painting Tools – The Editing Tools – Making Selections. Layers: Working with layers – Merging and Flattering layers – Moving layers between Images – Linking layers. Working with types. The Channel Palette – Layers Masks. Color Correction Techniques – Filters: Filter Control – Blur – Noise Filter – Mask and sharpen Filter.

**Unit – III**

PageMaker – Basic: Introduction – Floating Palettes – The Rulers. Working with Publications: New Publication – Inserting Pages – Removing Pages. Saving and Closing: Saving a document – closing a document. Drawing Tools: Lines – Boxes, ellipses, Polygon – Selecting, Deleting, moving, Resizing Elements – Grouping and Ungrouping – Using Fill and Line – Cut, copy, paste – The Rotation tool.

**Unit – IV**

CorelDraw: Basics: Creating a new file – Standard Toolbar – Property bar – Toolbox – Status Bar – Drawing Basic Geometric Figures: Drawing Bezier Line Drawing Ellipses and Circles – Drawing Rectangles and Squares – Saving a File – Closing a File – Views: Normal View – Full Screen Preview – Simple Wireframe View – Wireframe View - Draft View - Enhanced View – Page Sorter View – Zoom.

**Unit V**

Working with Text: The Text Tool – Formatting text – Text Editor. Working with images: Importing Images – Resizing, Rotating, Skewing Images. Page Layout and Background Changing the Page Size – Changing the Page Background – Inserting pages – Deleting pages – Rulers Getting Started with the Project: Resizing an Object – Changing the Shape of on Object – Combining Two Object – Welding the Objects – Blending two Objects – Rotating an Object – Grouping Objects – The Fill Tool Fly-out – The Fountain Fill Dialog Tool – Filling an Object with a single Color – The PostScript Fill Dialog Tool. Working with Objects shapes – Using the Transformations Docker – Adding Effects to Objects.

## **Text Books**

1. Book: Photoshop CS  
Author: Robert Shufflebotham  
Publishers: dreamtech press.
2. Book: Pagemaker  
Author: Scott Basham  
Publishers: dreamtech press.
3. Book: corelDRAW 12  
Author: Salini Gupta, Adity Gupta  
Publishers: dreamtech press.

## **Reference:**

1. Book: Photoshop CS3 in single steps  
Author: Kogent Solutions Inc.  
Publishers: dreamtech press.
2. Book: corelDRAW X4  
Author: Kogent Solutions Inc  
Publishers: dreamtech press.



## **Department of Criminology & Criminal Justice**

**2017-18 / MSU / Univ. Depts / M.Sc. (Criminology & Criminal Justice Science) / Sem. –  
II & III / Supportive Course - 1**

### **SC 1- CRIME AWARENESS AND PREVENTION**

#### **UNIT I. Introduction**

– Fundamental Concepts: Society – its characteristics, Community – its Characteristics, Culture, Social Structure, Socialization, Norms, Values, subculture, Social Conformity, Social Pathology, Social Deviance, and Anti social behavior. Crime: Nature, meaning and Scope, Nature, meaning, and forms. Crime – Legal and Sociological definitions.

#### **UNIT II. Legal Perspectives of Crime**

Elements of Crime, Concept of Criminal Responsibility. Basic principles – Actus Reus and Mens Rea. - Problems of identification, investigation and prosecution, Introduction to Criminal Justice System, Victimology and Victim Assistance.

#### **UNIT III. Types of Crime**

Offences against Body, Property Crime, Substance Abuse, Ragging, Gender Harassment, Terrorism, Types of terrorism - Narco-terrorism and Bio-terrorism - Tax evasion - Insurance frauds - Misbranding and adulteration - Corporate crimes-Cyber crimes- Copyright violation of soft ware - Internet frauds – Cyber Pornography –SMS and MMS Stalking - Women and Child Trafficking- Push and Pull factors of Trafficking – Prostitution - Sexual exploitation of girl children

#### **UNIT IV. Legal Awareness**

The meaning of law, Introduction to Constitution of India-Fundamental rights various social security legislations, Introduction to IPC, Cr.PC, Indian Evidence Act, Free legal aid to the poor, various modes of dispute settlement mechanisms i.e. Lok Adalats, Family Courts, Mahila Courts, Crime Against Women Cells, NCW, NHRC, State Commissions etc. Policy and Law – Role of NGO's

## **UNIT -V: Crime Prevention**

Crime prevention: - Henry fielding methods. Primary prevention - neighborhood-level Crime and the Fear of Crime - Secondary prevention - Situational Crime Prevention. Tertiary Prevention - Specific deterrence: Electronic monitoring/home confinement Reporting – Defensible Space - Crime prevention through Environmental Design (CPTED). - Role of NGO's in crime prevention. Role of Media in Crime Prevention. Contemporary Crime prevention methods.

### **RECOMMENDED READINGS**

1. Attar Chand, 1988, *Terrorism: Political Violence and Security of Nations*, Gian Publishing House, New Delhi.
2. Bologna, Jack, 1984, *Corporate Fraud*, Butterworth Publishers
3. Gandhirajan, C K 2004, *Organised crime*, A P H Publishing Corporation
4. Ghosh, S K, 1991, *Indian Mafia*, Ashish Publishing House
5. Mc Graw Hills Inc New Yk, 1992, *Combating Computer Crime: Prevention, Detection and Investigation*.
6. Mishra, Girish, 1998, *White-collar Crimes*, Gyan Publishing House, New Delhi
7. Nair, P M 2002, *Combating Organized crime*, Konark Publishers
8. Sachdeva, Updesh Singh, 1987, *Frauds & Bankers*, UDH Publishing House
9. Sain, Bhim, 1991, *Drug Addiction Alcoholism, Smoking Obscenity and its Impact on Crimes, Terrorism and Social Security*, Mittal Publications, New Delhi.
10. Singh B.V., (1993) *Communal Violence*, Rawat Publications New Delhi.

**SC 2 – HUMAN RIGHTS AND VICTIMS RIGHTS**

**UNIT 1 : Human Rights** – Definition and concepts – History of Human Rights – Types of Human , Civil, Economic and Political Rights, Universal Declaration of Human Rights, 1948. Human Rights in Criminal Justice. The protection of human rights under the Indian Criminal Justice Administration. Human Rights and Fundamental Freedoms in relation to accused. Prisoner’s rights - Landmark Judgements. Preservation of Human Rights - Preventive measures for protection of Human rights - Curative measures for preservation of Human rights. Policing and Human Rights.

**UNIT 2 : Indian Constitution and Human Rights – Fundamental Rights – Writs – Art. 19 – 22**

**UNIT 3: Legal Provisions** – Protection of Human Rights Act, 1993, Universal Declaration of Human Rights, 1948, State and National Human Rights Commission (SHRCs and NHRC)

**UNIT 4: Concept of victim** – Victimology – Victim Assistance – Victim Compensation, Restitution, Victim Precipitation – Victim Responsiveness – Victim Proneness – Types of Victims – Victimization – Primary, Secondary and Tertiary – Impact of Victimization – Physical, Psychological, Financial and Social – PTSD – United Nations Declaration of Basic Principles of Justice for Victims of Crime and Abuse of Power, 1985

**UNIT -5 Specific Rights**

Specific Rights: Civil Rights, Women Rights, Dalit Rights, Rights of Prisoners, Rights of Victims, Child rights, Labour rights etc., Role of NGO’s in the protection of Human Rights.

**SC 3- WOMEN AND LAW**

**UNIT I. Crimes Against Women**

Status of women in India – Crimes against women in India - Cruelty, Miscarriages, Rape, dowry deaths, bride burning, domestic violence and gender and sexual harassment, Female infanticide and foeticide, Trafficking in women, Stalking, Online Crimes, and Cell phone abuse (MMS and SMS)

**UNIT II. Personal laws of women**

Marriage of Hindu, Christian, and Muslim women – Need for Uniform Civil Code - Restitution of Conjugal Rights – Judicial separation laws – Divorce – Maintenance – Succession – Family courts

**UNIT III. Social legislations relating to women -I**

Prenatal diagnostic law, Medical Termination of Pregnancy Act – – Dowry Prohibition Act – Prevention of Immoral Traffic Act – Prohibition of Indecent representation of women

**UNIT IV. Social legislations relating to women -II**

Immoral Traffic (Prevention) Act, POCSO Act, Sexual harassment of women at workplace (prevention, prohibition and redressal) Act 2013. Prevention of Domestic Violence Act, 2005, TN Prevention of Women Harassment Act 2009. Gender harassment prevention and protection of women and girls.

**UNIT V:** National and International support mechanisms - UDHR, CEDAW, Lahore declaration and Gender Justice – Women rights in Constitution of India – National Commission for Women – Maternity laws

## RECOMMENDED READINGS:

1. Ahuja, Ram., (1987). *Crime against women*, Rawat Publications, Jaipur.
2. Asthana, P. (1974) *Women's Movement in India*, Vikas Publishing house, Delhi.
3. Baig, Tara Ali (1976) *India's Women power*, S. Chand, New Delhi
4. Ghosh, S.K., (1993) *Women and Crime*, Ashish Publications, New Delhi.
5. Mackis and Pattullo (1981) *Women at work*, Tavistock Publications, New York.
6. Mahajan, A., and Madhuriam (1995). *Family Violence and Abuse in India*, Deep and Deep Publications, Jaipur.
7. Mishra A.D., (1994) *Gender Perspectives: Participation, Empowerment and Development*, Radha Publications, New Delhi.
8. Myneni (2002). *Women and Law*, Asia Law House: Hyderabad.
9. Rani, Bela., (1997). *Marriage, family, Violence and Divorce*, Mangal Deep Publications, Jaipur.
9. Rufus. D & Shekhar B. *Sexual Harassment of Women at Workplace – Voice of Victims* ISBN No: 978-93-81402-15-3 Publication Division, Manonmaniam Sundaranar University Tirunelveli 2013
10. Saxena, Shobha., (1995). *Crimes against Women and Protective Laws*, Deep and Deep Publications, New Delhi.

## **Department of Economics**

2017-18 / MSU / Univ.Depts. / M.A. Economics / Sem. – II / Supportive Course -1

Environmental Economics (Non-major Elective)

### **UNIT-I INTRODUCTION TO ENVIRONMENTAL ECONOMICS**

Introduction to environmental economics, Importance of Environmental Valuation-Assigning Monetary Value – Problems of Monetization – Market failure, and property rights, open access resources, collective action.

### **UNIT-II SOURCE AND TYPES OF POLLUTION**

Sources and types of pollution (air, water, solid waste, noise, land degradation); Cause and effects of environmental degradation, Urban and Rural environmental problems, Energy-environment interaction.

### **UNIT – III MARKET AND NON-MARKET VALUATION**

Market and non-market valuation; Physical linkage methods; Abatement cost methods; Behavior linkage methods - Revealed and stated preference; Social cost benefit analysis; Environmental impact assessment.

### **UNIT – IV ENVIRONMENTAL POLICY**

Evolution of Environmental Policy in India; Air and Water Acts; Fiscal incentives; Enforcement and Implementation issues, Case studies on pollution Control in India and other countries

### **UNIT – V CLIMATE CHANGE AND DIFFERENT PROTOCOLS**

Transboundary pollution, economics of global warming, Different International Protocols, Causes and consequences of ozone depletion and Climate change, Rio conference (Agenda 21); Protocols relating to Climate Change; Food Security; Ozone depletion and Economics of Biodiversity.

#### **Basic Readings List:**

- Hanley, N, J. F. Shogren and B. White. Environmental Economics in Theory and Practice. New York: MacMillan, 1997.
- Arrow, K. J. and Scitovsky, T. Readings in Welfare Economics - Part III. Richard Irwin Inc, 1969.
- Bromely, D. W. (ed.). Handbook of Environmental Economics. Blackwell, 1995.
- Jempa, C. and Munasinghe, M. Climate Change Policy: Facts, Issues and Analyses. Cambridge: Cambridge University Press, 1998.
- Baumol, W. J. and Oates, W. E. The theory of environmental policy. Cambridge: Cambridge University Press, 1988.

- Dixon, J. *Economic Analysis of Environmental Impacts*. London: Earthscan Publications, 1994.
- Freeman III, A. M. *The Economic Approach to Environmental Policy*. Cheltenham, U.K.: Edward Elgar, 1998.
- Mehta, S.; Mundle, S. and Sankar, U. *Incentives and regulation for pollution control*. Sage Publishers, 1997.
- United Nations. *Accounting and Valuation of Environment, Vol. I and II: A primer for developing countries*, New York: ESCAP, 1997.
- Nick Hanley, J. F. Shogren and White, *The theory of environmental economics and policy*.

#### **Additional Readings List:**

- Coase, R. H. "The Problem of Social Cost", in Breit, W. and Hochman, H.M. (eds.) *Readings in microeconomics*. Rinehart and Winston Inc., 1968.
- Cropper, M. L. and Oates, W. E. "Environment economics: A survey". *Journal of Economic Literature*, June 1992.
- Dasgupta, P and Heal, G. M. *Economic Theory and Exhaustible Resources*. Cambridge: Cambridge University Press, 1979.
- Field, B. C. *Environmental economics: an introduction*. New York: McGraw Hill, 1994.
- Fisher, A. C. "Environment and resource economics", in Oates, W.E. (ed.) *New horizons in environmental economics: selected readings*. Cheltenham, U.K.: Edward Elgar, 1995.
- Hardin, G. "The tragedy of commons", in Markandya, A. and Richardson, J. (eds.) *Earthscan reader in environmental economics*. London: Earthscan Publications, 1993.
- Oates, W. E. *Economics of the environment*. Cheltenham, U.K.: Edward Elgar, 1992.
- Perrings, Charles. "Ecological resilience in the sustainability of economic development", in Sylvie, F., Pearce, D., and Proops, J. (eds.) *New horizons in environmental economics: model of sustainable development*. Cheltenham, U.K.: Edward Elgar, 1996.
- World Bank. *Development and the environment*. World Development Report series. Washington, D. C.: World Bank, 1992.
- Georgiou, S., Whittington, D., and Pearce, D. *Economic Values and the Environment in Developing World*. Cheltenham, U.K.: Edward Elgar, 1997.
- Bohm, P. and Russell, C. "Comparative analysis of alternative policy instruments", in Allen Kneese, V. and Sweeney, J.L. (eds.) *Handbook of natural resource and energy economics*. North Holland, 1985.
- Maler, K. G. "International environmental problems", in Markandya, A. and Richardson, J. (eds.) *Earthscan reader in environmental economics*. London: Earthscan Publications, 1993.
- Government of India. *Policy statement for abatement of pollution*. New Delhi: Ministry of Environment and Forests, Government of India, 1992.
- Opschoor, J. B. and Vos, H. B. *Economic instruments for environmental protection*. OECD and OCDE, 1989.
- Sankar, U.; Mythili, G. and Anuradha, R. *Environmental problems in India's energy sector and policies for corrective action (Project Report)*. Chennai: Madras School of Economics, 1996.
- (Students are encouraged to read the annual reports and ENVIS newsletters of the Central Pollution Control Board.)
- Hanley, N, J. F. Shogren and B. White. *Environmental Economics in Theory and Practice*. New York: MacMillan, 1997.

- Arrow, K. J. and Scitovsky, T. Readings in Welfare Economics - Part III. Richard Irwin Inc, 1969.
- Bromely, D. W. (ed.). Handbook of Environmental Economics. Blackwell, 1995.
- Jempa, C. and Munasinghe, M. Climate Change Policy: Facts, Issues and Analyses. Cambridge: Cambridge University Press, 1998.
- Baumol, W. J. and Oates, W. E. The theory of environmental policy. Cambridge: Cambridge University Press, 1988.
- Dixon, J. Economic Analysis of Environmental Impacts. London: Earthscan Publications, 1994.
- Freeman III, A. M. The Economic Approach to Environmental Policy. Cheltenham, U.K.: Edward Elgar, 1998.
- Mehta, S.; Mundle, S. and Sankar, U. Incentives and regulation for pollution control. Sage Publishers, 1997.
- United Nations. Accounting and Valuation of Environment, Vol. I and II: A primer for developing countries, New York: ESCAP, 1997.
- Nick Hanley, J. F. Shogren and White, The theory of environmental economics and policy.
- Coase, R. H. "The Problem of Social Cost", in Breit, W. and Hochman, H.M. (eds.) Readings in microeconomics. Rinehart and Winston Inc., 1968.
- Cropper, M. L. and Oates, W. E. "Environment economics: A survey". Journal of Economic Literature, June 1992.
- Dasgupta, P and Heal, G. M. Economic Theory and Exhaustible Resources. Cambridge: Cambridge University Press, 1979.
- Field, B. C. Environmental economics: an introduction. New York: McGraw Hill, 1994.
- Fisher, A. C. "Environment and resource economics", in Oates, W.E. (ed.) New horizons in environmental economics: selected readings. Cheltenham, U.K.: Edward Elgar, 1995.
- Hardin, G. "The tragedy of commons", in Markandya, A. and Richardson, J. (eds.) Earthscan reader in environmental economics. London: Earthscan Publications, 1993.
- Oates, W. E. Economics of the environment. Cheltenham, U.K.: Edward Elgar, 1992.
- Perrings, Charles. "Ecological resilience in the sustainability of economic development", in Sylvie, F., Pearce, D., and Proops, J. (eds.) New horizons in environmental economics: model of sustainable development. Cheltenham, U.K.: Edward Elgar, 1996.
- World Bank. Development and the environment. World Development Report series. Washington, D. C.: World Bank, 1992.
- Georgiou, S., Whittington, D., and Pearce, D. Economic Values and the Environment in Developing World. Cheltenham, U.K.: Edward Elgar, 1997.
- Bohm, P. and Russell, C. "Comparative analysis of alternative policy instruments", in Allen Kneese, V. and Sweeney, J.L. (eds.) Handbook of natural resource and energy economics. North Holland, 1985.
- Maler, K. G. "International environmental problems", in Markandya, A. and Richardson, J. (eds.) Earthscan reader in environmental economics. London: Earthscan Publications, 1993.
- Government of India. Policy statement for abatement of pollution. New Delhi: Ministry of Environment and Forests, Government of India, 1992.
- Opschoor, J. B. and Vos, H. B. Economic instruments for environmental protection. OECD and OCDE, 1989.



