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

UNIT I : 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 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, Sotto)-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:

## PROBIOTICS

<table>
<thead>
<tr>
<th>Unit I</th>
<th>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.</th>
<th>10 h</th>
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<tr>
<td>Unit II</td>
<td>Isolation and screening of probiotics microbes: Isolation of probiotics microbes, screening of probiotic microbes (Enzyme production, antagonistic activity, <em>in vitro</em> and <em>in vivo</em> screening towards pathogenicity) – Production of probiotics.</td>
<td>11 h</td>
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<td>Unit IV</td>
<td>Probiotic and Environment Health: Denitrifying, Ammonia oxidizing, Phosphate Solubilizing bacteria, Poly and hydrocarbon degrading bacteria, water probiotics.</td>
<td>10 h</td>
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<td>Unit V</td>
<td>Prebiotics: Definition – Characteristics of probiotics – Synbiotics – Prebiotics in animal health (Growth Promoting Immune Modulation). Prebiotics in Human Health.</td>
<td>11 h</td>
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**Reference**

1. DNA FINGER PRINTING

Unit 1


Unit 2

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

Unit 3

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

Unit 4

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

Unit 5

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

Reference:

2. STEM CELLS AND REGENERATIVE BIOLOGY

Unit 1

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


Unit 3

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


Unit 5


References:

2. Stem Cells (Anna Wobus & Kenneth Boheler. 2008)


3. VERMI BIOTECHNOLOGY

**Unit 1**


**Unit 2**


**Unit 3**


**Unit 4**


**Unit 5**

References:

2. Vermiculture Biotechnology (1995) – Bhawalkar and Bhawalkar, BERI, Puner
3. Vermicology- Sultan A. Ismail, Orient Longman.
4. CANCER BIOLOGY

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Unit 1


Unit 2


Unit 3


Unit 4


Unit 5


Reference

5. BIOTECHNOLOGY AND HUMAN HEALTH

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Unit 1
Infectious diseases: The background information, cause, symptoms, possibility of treatment, prevention and control of Typhoid, Leprosy, Tuberculosis and Malaria

Unit 2
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
Metabolic and cardiac diseases: The background information, causes, symptoms, possibility of treatment, prevention and control of Diabetes and Heart attack

Unit 4
Genetic diseases: The background information, cause, symptoms, possibility of treatment, prevention and control of Aging, Cancer, Alzheimer and Parkinson

Unit 5
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
4. Biotechnology in Medical Sciences – Firdos Alan Khan, 2014
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.)


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:

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; settling of cement; cement industry in India.

References:

Entrepreneurial Development
(For the Students of other Departments)

Unit I
Evoluation, 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
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

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

Reference Books
Department of Communication

Course

BASIC PHOTOGRAPHY

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:

FILM APPRECIATION

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

6. Lucy Fisscher Shot/Countershot, Film tradition and women's Cinema
7. James Monaco, How to read a Film
UNIT I

UNIT II

UNIT III

UNIT IV

UNIT V
course teacher to assign reporting assignments on human rights violations at state and national level (9 hrs)

(Total – 45 hrs)
REFERENCE BOOKS:

2. Human Rights, Questions and Answers, UNESCO, 1982
3. Desai, A.R. - Violation of Democratic Rights in India
4. Pandey - Constitutional Law.
6. Human Rights, A Selected Bibliography, USIS.
8. G.S. Bajwa - Human Rights in India.
CITIZEN JOURNALISM

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:

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

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

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

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

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

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
5. Writing for Broadcast Journalists, Rick Thomson, Routledge, New York, 2010
MEDIA LITERACY

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:

2. Mass Media and Political Thought (Ed) SidenyKrans and Richards Perlof, Sage 1985
5. Information Inequality, Hebert T. Shiller, Routelge, 1996

(Total – 45 hrs)
Office Automation

Unit I: MS Word


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


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


Text Book:

Unit – I


Unit – II


Unit – III


Unit – IV


Unit V

**Text Books**

1. **Book: Photoshop CS**  
   Author: Robert Shufflebotham  

2. **Book: Pagemaker**  
   Author: Scott Basham  

3. **Book: corelDRAW 12**  
   Author: Salini Gupta, Adity Gupta  

**Reference:**

1. **Book: Photoshop CS3 in single steps**  
   Author: Kogent Solutions Inc.  

