Open Elective – PG

18OEL631  ADVANCED STATISTICAL ANALYSIS FOR RESEARCH  2 0 0 2

Objective: To familiarize students in application of statistical tool to enable them to easily perform complicated quantitative analysis.

Unit 1
Relevance of statistical analysis in research – scope of analysis in research - types of research – types of analysis in different areas.

Unit 2
Test of hypothesis - hypothesis testing procedure – significance level – steps for testing.

Unit 3
Chi-Square – t Test.

Unit 4
Tools for statistical analysis – familiarising the tool window – common buttons – available menu – entering and editing data.

Unit 5
Different types of analysis using tool.

REFERENCE BOOK:
C, R Kothari, Research methodology – Methods and techniques, New Age International Publishers

18OEL632  BASICS OF PC SOFTWARE  2 0 0 2

Objective: The main objective of this course is to familiarize the basic concepts of MicrosoftOffice 2007 applications which promote students to build their knowledge in business applications.

Unit 1

Unit 2
Handling multiple documents, Opening and closing of multiple documents, cut, copy and paste across the documents. Table Manipulation - Concept of table, rows columns and cells, draw table, changing cell width and height, alignment of text in cell, copying of cell, delete/insertion of row and columns, borders for table. Printing – printing, print preview, print a selected page. Language Utilities – spelling & grammar- Mail merge options, password locking, View – Macros, document views

Unit 3

Unit 4

Unit 5
Internet: Introduction to networks and internet, history, working of Internet, Modes of connecting to internet, ISPs, Internet address, standard address, domain name, Modems.

World Wide Web-Introduction, Miscellaneous Web Browsers details, searching the w w w - Directories search engines and meta search engines, search fundamentals, search engines, working of the search engines, Telnet and FTP.

TEXTBOOK:

REFERENCE BOOKS:
1. Microsoft Office 2000 Complete, BPB publications

18OEL633 COMPUTER HARDWARE AND NETWORKING 1 0 1 2

Objectives: The course aims to give a general understanding of how a computer works. Students will be able to understand the basics of hardware and Networking technologies.

Unit 1
Hardware Basics - Basic Terms, Concepts, and Functions of System Modules, Front and rear panel view of system – Motherboards: Components and Architecture. Popular CPU Chips and their Characteristics,
Processor Architecture - Processor specifications - installing and uninstalling processor - CPU
Overheating issues – common problems and solutions

Unit 2

Unit 3

Unit 4

Unit 5
Networking Devices – Repeater, Hub, Switch, Router – Basics of Types of cabling – Crimping - Setting up a LAN.

TEXT BOOKS / REFERENCE BOOKS

18OEL634 CONSUMER PROTECTION ACT 2002
Objective: To know about consumer rights and to understand the grievances redressal forums established under the Consumer Protection Act, 1986.

Unit 1
Consumerism in India (Historical Background), Consumers: the concept, definition and scope. Object of Consumer Protection Act, 1986.

Unit 2
Unfair Trade Practice, Restriction Trade Practice, Defect in goods, Deficiency in service: Medical, Lawyering, Electricity, Housing, Postal services etc.
Unit 3 Consumer rights and its protection; consumer protection councils, powers and functions.


Unit 5 Appeals and orders: enforcement of orders of the consumer forum, Appeals against orders, Administrative control; Dismissal of frivolous and vexatious complaints, Penalties.

REFERENCE TEXTS:
2. R.K.Bangia, Consumer Protection Act

I80EL635 CORPORATE COMMUNICATION 2002

Unit 1
Structure and characteristics of an organization; Factors influencing communication
Flow of communication in an organization - Bottom step, top down vertical and horizontal barriers to communication; Organization of a PR department and counselling firms.

Unit 2
Role of PR in an organization; PR processes - image building - PR and various publics - internal & external; PR and crisis management- national community, labour unrest, and accidents.

Unit 3
PR tools - House journals - kinds and production of house journals; Open house; New media; Gossip, rumour mongering and criticism.