- Sankar, U.; Mythili, G. and Anuradha, R. Environmental problems in India's energy sector and policies for corrective action (Project Report). Chennai: Madras School of Economics, 1996.
- (Students are encouraged to read the annual reports and ENVIS newsletters of the Central Pollution Control Board.)

Economics of Micro Finance (Non-major Elective)

**UNIT- I INTRODUCTION OF MICROFINANCE**

Concepts and definitions of microfinance- its related concepts- genesis or history of microfinance- purpose and demand for microfinance in India- significance- introduction on microfinance institution- structure and functions of microfinance institutions in India – Features of micro credit-merits and demerits of microfinance in India- impact of microfinance.

**UNIT- II MICROFINANCE AND RURAL ECONOMY**

Need and demand for microfinance for farmers and rural entrepreneurs- classification of agricultural credit- source of rural credit- institutional credit for rural society- its growth and shortcomings- Non-institutional credit- Rural co-operative credit society- Problems of co operative credit society- Commercial Banks and rural credit- RBI and rural credit-NABARD and rural credit in India.

**UNIT-III MICROFINANCE AND POVERTY ALLEVIATION**

Microfinance to economic development- microfinance and agriculture-microfinance and rural entrepreneurial development- opportunities for micro entrepreneurs in rural areas- need for promotion of micro entrepreneurs in rural India-microfinance and education- role of microfinance to employment generation- income enhancement- infrastructural development- microfinance and the development of social service- microfinance and weaker section- microfinance and poverty alleviation.

**UNIT-IV MICROFINANCE AND SELF HELP GROUP**

Concept and meaning of SHG's- Origin of SHG's- Objectives-structure and nature of SHG's- functions of SHG's- organizational functions- economic functions -social functions – Various models of SHG- lending practices- assessing the performance SHG's- facilitating and inhibiting factors for SHG's- production and marketing aspects of SHG's- income and employment generation of SHG's- Role of SHG's to personal –economic-social –political and cultural development- SHG's and women empowerment.

**UNIT-V CURRENT AND FUTURE SCENARIO OF MICROFINANCE**

Experience of microfinance practices in developed and developing countries- Recent development in the field of rural finance in India- different phases of micro finance sector in India- micro insurance-opportunities-merits and demerits- review of microfinance in India- future trends and challenges of microfinance in India- case studies- growth of microfinance at Bangladesh-Highlights of Self –Employed Women's Association (SEWA)-Kalnjiam- Future challenges of weaker sections.

**Basic Readings List:**

- Singh, Katar, (1999), “Rural Development- Principles, Policies and Management”, Sage Pub, New Delhi.
- Lalitha(2004), “Rural Development in India: Emerging Issues and Trends” Vedams Pub, Vol: 2, , New Delhi.
- Behera, M.C (2004), “Globalization and Rural Development: Understanding New Development”, Vedams Pub, New Delhi.
- Soundarapandian (2004), “Rural Industries in India”, Mohit Pub, New Delhi
- Ministry of Rural Development, India
- WWW. Kvic

### **UNIT I INTRODUCTION**

Infrastructure and economic development — Infrastructure as a public good; Social and physical infrastructure; Special characteristics of public utilities. The peak-load, Off-Load Problem, Dual Principle Controversy; Economies of scale of Joint supply; Marginal Cost Pricing vs. other methods of pricing in public utilities; Cross-subsidization — free prices, equity and efficiency.

### **UNIT II TRANSPORT AND COMMUNICATIONS**

The structure of Transport Costs and Location of Economic Activities. Demand for Transport. Models of Freight and Passenger Demand. Model Choice; Cost Functions in the Transport Sector. Principle of Pricing. Special Problems of Individuals Modes of Transport; Inter-modal condition in the Indian Situation - Communications Rate-making in Telephone Utilities. Principles of Decreasing Costs in Telephone Industry. Characteristics of Postal Services. Criteria for Fixation of Postal Rates. Measurement of Standards of Service in Telephone and Postal Utilities.

### **UNIT III ENERGY ECONOMICS**

Primacy of Energy in the Process of Economic Development. Factors Determining Demand for Energy; Effects of Energy Shortages. Energy Conservation. Renewable and Non-conventional Sources of Energy. Energy Modelling. The Search for an Optimal Energy Policy in the Indian Context.

### **UNIT IV SOCIAL INFRASTRUCTURE**

Organization and Financing of Supply of Social Services. Private vs. Public Sector Financing; Recent debate about the fixation of prices of social services. Development of social services in the successive Indian Plans.

### **UNIT V EDUCATION AND HEALTH**

Education and Economic Growth. Approaches to Educational Planning. Social Demand. Rate of Return and Manpower Balance Approaches. The Case for Universal, Free, Primary Education; Structure of higher education and problems of its financing in India; Human Resources and Human Capital Development. The issues in education policy; Health dimensions of development; Determinants of Health — poverty, malnutrition, illiteracy and lack of information; Economic dimensions of health care — Demand and supply of health care; Financing of health care and resource constraints; Inequalities in health — class and gender perspectives; Institutional issues in health care delivery.

### **Basic Readings List:**

- Crew, M.A. and P.R. Kleindorfer (1979), *Public Utility Economics*, Macmillan, London.
- Indian Council of Social Sciences Research (ICSSR) (1976), *Economics of Infrastructure*, Vol. VI, New Delhi
- National Council of Applied Economic Research (NCAER) (1996), *India Infrastructure Report : Policy Implications for Growth and Welfare*, NCAER, New Delhi.
- Parikh, K.S. (Ed.) (1997), *India Development Report 1997*, Oxford, New Delhi.
- Parikh, K.S. (Ed.) (1999), *India Development Report — 1999-2000*, Oxford, New Delhi.
- Turvey, R. (Ed.) (1968), *Public Enterprises*, Penguin, Harmondsworth.

### **Additional Readings List:**

#### **Unit I**

- Nelson, J.R. (1964), *Marginal Cost Pricing in Practice*, Prentice-Hall, Englewood-Cliff.
- Phillips, A. and O.E. Williamson (Eds.) (1967), *Prices : Issues in Theory, Practice and Public Policy*, University of Pennsylvania Press, Philadelphia.

#### **Unit II**

- Kneafsey, J.T. (1975), *Transportation Economic Analysis*, Lexington, Torouts.
- Munty, D. (Ed.) (1968), *Transport : Selected Readings*, Penguin, Harmondsworth.
- Norton, H.S. (1971), *Modern Transport Economics*, C.E. Merrill, London.
- Fariss, M.T. and R. Sampson (1975), *Public Utilities*, Houghton Mifflin, Boston.
- Garfield, P.J. and W. Lovjoy (1964), *Public Utility Economics*, Prentice-Hall, Englewood Cliffs.
- Government of India (1968), *Interim Report of P&T Enquiry Committee*, Government of India, New Delhi.
- Jha, R., M.N. Murty and S. Paul (1990), *On Fixing Prices for Postal Services in India*, National Institute of Public Finance and Policy, New Delhi

#### **Unit III**

- Aronofsky, J., A. Rao and M. Shakeen (Eds.) *Energy Policy*, North Holland, Amsterdam.
- Centre for Monitoring Indian Economy (1996), *India : Energy Sector*, CMIE, Mumbai.
- Government of India (1980), *Report of the Committee on Power (Rajadhyaksha Committee)*, New Delhi.
- McCrakis, M.S. (Ed.) (1974), *Energy : Demand Conservation and Institution Problems*, Macmillan, London.
- Nordhaus, W.D. (Ed.) (1974), *International Studies of the Demand for Energy*, North Holland, Amsterdam.
- Pachauri, R.K. (Ed.) (1980), *Energy Policy for India*, Macmillan Co. of India, New Delhi.
- Parikh, J. (Ed.) (1997), *Energy Models for 2000 and Beyond*, Tata McGraw-Hill, New Delhi.

- Tata Energy Research Institute (1995), Environmental Considerations and Options in Managing India's Long-term Energy Strategy, Mumbai.

#### **Unit IV**

- Goyal, S.K. (Ed.) (1985), Public Enterprises, Indian Institute of Public Administration, New Delhi.
- Naik, J.P. (1975), Equality, Quality and Quantity, Allied Publishers, Bombay.
- Unit V
- Becker, G.S. (1974), Human Capital (2nd Edition), National Bureau of Economic Research, New York.
- Baru, R.V. (1998), Private Health Care in India : Social Characteristics and Trends, Sage Publications, New Delhi.
- Berman, P. and M.E. Khan (1993), Paying for India's Health Care, Sage Publications, New Delhi.
- McMohan, W.W. (1999), Education and Development : Measuring the Social Benefits, Oxford University Press, Oxford.
- Padmanabhan, C.B. (1984), Financial Management in Education, Select Books, New Delhi.
- Pancharukhi, P.R. (1980), Economics of Health : A Trend Report in ICSSR, A Survey of Research in Economics, Vol. VI, Infrastructure, Allied, Delhi.
- Tilak, J.B.G. (1994), Education for Development in Asia, Sage Publications, New Delhi.
- Vaizey, J. (1962), Economics of Education, Faber and Faber, London.
- Woodhall, M. (1992), Cost Benefit Analysis in Educational Planning, UNESCO, Paris.
- World Bank (1993), The World Development Report, 1993 : Investing in Health, Oxford University Press, New York.

**Indian Business Environment and Policy**

**(Non- Major Elective)**

**UNIT-I POST INDEPENDENCE PHASE**

Phase I of post – independence economic development (1950-1966)- International and national context – Leading role of the state- Planning and the public sector – Industrial Policy Resolutions of 1948 and 1956-protection to Indian industry- The role of import substitution and public sector investment in promoting growth- The food foreign exchange and fiscal crisis of 1965-1966

**UNIT-II CREEPING LIBERALIZATION**

Creeping liberalization period (1966-1990) policy responds to the crisis of food foreign exchange and rupee resources-cutbacks in public investment, devaluation and the green revolution-shift in agricultural policies towards new recession following decline in public investment –oil shocks of 1973 and 1978-inflation, food crisis and balance of payments crisis 1979/80-new Industrial Policy Resolution (1980)

**UNIT-III EXTERNAL AND INTERNAL BORROWING**

IMF loan 1981-84 increased reliance on external and internal borrowing-Emergence of revenue deficit-Attempts at ‘export-led’ growth-opening up of the economy to increase technology and capital imports-New economic policy of 1985-long term fiscal policy-other ‘new’ policies in industry, education, textiles-deregulation-import liberalization-Significant growth of the economy in the 1980s-Growing debt burden crisis of 1991: fiscal crisis and balance of payment crisis.

**UNIT-IV LIBERALISATION, PRIVATIZATION AND GLOBALIZATION**

Response to 1991 crisis; Liberalisation, Privatization and Globalization (LPG)-changes in international economy-dominance of financial capital-Role of IMF, World Bank- Uruguay Round and WTO- World Bank sponsored structural Adjustment Programmes (SAP)-“Retreat” of the state.

**UNIT-V SECTORAL COMPOSITION OF GROWTH**

The experience of the Indian economy in the 1990s- Growth sectoral composition of growth-Industry, agriculture-services-privatization policies- Impact on power telecommunication, banking and insurance- Trends in key budgetary parameters such as tax revenues, interest payments, and subsidies as percent of GDP/revenue expenditures-Distributional implications of LPG policies-Inequality, poverty, unemployment and external vulnerability- Implications of LPG for food security.

### **Basic Readings list:**

- Uma Kapila (2005), *Indian Economy since Independence*, Academic Publication, New Delhi.
- Datt, R. and K.P.M. Sundharam (2001), *Indian Economy*, S. Chand & Company Ltd., New Delhi.
- Dhingra, I. C. (2001), *The Indian Economy: Environment and Policy*, Sultan Chand & Sons, New Delhi.
- Dutt, R.C. (1950), *The Economic History of India Under Early British Rule*, Low Price Publications. Delhi.
- Kumar, D. (Ed.) (1982), *The Cambridge Economic History of India, Volume II, 1757-1970*, Orient Longman Ltd., Hyderabad.
- Misra, S.K. and V.K. Puri (2001), *Indian Economy — Its Development Experience*, Himalaya Publishing House, Mumbai.
- Gadgil, D.R. (1971), *The Industrial Evolution in India in Recent Times, 1860-1939*, Oxford University Press, Bombay.
- Government of India, *Economic Survey (Annual)*, Economic Division, Ministry of Finance, New Delhi.
- Naoroji, D. (1962), *Poverty and Un-British Rule in India*, Low Price Publications, Delhi.
- Planning Commission (1999), *Ninth Five Year Plan*, Government of India, New Delhi.
- Singh, V.B. (Ed.) (1965), *Economic History of India, 1857-1956*, Allied Publishers Private Limited, Bombay.
- Ahluwalia, I.J. and I.M.D. Little (Eds.) (1999), *India's Economic Reforms and Development (Essays in honour of Manmohan Singh)*, Oxford University Press, New Delhi.
- Jalan, B. (1992), *The Indian Economy : Problems and Prospects*, Viking, New Delhi.
- Jalan, B. (1996), *India's Economic Policy — Preparing for the Twenty-first Century*, Viking, New Delhi.
- Parikh, K.S. (1999), *India Development Report — 1999-2000*, Oxford University Press, New Delhi.
- Datt, R. (Ed.) (2001), *Second Generation Economic Reforms in India*, Deep & Deep Publications, New Delhi.



**Globalization and Indian Economy (Non- Major Elective)**

**UNIT-I GLOBALIZATION AND INDIAN ECONOMY**

Globalisation – Concept – Advocacy of globalization – Stages and Phases of Globalization – Organization and Globalization – Role of Global Managers- Criteria for success - Economic policy- National Income: Trends and Structure of National Income- Demographic Features and indicators of Economic Development & Growth, Rural- Urban migration.

**UNIT-II GLOBALIZATION AND INDIAN ECONOMIC POLICY**

Changes in the land system; Commercialization of agriculture; Policy of discriminating protection and industrial development; Monetary and currency developments; Commercial and central banking developments; Banking sector reforms- GATT- Objectives and Principles – Evolution of GATT – Uruguay Round – WTO: Evolution- Organizational Structure – Objectives – Functions and Principles - WTO Rounds (conferences) of Global Trade Negotiations.

**UNIT-III NATURAL RESOURCES AND WTO AGREEMENTS**

Basic features; Natural resources — Land, water and forest resources; Features – Trade Related Intellectual Property Rights (TRIPs) – Intellectual Property Rights, Copy rights- Trademarks, Designs and AOA - Broad demographic features — Population size and growth rates, sex composition, rural-urban migration, occupational distribution; Problem of over-population; Population policy; Infrastructure development; Current Five Year Plan - Objectives, allocation and targets; New economic reforms — Liberalization, privatization and globalization.

**UNIT-IV AGRICULTURE AND GLOBALIZATION**

Nature and importance; Trends in agricultural production and productivity; Factors determining productivity; Land Reforms; New agricultural strategy and green revolution; Rural credit, Agricultural marketing. Industrial development during the planning period; Industrial policy of 1948, 1956, 1977 and 1991; Industrial licensing policy — MRTP Act, FERA and FEMA; Growth and problems of small scale industries; Role of public sector enterprises in India's industrialization.