2. **Book: corelDRAW X4**  
   Author: Kogent Solutions Inc  
**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**


**UNIT II. Legal Perspectives of Crime**


**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


RECOMMENDED READINGS


SC 2 – HUMAN RIGHTS AND VICTIMS RIGHTS


UNIT 5 Specific Rights

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


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


RECOMMENDED READINGS:


3. Baig, Tara Ali (‘976) India’s Women power, S. Chand, New Delhi


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:

• Nick Hanley, J. F. Shogren and White, The theory of environmental economics and policy.

Additional Readings List:

• 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.)
• Nick Hanley, J. F. Shogren and White, The theory of environmental economics and policy.
• 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.)
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:

- 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

UNIT III ENERGY ECONOMICS

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:


Additional Readings List:

Unit I


Unit II

- 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


Unit IV

- Unit V
UNIT-I POST INDEPENDENCE PHASE


UNIT-II CREEPING LIBERALIZATION


UNIT-III EXTERNAL AND INTERNAL BORROWING


UNIT-IV LIBERALISATION, PRIVATIZATION AND GLOBALIZATION


UNIT-V SECTORAL COMPOSITON 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 subsides 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:

UNIT-I GLOBALIZATION AND INDIAN ECONOMY


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:

- Gaurav Datt and Ashwani Mahajan (2014). Datt and Sundaram’s Indian Economy, S. Chand, New Delhi
UNIT-I THE CONCEPT


UNIT-II HUMAN CAPITAL FORMATION


UNIT-III HUMAN RESOURCE PLANNING


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


Basic Readings List:

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

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

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

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
References

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

Note: Testing for this Paper will be made as follows:

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
3. David & Green.
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


Unit V

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

Books recommended

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

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:
Roach Peter. English Phonetics and Phonology
Sri Paramakalyani Centre for Excellence in Environmental Sciences

MSU/2016-17/Univ. Depts / M.Sc. (Environ.Sci) / Supportive Course -I

Environmental Chemistry

UNIT I

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

UNIT IV

UNIT V

References

1. Manahan SE, Environmental Chemistry (6th Ed.), Lewis Publishers, USA
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 – Hygenic 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 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
3. John Cairns, B.R. Neidalehner and avid, Orves Prediction Ecosystem Risk, Preinceton Scientific Publishing Co,
4. Malsui, S. Hazard Assessment and control of Environment Contaminants in Water
**Supportive Course Syllabus**

**NANOBIO TECHNOLOGY**

**UNIT I**

**UNIT II**

**UNIT III**

**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**

**References**
NANOCHEMISTRY

UNIT I


UNIT II


UNIT III


UNIT IV


UNIT V

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

References

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 IV: OBSERVATIVE: Data acquisition – Data combinations – Atmospheric effects – Relative effects – multipath.


Reference Books

Remote Sensing / Supportive Course


Reference Books

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

UNIT II

UNIT III

UNIT IV

UNIT V

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
10. K. Rajayyan, South Indian Rebellion 1800-1801.
Supportive Course Syllabus
Office Automation

UNIT I


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 lank 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 Coopeaman, 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
UNIT 1


UNIT 2


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


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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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,
2. Direct Marketing Skills

UNIT I

UNIT II

UNIT III

UNIT IV

UNIT V

REFERENCE:

2. Cundiff, Still &Govani, “Sales Management”, PHI / Pearson
Centre for Marine Science and Technology


Research Methodology


Bioethics


Unit II : Biomedical potential of marine natural products – isolation, structural elucidation and mode of action. Pharmacological studies of Novel marine metabolites.