Unit 4
Media Relations - press conference, press releases, press visit, interviews, preparations and distributions of publicity materials to media.

Unit 5
PR for Govt. PR for Non Govt. organizations, PR for armed forces, PR for entertainment and sports, PR for tourism, PR for philanthropic organizations, PR for celebrities. Event management, Ethics in PR.

BOOKS RECOMMENDED:
3. Mehta D.S.: Handbook of Public Relations in India
5. Philip Lesley: Lesley’s Public Relations Handbook
7. Frank Jefkins: Planned Public Relations
8. Sam Black: The role of Public Relations in Management.
DESIGN STUDIES 2002

Objective: To introduce the students to the field of visual design.

Unit 1
Drawing and illustration.

Unit 2
Design basics.

Unit 3
Principles of composition.

Unit 4
Introduction to type design.

Unit 5
Usage of images, colour in terms of visual design.

REFERENCES:
1. Thinking with Type by Ellen Lupton
2. How to be a Graphic Designer Without Losing Your Soul by Adrian Shaughnessy

DISASTER MANAGEMENT 2002

Objectives: To appreciate the fundamentals of disaster management and to introduce the fundamentals procedure and working during the contingency.

Unit 1 Introduction & Dimensions of Natural & Anthropogenic Disasters, Principles/Components of Disaster Management, Organizational Structure for Disaster Management,


Operations Management (OM), Risk Assessment and Disaster Response, Quantification Techniques, NGO Management, SWOT Analysis based on Design & Formulation Strategies,

Unit 3 Insurance & Risk Management, Role of Financial Institutions in Mitigation Effort, Group Dynamics, Concept of Team Building, Motivation Theories and Applications, School Awareness and Safety Programmes, Psychological and Social Dimensions in Disasters, Trauma and Stress, Emotional Intelligence, Electronic Warning Systems, Recent Trends in Disaster Information Provider, Geo Informatics in Disaster Studies, Cyber Terrorism, Remote Sensing & GIS Technology, Laser Scanning Applications in Disaster Management, Statistical Seismology, Quick Reconstruction Technologies,
Unit 4 Role of Media in Disasters, Management of Epidemics, Bio-Terrorism, Forecasting/Management of Casualties.

Unit 5 Case Studies - Natural Disaster and Man-made Disasters.

REFERENCES:
1. Disaster Management - Harsh K Guptha
2. Disaster Management - Damon.P

18OEL638 ESSENTIALS OF CULTURAL STUDIES 2002

- Uniqueness of Indian culture.
- Real Indian History.
- Heritage – spiritual and cultural heritage.
- Glory of ancient India – inventions and discoveries in all fields.
- Importance of festivals.

REFERENCE TEXTS:
1. Swami Harshananda – Hindu Culture
2. Amma – Eternal Truth

18OEL639 FOUNDATIONS OF MATHEMATICS 2002

Objectives: To develop an understanding of problem solving methods, to understand the basic concepts of mathematics and to apply the results to real life business problems

Unit 1
Matrices: Type of matrices, addition, subtraction, multiplication of matrices, transpose, determinant of a matrix, adjoint and inverse of a matrix.

Unit 2
System of equations - Solution of equations in one(linear, quadratic), two and three variables, Solution of a system of linear equation having unique solution and involving not more than three variables by matrix method, Cramer’s rule.

Unit 3
Financial mathematics: Simple interest and compound interest.

Unit 4
Simple differentiation: functions, simple differentiation of algebraic functions, first and second order derivatives, maxima and minima.

Unit 5
Elementary integral calculus: Integration of simple algebraic functions.

REFERENCES:
2. Dr. Amarnath Dikshit, Dr. Jinendra Kumar Jain - Business mathematics, Himalaya
    publishing House.

18OEL640 FOUNDATIONS OF QUANTUM MECHANICS 2002

Unit 1
Historical Perspective of Quantum Physics: Failure of classical mechanics - Planck-Einstein, Bohr-de Broglie-Heisenberg’s Uncertainty.