**UNIT-V ISSUES AND CHALLENGES OF GLOBALIZATION**

Poverty and inequality; Unemployment; Rising prices; Industrial relations. Issues related to SEZ (Special Economic Zone) – Slowing down of agricultural growth in the Indian context- Issues in Tariff and non-Tariff barriers- Trade and Environment – UN Conference on Environment and Development – Agenda 21 – Trade in Services – Third World Unity in WTO.

### **Basic Readings list:**

- Uma Kapila (2005), Indian Economy since Independence, Academic Publication, New Delhi.
- Datt, R. and K.P.M. Sundharam (2001), Indian Economy, S. Chand & Company Ltd., New Delhi.
- Dhingra, I. C. (2001), The Indian Economy: Environment and Policy, Sultan Chand & Sons, New Delhi.
- Dutt, R.C. (1950), The Economic History of India Under Early British Rule, Low Price Publications. Delhi.
- Kumar, D. (Ed.) (1982), The Cambridge Economic History of India, Volume II, 1757-1970, Orient Longman Ltd., Hyderabad.
- Misra, S.K. and V.K. Puri (2001), Indian Economy — Its Development Experience, Himalaya Publishing House, Mumbai.
- Gadgil, D.R. (1971), The Industrial Evolution in India in Recent Times, 1860-1939, Oxford University Press, Bombay.
- Government of India, Economic Survey (Annual), Economic Division, Ministry of Finance, New Delhi.
- Naoroji, D. (1962), Poverty and Un-British Rule in India, Low Price Publications, Delhi.
- Planning Commission (1999), Ninth Five Year Plan, Government of India, New Delhi.
- Singh, V.B. (Ed.) (1965), Economic History of India, 1857-1956, Allied Publishers Private Limited, Bombay.
- Ahluwalia, I.J. and I.M.D. Little (Eds.) (1999), India's Economic Reforms and Development (Essays in honour of Manmohan Singh), Oxford University Press, New Delhi.
- Jalan, B. (1992), The Indian Economy : Problems and Prospects, Viking, New Delhi.
- Jalan, B. (1996), India's Economic Policy — Preparing for the Twenty-first Century, Viking, New Delhi.
- Parikh, K.S. (1999), India Development Report — 1999-2000, Oxford University Press, New Delhi.
- Datt, R. (Ed.) (2001), Second Generation Economic Reforms in India, Deep & Deep Publications, New Delhi.
- Chandran R (2005). International Business, Jaico Publishing House, Mumbai
- Gaurav Datt and Ashwani Mahajan (2014). Datt and Sundaram's Indian Economy, S. Chand, New Delhi
- Falendra K. Sudan (2005). Globalization and Liberalization, Series Publication, New Delhi
- Francis Cherunilam (2006). International Economics, Himalaya Publishing House, Mumbai
- Francis Cherunilam (2010). Business Environment, Himalaya Publishing House, Mumbai
- Gopalsamy N. (1998). GATT/WTO, TRIPs, TRIMS and Trade in Services, Wheeler John Publications, Mumbai
- Ramakant-Sugam (1996). Globalization of Indian Economy, G. Jain Pointer Publishers, Jaipur
- Rao, M.B. (2001). WTO and International Trade, Vikas Publishing House, New Delhi.

**Human Resource Development  
(Non- Major Elective)**

**UNIT-I THE CONCEPT**

The concept Evolution of the Concept of Human Capital – Meaning – Nature – Significance –Schultz’s Approach – Becker’s Theory – Solow’s Measurement of Human Capital.

**UNIT-II HUMAN CAPITAL FORMATION**

Methods of Human Capital Formation : Education and Economic Growth – Formal Education – Adult Education – Health and Nutrition – Brain Drain – Information about Job Market – Elimination of Social Discrimination – Development Indicators – Human Development Index.

**UNIT-III HUMAN RESOURCE PLANNING**

Human Resource Planning- Meaning – Objectives – Need – Process – Benefits – Problems – Career Planning and Development.

**UNIT-IV GENDER AND HRD**

Gender Dimensions of Development of HRD – Gender relations – Gender and Inequality – Gender Disparities in Education, Occupation and Earnings – Women’s Empowerment and Economic Development – Gender Development Index in India.

**UNIT-V POPULATION AND DEVELOPMENT**

Population and Development – Work Participation Rate – Male and Female Work Participation Rate – Decadal Variations – Development of Women Entrepreneurship in India – Problems – Prospects – Strategies of HRD.

**Basic Readings List:**

- Anita Bandrjee & Rajkumar Sen, (2000), Women and Economic Development, Deep &Deep Publications Pvt. Limited, F-159, Rajauri Garden, New Delhi – 110 027.
- Arun Monappa, (1997), Managing Human Resources, Macmillan India Limited, NewDelhi
- Batra V.P. (1998), The Economy and Human Resources, B.R. Publishing Corporation, Ansari Road, Darya Ganj, New Delhi.
- Lakshmanasamy T. and T.M. Srinivasan, (1997), Economics of Human Behaviour, Allied Publishers, New Delhi – Chennai.
- Lallan Prasad & A.M. Bannerjee (1985), Management of Human Resources, Sterling Publishers Private Limited, New Delhi.
- Mitchael V.P. (1995), Human Resources Management and Human Relations, Himalaya Publishing House, New Delhi.
- Raj Kumar, (2000), Women Problems, Anmol Publications Pvt.Ltd., New Delhi.
- Suresh Vyas, (1998), HRD Priorities, Pointer Publishers, Jaipur.
- Dr.(Mrs). E.V. Swarnalatha, (1997), Empowerment of Women Through Self Help.Groups, A Training Manual, Discovery Publishing House, New Delhi

## **Department of Education**

2016-17 /MSU /Univ. Depts. / M.Ed. /Semester – II / Supportive Paper –I

### **GUIDANCE AND COUNSELLING**

#### **Objectives:**

After completing the course, the student will be able to -

- Understand the basic principle of guidance and counseling
- Understand and make use of the approaches of counseling
- Know the different areas of Guidance
- Apply the approaches of guidance in life situations
- Understand the concept of mental health and psychodynamics of adjustment
- Knows the difference techniques for collection of information
- Develop skills in organizing guidance and counseling service in schools

#### **Unit I - The Concept of Guidance**

Meaning, nature and scope of guidance -Philosophical, psychological and sociological bases of guidance - Need and importance of guidance services in colleges. History of Guidance movement – conceptual development of guidance in India – Status of guidance services in India.

#### **Unit II - Areas and Techniques of Guidance**

Types of Guidance – Educational, Vocational and Personal Guidance. Health Guidance and Social Guidance – purpose and functions - Individual and group guidance. Individual and group techniques -Use of tests in guidance – intelligence, achievement and - personality tests

#### **Unit III - The Concept of Counselling**

Meaning, nature and scope of counselling - Different approaches of counselling(directive, client centered and eclectic) - Various steps of counselling - Qualities of a good counsellor - Comparison of guidance and counseling

#### **Unit IV - Counselling Tools, Techniques and Problems**

Sociometric test, Interest inventories, aptitude tests, case study, Observation and interview - Dealing with problems like - aggression, lying, depression, alcoholism, drug addiction and learning problems

#### **Unit V - Organization of Guidance and Counseling Services**

Guidance and counseling programme - Essential activities of a good guidance programme, Role of guidance personnel, Counsellor and psychologist

## References

1. Bhave, Swati, A. & Saini, Sunil. (2009). *Anger management*. New Delhi: Sage Publications.
2. Chandra, Ramesh. (2005). *Career information & guidance and counselling*. Delhi: ISHA Books.
3. Dash. (2005). *Educational measurement statistics & guidance services*. Coimbatore: Global Books Syndicate.
4. Dash. (2005). *Guidance services in schools*. Coimbatore: Global Books Syndicate.
5. Frank, A. Nugent. (1990). *An introduction to the profession of counselling*. London: Merrill Publishing Company.
6. Gibson, Rebort L. & Mitchell, Marianne, H. (2006). *Introduction to counselling and guidance* (6<sup>th</sup> ed.). New Delhi: Prentice Hall of India.
7. Gillon, Ewan. (2007). *Person-centered counseling psychology: An introduction*. Chennai: Sage Publications.
8. Gupta, Sarla (Ed.). (2005). *Career and counselling education*. New Delhi: Kalpaz Publications.
9. Kumar, Yogesh. (2005). *Guidance and counselling*. New Delhi: APH Publishing Corporation.
10. Mary, Vishala, SND. (2008). *Guidance and counselling*. New Delhi: S. Chand & Company.
11. Mishra, R.C. (2004). *Guidance and counseling*. New Delhi: APH Publishing Corporation.
12. Munju, Gupta. *Effective Guidance & Counseling-Modern Methods and Techniques*. Chennai: Tamil Nadu Book House.
13. Pandey, V.C. (2005). *Educational guidance and counselling*. Delhi: Isha Books.
14. Qureshi, Hasnain. (2005). *Educational guidance*. New Delhi: Anmol Publications.
15. Rao, (2005). *Guidance & counseling*. Global Books House.
16. Sharma, R.A. *Fundamentals of Guidance & counseling*. Meerut: Surya.
17. Sinds, Yogesh, Kumar. (2005). *Guidance and career counselling*. New Delhi: APH Publishing Corporation.
18. Veliappan, A. & Amirtharaj, Vijay K. (2009). *Guidance and counseling*. Tirunelveli: A.V. Parvathi Publication.

## **TECHNIQUES OF TEACHING**

### **Objectives:**

After completing the course, the student will be able to -

- Acquire knowledge about teaching and teaching techniques
- Comprehend the instructional objectives
- Acquire knowledge about various methods of teaching and uses of audio-visual aids
- Comprehend the process of evaluation

### **Unit I - Teaching**

Teaching – Definition, meaning – Teaching vs. Instruction – Principles of teaching – phases of teaching –Levels of teaching – Memory level, Understanding level , Reflective level

### **Unit II - Instructional Objectives**

Meaning – need - Relationship among instructional objectives, Learning experience and Evaluation – Blooms Taxonomy of Instructional objectives – Cognitive, affective and psychomotor

### **Unit III - Methods of Teaching**

Method – Technique – tactics - Inductive and Deductive method – Lecture method – lecture cum demonstration method – Story telling method – Discussion method – Problem solving method – Project method – Dramatization – Role play – Seminar – Symposia – Workshop – Supervised study - Individualized instruction

### **Unit IV - Planning for Teaching**

Unit plan – Lesson plan – Advantages of united lesson plans – Format of a lesson plan – Audio – visual aids – Types, uses

### **Unit V - Evaluation**

Test – Measurement – Evaluation – Formative, Summative – Types of tests – achievement test – Characteristics of a good test – Steps in the construction of an achievement test – Scoring key – Marking scheme

## *References*

1. Kumar, K.L. (1996). *Educational technology*. New Delhi: New Age International Publishers.
2. Srivastava, A.P. (1987). *Teaching and learning in 21<sup>st</sup> century*. New Delhi: Indian Books Centre.
3. Vedanayagam, E.G. (1989). *Teaching technology for college teachers*. New York: Sterling Publishers.
4. Sharma, S.R. (2003). *Effective classroom teaching modern methods, tools & techniques*. Jaipur: Mangal Deep.
5. Neel A, GlasGow, Cathy & Hicks. *What successful teachers do*. Chennai: Tamil Nadu Book House.
6. Sampath, K., Panneerselvam, A. & Santhanam, S. (1984). *Introduction to educational technology. II revised Edition*. New Delhi: Sterling Publishers.
7. Witch, W.A. & Schuller, C.F. (1973). *Instructional technology: Its nature and use*. New York: Harpu & Row.
8. Maheshkumar. (2004). *Modern teaching of information technology*. New Delhi: Anmol Publishers.
9. Jaganath, Mohanty. (2003). *Modern trends in educational technology*. Hyderabad: Neelkamal.
10. Rameshvarma, et al. (2005). *Modern trends in teaching technology*. New Delhi: Anmol Publishers.
11. Janardan, P. et al. (2003). *Advanced educational technology*. New Delhi: Kanishka.
12. Siidiqui. (2005). *Challenges of educational technology*. Coimbatore: Global Books Syndicate.



## Department of English

MSU/2016-17/Univ-Dept/M.A.English/Ppr. -XXIV/Supportive Courses-1

### **Supportive Course Papers – 2 TO BE OFFERED**

English for Competitive Examination

**Objectives:**

- To introduce the aspects of the traditional grammar to the learners.
- To train the learners with compositional / comprehension passages.

**Unit I**

- a) Nouns, Articles, Prepositions, Conjunctions and Adjectives

**Unit II**

- a) Verbs – Tenses, Concord, Verbal Clause, Adverbs

**Unit III**

- a) Phrases and Clauses – Nominal, Verbal, Adverbial, Adjectival, Conjunctional

**Unit IV**

- a) Speech, Voice, Degrees of Comparison

**Unit V**

- a) Composition – Note making, Comprehension, Precise Writing  
Testing for this Paper will be made as follows:

**Note:**

Unit I, II & III – Either fill in the gaps, or Spot the errors,

or Match the following

Units IV & V – Written

**References:**

1. CSR publications
2. Language & Literature Vol. II, Appendix, MSU Publications
3. David & Green.



Supportive Course -2

Communicative English

**Objectives**

- To provide opportunities to learners to practice their communicative skills to make them become proficient users of English.
- To enable learners to fine-tune their linguistic skills (LSRW)

**Unit I**

Listening and note-taking – Listening to telephonic conversations – Ted X talks – Listening comprehension

**Unit II**

Self-Introduction– Product description – Conversation practice -Debate – Presentation – Introduction to RP

**Unit III**

Different genres of text (literature) for comprehension– reading graphs, charts and graphic organizer – Sequencing sentences – reading online sources like e-books, e-journals and e-newspapers.

**Unit IV**

Blogs – Tweets – e-mails – SMS and Online texting – Report writing –Writing for media – Resume writing

**Unit V**

Sentence structures – Subject-Verb agreement – Tense forms – Active and passive voices – Direct and Indirect speeches

**Books recommended**

Barker, A. “Improve Your Communication Skills”, New Delhi: Kogan Page India Pvt. Ltd., 2006.

Murphy, Raymond. ”Essential grammar in use’, Cambridge university press. 2015.

### **Executive English**

#### **Objectives:**

- To improve the students' fluency in English, through a well-developed vocabulary and enable them to listen to English spoken at normal conversational speed by educated English speakers and respond appropriately in different socio-cultural and professional contexts. Further, they would be required to communicate their ideas relevantly and coherently in writing.
- To understand the nuances of verbal and non-verbal communication
- To enhance the performance of learners at placement interviews and group discussions and other recruitment procedures.

#### **Unit I- Inter-personal communication skills**

Communication –Types of communication –Strategy for effective communication –Verbal and nonverbal communication-Barriers to communication- Essentials of good communication Starting a conversation -Usage of business vocabulary –Idioms and phrases-flawless grammar

#### **Unit II-Listening &Speaking**

Benefits of active listening-Listening comprehension-Group discussion – Role -play – Extempore- Fluency and organization of ideas- Interview through tele-conference- Video conferencing-Mock interviews

#### **Unit III -Writing skills**

Effective writing skills-Elements of effective writing-Agenda-Minutes-Notices-Writing of CV -Memo- Drafting an E-mail- Press Release- Personal, Official and Business, Report Writing

#### **Unit IV -Pronunciation skills**

The Organs of Speech-Description and Articulation of English Speech Sounds-Syllables and Stress (Weak Forms, Intonation)-Spelling and Pronunciation

#### **Unit V-Body language**

Introduction to body language-Using body language in career-gestures –postures

#### **Books Recommended:**

Prasad, P. The Functional Aspects of Communication Skills, Delhi.

Master Public Speaking by Anne Nicholls, JAICO Publishing House, 2006.

Craven, Miles. "Listening Extra – A resource book of multi-level skills activities", Cambridge University Press, 2004.

John Seely, "The Oxford Guide to Writing and Speaking" , New Delhi: Oxford University Press, 2004.

Roach Peter. English Phonetics and Phonology

Books on TOFEL/ GRE/ GMAT/ CAT/ IELTS by Barron's/ DELTA/ Cambridge University Press.