References


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:


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 salinorum – Biotechnological potentials of Halobacterium – important products and their uses – Role of halobacteria in salt purification.
References:

2. Text book of Industrial Microbiology, A.H. PATEL
3. A text book of introduction to microbiology and Biotechnology
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,

**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.
APPLIED MARINE BIOTECHNOLOGY


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.


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 manual
4. Fish Processing, Quality control and marketing – MPEDA publication
5. Environmental Biotechnology – Arivndkumar 2004
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, Tubifex 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
1. Numerical Methods


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 allosteric theories.

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

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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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
thiazoled - Purines and pyrimidines – uric acid- Caffeine.

UNIT- II  
a) Terpenoids:
Classification – General methods of determining the structure -structural elucidation
and synthesis of α-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_1, B_2, B_6, B_12, C and D
– Elementary idea about their structures.

UNIT-IV  
Antibiotics:
Definition and Classification – A detailed study of structural elucidation and
synthesis of Penicillin, Chlorphenicol- 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

UNIT–I  Volumetric analysis


UNIT–II


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

UNIT–III


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:


REFERENCES


BASICS OF DOMESTIC APPLIANCES

UNIT I: Microwave Ovens

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: Incar computers

Books for study and references:


Supportive Course II – ELECTRONICS IN DAILY LIFE

UNIT I: Fundamentals

UNIT II: Electrical appliances

UNIT III: Electronic home appliances

UNIT IV: Communications Electronics
Principles of optical fiber Cables (OFC) – Telephone – Mobile phones – wire less phone - Antenna - Internet - Intranet

UNIT V: Safety Mechanism

Books for Study and references:
2. William David Cooper, Electronic Instrumentation and Measurement Technique (2nd Edition)
1. PLANTS IN HUMAN LIFE

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)
Expansive 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, Pech, Pear, Plum).

Unit IV : Timbers and other Major-Minor Forest Produce (6 hours)
Native trees - Teak, Sal, Sandal, Redsanders. 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**


**REFERENCES**


Semester II. Course 2. HOME GARDENING

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

REFERENCE
GLOBAL CLIMATE CHANGE

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 judicial use of natural and other resources

Unit 1: Introduction (7 hours)
Dynamics of the living earth, zonations 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

REFERENCES
3. Lovejoy TE, Hannah LJ. 2005. Climate Change and Biodiversity, 1st edition, Yale University Press, USA
MUSHROOM CULTIVATION

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)

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 perniciosa, Cobweb – Cladobotryum dendroides, and Green mould - Trichoderma sp. Flies and mites.

Text Book


References

SUPPORTIVE 1: POSITIVE PSYCHOLOGY

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

TEXT BOOKS
SUPPORTIVE 2: LIFE SKILLS FOR YOUTH

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


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


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


REFERENCES

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:


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:

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:

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 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:

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

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

(Total 45L)

Books for Reference:

SYLLABUS FOR SUPPORTIVE PAPERS

1. DESCRIPTIVE 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:

2. STATISTICS FOR BEHAVIOURAL SCIENCES

UNIT I


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:
3. COMPUTER ORIENTED STATISTICAL METHODS

UNIT I


UNIT II


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:

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:

5. STATISTICAL METHODS

UNIT I


UNIT II


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:

6. ELEMENTS OF BIO-STATISTICS

UNIT I


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:

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:

   Wesley, Amsterdam.
   Sultan Chand, New Delhi.
   Winston.
Department of Tamil

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

மாணவர் துறவு (பிள்ளை நூற்றாண்டுகள்)

நிற்கவும்: அங்கணவனவும் மருத்தால் குருக்குகளாக முன்னிலை முதுமை மற்றும் முருக்கு வாழ்வுகளின் தலைமுறை மற்றும் குறிப்பிட்டு முடித்துப் பின்வருமாறு விளக்கிய்கள் காண்நீங்க.

அவண்ட்: 1 முறைப்பாடு - அடுத்த எந்தகையர் - மருத்துவமனை மதுவு

அவண்ட்: 2 நிறுவன வழங்க - நிறுவனவியல் - விளக்கம் - எந்தகையர் - விளக்கம், புதுக்கு காரணம் வன்றுக்குவிடும் - வன்று அடுக்கு (வழங்க).