Unit 2
Empirical confirmations of Wave Particle Duality. Schrödinger Equation - Particle in a box-Tunnel effect.

Unit 3
Paradoxes in QM - de Broglie paradox - Schrödinger’s cat, Mach-Zhender type interferometers - EPR paradox - Bell-type Inequalities.

Unit 4
Various interpretations - Statistical, Copenhagen, Bohm’s formulation, Transactional, Wheeler’s Participatory Universe, Many World, Decoherence, consciousness interpretation.

Unit 5
Uncertainty-Nonlocality, Holistic universe, Violations of causality-Retro influence-Philosophy of Advaita (non-Duality).

TEXT AND REFERENCES:
1. Quantum Enigma: Physics Encounters Consciousness by Bruce Rosenblum and Fred Kuttner (Aug 1, 2011)
2. The New Physics and Cosmology Zanjoc, Oxford 2004

18OEL641GLIMPSES OF LIFE THROUGH LITERATURE 2002

Unit 1
1 Introduction – What literature is – Language and literature – Indian literature – Values through literature – Literature and culture – Enjoying literature
2 Father Giligan – WB Yeats

Unit 2
3 The West Wind – PB Shelley
4 Chicago Address – Swami Vivekananda

Unit 3
5 On Saying Please – AG Gardiner
6 My Lost Dollar – Stephen Leacock
7 The Importance of Being Earnest – Oscar Wilde (extracts)

Unit 4
Objective: To provide an understanding on the technology enabled banking services and their applications.

Unit 1
Bank and Banking: Meaning and definition, development of banking in India, types banks, banking systems, types of banking systems, commercial banks, functions, nationalization of commercial banks in India.

Unit 2
Central Banking, functions, Reserve Bank of India, State Bank of India.

Unit 3

Unit 4
Role of information technology in banking services, Core Banking, Automated Teller Machine (ATM), Electronic Clearing Service (ECS), NEFT and RTGS, Mobile Banking.

Unit 5
Debit Card and Credit Card, banking and E-Commerce, Point of Sales (PoS), Online bill payment and ticket reservation – future of electronic banking.

REFERENCE BOOKS:
1. Sundaram and Varshney – Banking Law, Theory and Practice, Sultan Chand
2. B. Santhanam – Banking and Financial Systems, Margham Publications
4. Parameswaran – Indian Banking, S.Chand and Co

Objective: To give an overview about developing attractive web sites and basic concepts of e-commerce.

Unit 1
Internet Basics: Introduction to Internet, Communications on Internet, Resources of Internet – H/w and s/w requirements of Internet – ISP – Choosing an ISP – Internet Domains - Internet Applications – WWW - FTP, Telnet.

Unit 2

Style Sheet: The CSS standards, Types, Introducing CSS, Applying styles to specific groups of elements, Font Attributes, Color and Background attributes, Text Attributes Border, Margin, Using the Class name Style Sheet Selector, Using the ID style sheet Selector, Inline Styles, linking External Style Sheets.

Tables for Organization and Layout The basic table Elements, Column grouping with COLGROUP & COL, Row grouping, Table Caption.

Unit 3
Forms and Form Elements: What are HTML forms, The FORM Object and its Attributes, The Form Elements, The Button Element, Creating a Selection List, Adding radio buttons and Check boxes to a Web page, Accessing Text with the Text controls: text, textarea, and password, Submitting and Resetting the Form with submit and reset.

Frames and Frameset: Creating and Working with Frames, The FRAMESET Element, Nested Framesets, The Frame Element, Accessing external references from Frame, Inline Frames with IFRAME.

Unit 4

Unit 5
Introduction to E-commerce: E-commerce consumer applications, E-commerce organization applications, Consumer Oriented applications, Mercantile process models, Consumer’s perspective of Mercantile process models, Merchant’s perspective of Mercantile process model.