# **Sri Paramakalyani Centre for Excellence in Environmental Sciences**

MSU/2016-17/Univ. Depts / M.Sc. (Environ.Sci) / \_Supportive Course -1

## **Environmental Chemistry**

### **UNIT I**

Introduction to Environmental Science – Water, Air, Earth, Life and Technology – Ecology – Energy and Cycles of Energy – Human impact and Pollution – Atmosphere and Atmospheric chemistry – The Geosphere and Soil – The Biosphere

### **UNIT I**

Overview to Environmental chemical analysis – Classical methods – Spectrophotometric method – Electrochemical methods – Gas Chromatography – Mass spectrometry – Analysis of water samples – Analysis of sulfur dioxide – Analysis of Hydrocarbons

### **UNIT III**

Introduction to water pollution – Nature and types of water pollutants – Elemental pollutants, Heavy metals and Metalloids – Organic pollutants – Pesticides in water – Water treatment and water use – Sewage treatment – Removal calcium and other metals- Water Reuse and recycle

### **UNIT IV**

Particles in the atmosphere – Physical behavior of particles in the atmosphere – The composition of inorganic particles – Toxic metals – Radioactive particles – The composition of organic particles – Effect of particles – Control of particulate emissions

### **UNIT V**

Origin of Hazardous wastes – Transport of Hazardous wastes – Effect of Hazardous wastes – Fates of Hazardous wastes - Hazardous wastes in the Geosphere - Hazardous wastes in Hydrosphere - Hazardous wastes in Atmosphere - Hazardous wastes in Biosphere

## **References**

1. Manahan SE, Environmental Chemistry (6<sup>th</sup> Ed.), Lewis Publishers, USA
2. Schwarzenbach, Rene P., Phillip M. Gschwend, and Dieter M. Imboden, *Environmental Organic Chemistry*, John Wiley & Sons, New York, 1993.
3. Simpson, Peter, *Basic Concepts in Organic Chemistry—A Programmed Learning Approach*, Chapman and Hall, London, 1994.
4. Solomons, T. W. Graham, *Organic Chemistry*, 6th ed., John Wiley & Sons, New York, 1998.
5. Sorrell, Thomas N., *Organic Chemistry*, University Science Books, Sausalito, CA, 1999.
6. Timberlake, Karen C., *Chemistry: An Introduction to General, Organic, and Biological Chemistry*, Benjamin/Cummings, Menlo Park, CA, 1999.
7. Vollhardt, K. Peter C. and Neil E. Schore, *Organic Chemistry: Structure and Function*, 3rd ed., W.H. Freeman, New York, 1999.

### **Biomonitoring and Management of Industrial Pollution**

**UNIT I:** Principles of biomonitoring – Bioassessment techniques of effluent toxicity – Biomonitoring of water pollution employing algae, bacteria, plankton, macrophytes, invertebrates and fish

**UNIT II:** Habitat assessment – Hygienic indicator microorganisms – Physical, chemical and biological processes of self – purification in natural systems – oxygen sag curve – Restoration of aquatic ecosystem

**UNIT III:** Predicting ecosystem risk – Consequences of release of radioactivity – Storage of radioactive waste – Disposal of solid, liquid and gaseous radioactive waste - Disaster management – Cyclones, Hurricanes and Typhoons – Contingency disaster management plans – Impact of indiscriminate sand mining on ecology of rivers

**UNIT IV:**– Biotechnological methods of pollution detection - DNA gene probe – Immunoassay - Bioluminescent – Biosensor – Biochips in environmental analysis -Economic implications of industrial pollution – Economic analysis of environmental damages caused by polluting industry

**UNIT V :** Legislation and pollution control laws – Pollution control Boards and their duties – Various pollution control standards for water and air pollution – Education and training on pollution control –National environmental policies – Mass movements on environment

#### **References**

1. John. Cairns and Todd V. Crawford (1990). Integrated environmental management. Lewis Publication Inc.
2. H.A.M. Dekruiff de zwart, P.K. Ray and P.N. Viswanathan (1988) Manual on Aquatic Ecotoxicology, ITRC, Lucknow Allied Publishers Pvt. Ltd
3. John Cairns, B.R. Neidalehner and avid, Orves Prediction Ecosystem Risk, Preinceton Scientific Publusing Co,
4. Malsui, S. Hazard Assessment and control of Environment Contaminants in Water
5. Robert Lauwers and Perrine Hoet – Industrial chemical explosive Guide line for biological monitoring – CRC Press Lewis Pub.
6. Holmes et al., (1993). Hand book of Environmental Management and Technology
7. Environmental protection and Legal difference V.R. Krishna Iyer sterling Pub.
8. Pollution control Legislation Hand book – Tamil Nadu Poll. Control Board
9. S.K. Shukla & Srivastava, Pollution Control Common wealth Pub. New Delhi
10. Howards Peary et al., Mc. Graw Hill Environmental Engineering, International Editions, N, York
11. RoulGaliardi and ToirkelAlfahan Environmental training – Oxford & IBH Publishing
12. Anjaneyulu.Y.(2004).Introduction to Environmental Sciences, BS Publications
13. A.K.Chatterji. 2003. Introduction to Environmental Biotechnology, Prentice Hall of India Private Limited. ISBN 81-203-1960-5.

Supportive Course Syllabus

**NANOBIOTECHNOLOGY**

**UNIT I**

Introduction to Nanotechnology – Scientific Revolutions – Types of Nanotechnology and Nanomachines – Nanotechnology Products and Applications – Future Applications of Nanotechnology – Risks of Nanotechnology.

**UNIT II**

Nanobiotechnology Overview – Nanobiometrics – Introduction – Lipids as nano-bricks and mortar – Biocompatible Inorganic Devices - Cell-Nanostructure Interactions - Structure information-DNA – Nanostructured Systems from Low-Dimensional Building Blocks.

**UNIT III**

Protein-based Nanostructures – S-Layers – Engineered Nanopores – Microbial Nanoparticle Production – Magnetosomes-Nanoscale Magnetic Iron Minerals in Bacteria – Polymer Nanocontainers – Biomolecular Motors Operating in Engineered Environments – Nanoparticle-Biomaterial Hybrid Systems for Bioelectronic Devices and Circuitry.

**UNIT IV**

DNA-Protein Nanostructures – DNA-Templated Electronics – Biomimetic Fabrication of DNA-Based Metallic Nanowires and Networks – Mineralization in Nanostructured Biocompartments: Biomimetic Ferritins for High-Density Data Storage - DNA-Gold-Nanoparticle Conjugates.

**UNIT V**

Surface Biology: Analysis of Biomolecular Structure - Application of Nanoparticle in Biomedical research: Introduction – Nanotechnologies for Cellular and Molecular Imaging – Nanoparticles for Cancer Drug Delivery – Bioconjugated Silica Nanoparticles for Bioanalytical Applications - Impact of Biomedical Nanotechnology – Nanobiomedical Technology: Financial, Legal, Clinical and Societal Challenges to Implementation

**References**

1. Nanobiotechnology: Concepts, Applications and Perspectives – Christof M. Niemeyer, Chad A. Mirkin, John Wiley & Sons Inc (2004)
2. Nanofabrication Towards Biomedical Applications – Challa S.S.R. Kumar, Josef Hormes, Carola Leuschner, John Wiley & Sons Inc (2005)
3. Nanotechnology: Basic Science and Emerging Technologies – Michael Wilson, Kamali Kannangara, Geoff Smith, Michelle Simmons, Buckhard Raguse, Chapman & Hall/CRC Press (2002)

## NANOCHEMISTRY

### UNIT I

The Nanoscale and colloidal systems - Fundamentals of surface and interfacial chemistry - surface tension and wettability - insoluble monolayers - surface chemistry and monolayers - Electrostatic interactions in self assembling system - self-assembly of Amphiphiles - monolayers  
- Micelles and microemulsions.

### UNIT II

Adsorption phenomena - Adsorption of surfactants at solid surfaces - Langmuir Adsorption-Bilayer system and Lipid membranes - macromolecular systems - Molecules assembled in Air -Water and Solid - Air interference - Two dimensional adsorption Isotherms - supramolecular approach - Dipole -dipole interactions - Hydrogen bonds -  $\pi$  stacking interactions.

### UNIT III

Chemical reduction - Reactions in Micelles, Dendrimers, Emulsions - Photochemical and radiation chemical reduction - Cryochemical synthesis. Size effects: Metal atoms in matrices - melting point - optical spectra - surface kinetics and thermodynamic features of nanoparticles.

### UNIT IV

Supramolecular machines - Fundamentals of energy transfer and photon motion manipulation - Electron motion manipulation - Electron pumping and molecular wires - The interaction of polymers with surfaces - polyelectrolyte multilayer assemblies - Electrostatic self-assembly - Bilayer fashion - Spin assembly.

### UNIT V

Chemical functionalisation of nanowire and nanoparticles - Recent advances in Thiol -Au and Silane chemistry - Fabrication of functionalised Gold Nanocores and their applications in cancer therapy

### References

1. D. Fennell Evans and Håkan Wennerström, *The Colloidal Domain: Where Physics, Chemistry, Biology, and Technology Meet*, Wiley - VCH, 1999.
2. Krister Holmberg, Bo Jönsson, Bengt Kronberg, Björn Lindman *Surfactants and Polymers in Aqueous Solution, 2nd Edition*, John - Wiley, 2002.
3. C.N.R.Rao, A.Muller, A.K.Cheetham (Eds), *The chemistry of nanomaterials Vol I & II: Synthesis, properties and applications*, Eds., Wiley VCH Verlag GmbH&Co, Weinheim, 2006.
4. Gleb Borisovich Sergeev, *Nanochemistry*, Elsevier, 2006
5. Gerhard Gompper and Michael Schick (Eds), *Soft Matter: Vol 1 & 2*, John-Wiley and Sons, Inc., 2006.

## **Centre for Geo-Technology**

**MSU/2016-17/Univ.Dept./M.Sc.(Applied Geophysics)/ Semester II / Supportive Course**

**Supportive Course to be offered to other Departments**

### **GPS Technology/Supportive Course**

**Unit I :** History of the Global positioning system – Development of Global surveying Techniques – Over view of GPS – Reference system.

**Unit II :** Satellite orbits : orbit description – orbit determination – orbit dissemination.

**Unit III :** Satellite signal : signal structure – signal processing.

**Unit IV :** Observative : Data acquisition – Data combinations – Atmospheric effects – Relative effects – multipath.

**Unit V:** GPS survey – planning – surveying procedure – In situ data processing – Application of GPS – survey report.

### **Reference Books**

1. B.Hofmann – wellenhof, H.Lichfenegga and J.Collins; GPS theory and practice – Springer,2007.
2. Ackroyd.N, Lorimer.R. ; Global Navigation – a GPS user's guide – Lloyds of London, 1990.
3. Kanla,W.M. Theory of satellite geodesy Blaisdell, Toronto,1966.
4. Logsdon.T. The NAVSTAR Global Positioning system. Van Nostrand , Rein hold, NewYork,1992.

**Remote Sensing / Supportive Course**

**Unit I:** Fundamental Concepts of Remote Sensing – Sensor – aerial photography.

**Unit II :** Satellite remote sensing – Landsat – SPOT – IRS – ERS-1 – JERS1 – Radarsat – IKONOS – Quick Bird – Satellite data products – Guidelines for selection of data products.

**Unit III :** Interpretation of Remote Sensing – Digital Image Processing.

**Unit IV :** Remote sensing application : Agriculture – Forestry – water resource – Geology and Mineral Resources – Land use & Land cover – hazards.

**Unit V :** Concept of GIS – use of remote sensing data in GIS – Spatial elements – Data encoding & storage – Data manipulation – Data output.

**Reference Books**

1. P.K.Guha Remote sensing for Beginner – EWP, New Delhi, 2003.
2. Sabino.F.F. Remote sensing principles and interpretation, Freeman, San Francisco, 1978.
3. Arnold. R.H. Interpretation of airphoto and Remotely sensed imagery, Printice-Hall, New jersey, 1997.
4. Drury.S.A. Image Interpretation in Geology – Chapman Hall, London, 1993.
5. Lillesand.T.M.and Kieff.R.W. Remote sensing and Image Interpretation, Willey, Newyork.
6. Miller.V.C Photogeology, McGraw Hill – London, 1961.



## **Department of History**

**MSU / 2017-18 / Univ. Depts. M.A. History / Sem.- II / Supp.Course -1**

### **INDIAN NATIONAL MOVEMENT, 1757 – 1947 A.D**

#### **UNIT I**

Stages of colonialism, Imperialism, Capitalism –Nationalism – Registance of Indian rulers and chieftains – Various peasant and Tribal uprisings and military Revolts.

#### **UNIT II**

Introducation of Western Education – Socio –Religious Reform Movements – Role of the Press and Indian Awakening – Pre-Congress Associations – Formation of the Indian National Congress, 1885.

#### **UNIT III**

Constitutional Methods of Agitation: Aspiration and Demands of the Congress Struggle and Strategy – Moderation: Appeals, Resolutions and Petitions – Role of Congress Leaders – Popular Methods of Agitation – Partition of Bengal 1905 – Swadeshi and Boycott Movements – VOC & Bharathi – Split in the Congress.

#### **UNIT IV**

Rise and Growth of Revolutionary Movement: Maharastra, Bengal and Madras – Press and Literature in Bengal – Role of Shyamji Krishna Verma, V.D. Savarkar, Madam Cama, MN Roy, MPT Acharya – Alipur Conspiracy – Maniyatchi Incident – The Gaddar Party – Udham Singh and Bhagat Singh.

#### **UNIT V**

Gandhian Era: Gandhi's Entry into Politics - Non-Cooperation Movement, Chauri - Chaura Incident - Swarajist Party -Motilal Nehru - Simon Commission, Nehru Report - Jinnah's 14 Points (1929) - Civil Disobedience Movement (1930-34) - Gandhi-Irwin Pact (1931) - Communal Award - Poona Pact - Cripps Proposals - Quit India Movement (1942) - Muslim League and Demand for Pakistan - CR Formula - Rash Behari Bose - Subash Chandra Bose & Indian National Army - Cabinet Mission Plan - Mountbattern Plan - Indian Independence Act (1947).

#### **REFERENCES**

1. RC Agarwal, National Movement and Constitutional Development in India
2. HM Ahluvalia, Freedom Stuggle in India 1857-1909
3. Bipin Chandra, India's Struggle for Independence 1857-1947
4. Bipin Chandra, Communalism in India
5. KK Ghose, The Indian National Army
6. S.Gopal, The British Policy in India 1858-1905
7. DC Gupta, Indian National Movement
8. RC Majumdar, History of Freedom Movement in Bengal, Vols.I to II
9. Pattabhi Sitaramayya, History of Indian National Congress, Vol.I & II
10. K. Rajayyan, South Indian Rebellion 1800-1801.

# **Centre for Information Technology and Engineering**

**MSU/2016-17/ Univ.-Dept /M.Sc.(Information Technology)/ Supportive Course -1**

## **Supportive Course Syllabus**

### **Office Automation**

#### **UNIT I**

**Windows XP:** Windows concepts, Features, Windows Structure, Desktop, Taskbar, Start Menu, My Computer, Recycle Bin, Windows Accessories- Calculator, Notepad, Paint, Wordpad, Character Map, Windows Explorer, Entertainment, Managing Hardware & Software Installation of Hardware & Software, Using Scanner, System Tools, Communication, Sharing Information between programs.

**Word Processing; MS Word:** Features, Creating, Saving and Opening Documents in Word, Interface, Toolbars, Ruler, Menus, Keyboard Shortcut, Editing, Previewing, Printing, & Formatting a Document, Advanced Features of MS Word, Find & Replace, Using Thesaurus, Using Auto- Multiple Functions, Mail Merge, Handling Graphics, Tables & Charts, Converting a word document into various formats like- Text,

Rich Text format, Word perfect, HTML, PDF etc.

#### **UNIT II**

**Worksheet- MS-Excel:** Worksheet basics, creating worksheet, entering into worksheet, heading information, data, text, dates, alphanumeric values, saving & quitting worksheet, Opening and moving around in an existing worksheet, Toolbars and Menus, Keyboard shortcuts, Working with single and multiple workbook, working with formulae & cell referencing, Auto sum, Coping formulae, Absolute & relative addressing, Worksheet with ranges, formatting of worksheet, Previewing & Printing worksheet, Graphs and charts, Database, Creating and Using macros, Multiple worksheets- concepts, creating and using.