அவண்ட்: 3 நிறுவன வழங்க - நிறுவனவியல் - விளக்கம் - விளக்கம் எந்தகையர் - எந்தகையர் விளக்கம் அடுத்து - அடுத்து வழங்க - எந்தகையர்

அவண்ட்: 4 எந்தகையர் - எந்தகையர் வழங்க - எந்தகையர் வழங்க - எந்தகையர் வழங்க - குறிப்பிட்டு வழங்க - குறிப்பிட்டு வழங்க - எந்தகையர் - எந்தகையர் - எந்தகையர் - எந்தகையர்

அவண்ட்: 5 பின்னர் வழங்க - எந்தகையர் வழங்க - அடுத்து பின்னர்

தலைமுறை:

தத்தில்லை நிறுவனவியல் அடுத்து 1,4வதுவாக மாணவர் துறவு முடிக்கியாக தேவைப்படும்

மாணவர் துறவு:

1. க. மாணவர் துறவு, பொறுப்பு 2004: முறையறுக்கான விளக்கம், எஸ்டேடியல், பிரபல்காட்டு.
2. க. மாணவர் துறவு 2010: அறிவியல் வலுவாக, பல வரலாற்று புரியவும், பிரபல்காட்டு.

முறையே வைக்கவும்:

1. க. மாணவர், பொறுப்பு வலுவாக விளக்காக, புரியவும் முறையறுவு முறையறுவு அடுத்து, பிரபல்காட்டு.
2. க. மாணவர், பொறுப்பு வலுவாக 2007மாணவர் துறவு, பொறுப்பு வலுவாக, பிரபல்காட்டு, பிரபல்காட்டு.
1. மறுநோக்கு: நீர்கனியா மும்பையில் முற்போல்வாயு பொழிவு, குடிசை
2. தமிழ்நாடு வடக்கு மும்பையில் முற்போல்வாயு பொழிவு, குடிசை
3. புதுச்சேரி மும்பையில் முற்போல்வாயு பொழிவு, குடிசை

அங்க: 1 மும்பைம்: நீர்கனியா அன்றி கனியா கையாளும் நகராட்சியின் தலைநகராட்சி, அன்றி கனியா கையாளும் நகராட்சி

அங்க: 2 மும்பை: நீர்கனியா அன்றி கனியா கையாளும் நகராட்சியின் தலைநகராட்சி, அன்றி கனியா கையாளும் நகராட்சி

அங்க: 3 மும்பை: நீர்கனியா அன்றி கனியா கையாளும் நகராட்சியின் தலைநகராட்சி, அன்றி கனியா கையாளும் நகராட்சி

அங்க: 4 மும்பை: நீர்கனியா அன்றி கனியா கையாளும் நகராட்சியின் தலைநகராட்சி, அன்றி கனியா கையாளும் நகராட்சி

அங்க: 5 மும்பை: நீர்கனியா அன்றி கனியா கையாளும் நகராட்சியின் தலைநகராட்சி, அன்றி கனியா கையாளும் நகராட்சி

பட்டுரக்கு:

புதுச்சேரி:

1. புதுச்சேரி, 1991: விளக்காரம், பருப்புக் காரணம், வேலைக்கோப்பை, குடிசை
2. புதுச்சேரி, 1974: புதுச்சேரி அன்றி கனியா, புதுச்சேரி பொழிவு, வன்னியை
3. புதுச்சேரி, 1994: புதுச்சேரி அன்றி கனியா, வன்னியை
4. புதுச்சேரி, 1995: புதுச்சேரி அன்றி கனியா, புதுச்சேரி பொழிவு, வன்னியை
5. புதுச்சேரி, 1992: புதுச்சேரி அன்றி கனியா, வன்னியை
6. புதுச்சேரி, 1993: புதுச்சேரி அன்றி கனியா, வன்னியை