TEXTBOOKS

18OEL644 KNOWLEDGE MANAGEMENT 2002

Objective: To enable students to understand the basics of Knowledge Management and its applications in organizations

Unit 1
Knowledge management concepts – Introduction - Definitions of Knowledge – Data-information and knowledge - basic thoughts on knowledge - difference between wisdom and knowledge - information Management and knowledge Management - hierarchy model - knowledge types – explicitness – reach - abstraction level – propositionality – Earl’s schools of knowledge management.

Unit 2

Unit 3
Organizational knowledge – Need – benefits - components and functions - Knowledge management in virtual organizations - knowledge management in professions - a study of IT and ITES business - knowledge management system requirements - Organizational knowledge measurement techniques - organizational implementation barriers.

Unit 4
Designing Enterprise Knowledge Management System architecture – Multi-layer architecture for Knowledge Management Systems - knowledge management in decentralized and heterogeneous corporations - Web based knowledge management support for document collections.

Unit 5
Recent Tools for KM - Intelligent support systems - intelligent systems and artificial intelligence - comparing artificial and neural intelligence - conventional vs. Artificial intelligence - Emerging technology - virtual reality - Intellectual capital.

TEXTBOOKS AND REFERENCES:
5. Knowledge Management – Pankaj Sharma, APH Pub

18OEL645 MARKETING RESEARCH 2002

Objective: To provide a basic knowledge on research methodology and market research.

Unit 1
Definition of Marketing Research, Objective of Marketing Research, Application of Marketing Research, Limitation of Marketing Research, Marketing Research Process.

Unit 2

Unit 3
Measurement and Scaling: Types of Scales, Difficulty of Measurement, Sources of Error, Criteria for a Good Scale, Development of Marketing Measures.


Unit 4
Data Processing, Analysis and Estimation

Unit 5

REFERENCE TEXTS:
2. Luck and Rubin - Marketing Research, Prentice Hall of India, 7th Ed.

18OEL646 MEDIA FOR SOCIAL CHANGE 2002

Unit 1 Health Communication
Introduction to theories in Health Communication. Awareness on Health Issues – Epidemic Diseases, knowledge about vaccination for various diseases - Health campaign will be organized with the help of Medical Practitioner.

Unit 2 Radio for Social Change
Awareness on Edaphic Issues - Soil Pollution, Water Pollution and other forms of pollution. Anti-Pollution campaign will be organized with the help of Environmental Scientist or Journalist.

Unit 3 Social Media Activism
Awareness on Blood Donation – How a tiny red drop makes someone’s life Green. Awareness campaign will be organized based on Eye Donation.

Unit 4 Development Communication and Social Learning
Locating the remote village where basic amenities like Water, Toilet facilities are not available - A campaign with the involvement of government officials and social scientists.
Unit 5 Participatory Communication for Social Change
Organic Farming - Awareness of Organic Farming. Benefits of organic farming in the materialistic world. A campaign cum workshop will be conducted by inviting experts from Agricultural Husbandry.

REFERENCES

18OEL647 MEDIA MANAGEMENT 2002

Unit 1

Unit 2
Economics of newspaper – Advertising vs circulation – Management problems of small, medium, large newspapers: gathering, processing, printing, circulation, distribution, advertising, professionalism, trade unionism, News room diversity.

Unit 3

Unit 4
Economics of film Industry – creativity, production, marketing distribution, exhibition, ownership vs piracy.

Unit 5
News agencies and syndicates: Ownership and organization structures – committees to study the problems of various media in India.

BOOKS RECOMMENDED:
1. Aggarwal S.K : Press at the crossroads in India.
2. William and Rucker: Newspaper Organization and Management
3. Sarkar R.C: The press in India
4. Noorani A.G: Freedom of Press in India
5. Frank Thayer: Newspaper Management
6. Gulab Kothari: Newspaper Management in India
7. Reports of the enquiry committees appointed by the Ministry of Information and Broadcasting.

18OEL648 OBJECT-ORIENTED PROGRAMMING 2002

Unit 1
Introduction to OOPS: Object Oriented Programming features, Applications, History, Difference from structured Programming, Object Oriented Programming Languages, Program execution.