#### **UNIT III**

**MS Power Point:** Creating slide show with animations. Auto center Wizard, creating a link presentation, auto layout, Power point screen: screen layout and Views, insert a new slide, applying design template, changing slide layout, reordering and hiding slides, slide show and editing custom slide. Resizing a text box, Text box properties, Delete a text, Bulleted lists, Numbered lists, Adding notes, Video and Audio, Adding text Editing options, Formatting text, Replace fonts, Line spacing, Change case Spelling check, Color schemes, Adding clip art, Adding an image from a file Editing graphic, AutoShapes, WordArt, Backgrounds, Action buttons, Slide animation, Animation preview, Slide transitions, Slide show options, Slide master, Header and footer, Slide numbers, Date and time,

## UNIT IV

### Database Management & MS ACCESS

**Database Basics:** Databases, Records. Fields, data types, Database Types · Library Catalogues Introduction into Microsoft Access, Starting Up Microsoft Access, Creating New, and Opening Existing Databases, Creating a database using a wizard, Creating a database without using a wizard, Tables - What they are and how they work, Create a table from scratch in Design view, Primary Keys, Switching Views, Entering Data, Manipulating Data, Advanced Table Feature Examples, Relationships - How to link multiple tables together, Forms - What they are and how they work, Creating A Form Using A Wizard, Reports - What they are and how they work, Creating A Report Using A Wizard, Creating Mail Merge Labels using a Wizard

## UNIT V

### Intranet & E-governance

**Intranet tools:** E-mail: Anatomy of e-mail, e-mail address, finding e-mail address, adding signature, attaching files, opening attachments, managing e-mail account, Web mail,

**Case study:** Yahoo Mail, Outlook express. FTP, ftp commands, ftp software, Telnet, using telnet, Web pages, HTML, basics of HTML. MS Front page: Page Properties, Text, Hyperlinks, Tables, Graphics and Pictures, Miscellaneous, Shared borders, Navigation bars, Cascading Style Sheets, Themes, Frames, Components, Forms, create web site. Uploading and downloading files. Portals, creating portals, digital signature, computer virus and antivirus software

### Reference Books

- Professional Office Procedure by Susan H Cooperman, Prentice Hall
- Information Technology: Principles , Practices and Opportunities by James A Senn, Prentice Hall
- Technology And Procedures for Administrative Professionals by Patsy Fulton-Calkins, Thomson Learning
- Public Information Technology and E-Governance: Managing the Virtual State (Paperback) by G. David Garson

**Photoshop**

**UNIT -1**

Introduction: What Is Photoshop – Image Theory –The Ups And Downs Of Painting –The Downs And Ups Of Drawing When To Use Photoshop? –When To Use A Drawing Program .Inside Photoshop: The Splash Screen –The Photoshop Desktop –The Tools- Options Bar Tool Presets –Preset Manager –Floating Palettes –Rearranging And Docking

**UNIT -2**

Navigating In Photoshop The View Size Actual Pixels Fit On Screen Print Size Zoom Tool Zoom Commands Magnification Box Scrolling In The Window The Navigator Palette Image Management How Image Work Size Vs Resolution Changing The Printing Resolution Changing The Page Layout Resolution How To Open Duplicate And Save Image Creating A New Image Opening A Image Duplicating An Image Saving An Image To Disk

**UNIT 3**

File Format Roundup Native Format Special Purpose Formats Mainstream Formats-Adding Annotations –Tapping Notes To Your Image Voicing Your Opinions Resembling And Cropping Resizing Vs Resembling Resizing An Image Resembling An Image Cropping

**UNIT 4**

Defining Colors Specifying Colors Using Color Picker Entering Numeric Color Values – Gray Scale Bitmap The Eye Dropper Tool The Color Sample Tool Masks Selecting Using Masks Painting And Editing Inside Selections Working In Quick Mask Mode The Magic Eraser Building A Mask From An Image.

**UNIT 5**

Filters Filter Basics Corrective Filter Effect Filters How Filter Work External Plug Fading A Filter Using Unsharp Mask Filter - Sharpening Grainy Photographs –Converting An Image To A Line Drawing Burning An Image Filter Average Filter Edge Enhancement Filter

**REFERENCE BOOK:**

Adobe Photoshop CS3 A-Z: Tools and features illustrated ready reference by Philip Andrews

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## **Department of Management Studies**

MSU/2016-17/Univ-Dept/M.B.A /II- Semester/Supportive course-1

### **1. Managerial Skill Development**

#### **UNIT I**

Introduction to Basic Managerial skills, Classification of skills like Intra personal and Interpersonal skills – Balancing Work and Life, Managing Time and Managing Change.

#### **UNIT II**

Thinking Creatively, Communicating Clearly and Making Presentations

#### **UNIT III**

Selling Successfully, Marketing Effectively, Influencing People

#### **UNIT IV**

Delegating, Managing People, Motivating People

#### **UNIT V**

Managing Teams, Effective Leadership and Achieving Excellence

#### **REFERENCE:**

1. *McGrath SJ, EH*, Basic Managerial Skills, Prentice Hall India
2. *Rajasekaran B*, Winner's Mantra,
3. The Winner's Manual – The Essential and Life and Work Skills, DK Publishers

## **2. Direct Marketing Skills**

### **UNIT I**

Introduction - Direct Marketing – Objectives - structure - Role - Sales strategies – Future of Direct Marketing.

### **UNIT II**

Managing Sales force – Recruitment – Selection – Motivation – Training and Control - evaluation

### **UNIT III**

Sales Responsibilities – Personal Selling skills – steps in selling process – Prospecting – Pre approach – Approach – Presentation – Handling Objections – Closing – Follow up.

### **UNIT IV**

Sales Information System - Sales force automation – Using customer data - Data Warehousing and data mining – Database marketing – Tele marketing – E- Commerce.

### **UNIT V**

Customer Relationship Management – Relationship selling – Social responsibility - Ethical Issues.

### **REFERENCE:**

1. *William J. McDonald*, “Direct Marketing”, McGraw Hill
2. *Cundiff, Still & Govani*, “Sales Management”, PHI / Pearson
3. *Kotler & Armstrong*, “Principles of Marketing”, PHI Learning

## **Centre for Marine Science and Technology**

MSU /2016-17 / Univ.Depts. /M.Sc. Marine biotechnology /Sem. II / Supp. Course 1

### **Research Methodology**

- Unit I : What is research? – Literature Collection – Literature citation – Research report – Manuscript preparation – Formatting and typing – Experimental designs – Laboratory safety – Intellectual property rights.
- Unit II : Microscopy – Principle of light transmission. Types of light microscopes – Bright field – Dark field – phase contrast – Fluorescence – Polarisation – Confocal – Scanning Micrometry. Electron Microscopes and types – Scanning probe microscopes – Scanning tunnelling – Atomic force and magnetic force microscope – Photomicrography.
- Unit III : Centrifugation – Principles and types. pH meter – Principles and types. Cytotechniques – Cryopreservation – Freezing microtome – Freeze drying for physiologically active substances.
- Unit IV : Chromatography – Paper – Thin layer – Column – Gas – Liquid chromatography. Electrophoresis – Moving boundary – Paper – Cellulose acetate – Gel – Immunoelectrophoresis. Southern – Northern – Western Blotting.
- Unit V : Spectrophotometer – Fluorimeter – Chemiluminometer – ESR – NMR Spectrophotometer – MRI Atomic Spectroscopy – Flame emission photometry – Radioactive counter.

### **Bioethics**

- Unit I : Introduction to marine pharmacology – terms and definitions. Medicinal compounds from marine flora and fauna – marine toxins – antitumour and cytotoxic compounds, antiviral substances, antiparasitic agents.
- Unit II : Biomedical potential of marine natural products – isolation, structural elucidation and mode of action. Pharmacological studies of Novel marine metabolites.
- Unit III : Development of novel foods and food ingredients – Low colorie sweeteners, flavour modifiers. Nutritional enrichment – food supplements. Food colouring agents and water binding agents.
- Unit IV : Applied fish pharmacology – Fish disease control – antibacterial drugs, chemotherapeutic agents, pharmaco-dynamic agents – Anaesthetics, breeding induction agents, sex control, immunostimulants, vaccines, disinfectants, osmoregulators.
- Unit V : WTO-GATT & TRIPS. Different types of intellectual property rights – patents – patent applications and rules governing patent – selected examples of patent in biotechnology. Licensing and cross licensing.

### **References**

1. Treves – Brown, K. M., 2000. Applied Fish Pharmacology, Kluwer Academic Publishers, The Netherlands.
2. Morries, H. Baslow, 1969. Marine Pharmacology. The Williams & Wilkins Co., Baltimore.
3. David H. Attaway & Oskar R. Zaborsky, 1993. Marine Biotechnology, Vol. 1, Pharmaceutical & Bioactive Natural Products. Plenum Press, New York & London.



## MARINE MICROBIAL TECHNOLOGY

### I Unit

#### Gene technology for disease control:

Vaccine: Different type of vaccines in microbial control; antiviral immunity and immunogenic proteins in aquatic important pathogens. Transgenic fish: development of transgenic fish and shrimp by gene transfer technology. RNA interference: principle and application of ds RNA, si RNA, mi RNA etc in microbial control.

### II – Unit

#### Marine microbes for industry:

Isolation preservation and maintenance of industrially important microbes from marine environment – A general review of primary and secondary metabolites production – SCP Production – basic concept of industrial production of alcohol, organic solvents, antibiotics, amino acids, and Enzymes by marine microbes.

### III Unit

#### Microalgal production Technology:

Culture system-photobioreactor, Harvesting of Biomass, Bio fuel production-fats, oils, and hydrocarbons: carotenoid production, Microalgae for Aquaculture, Microalgae for waste water treatments and Genetic engineering of Microalgae.

### IV –Unit

#### Probiotics:

Definition-characteristics of probiotics: Probiotic microbes-production and characterization of probiotics-mode of action of probiotics in fish nutrition larval rearing. Immune modulation and disease management.

### V Unit

#### Halobacterial Technology:

Definition-classification – Ecology – structure and functions of complex *Halobacterium salinarum* – Biotechnological potentials of Halobacterium – important products and their uses – Role of halobacteria in salt purification.

## References:

1. Methods in molecular Biology, Vol.265-RNA interference Editing and modification – jonatha.M.GOTT
2. Text book of Industrial Microbiology, A.H. PATEL
3. A text book of introduction to microbiology and Biotechnology
4. A text book of marine natural products 2002 – Peter Marian, J.A.C . John G.Immanuel & M. Michael Babu, M.S. University
5. Micro algal Biotechnology, Edited by Michael A. Borowitzka and Laglay J. Borowitzka University of Cambridge, press, new York U.S.A.

## MARINE PHARMACOLOGY

Marine Pharmacology is one of the most rapidly expanding and attractive area of research for biologists, chemists and pharmasists. This syllabus is framed so as to enable the students to know the efficacy and specificity of the different classes of drugs available from marine resource. This paper will also provides information on isolation, mode of action, applications of marine drugs in human/fish disease management and also the development of novel marine drugs. The patent laws and IPR are also focused.

**Unit.I :** Terms and definitions – Pharmacokinetics – ADMET Properties, Bioavailability. Pharmacodynamics – Dose response relationship, drug receptors.

**Unit.II:** Biologically active compounds from marine flora, fauna and microbes – Antibacterial antifungal, antiviral, antiparasitic, anti-inflammatory and cytotoxic compounds, anticoagulants and marine toxins.

**Unit.III:** Biomedical potential of marine natural products – Isolation, structural elucidation and mode of action.

**Unit IV :** Fish Pharmacological and pharmacodynamic agents : antimicrobial, antiparasitic agents, anesthetics, vaccines, immunostimulants, breeding induction agents, osmoregulators, disinfectants etc.

**Unit V :** Drug safety – methods of drug administration, antibiotic hazards and biotransformation, ethical issues; IPR and patents.

Reference:

1. Pharmacolgy by Pazdernik, T.L, Kerecsen, L & Shah M.K.
2. Essentials of Medical Pharmacology by Tripathi, K.D.
3. Marine Natural Products – D.S. Bhakuni and D.S. Rawat, Springer
4. Applied Fish Pharmacology – John F.Burka Kluwer Academic Press.

### APPLIED MARINE BIOTECHNOLOGY

- Unit 1 : Marine natural products: Agar agar, Alginate carageenan, Chitin, Chitosan. Marine lipids, marine flavourants, lectins, heparin, carotenoids.
- Unit 2 : Marine Pharmacology: Identification of bioactive compounds containing marine organisms – Extraction of bioactive compounds. Screening, standardization of marine drugs.
- Unit 3 : Industrial fisheries: Fish processing techniques, methods of fish processing Freezing, canning, smoking and value added products – quality control.
- Unit 4 : Bioremediation and biofouling: Marine pollutants – Bioremediation – CMO in bioremediation – Aquaculture effluent treatment – Biofouling organisms and their control.
- Unit 5 : Aquaculture Biotechnology: Application of Genetic Engineering – Production of transgenic fish – disease diagnosis – Cryopreservation techniques – Broodstock management and larval raring – Feed technology – Prebiotics & probiotics.

#### References:

1. Marine Natural Products – D.S. Bhakuni and D.S. Rawat
2. Pharmacology by Pazdernisc, T.L, Kereesen, L & Shah, M.K.
3. Quality Control in fish Processing – CIFT maual
4. Fish Processing, Quality control and marketing – MPEDA publication
5. Environmental Biotechnology – Arivndkumar 2004
6. Recent Advances in Bioremediation and Biodegradation Vol.I & II: Garg K.L. & K.G. Mukkerji 1993

**Ornamental fish culture**

**Unit.I :** Scope, application and importance of ornamental fish culture – Ornamental fish culture economics – Construction and design of aquarium tanks.

**Unit.II:** Commercially important fresh water ornamental fishes - their biology, breeding and larval rearing techniques.

**Unit.III:** Feed and feeding strategies in ornamental fish culture – Live feed culture – Daphnia, Tubifix and Chironomid culture – Artificial feed formulation and preparation

**Unit.IV:** Water quality management in ornamental fish culture – Temperature, dissolved oxygen, pH and ammonia control – Re-circulation system.

**Unit.V:** Disease management in ornamental fish culture, Bacterial, fungal and viral diseases and their control – Package and Transportation techniques.

Reference:

1. Aquaculture by T.V.R. Pillai
2. Dictionary of Nutrition and Food technology by J.K. Bhattacharjee
3. Industrial Microbiology by L.E. Casida
4. Aquaculture Nutrition by Michael B. New.

## **Department of Mathematics**

**MSU / 2017-18 / Univ.Dept / M.Sc.Mathematics / Sem.- II & III / Supportive Course**

**(for other Department students)**

### **1.Numerical Methods**

**Unit I:** Introduction: Errors in numerical calculations – Mathematical preliminaries – Solution of Algebraic and Transcendental equations: The Bisection method – The method of false position.

**Unit II:** Newton-Raphson method – Introduction - The Iteration method - Muller's method – Graffes' root squaring method

**Unit III:** Interpolation: Newton's Formulae for interpolation – Central difference interpolation formulae.

**Unit IV:** Numerical Differentiation and integration: Numerical differentiation – Numerical integration

**Unit V:** Matrices and Linear systems of equations: Solution of Linear systems – Iterative methods - The Eigen value problem

**Text Book:** Introductory Method of Numerical Analysis (Third Edition) by S.S. Sastry, Sections 1.3, 2.1 to 2.5, 2.7, 2.8, 3.6, 3.7, 5.2, 5.4(5.4.1 to 5.4.3 only), 6.4 and 6.5.

**2. Introduction to Mathematical Biology**

**Unit I:** Cell growth-Exponential growth and Decay – Determination of growth or decay rates- The method of least squares – Nutrient Uptake by a cell –Inhomogeneous Differential equations.

**Unit II:** Growth of a Microbial colony – Growth in a Chemo stat – Interacting Populations – Mutation and Reversion in Bacterial growth.

**Unit III:** Enzyme Kinematics: The Michaelis – Menton Theory – Enzyme Substrate – Inhibitor system – Cooperative dimmer – Allosteric enzymes – Other alloseteric theories.

**Unit IV:** The Cooperative dimmer – Allosteric enzymes – Other alloseteric theories.

**Unit V:** Hemoglobin – Graph theory and Steady state Enzyme Kinetics – Enzyme – Substrate – Modifier system – Enzyme Substrate – Activator system.

**Text Book:** Introduction Mathematical Biology by S.I. Rubinow (Dover publications), Chapter I and Chapter 2 (Sections 2.1,2.3, to 2.11).

**3. Discrete Mathematics**

**Unit I:** Sets and Relations.

**Unit II:** Functions.

**Unit III:** Logic

**Unit IV:** Algebra of propositions.

**Unit V:** Boolean algebra.

**Text Book:** Seymour Lipschutz and Marc Lipson, Discrete Mathematics (Second Edition, 1999), Chapter 1 - 4, and 15.



**4. Mathematics for Competitive Examinations**

**Unit I:** Problems on Ages – Percentage.

**Unit II:** Profit and Loss – Ratio and Proportion.

**Unit III:** Time and Work – Simple Interest.

**Unit IV:** Compound Interest – Calendar.

**Unit V:** Stocks and Shares – Bankers' Discount.

**Text Book:** Quantitative Aptitude by R.S. Aggarwal (Edition 1996), Chapters 8, 10 to 12, 15, 21, 22, 27, 29 and 31.

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# Department of Pharmaceutical Chemistry

2017-18 / MSU / Univ. Depts. / M.Sc. (Organic Chemistry) / Sem.-II /

## Supportive Course - 1

### SUPPORTIVE COURSE PAPER (ODD SEMESTER)

#### NATURAL PRODUCTS OF MEDICINAL IMPORTANCE

#### UNIT – I Heterocyclic compounds:

Preparation and properties of some important mono-heterocyclic like indole, quinoline and carbazole- Compounds with two heteroatom – oxazoles, pyrazoles and thiazoles - Purines and pyrimidines – uric acid- Caffeine.