Unit 2

Unit 3
Implementing Class, Object Data Types, User Defined Data Types, Defining a Class, e Access specifiers, The Scope Resolution Operator, Using Class Objects Like Built-in Types, Scope, Constructors, Member Initialization, Constructor Overloading, Destructors.

Unit 4

Unit 5
The iostream Library, Predefined Streams, Stream States, Formatted I/O, Disk Files, Reading and Writing Objects.

TEXTBOOKS

18OEL649 PAINTING AND SCULPTURE 1012

Objective: To make students develop critical thinking skill as well as make them creative in their field of painting and sculpture.

Unit 1
Pencil drawing, life study.

Unit 2
Basics of water colour painting, Clay modelling.

Unit 3
Anatomy and figure study, Basics of oil and acrylic painting.

Unit 4
Basics of Figure modeling.

**Unit 5**
Moulding and casting.

**REFERENCE BOOKS**
1. *Indian Sculpture and Painting* – by E.B. Havell (Author)
2. *Modern Painting And Sculpture: 1880 To Present From The Museum Of Modern Art* – by John Elderfield (Editor)

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**18OEL650 PERSONAL FINANCE 2002**

**Objective:** To analyse the process of making personal financial decisions, develop personal financial goals and identity the strategies for their achievement.

**Unit 1**

**Unit 2**
Introduction to Consumer Credit, sources of credit, Consumer Purchasing, strategies for housing decisions.

**Unit 3**
Insurance: types, selecting the right insurance policy, property and motor vehicle insurance, health insurance policies, Retirement Planning, NPS.

**Unit 4**
Investing fundamentals, investing in shares, bonds and mutual funds, investment in gold and real estate.

**Unit 5**
Investing in Schemes of Government: National Savings Certificates, KVP, Post Office Recurring Deposits and term deposits, PPF.

**REFERENCE TEXTS:**
1. Jeff Madura – *Personal Finance*, Pearson Education
2. Manish Chauhan – *16 Personal Finance Principles every Investor should know*, Network18 Publishers

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**18OEL651 PRINCIPLES OF ADVERTISING 2002**

**Objective:** The objective of this paper is to help student to make basic understanding on advertising, providing understanding on the processes behind successful advertising. The students are introduced to the processes, tools and techniques used in developing advertising concepts with the study areas including creative thinking and visualizing.
Unit 1 Introduction
History of advertising, Advertising-meaning and definition, Advertising as a tool of communication, Features of advertising.

Unit 2 Types of Media – Advantages & Disadvantages
Types of advertising, Types of media in advertising – Features – advantages – disadvantages – Print, Television, Radio, Internet, OOH.

Unit 3 Structure of an Advertising Agency
Structure of advertising agency – Small, Medium, National, In-house.

Unit 4 Other Promotion
Sales Promotion, Direct Marketing, Public Relations, Publicity and Corporate Advertising, Unconventional Promotional Media.

Unit 5 Case Studies

REFERENCE BOOKS:
1. Advertising, Frank Jefkins Revised by Daniel Yadin
2. Kleppner’s Advertising Procedure

18OEL652 PRINCIPLES OF PACKAGING 2002

Objective: To analyse the process of making personal financial decisions, develop personal financial goals and identity the strategies for their achievement.

Unit 1
Packaging: Meaning and importance, functions, marketing considerations of packaging.

Unit 2
Design of package, materials used for packaging, selection criteria of packaging materials, packing techniques.

Unit 3
Packaging systems, future of packaging.

Unit 4

Unit 5

REFERENCE TEXTS:
2. Frank Paine – A Handbook of Food Packaging, Springer

18OEL653 SCRIPTING FOR RURAL BROADCASTING 2012

Unit 1

**Unit 2**
Rural communities. Analysis of social and political life in a rural community. Caste / class dynamics and regional influences.

**Unit 3**
Scope and Impact of broadcast journalism in rural development. Two day workshop by an external expert from the broadcast industry on the rudiments of script writing focusing on rural aspects/communities.

**Unit 4**
Practice on Scripting. Focus on covering special issues concerning rural women, youth, farmers, self-help groups cottage industries etc.

**Unit 5**
Developing the final script for rural broadcasting that will have practical application in the field. Final evaluation by the external expert.

**REFERENCES**

**18OEL654 SOCIAL MEDIA WEBSITE AWARENESS 1 0 1 2**

**Objectives:** To understand the history, theory, technology and uses of social media; to create, collaborate, and share messages with audiences of all sizes; to know and explore the possibilities and limitations of social media. Hands on experience with several forms of social media technology; to understand and use social media productively and to evaluating new tools and platforms.
Introduction to Social media; Definition - Social Media and Digital transformation; Social Networking and online communities; Social support and service; Wikipedia, Facebook, Instagram, Tagging, LinkedIn; Social mobile applications; Security settings in Facebook, Whatsapp.

Unit 2
Blogging – History; Creating blog, effect of blogging, micro blogging; Protocol, Platform, Content strategies.

Unit 3
Tweeting - Introduction, History, Protocol; Twitter; Twitter apps; Managing Twitter; #hashtag# creation and following; Security settings in Twitter.

Unit 4
Social media sharing – History, Protocol; YouTube, Flickr, Slide share, Social news; News apps – Newshunt and others; Bookmarking - History, Digg, Reddit, Delicious.

Unit 5
Social theory in the information age; Social Network for professional, business, Digital Marketing; Using social networking sites for research, Security aspects of social networking.

REFERENCES:
2. The Social Media Marketing Book Dan Zarrella "O'Reilly Media, Inc.", 13-Nov-2009

18OEL655 THEATRE STUDIES 1 0 1 2

Objective: To provide students with a firm grounding in the discipline of Theatre and Performance Studies.

Unit 1
Breathing exercises, warming up exercises.

Unit 2
Voice modulation, Monologue practice.

Unit 3
Facial expressions, emoting a character.

Unit 4
Stage direction, Makeup and costumes.

Unit 5
Choreography, Producing a play.

REFERENCES:
1. Theatre as Sign System: A Semiotics of Text and Performance by Elaine Aston, George Savona
2. Theatre Semiotics: Text and Staging in Modern Theatre by Fernando de Toro
Overview: The course aims at developing skills that will enable students to produce clear and effective scientific and technical documents as required in their work-life. Though the focus of the course is on writing, oral communication of scientific and technical information forms an important part of the course.

Objectives: To familiarize the students with the requirements of effective technical writing; to enable students to independently work on their publication and presentation of papers; developing skills required for presentation of reports, papers and proposals.

Unit 1
What is Technical Writing? - Purpose and characteristics of technical writing and need for developing technical writing skill. Use of Technical terms, Defining terms, Style and tone.

Unit 2
Use of resources, documentation style and citation; Standard operation procedures, Instruction Manuals and Handbooks.

Unit 3
Oral presentations, Analysis of published papers – format, content and style.

Unit 4
Drafting a research paper for publication; Grammar check and editing; proof reading.

Unit 5
Submission of term paper.

REFERENCE BOOKS:
1. Mcmurrey David, Technical Writing,
2. Manser Martin H. Guide to Style: an essential guide to the basics of writing style, Viva books

Objective: To give an understanding on the concept and advantages of yoga and simple yogapractices.

Unit 1
Yoga and Modern Life – Introduction - understanding Yoga – definition - four streams of yoga - Why yoga?

Unit 2

Unit 3
Unit 4

Unit 5
Pranayama, Meditation.

REFERENCE TEXTS:
1. N.S. Ravishankar – Yoga for Health, Pustak Mahal
2. BKS Iyengar – Yoga: The Path to Holistic Health, DK Publishers

18OEL658 FUNDAMENTALS OF LEGAL AWARENESS 2002

Objective: This course is intended to give the student the power to make a difference in personal and professional life through sound legal knowledge and to be aware of rights and responsibilities towards society and nation.