#### UNIT- II a) Terpenoids:

Classification – General methods of determining the structure -structural elucidation and synthesis of  $\alpha$ -pinene and Camphor

#### b) Alkaloids:

Definition and classification- General methods of determining the structure- Structure, stereochemistry and synthesis of the quinine and morphine.

#### UNIT-III a) Proteins and Nucleic Acids:

N-Terminal and C-Terminal analysis –N- and C- protection and activation –solid phase peptide synthesis- Structural features of Oxytocin and Insulin-Structures of DNA and RNA

#### b) Vitamins:

Introduction -Sources and deficiency diseases of Vitamin A, B<sub>1</sub>, B<sub>2</sub>, B<sub>6</sub>, B<sub>12</sub>, C and D – Elementary idea about their structures.

#### UNIT-IV Antibiotics:

Definition and Classification – A detailed study of structural elucidation and synthesis of Penicillin, Chlorophenicol- Elementary idea about the structural features of Streptomycin and Tetracyclines.

#### UNIT-V Steroids:

Classification and nomenclature – Structural features of Cholesterol- Sex hormones – Bile acids- Corticosteroids.

## REFERENCES

1. I.L. Finar Organic Chemistry, vol II, Longman, 5<sup>th</sup> edition, 1988.
2. A.R. Kartitzkey and J.M. Lagowski, Principles of Heterocyclic Chemistry, Chapman & Hall, New edition, 1971.
3. R.M. Acheson., Chemistry of Heterocyclic compounds, Wiley-Interscience; 2<sup>nd</sup> Edition, Volume 9 edition, 2007.
4. R.K. Bansal, Heterocyclic Chemistry – Synthesis , reactions and mechanism, Wiley Eastern, New Delhi, 1990.
5. K.W. Bentley, Alkaloids Vol. I, Inter-science, 1957.
6. L.F. Fieser and M. Fieser, Steroids, Literary Licensing, LLC, 2013.
7. G.A. Cordell, Introduction to Alkaloids: A Biogenetic Approach, John Wiley & Sons Inc, 1981.
8. K.B.G. Torsell, Natural Products Chemistry, John Wiley & Sons, New York, 1983.
9. Burger's Medicinal Chemistry and Drug Discovery 8 Volume Set Wiley, 7<sup>th</sup> Edition, 2010.
10. P.M. Ramwell, The Prostaglandins, Vol I, Plenum press, 1973.
11. Gurdeep Chatwal, Organic Chemistry of Natural Products, Vol. II, Himalaya Pub. House, Bombay 1985.
12. Manfred E. Wolff, Burger's Medicinal Chemistry, Part I to III, 4<sup>th</sup> Edn. John Wiley & Sons, New York, 1980.

**SUPPORTIVE COURSE PAPER (EVEN SEMESTER)**

**PHARMACEUTICAL ANALYSIS**

**UNIT-I Volumetric analysis**

Significance of Quantitative analysis in quality control – Isolation and identification of drugs – Different techniques of analysis – Significant figures – Fundamentals of volumetric analysis – Methods of expressing concentration – Primary and secondary standards – Acid base concepts – Relative strength of acids and bases – Law of mass action – Common ion effect – Ionic product of water, pH, Henderson – Hesselbach equation – Buffer solutions – Neutralisation curves – Acid-base indicators and their choice.

**UNIT-II**

a) Oxidation – Reduction Titrations: Theory and Pharmaceutical applications – Strength and equivalent weights of oxidizing and reducing agents – Titrations involving Potassium Permanganate, Potassium iodate, Potassium bromate, ceric ammonium sulphate – Iodimetry and Iodometry.

b) Precipitation Titrations: Principles – Titrations involving mercuric nitrate, ammonium or Potassium thiocyanate, barium sulphate – Argentometric titrations

**UNIT-III**

a) Gravimetric analysis: Basic concepts – Precipitation techniques – co-precipitation- post-precipitation – Various steps involved in gravimetric analysis and their pharmaceutical applications.

b) Complexometric titrations: Complexation and chelation – Werner's coordination number – stability of complexes, titrants and titration curves – Types of complexometric titrations and methods of end point detection.

c) Non- aqueous titrations: Theoretical consideration – Scope and limitations – titration of weak acids, weak bases.

**UNIT – IV Physical Methods:**

Electrophoresis, Refractive index, Kjeldahl method of nitrogen estimation, Flame photometry – Kinematic viscosity.

**UNIT –V Chromatographic Techniques:**

Introduction – Classification of Chromatographic techniques – adsorption and partition – Principles and application of TLC, HPTLC, Paper Chromatography – ascending and descending – Gas Chromatography.

**REFERENCES**

1. Clarke, Isolation and Identification of drugs, the Pharmaceutical Press, 1986.

2. Vogel's Text Book of Quantitative Chemical Analysis by J. Mendham, R.C. Denney, J.D. Barnes and MJK Thomas ELBS, 7<sup>th</sup> Edn., 2005.
3. H.H. Willard, L.L. Merritt, J.A. Dean and F.A. Settle, Instrumental Methods of Analysis, Wadsworth Publishing Company; 7 Sub edition, 1988.
4. David Harvey, Modern Analytical Chemistry, Mc Graw Hill. 1999.
5. H. Gerhard Vogel, Drug Discovery and Evaluation-Pharmacological Assays, 2<sup>nd</sup> Edn. Springer, 2008.
6. E. Heftmann, A Laboratory Handbook of Chromatographic and electrophoresis methods, 3<sup>rd</sup> Edn, Van Nostrand Reinhold, 1975.
7. Raymond PW Scott, Techniques and Practice of Chromatography. 1<sup>st</sup> Edn, Marcel Dekker Inc., 1995.
8. P.D. Sethi, Identification of Drugs and Pharmaceutical Formulations by Thin Layer Chromatography, 2<sup>nd</sup> Edn, CBS Publishers & Distributors, 2008.
9. James M. Bobbitt, Thin Layer Chromatography, Reinbold pub. Corp., Chapman and Hall, London, 2007.
10. P.D. Sethi, HPTLC – Quantitative Analysis of Pharmaceutical Formulations, 3<sup>rd</sup> Edn, CBS Publishers & Distributors, 2008.

## Department of Physics

MSU /2017-18 /Univ.Depts. /M.Sc. (Physics ) /Sem.-II / Supportive Course -1

### **BASICS OF DOMESTIC APPLIANCES**

#### **UNIT I: Microwave Ovens**

Microwaves - transit time – magnetrons – waveguides - Microwave oven block diagram - LCD timer with alarm - Single Chip Controllers - Wiring and safety instructions - Care and Cleaning.

#### **UNIT II: Washing Machines**

Electronic controller for washing machines - Washing machine hardware and software - Types of washing machines - Fuzzy logic washing machines - Features of washing machines.

#### **UNIT III: Air Conditioners and Refrigerators**

Air Conditioning - Components of air conditioning systems - All water air conditioning systems - All air conditioning systems - Unitary and central air conditioning systems - Split air conditioners - Refrigeration, refrigerants, refrigeration systems - domestic refrigerators.

#### **UNIT IV: Digital Access Devices**

Digital computer - Internet access - Online ticket reservation - Functions and networks - Barcode Scanner and decoder - Electronic Fund Transfer - Automated Teller Machines (ATMs) - Set-Top boxes - Digital cable TV - Video on demand.

#### **UNIT V: In-car computers**

Applications – Electronic ignition - Electronic Ignition Lock System - Anti Brake Locking System (ABS) - Electronically Controlled Suspension (ECS) - Instrument Panel Displays - Ultrasonic Car Safety Belt System - Air Bag System - Vehicle Proximity Detection System - Car Navigation System

#### **Books for study and references :**

1. S.P.Bali, Consumer Electronics, Pearson Education, NewDelhi, 2005.
2. J.S.Chitode, Consumer Electronics, Technical Publications, 2007.

**Supportive Course II – ELECTRONICS IN DAILY LIFE**

**UNIT I: Fundamentals**

Electrical and Electronic Symbols Resistors – Capacitors – Resistance wale – Capacitor wale – Electrical quantities – Electrical formulas – Magnetism – Meters – Fuse wire Transistors – Integrated chips

**UNIT II: Electrical appliances**

Switch board – Main box – Metal circuit breakers (MCB) – AC – DC currents – Two Phase – Three Phase electrical connections – generators – un intrepid power supply (UPS)- stabilizer – voltage regulators – Electrical devices – Iron box – Fan

**UNIT III: Electronic home appliances**

Radio – Audio taper veaulem, speaker- televisions – VCR – CD Players – DVD – calculators – Computers – Block diagram of a Computer – Input Device – Memory Device – control Unit – Arithmetic logic unit – Output device – Microprocessor – RAM – ROM - scanner – Printer – Digital Camera – LCD Projectors – Display devices

**UNIT IV: Communications Electronics**

Principles of optical fiber Cables (OFC) – Telephone – Mobile phones – wire less phone - Antenna - Internet - Intranet

**UNIT V: Safety Mechanism**

Handling Electrical appliances - Power saving methods - Hazards Prevention Methods – Protection of Hi –Fi- electronic devices.

**Books for Study and references:**

1. S.S. Kamble – Electronics and Mathematics Data book – Allied publishers Ltd – 1997
2. William David Cooper, Electronic Instrumentation and Measurement Technique (2<sup>nd</sup> Edition)

## Department of Plant Science

2017-18 /MSU / Univ. Depts. /M.Sc. Botany / Sem. –II / Supportive - 1

### 1. PLANTS IN HUMAN LIFE

L	P	T	C
2	0	0	2

#### **Objectives**

- To enlighten the students on the sources and role of plants in meeting the basic demands of the human.
- To reveal the range of products and their novel usage in human life

#### **Unit I: Introduction (5 hours)**

Expanse of the plant world; Significance of plant groups as oxygen and energy providers and a propelling force in chemical and organic evolution; Plants tapped and untapped for human consumption and peripheral needs; Importance as sources of food, fibres, wood and medicine. Check list of major and minor food crops; Types of food and its use, abuse and wastage. Staple food crops - cereals, pulses, millets, vegetables, tubers, fruits, oil seeds, nuts, beverages; Balanced diet; Perils of junk food consumption; Food as medicine.

#### **Unit II: Cash crops (5 hours)**

Oil yielding species (ground nut, rapeseed, mustard, sesamum, linseed, castor, safflower and sunflower, niger); Cash crops-Sugarcane, Sugar beet, Plantation crops (Rubber, Betel nut, Tea and Coffee, Cardamom, Palmyra, Cashew, Coconut and Oil palm); Fibres (Jute, Sisal, Flax, Cotton, Coconut)

#### **Unit III: Fruits, (4 hours)**

Tropical and subtropical fruits (Banana, Mango, Citrus, Guava, Papaya, Sapota, Pomegranate, Jackfruit, Mangosteen), Arid and semi arid species (Date-palm, Custard apple, Fig, Amla, Jujube) Temperate fruits( Apple, Apricot, Cherry, Peach, Pear, Plum).

#### **Unit IV : Timbers and other Major-Minor Forest Produce (6 hours)**

Native trees -Teak, Sal, Sandal, Red Sanders. Exotic trees Rose wood, Acacia, Eucalyptus and Casuarina); Condiments and Spices (Cardamom, Pepper, Chilli, Ginger, Turmeric, Clove, Cinnamon); Aromatic plants (Lemon grass, Citronella, Mint, Geranium, Patchouli, Vetiver, Jasmine); Gums and Resins – Gum Arabic, Oleoresins, Natural Dyes – Indigo, Annato, Turmeric.

#### **Unit V: Medicinal plants (6 hours)**

Therapeutic phytochemicals and plants used in TM (traditional medicine) and CAM (complementary alternate medicine); Common primary and secondary metabolites; Pharmacological and pharmacognosic approach in outline; Classification and notes on phytotherapeutic with at least one example in major groups (alkaloids, steroids, terpenoids, flavones, glycosides, fats and oils); Bioactive compounds in Neem, Tulsi, Turmeric, Ginger, Periwinkle, Garlic.



## **Tex Book**

Pandey B.P. 1999. Economic Botany, Revised edition, S. Chand Publishers, New Delhi

## **REFERENCES**

1. Verma V. 2009. Textbook of Economic Botany, First edition, Ane Books Pvt. Ltd., New Delhi
2. Patrick GL. 2017. Introduction to Medicinal Chemistry, Sixth edition, Oxford University Press, UK
3. Saroya AS. 2011. Herbalism, Phytochemistry and Ethnopharmacology, CRC Press, UK

2017-18 /MSU / Univ. Depts. /M.Sc. Botany / Sem. –II / Supportive – 2

## Semester II. Course 2. HOME GARDENING

L	P	T	C
2	0	0	2

### Objectives

- To understand home gardening and its significance in ever-changing world
- To prepare the students to set up gardens in their home
- To disseminate the importance of home garden and gardening techniques to students

### Unit I: Garden establishment (7 hours)

Concept of gardening - History - Types of garden, Famous gardens. Gardening as a hobby and resource. Designing of vegetable garden (Garden plan - fencing, clearing the land, leveling, preparing the soil, monitoring and maintenance). Importance of soil in gardening. Compost and farmyard manure. Gardening tools. Terrace garden

### Unit II: Tools and seed materials (6 hours)

Choice of plants Ornamental and horticultural attributes, selection of seeds/ propagules, seed germination tests, sowing, direct sowing, thinning, seedlings and transplants, preparation of seed bed, weeding, transplantation, plant protection measures, utility and consumption.

### Unit III: Management and harvesting (5 hours)

Schedule for maintenance: Need for maintenance, species-wise specifications, watering, furrow irrigation, sprinkler watering, drip irrigation, weed control, soil tillage, pest control, disease control. Harvesting the produce, storing and processing of the vegetables.

### Unit IV: Hydroponics (3 hours)

Cultivation Hydroponics, cultivation of tomato through hydroponics, advantages of hydroponics.

### UNIT V. Home garden plants (5)

Importance of home garden, Plan of kitchen garden. Seasonal vegetables, Greens, Tomato, Brinjal, Lady's finger, Cucumbers, Beans, Drumstick, Banana. Rose, Jasmine, Crotons.

### Text book

Gordon-Wells Jr, E. 2010. Successful Home Gardening, 2<sup>nd</sup> Edition, CA, USA

### REFERENCE

1. FAO, 2014. A Vegetable garden for all, 5<sup>th</sup> Edition, Rome, Italy
2. Gordon-Wells Jr, E. 2010. Successful Home Gardening, 2<sup>nd</sup> Edition, CA, USA
3. Smith M. 2001. Advanced Home Gardening, Creative Homwowner, USA
4. Davis KC. 1918. School and home gardening, A Text Book for Young People, with Plans, Suggestions and Helps for Teachers, Club Leaders and Organizers, JB Lippincott Company, Philadelphia
5. Palmer I, 2014. The House Gardener, Ryland Peters & Small, UK.

## GLOBAL CLIMATE CHANGE

L	P	T	C
2	0	0	2

### Objectives

- To understand the effects of global climate change
- To create awareness among student community to conserve precious natural resources from depletion
- To publicize the importance of judicious use of natural and other resources
- 

### Unit 1: Introduction (7 hours)

Dynamics of the living earth, zonation in biosphere, monsoon and seasonal variations in Peninsular India. Climate change in spotlight, the spectrum of scientific opinion, the greenhouse effect, radiative balance.

### Unit II: Climate and Weather Conditions in Pre and Post Industrial Revolution (7 hours)

Industrial revolution. Primary and secondary pollutants, photochemical smog, acid rain and Ozone depletion. Changing climate and weather conditions in India and Tamil Nadu. Importance of water and water cycle.

### Unit III: Greenhouse Gases and Global Warming (6 hours)

Carbon source and sink, carbon sequestration, carbon cycle and foot print in developed, developing and poor countries. Different concerns of rich and poor countries towards climate change.

### Unit IV: Impact of climate change (3 hours)

Impact of climate change on land, water and atmosphere with emphasis on agriculture and forests.

### Unit V. Consequences of Climate Change (3 hours)

Environmental catastrophes - *El nino*, *La nina* and Tsunami, depletion of water resources, deterioration of soil health, agricultural crisis and forest denudation.

### Text Book

1. Maslin, M. 2014. Climate change: A Very Short Introduction, 3<sup>rd</sup> Edition, Oxford University Press, UK

### REFERENCES

2. Pittock, AB. 2009. Climate Change: The Science, Impacts and Solutions, 2<sup>nd</sup> Edition, CSIRO Publishing, Collingwood, Australia
3. Lovejoy TE, Hannah LJ. 2005. Climate Change and Biodiversity, 1<sup>st</sup> edition, Yale University Press, USA
4. Leary N. 2008. Climate Change and Vulnerability, Earth scan Publishers, UK.