Unit 1
Law and classification: definition, meaning, functions, classification- public and private law, civil law and criminal law, substantive and procedural law, municipal and international law, written and unwritten laws

Unit 2
Law of contracts: overview of Indian Contract Act, definition, meaning, essentials-offer and acceptance, invitation to offer, cross offers, intention to create legal obligation, lawful consideration, lawful object, competency of parties, free consent, agreement not to be void, illegal, immoral or opposed to public policy, agreement v. contract, breach and remedies for breach.

Unit 3
Law of torts: Definition, meaning, essentials, damages- injuria sine damnum and damnum sine injuria, general defences in torts, exceptions to tortious liability: vicarious liability- master servant relationship, Principal- agent relationship, Partner- partnership firm, Major torts: Nuisance, Negligence Tress pass: Tresspass to a person- Battery, Assault, False Imprisonment, defamation- libel and slander, essentials, defences to defamation, liability in torts- strict liability, absolute liability, damages in torts-meaning, types of damages- nominal, compensatory, exemplary, aggravated, prospective, contemptuous

Unit 4

Unit 5
Family law: subject matter and Introduction, Laws Involved, Marriage – validity and degree of prohibited relationship, Divorce Family Court, Grounds for divorce, orders- judicial separation, restitution of conjugal rights, maintenance, Section 125 Criminal Procedure code, Adoption- difference between
guardianship and adoption, General outline of Hindu Adoption and Maintenance Act, Guardianship and Wards Act, Succession- Testamentary and Intestate- Testator, Executor, Administrator and Probate

18OEL659

SOLID WASTE MANAGEMENT AND UTILIZATION

2002

Unit 1 Biowaste Utilization
Biowaste - Biopesticide from solid waste, biomass to bioethanol, biowaste as carbon source, Bio-digester - generation of renewable energy, biogas from animal waste-daily consumption, Equipment sizing and design.

Unit 2 Polymer wastes

Unit 3 Recycling utilized Products
Paper recycling - types of paper, Mechanical and chemical re-pulping, Glass waste-bottle recycling, cullet recycling, process in glass recycling Metals-Iron & steel, iron & steel remanufacturing, Aluminium remanufacturing

Unit 4 e-waste
Electronic wastes – printed circuit board, monitors, appliances and batteries, Processing of e-waste, Recovery of heavy metals from electronic waste.

Unit 5 Biomedical Waste
Biomedical waste and its category, Treatment-autoclaving, shredding, deep burial & chemical treatment of biomedical waste.

REFERENCES:

18OEL660

RELATIVISTIC QUANTUM MECHANICS

2002

Unit 1 Classical Fields
Particle and Fields, Discrete and Mechanical system, Classical scalar fields, Classical Maxwell fields, Vector potential in quantum mechanics.
Unit 2  The quantum theory of radiation
Classical radiation field, Creation, annhilation and number operators, Quantized radiation field, Emission and absorption of photons by atoms

Unit 3  Application of quantum theory of radiation
Rayleigh scattering, Thompson scattering and Raman effect, Radiation damping, Dispersion relations, Lamb shift

Unit 4  Relativistic Quantum Mechanics for spin 1/2 particles
Probability conservation, Dirac equation, Relativistic covariance, Bilinear covariants, Dirac operators in Heisenberg representation, Negative energy solutions

Unit 5  Many Particle system
The hydrogen atom, Hole theory and charge conjugation, Quantization of Dirac field, Weak interaction and non-conservation of parity

TEXTBOOK:
Advanced Quantum Mechanics by J. J. Sakurai

18OEL661  ROBOTICS AND BIOLOGY
2 0 0 2

Unit 1
Basics of Robotics - Perception, Learning, Terminology, Asimov’s Laws of robotics, Robotic Control Loop, Sense-Think-Act components, Types of Robotics

Unit 2

Unit 3
Data integration, Biological data, Data fitting, From sources to data-driven modelling, BEAM bots, Kinematics and Movement.

Unit 4
Applied Psychology, Models of Mind, Control Kinematics, Bio-inspired control, Virtual Bio-inspired robotics lab case studies

Unit 5
Simple modelling of neuronal robots, Basics of swimming and flying bots, Biomimetic robots, Animal cells and circuits as robotic data devices.

References:
Owen Bishop (2007), Robot builder's cookbook, Newnes.
Karl Williams (2003), Insectronics, McGraw Hill.

18OEL662  SCIENCE OF WELL-BEING
2 0 0 0
Unit 1
Positive Psychology - Happiness, Measuring Happiness, Approaches to Happiness, Benefits of Happiness, Authentic Happiness, Subjective Well-being, Character Strengths, Positive Emotions

Unit 2
Power of Connections - Social Connections and Happiness, Wired for Connection, Affiliation, Affection and Attachment, Family, Parenting, Friends, Active Listening and Empathy

Unit 3
Kindness and Compassion - Altruism, Random Act of Kindness, Evolved for Kindness, Scaling up kindness: contagious kindness, elevation, and heroism

Unit 4
Co-operation and Reconciliation - Peace-making, Forgiveness, Gratitude, Trust

Unit 5
Mindfulness- Attention, Focus, Mindfulness Exercise, Benefits of Mindfulness, Importance of Flow State

References:

18OEL663 OPERATING SYSTEMS AND NETWORKS

Unit 1: Introduction to Digital Computer

Unit 2: Data Representation and Memory System
Binary, Octal, HEX and their inter-conversion - Memory Hierarchy Primary Memory – DRAM, SDRAM, DDR, RDRAM. ROM, PROM, EPROM, EEPROM Concepts of Auxiliary, Associative, Cache and Virtual Memory.

Unit 3: Operating Systems

Unit 4: Introduction to communications and Networking

Unit 5: Internet and Web Technologies

Introduction to HTML - Tags and Documents - Link documents using Anchor Tags - Images and Pictures - Tables -HTML Forms - Frames - Framesets - Introduction to Dynamic web applications - Introduction to PHP.

TEXTBOOKS:
3. Computer Networks – Protocols, Standards and Interfaces, Uyless Black, PHI, 2nd Edition
4. HTML and XML an Introduction, NIIT, Prentice Hall of India Pvt. Ltd
Unit 1  Chemical Analysis
Origin and need for forensic science - trace and contact evidence, marks and impression, examination of documents, blood stain analysis, explosives, chemical analysis of explosives.

Unit 2  Analysis of Drugs
Narcotics, classification of drugs, specific drugs- Psychotropic drugs, chemical screening of drugs, chemical extraction and sample preparation, chemical identification of drugs using analytical methods.

Unit 3  Fingerprinting
History of fingerprinting, principles of fingerprinting, constituents of latent finger marks, fingerprint detection, chemical methods of detection

Unit 4  Toxicology Analysis
Introduction to Toxicology, alcohol and human body, testing of blood alcohol concentration, Toxins & Biological Poisons, Measuring Toxicity as LD50, sample and analysis, inorganic poisons, nerve agents, radioactive toxins, tests for toxins.

Unit 5  Postmortem
Introduction, tissue and fluid specimens, specimen collection and storage, extraction procedure, analytical techniques, interpretation, case studies

REFERENCE BOOKS:

16EN600  Technical Writing  2002

Objectives:
To introduce the students to the elements of technical style
To introduce the basic elements of formal correspondence
To introduce technical paper writing skills and methods of documentation
To improve oral presentation skills in formal contexts

Unit 1
Introduction to the Course – What is technical writing and how is it different from writing in general?

Unit 2
Different kinds of written documents: Definitions- descriptions- instructions-recommendations manuals - reports – proposals, Instructions manual, job applications with ResumeIntroduction to Writing dissertations, papers, and technical proposals

Unit 3
Technical paper writing: Library research skills- documentation style - document editing – proof reading - formatting
Practice in oral communication: Group Discussion, Interviews, and Technical presentations

References