## MUSHROOM CULTIVATION

L	P	T	C
2	0	0	2

### Objectives

- To introduce the potential of mushroom as the dietary supplement.
- To introduce the cultivation techniques, problems faced and management of mushrooms cultivation including harvesting and processing

### Unit 1: Introduction (5 hours)

Introduction to mushrooms and historical perspectives; classification of mushrooms, nutritional and dietary values of mushrooms as source such as protein, carbohydrates, fibre, vitamins and minerals, therapeutic properties, mushroom collections from field.

### Unit 2: Mushroom cultivation techniques (5 hours)

Erections of mushroom culture sheds and maintenance (tools, equipments and prerequisites). Fungal Isolation techniques, preparation of mother culture- pure culture, selection of stock, spawn production – mother spawn production.

### Unit 3. Multiplication of spawn (5 hours).

Precautions, characters, and storage of spawn; substrate production, culturing of mushrooms; harvesting, post-harvesting processes, and key machinery and equipment required.

### Unit 4: Cultivation techniques for selected mushrooms (5 hours)

Cultivation techniques for commercially viable mushrooms - paddy straw mushroom, button mushroom and milky mushroom – spawning, substrate preparation, growth, packing, and maintenance of suitable environmental conditions. Factors affecting influencing mushroom cultivation and harvesting. Mushroom delights.

### Unit 5: Pests management during mushroom cultivation (6 hours)

Diseases and competitor moulds of mushrooms and their management: Dry bubble disease – *Verticillium fungicola*, wet bubble disease – *Mycogone perniciososa*, Cobweb – *Cladobotryum dendroides*, and Green mould - *Trichoderma* sp. Flies and mites.

### Text Book

1. Singh, M., Vijay, B., and Kamal, S., and Wakchaure, G.C. 2011. Mushrooms: Cultivation, Marketing and Consumption. Directorate of Mushroom Research, Indian Council of Agricultural Research, Solan, India, p.266.

### References

1. Singh, M., Vijay, B., and Kamal, S., and Wakchaure, G.C. 2011. Mushrooms: Cultivation, Marketing and Consumption. Directorate of Mushroom Research, Indian Council of Agricultural Research, Solan, India, p.266.
2. Oei, P, and van Nieuwenhuijzen, B. 2005. Small-scale mushroom cultivation. Digigrafi, Wageningen, The Netherlands, p.86.
3. Training Manual on Mushroom Cultivation Technology. United Nations - Economic And Social Commission for Asia and the Pacific, p.139.

## **Department of Psychology**

2017-18 / MSU / Univ.Depts. / M.Sc. Psychology / Sem.-II / Supportive - 1

### **SUPPORTIVE 1: POSITIVE PSYCHOLOGY**

L	T	P	C
2	1	0	3

#### **UNIT I: INTRODUCTION**

Definition – Assumptions and Goals – From the negative to the positive – View of human functioning - Eastern and western perspectives – Classifications and measures of strengths and positive outcomes

#### **UNIT II: POSITIVE PSYCHOLOGY IN CONTEXT**

Developing strengths and living well – Meaning and measure of happiness – Subjective Well Being – Self-Realization – Views of Happiness

#### **UNIT III: POSITIVE EMOTIONAL STATES & PROCESSES**

Principles of pleasure: Understanding positive affect, positive emotions and well-being: Positive Emotions and Health Resources – Positive Emotions and Well – Being - Emotion-focused coping – Emotional Intelligence

#### **UNIT IV: POSITIVE COGNITIVE STATES & PROCESSES**

Self-Efficacy, Optimism and Hope – Wisdom and Courage: the two universal virtues – Mindfulness, Flow and Spirituality

#### **UNIT V: PROSOCIAL BEHAVIOUR & POSITIVE ENVIRONMENTS**

Empathy and Egotism: Altruism – Gratitude – Forgiveness – Societal implications – Attachment, Love and Flourishing relationships  
Positive Schooling – Gainful Employment – Building better communities – Life above Zero

#### **TEXT BOOKS**

1. Snyder, C. R., Lopez, S. J., & Pedrotti, J. T. (2010). Positive Psychology: The scientific and practical explorations of human strengths. 2<sup>nd</sup> ed. Sage Publications, India.
2. Baumgardner, S. R., & Crothers, M. K. (2009). Positive Psychology. Pearson Education, India.

**SUPPORTIVE 2: LIFE SKILLS FOR YOUTH**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>2</b>	<b>1</b>	<b>0</b>	<b>3</b>

**UNIT I: INTRODUCTION: YOUTH & LIFE SKILLS**

*Youth*: Definition and characteristics - Problems of youth, pertaining to self, family and society; *Life Skills*: Definition and Importance - Skills needed for development of youth – Scope of Life Skills in management of Youth problems pertaining to health, sexuality, education and occupation

**UNIT II: LIFE SKILLS FOR PERSONAL WELL BEING**

*Thinking skills*: problem solving & decision making skills – positive thinking skills;  
*Motivation skills*: Internal & External Motivation - Goal setting: SMART Goals – Immediate, Intermediate & Long term Goals  
*Self development skills*: self-awareness building – SWOT Analysis – Johari Window Analysis – self confidence building – self-esteem;

**UNIT III: LIFE SKILLS FOR SOCIAL WELL BEING**

*Communication skills*: active listening and attending; *Interpersonal skills*: Team building skills: Negotiation and refusal skills – Assertiveness skills – Maintaining good marital and sexual relationship – Child rearing and family relationships;  
*Leadership skills*: political, occupational and professional leadership – entrepreneurial skills

**UNIT IV: METHODS & TECHNIQUES FOR SKILL DEVELOPMENT**

*Interpersonal skills Training*: Social Skills Training - feedback – prompting – programming of change – homework assignments;  
*Anger & Stress Management*: Relaxation Techniques: Jacobson’s Progressive Muscle Relaxation – Autogenic Relaxation Training – Shavasana – Yoganidra - Meditation - Thought Stopping – Cognitive Restructuring  
*Time Management Techniques*: Identifying Time Wasters - Advantages of Time Management - Time Management Styles;  
*Desensitisation procedures*: Role-Play – Group Discussions –Brainstorming;

**UNIT V: PROGRAMMES FOR ALTERING WAY OF LIFE**

*Development of Good Health Habits*: Healthy Life Style Practices - Yoga and Meditation  
*Peer Counselling*: Definition – Dealing with Peer Pressure, Bullying – Team Building

## TEXTBOOKS

1. Swaminathan, V. D., & Kaliappan, K. V. (2001). *Psychology for effective living: Behaviour modification, guidance, counselling & yoga*. 2<sup>nd</sup> ed. Chennai: Madras Psychology Society.
2. Agochiya, D. (2010). *Life competencies for adolescents: Training manual for facilitators, teachers and parents*. Sage, New Delhi.

## REFERENCES

1. Shulman, L. (1979). *Skills of helping: Individuals & groups*.
2. Burnard, P. (1999). *Interpersonal Skills Training*.
3. Bishop, S. (1999). *Assertiveness skills training*.
4. Harvard business essentials (2005). *Time management*. Boston.
5. Greenberg, J.S. (2001). *Comprehensive stress management*. 7<sup>th</sup> ed. Chennai: TataMcGraw-Hill
6. Jones, N. (2005). *Practical counseling and helping Skills*. 5<sup>th</sup> ed. Sage, New Delhi.

# **Department of Renewable Energy Science**

MSU/2016-17/ Univ.Dept./M.Sc.( Energy Science) /Semester-II/ Supportive Course -1

## **Basis of Renewable Energy Sources**

### ***Objectives:***

- To understand the different kinds of Energy sources.
- To study the basis of solar energy, solar radiation measurement and applications of solar energy.
- To learn the fundamental principles and theory of wind energy conversion system.
- To understand the biogas production from biomass.
- To study the additional alternate energy sources.

### **Unit I: Introduction to Energy Sources:**

Conventional energy sources: coal – oil – agricultural and organic waste – water power –Nuclear power – new energy technologies. Non conversional energy sources: solar – wind – bioMass and bio gas – ocean thermal energy- tidal energy – hydrogen energy- fuel cells. [1,3]

### **Unit II: Solar energy:**

Basis of solar energy – solar radiation and its measurement – solar energy collector – Solar energy storage – applications of solar energy. [1,3]

### **Unit III: Wind energy:**

Basic principles of wind energy conversion- the nature of the wind – the power of the wind – maximum power – wind energy conversion – basic components of wind energy conversion systems. [1,2,3]

### **Unit IV: Bio mass energy:**

Basis of bio mass energy - bio mass conversion – technologies – wet process – dry process – photosynthesis. Bio gas plants – classification –plants in India- methods of obtaining energy from bio mass. [1,2,3]



**Unit V: Additional alternate energy sources:**

Geothermal energy sources – energy from ocean – chemical energy sources- hydrogen energy – magneto hydrodynamic – thermo electric power. [1,3]

**References:**

1. G. D. Rai, Non - Conventional Energy Sources, Khanna Publishers, New Delhi, Fifth Edition, 2012.
2. Godfrey Boyle, Renewable Energy: Power for a sustainable Future, Alden Oess Limited Oxford, 1996.
3. D. P. Kothari, K. C. Singal & Rakesh Ranjan, Renewable energy sources and emerging Technologies, Prentice Hall of India pvt. Ltd., New Delhi, 2008.

# Department of Sociology

2017-18 / MSU / Univ.Dept / M.A.(Sociology) / Sem-II / Supportive - 1

Organizational Behaviour (Supportive)

**L T P C**  
**3 0 0 3**

## **Objectives:**

This course helps the students to understand the nature of group dynamics, leadership, communication and conflict in an organization. It also equips the students to identify the suitable conflict resolution strategies.

### **Unit I. Introduction**

Organizational Behaviour: Definition. Key elements. Uses of the study of organizational behaviour. Basic approaches. (8L)

### **Unit II. Group Dynamics**

**Interacting situation in work place:** Types of group interaction - Meetings and Team work. Dynamics of group formation in interactional contexts.

**Types of groups:** Formal and Informal – characteristics.

**Informal Groups:** Conditions for formation. Functions.

**Group Norms:** Characteristics. Functions. Enforcement of group norms.

**Group Cohesiveness:** Sources, Maintenance and Consequences of group cohesion. (15L)

### **Unit III. Leadership**

**Leadership:** Meaning, Nature, Traits, Styles and Functions. (6L)

### **Unit IV. Communication**

**Communication:** Definition. Need. Steps in the communication process.

**Forms of communication:** Downward, Upward, Horizontal.

Barriers to communication and Overcoming the barriers.

**Informal communication:** Positive and negative aspects of informal communication.

**Rumour:** Nature. Conditions under which rumour occurs. Controlling rumour. (10L)

### **Unit V. Conflict**

**Conflict:** Meaning, Process, Levels and Effects. Resolution of conflict-Strategies to be adopted at each level. (6L)

**(Total 45L)**

### **Books for Reference :**

1. Luthans, Fred. **Organizational Behaviour**. New York: McGraw – Hill Publishing Company, 1989.
2. Davis, Keith: **Human Behaviour at work: Organizational Behaviour**. New Delhi: Tata McGraw –Hill Publishing Company, 1981.
3. Robbins, Stephen P. **Organizational Behaviour – Concepts, Controversies and Applications**. New Delhi: Prentice – Hall of India, 1989.
4. Chung, Kae H. and Megginson, Leon C. **Organizational Behaviour – Developing Managerial Skills**. New York: Harper & Row, 1981.
5. Herbert, Theodore T. **Dimensions of Organizational Behaviour**. New York: Macmillan, 1976.
6. Gray, J.L., and Strake F.A. **Organizational Behaviour - Concepts and Applications**. Columbus: Merrill Publishing Company, 1988.
7. Kelly, Joe. **Organizational Behaviour – Its Data, First Principles and Applications**. New Delhi: Surjeet Publications, 1987.
8. Aswathappa, K. **Organizational Behaviour**. Bombay: Himalaya Publishing House, 1991.

**Objective:**

This paper looks at health from the sociological point of view by looking into the social inequalities in health status. It also helps to understand the aspects of population composition, the theoretical perspectives and policy implications.

**Unit I. Health**

Definition. Determinants of health. Health and Environment. Concept of Disease. Medicine-History. (10L)

**Unit II. Health Services**

State and Health. Integrated health services. Primary Health Centre-Organizational Structure and functions. Institutional Care-Hospital. Types. Functions. (9L)

**Unit III. Population**

Factors affecting population – Fertility, Mortality and Migration. Trends of population growth in India. Factors responsible for population growth. (10L)

**Unit IV. Population Control**

Human reproduction process. Methods of contraception. Small Family Norm.-concept and advantages. India's population Policy. (9L)

**Unit V. Health Behaviour and Education**

Health, Illness and Behaviour. Principles and Content of health education. Population education and population control. Agencies of population education. (7L)

**(Total 45L)**

**Books for Reference:**

1. Mascarenhas, **M.M. Population Education for Quality of Life.** New Delhi: Oxford & IBH Publishing Company, 1982.
2. Park, J.E.; and Park, **K. Text Book of Preventive and Social Medicine.** 11<sup>th</sup> ed. Jabalpur: Banarsidas Bhanot, 1986.
3. Gulati, **P. Social Studies and Population Education.** New Delhi: Tata McGraw-Hill, 1984.
4. Premi, M.K. et.al. **Introduction to Social Demography** An. Delhi: Vikas, 1983.
5. Sharma, Rajendra. **Demography and Population Problems.** New Delhi: Atlantic Publishers, 1997.
6. Education for Health. Geneva: World Health Organization, 1988.

## **Department of Statistics**

2017-18 / MSU /Univ. Depts. / M.Sc. Statistics / Sem. –II & III / Supportive Course - 1

### **SYLLABUS FOR SUPPORTIVE PAPERS**

#### **1.DESRIPTIVE STATISTICS**

##### **UNIT I**

Origin - Scope – Functions, limitations, uses and misuses of statistics - Data collection methods, Classification and Tabulation of data - Diagrammatic and Graphical representation of data.

##### **UNIT II**

Measure of Central tendency - Measures of Dispersion - Relative measures of dispersion - skewness and kurtosis - Lorenz curve.

##### **UNIT III**

Elementary probability space - Sample space - discrete probability, independent events - Mathematical and Statistical probability -Axiomatic approach to probability - Addition and multiplication theorems - conditional probability – Bayes' theorem - Simple problems.

##### **UNIT IV**

Random variables - Discrete and continuous random variables - Distribution function – probability mass function and probability density function of a random variable - Expectation of a random variable - evaluation of standard measures of location, dispersion, skewness and kurtosis.

##### **UNIT V**

Simple linear correlation and regression - Scatter diagram - Karl Pearson's correlation co-efficient and its properties - Spearman's correlation co-efficient. Regression equations– fitting of regression equations - regression coefficients and its properties.

##### **BOOKS FOR STUDY:**

1. Goon, A.M., Gupta, M.K. and Dasgupta, B. (2008): Fundamentals of Statistics, Volume-I, World Press Ltd, Calcutta.
2. Gupta, S.C. and V.K. Kapoor. (2000): Fundamentals of Mathematical Statistics, Sultan Chand and Sons, New Delhi.
3. Hogg, R.V., McKean, J.W. and Craig, A.T. (2013). Introduction to Mathematical Statistics (Seventh Edition). Pearson Education Ltd.
4. Spiegel, M.R., Schiller, J. and Srinivasan, R.A. (2012): Probability and Statistics, Schaum's Outline Series (Fourth Edition). McGraw- Hill Publishing Company, New Delhi.

## 2. STATISTICS FOR BEHAVIOURAL SCIENCES

### UNIT I

Nature and scope of statistics - characteristics and limitation of statistics - statistical investigation - preparation of questionnaire - design of sampling - simple random, stratified and systematic sampling - collection of data - primary and secondary data.

### UNIT II

Processing and presentation of data - Classification of data - tabulation of data - Formation of frequency tables - Diagrammatic presentation of statistical data - bar diagrams - pie diagrams and pictograms - simple problems - Graphical presentation of statistical data - Histogram, frequency curves and Ogive curve - simple problems.

### UNIT III

Measures of central tendency - mean, median, mode - simple problems - measures of dispersion - range, mean deviation, quartile deviation and standard deviation - relative measures of dispersion - simple problems.

### UNIT IV

Concept of Skewness and Kurtosis - Karl Pearson's and Bowley's coefficients of Skewness- moments- coefficients of Skewness and Kurtosis - simple problems.

### UNIT V

Correlation: Scatter diagram - simple correlation, Rank correlation. Regression - simple regression lines (without proof) - Tetrochoric correlation, Phi coefficient and Kendall's co-efficient - simple problems.

### BOOKS FOR STUDY:

1. Camphell, R.C. (1989): Statistics for Biologists, Cambridge University Press, London.
  2. Garret, H.E. and R.S. Woodworth. (2006): Statistics in Psychology and Education. Cosmo Publications, New Delhi.
  3. Goon, A.M., Gupta, M.K. and Dasgupta, B. (2008): Fundamentals of Statistics, Volume-I, World Press Ltd, Calcutta.
  4. Gupta, S.C. and V.K. Kapoor. (2000): Fundamentals of Mathematical Statistics (Tenth Edition). Sultan Chand and Sons, New Delhi.
  5. Saxena, H.C. (1967): Elementary Statistics, Sultan Chand & Co., New Delhi.
  6. Tate, M.W. (1964): Statistics in Education. Macmillan Co., New York.
- 2017-18 / MSU /Univ. Depts. / M.Sc. Statistics / Sem. –II & III / Supportive Course – 3

### 3. COMPUTER ORIENTED STATISTICAL METHODS

#### UNIT I

Introduction to Computing - Computer Codes and Arithmetic Overview of BASIC - Sampling and Frequency Distribution : Sampling - Frequency Distribution - Measures of Central Tendency - Measures of Dispersion - Moments - Computation of Moments.,

#### UNIT II

Discrete Probability Distributions: Probability - Characteristics of Probability - Discrete Distributions - Binomial Distribution - Poisson Distribution - Hypergeometric Distribution –Properties and Numerical problems.

#### UNIT III

Curve Fitting: Linear Regression - Least Squares Fit - Nonlinear Fit - Fitting a Polynomial Function.

#### UNIT IV

Correlation : Coefficient of Correlation - Properties of Correlation Coefficient - Rank Correlation - Multiple Correlation - Partial Correlation.

#### UNIT V

Tests of Significance: Small sample and large sample tests - t-Test -F-Test and  $\chi^2$  test.

#### BOOKS FOR STUDY:

1. Balagurusamy, E. (2000): Computer Oriented Statistical and Numerical Methods, Macmillan Publishers India Limited.
2. Enslein, K., Ralston, A. and Wilf, H.S. (1976): Statistical Methods for Digital Computers. John Wiley & Sons, New York.

#### 4. PROBABILITY AND STATISTICS

##### UNIT I

Basic ideas of Probability - Axiomatic approach to probability - Elementary probability spaces –Addition and multiplication theorems of probability – conditional probability - Independent events – Bayes' Theorem.

##### UNIT II

Random Variables - Distribution function probability mass function and probability density function - Mathematical expectation - Discrete distributions - Binomial, Poisson and Negative Binomial distributions.

##### UNIT III

Continuous distributions - Uniform, Normal, Exponential, Gamma and Beta distributions - Student-t, Chi-square and F distributions.

##### UNIT IV

Correlation and Regression - Partial and Multiple Correlation - Tests of Significance - Tests based for population mean and variance - Testing for two means, variances - Contingency table - Chi-square goodness of fit tests.

##### UNIT V

Sampling - Census and Sampling method - Sampling and non sampling errors - Simple random sampling - Sampling from finite populations with and without replacements - Estimates of mean - Design of experiments: The Principle of Randomization, Replications, Local control - Analysis of variance - One-way and Two-way classifications - Completely Randomized Design - Randomized Block Design and Latin Square Design.

##### BOOKS FOR STUDY:

1. Gupta, S.C and Kapoor, V.K. (2000): Fundamental of Mathematical Statistics (10<sup>th</sup> Edition), Sultan Chand and Sons, New Delhi.
  2. Ross, S.M. (2014). Introduction to Probability Models. Academic press.
  3. Spiegel, M.R., Schiller, J. and Srinivasan, R.A. (2012): Probability and Statistics, Schaum's Outline Series (Fourth Edition). McGraw- Hill Publishing Company.
  4. Walpole, R.E., Myers, R.H., Myers, S.L and Ye, K.E. (2011): Probability and Statistics for Engineering and Scientist (Ninth Edition). Pearson Education.
- 2017-18 / MSU /Univ. Depts. / M.Sc. Statistics / Sem. –II & III / Supportive Course – 5



## 5. STATISTICAL METHODS

### *UNIT I*

Definition of Statistics and its applications in various disciplines - Collection of Data - classification, Tabulation and Graphical representation of data - construction of univariate and Bivariate frequency distribution - Measures of central tendency - Measures of dispersion - coefficient of variation.

### **UNIT II**

Random experiment - sample space - events - mathematical and statistical definition of probability - conditional probability – Bayes' theorem - Random variables - Distribution functions - moments - Binomial distribution - Poisson distribution - Normal distribution and their properties.

### **UNIT III**

Scatter diagram - Karl Pearson's coefficient of correlation - concurrent deviation method - coefficient of determination - Spearman's Rank correlation - Linear regression – fitting of regression lines.

### **UNIT IV**

Tests of significance - hypotheses - two types of errors - power function - critical region - level of significance - small sample tests based on t and F distributions. Chi-square test of goodness of fit - contingency table - Test of independence of factors - Large sample tests.

### **UNIT V**

Test of equality of several population means one way and two way analysis of variance - Non-parametric tests Sign, Run and Median tests - two sample rank test. Sampling and its uses, sampling methods - Simple random sampling, systematic and stratified.

### **BOOKS FOR STUDY:**

1. Agarwal, B.L. (2013): Basic statistics. Anshan Publications
2. Sharma, J.K. (2007): Business Statistics (Second Edition). Pearson Education, New Delhi.
3. Sokal, P.R. and Rohlf, F.J. (1969): Bio Statistics. W.H. Freeman and Co., San Francisco.

## 6. ELEMENTS OF BIO-STATISTICS

### *UNIT I*

Measures of Central tendency: Arithmetic Mean, Median, Mode. Measures of Dispersion: Range, Inter-Quartile Range, Standard Deviation and Coefficient of Variation.

### **UNIT II**

Basic concepts of Probability - Set theoretic definition of probability - Addition and Multiplication Theorems of probability (statements only) - Binomial distribution - Poisson distribution - Normal distribution - their properties and importance in biology.

### **UNIT III**

Simple Correlation- Regression – Bi-serial correlation coefficient - Kendall's coefficient of correlation - Tetrochoric correlation coefficient - Partial and Multiple correlation coefficients (Three variables). Simple problems with application in biology.

### **UNIT IV**

Small sample and Large sample tests: Test for the significance of population mean when population variance is (i) known and (ii) unknown - Tests of significance for testing the equality of means of two normal populations when population variances (i) known and (ii) unknown - Chi-square test - test for independence of the attributes - test for goodness of fit - Coefficient of contingency.

### **UNIT V**

Analysis of Variance: One way classification - Two way classification - Kruskal-Wallis one way analysis of variance by ranks, Friedman two-way analysis of variance by ranks.

### **BOOKS FOR STUDY:**

1. Campbell, R.C. (1989): Statistics for Biologists. Cambridge University Press, London.
2. Daniel, W.W. (2008): Bio-Statistics: A Foundation for Analysis in the Health Science. John Wiley & Sons, Incorporated.
3. Glantz, S.A. (2012): Primer of Bio-Statistics (Seventh Edition). McGraw-Hill Professional Publishing, USA.
4. Sokal, R.R. and Rohlf, F.J. (1969). Biometry: The Principles and Practice of Statistics in Biological Research (Third Edition). San Francisco, California, Freeman and Company.

## 7. MATHEMATICAL ECONOMICS

### UNIT I

Economics and modelling - Linear Algebra: Vectors and Matrix – Determinants  
Equilibrium Models - Elasticity of Demand - Total, Average and Marginal Cost Curves -  
Relation between Average and marginal Cost Curves - Minimum Average cost-Cost function  
in Cubic Form - Total Average - Marginal Revenue Curves - Total Revenue - Conditions for  
Profit Maximization - Effects of Taxation and Subsidy on monopoly.

### UNIT II

Integral Calculus – Dynamics & Optimization - Differential Equations - Constrained  
Optimization. Indifference Curve - Rate of Commodity substitution (RCS)-Maximization of  
Utility - Income and substitution Effects – Important Results from Slutsky Equation - Elasticity  
form of Slutsky Equation.

### UNIT III

Production Function - Constant Product Curves: Isoquants - Shape of Isoquants and  
Ridge Lines-Least Cost Combination (constrained Cost Maximization) - Constrained Profit  
Maximization - Homogeneous Function: Definition and Properties- Properties of Linearly  
Homogeneous Functions -Cobb-Douglas production function - Expansion Path for Cobb-  
Douglas Function - Elasticity of substitution- Elasticity of substitution of Linearly  
Homogeneous Function - C.E.S. Function.

### UNIT IV

Multiple Production by Monopolist - Discriminating monopoly - Duopoly - Consumer's  
Surplus - Producer's Surplus.Economic sense of Lagrange multiplier. The Envelope theorems.

### UNIT V

Input-Output Analysis: Assumptions - Closed and open Input-Output model -  
coefficient Matrix and Open model - The Hawkins-Simon condition (The Viability of the  
system ) - solution for Industries - An Alternative Way for the Inverting the Leontief Matrix -  
Interpretation of the Alternative Formulation - Coefficient Matrix and closed model -  
Consumption function - Dynamic Input-Output model - Possible Weaknesses and Limitations of  
Input-Output Analysis.

### BOOKS FOR STUDY:

1. Allen .R.G.D. (2008): Mathematics for Economists, ELBS series, London.
2. Daus, P.H. and Whyburn, W.M. (1962): Mathematics for Economists, Addison and Wesley, Amsterdam.
3. Draper, J. and Klingman, J. (1972): Mathematical Analysis: Business and Economic Applications, Harper – Row publishing company.
4. Henderson, J.M. and Quandt, R.E. (1967): Micro Economic theory, McGraw- Hill.
5. Mehta, B C. and Madnani, G.M.K. (1977): Mathematics for Economists (Third Edition), Sultan Chand, New Delhi.
6. Tintner .G. (1966): Mathematics and Statistics for Economists. Holt, Rinehart and Winston.

## Department of Tamil

MSU/2016-2017/Univ.Depts./ M.A.(Tamil) / Semester -II / Supportive Course -1

**பயன்பாட்டுத் தமிழ் (பிற துறைத்தாள்)**

**நோக்கம்:** அலுவலகம் மற்றும் பொதுத் தொடர்புகளில் தமிழ் மொழியினை மாணவர்கள் செம்மையாகப் பயன்படுத்திடப் பயிற்சியளித்தல்.

**அலகு: 1** கடிதங்கள் - கடித வகைகள் - கடிதங்களை எழுதும் முறை

**அலகு: 2** ஆவண எழுத்து - ஒப்பந்தங்கள் - விளக்கம் - தன்மைகள் - வகைகள் - நிர்வாகம், பதிவு, நிதி சார்ந்த ஒப்பந்தங்கள் - ஒப்பந்த அமைப்பு முறை.

**அலகு: 3** விளம்பர எழுத்து - விளம்பரத் தமிழ் - விளக்கம் - விளம்பர வகைகள் - அறிவிப்புக்கள் - சுவரொட்டிகள் - விளம்பரங்களை எழுதும் முறை - அமைப்பு முறை - விளக்கம்

**அலகு: 4** உரையாடல் - உரையாடல் பயிற்சி - உரையாடல் களன்கள் - அன்றாட நிகழ்வுகள் உரையாடலாகும் நிலை - கட்டுரைகள் - கட்டுரை வகைகள் - பொதுக் கட்டுரை, ஆய்வுக் கட்டுரை, செய்திக் கட்டுரை - விளக்கம் - நூல், நூலாக்க முறைகள்.

**அலகு: 5** பிழையின்றித் தமிழ் எழுதல் - அகராதிப் பயன்பாடு

**குறிப்பு:**

ஒருவரி வினாக்கள் அலகு 1,4லிருந்து மட்டுமே கேட்க வேண்டும்

**பாட நூல்கள்:**

1. கா. பட்டாபிராமன், ஜீலை 2004: மொழிப்பயன்பாடு, என்.சி.பி.ஹெச்.,சென்னை.
2. அ. விநாயக மூர்த்தி 2010: விளம்பரக்கலை, பாலமுருகன் பதிப்பகம், வேலூர்.

**பார்வை நூல்கள்:**

1. த. பரசுராமன், சொல்திறன் விளையாட்டு, புதுவை மனிதவள மேம்பாட்டு மையம், புதுவை.
2. க.அரங்க.இராமலிங்கம் 2007:பயன்பாட்டுத் தமிழ்,சென்னை பல்கலைக்கழகம், சென்னை

**பிற துறைத்தாள்: பண்பாட்டு இயக்கங்களும் இலக்கியங்களும்**

**நோக்கம்:**

1. சமகாலத் தமிழ் இலக்கியங்களை இயக்கங்களின் அடிப்படையில் புரிதல்
2. இயக்கங்கள் எவ்வாறு இலக்கியங்களைப் பாதித்துள்ளன என்பதை உணர்தல்
3. இயக்கங்களின் வளர்ச்சிக்கு இலக்கியங்கள் எவ்வாறு உதவின என்பதை அறிதல்

**அலகு: 1** தமிழ் இயக்கம் - தோற்றமும் வளர்ச்சியும் - சமூகச் சூழலும் தேவையும் - தாக்கம். மறைமலையடிகள் - தனித்தமிழ் மாட்சி, அறிவுரைக்கொத்து (பக். 96-109) திரு.வி.க - தாய்மொழி (தமிழ்ச்சோலை - பக். 19-26) பாரதிதாசன் - தமிழியக்கம்

**அலகு: 2** தேசிய இயக்கம்: தோற்றமும் வளர்ச்சியும் - சமூகச் சூழலும் தேவையும் - தாக்கம். பாரதியார் - பாரதி தரிசனம் (பக். 282-285) ம.பொ.சி - சுதந்திரம், மக்கள் சுகவாழ்வுக்கே. பயங்கரவாதமும் காந்திய சகாப்பதமும் (பக். 130- 138) நா. வானமாமலை - தமிழர் நாட்டுப்பாடல்கள் - வெள்ளையர் கொள்ளை, நம்துரை (பக். 370-372)

**அலகு: 3** திராவிட இயக்கம் : தோற்றமும் வளர்ச்சியும் - சூழலும் தேவையும் - தாக்கம். பெரியார் - ஈ.வெ.ரா - பெண் ஏன் அடிமையானாள் - சி. ஏன். அண்ணாதுரை - வேலைக்காரி - (நாடகம்) பாரதிதாசன் - இராப்பத்து கவிதைகள் - மூன்று முதல் ஆறு வரை.

**அலகு: 4** பொதுவுடைமை இயக்கம் தோற்றமும் வளர்ச்சியும் - சூழலும் தேவையும் - தாக்கம். ஜீவா - காலுக்குச் செருப்பில்லை (பாடல்) ஜீவாவின் பாடல்கள் (பக். 21-22) தொ.மு.சி.ரகுநாதன் - மீண்டும் மீண்டும் பிறப்பேன் (தொ.மு.சி.ரகுநாதன் கவிதைகள்), சோலை சுந்தரப் பெருமாள் - செந்நெல் (நாவல்) கந்தர்வன்: சிறைகள் (கயிறு கவிதை மட்டும்)

**அலகு: 5** அடித்தள மக்கள் இயக்கங்கள் சூழலும் தேவையும் - தாக்கம். சிவகாமி - ஆனந்தாயி - (நாவல்) பக்தவத்சலன் - தோள் சீலைப் போராட்டம் (ஆராய்ச்சி 1973:3, பக். 83-93) தொ.பரமசிவன் - ஆலய நுழைவுப் போராட்டம் (பண்பாட்டு வேர்களைத் தேடி, பக்.157-172)

**பாடநூல்:**

**பார்வை நூல்கள்**

1. கேசவன்.கோ., 1991: திராவிட இயக்கமும் மொழிக் கொள்கையும்,செல்மா பதிப்பகம், சிவகங்கை
2. திரவியம்.கா.,1974: தேசியம் வளர்த்த தமிழ் , பூம்புகார் பிரசுரம்,சென்னை
3. தொ.மு.சி.ரகுநாதன்,பொன்னீலன், 1994: முற்போக்கு இலக்கிய இயக்கங்கள்,சென்னை என்.சி.பி.எச்.
4. ரவிக்குமார் (ப.ஆ), 1995: தலித் கலை, இலக்கியம், அரசியல், நெய்வேலி.
5. ஜார்ஜ்.டி.எச்.,1992: குமரிமாவட்டப் பெண்ணுரிமைப் போராட்டம்,மணிபதிப்பகம், சென்னை
6. அருணன்,1993:இந்தியக் கம்யூனிச இயக்க வரலாறு, மீனாட்சி புத்தகநிலையம், மதுரை.