

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

10EN201 PROFESSIONAL ENGLISH I

Credits: 2:0:0

Course Objectives

To impart basic grammar skills with special thrust on framing sentences for day to day conversation.

To train the students in language use and help improve their vocabulary.

To train the students in reading and writing skills

Unit I

Developing basic skills in Grammar- Parts of Speech- Tense forms- Concord- Articles-Voice- Infinitives- Gerunds—Modal auxiliaries- Understanding vocabulary- Word power.

Unit II

Developing skills in basic sentence patterns- Direct and indirect speech - Homophones- Note-Making- Paragraph writing- Personal letter writing- Summarizing- Punctuations- Discourse markers.

Unit III

Error Analysis- Descriptive writing- Abbreviations- Word formations- Cohesive devices- One-word substitution- Subordinating conjunction- Co-relative conjunction- Relative pronouns- Writing short speeches.

Unit IV

Instructions- Warning- Group discussions- - Writing minutes- writing recommendations- Memo writing- Understanding biography

Unit V

Essay writing- Writing official letters- If- clauses- Technical and non- technical meaning of words- Presentational skills- Body language- Role-play

Text Book

1. Dhanavel, S.P, 2009. English and Communication Skills for Students of Science and Engineering. Orient Black Swan.

Reference Books

1. Radhakrishnan, Pillai G.et.al. Spoken English for You-Level I. Chennai: Emerald Publishers, 2000.
2. Rizvi, Ashraf M. Effective Technical Communication. New Delhi: Tata McGraw-Hill. 2005.
3. Joseph, Maya and Sundarsingh, J. ed. Communication Skills I & II. Coimbatore, Gems Publishers, 2005.

EN 214 BASIC FRENCH LANGUAGE

Credits: 2:0:0

Unit I

Nouns and Pronouns- Personal pronouns –Verbs- Concord – Present of regular verbs – present of frequently used verbs – direct infinitive to show preferences

Unit II

Adjectives– Types of adjectives and usage - Adverbs – use and position of frequently used adverbs - Prepositions and Conjunctions– use of prepositions of place

Unit III

Interrogative Constructions – questions indicated by rising intonation – questions starting with question words - Sentence Structure

Unit IV

Listening Skill – Pronunciation – Contextual meaning – Listening to comprehend ideas

Unit V

Reading a variety of short, simple materials – Demonstrate understanding through oral and brief written responses – Writing short expressions

Reference:

1. The Ontario Curriculum: FSL — Extended French, Grades 1–8; French Immersion, Grades 1–8, 2001

EN 216 BASIC GERMAN LANGUAGE

Credits: 2:0:0

Unit I

Introduction – Alphabets – Greetings – Countries and Languages – Pronouns – Possessive Pronouns - Verbs and their conjugations – Articles

Unit- II

Question Words – Statements and questions – Negation – Exercises –Nouns – Singular and Plural, Imperative statements

Unit – III

Number system – Family – Daily routines related verbs and question verbs.

Unit – IV

Accusative and dative declensions of pronouns and articles – Modal verbs and their related grammatical structure.

Unit – V

Time and time related particles – Related vocabulary and grammar – Exercises.

Reference Books

1. Tangram Aktuell ! (Max Hueber Verlag).
2. Pingpong (Max hueber Verlag)

10EN202 PROFESSIONAL ENGLISH II

Credits: 2:0:0

Course Objectives

- To impart skills in language use.
- To enrich the vocabulary of students.
- To enable students identify errors and frame error-free sentences
- To impart reading and writing skills

Unit I

Language use-Word formation-Synonyms-Antonyms- Vocabulary building- Word Power-Abbreviations-Acronyms-homophones.

Unit II

Language use-Error Analysis-Impersonal passive voice-Punctuations-Verb forms-Modal Auxiliaries- Reading Skills-Extensive Reading-Intensive Reading.

Unit III

Communicative Skills-Prepositional Phrases-Gerunds-Infinitives-Imperatives-Situational speech-practice to speak fluently-Contextual use of words-Language for various communicative functions

Unit IV

Speaking Skills- Phonetics-Vowels - Consonants-Stress-Intonation- Phonetic Transcription-Correct pronunciation Identification-Speeches-Group Discussion.

Unit V

Writing Skills-Creative writing - Continuous writing-Description- Parts of business letters-Types of Business letters-Formatting of Business Letters - Editing

Text Book:

1. Viswamohan, Aysha, 2008. English for Technical Communication. Tata Mc Graw-Hill.

Reference Books

- 1 Joseph, Maya and Sundarsingh, J. ed. Communication Skills I & II. Coimbatore, Gems Publishers, 2005.
- 2 Radhakrishnan, Pillai G.et.al. (2000). Spoken English for You-Level I. Chennai: Emerald Publishers.

- 3 Dhanavel, S.P, 2009. English and Communication Skills for Students of Science and Engineering. Orient Black Swan.

MA244 ALGEBRA, DIFFERENTIAL CALCULUS AND ANALYTICAL GEOMETRY

Credits: 3:1:0

Unit I: Theory of Equations

Relations between coefficients and roots. Irrational and imaginary roots – symmetric functions of the roots – transformation of equations – Reciprocal equations and formation of equation whose roots are given.

Unit II: Matrices

Characteristic equation – Eigen values and eigenvectors of a real matrix – Properties of Eigen values – Cayley Hamilton theorem – Orthogonal reduction of a symmetric matrix to diagonal form – Orthogonal matrices – Reduction of quadratic form to canonical form by orthogonal transformation

Unit III: Three Dimensional Analytical Geometry

Direction cosines and ratios – Angle between two lines – Equation of a plane – Equation of a straight line – Co-planar lines – Shortest distance between skew lines

Unit IV: Geometrical Applications of Differential Calculus

Curvature – Cartesian and polar co-ordinates – Circle of curvature – involutes and Evolutes – Properties of envelopes – Evolutes as envelope of normals.

Unit V: Functions of Several Variables

Functions of two variables – Partial derivatives – Total differential – Differentiation of implicit functions – Taylor's expansion – Maxima and Minima – Constrained Maxima and Minima by Lagrange's – Multiplier method – Jacobians

Text Book:

Kandasamy.P, Thilagavathi .K and Gunavathi K., Engineering Mathematics, Volume I (6th revised Edition), S Chand. & Co., New Delhi, 2003

Reference Books:

- 1 Kreyszig, E., "Advanced Engineering Mathematics" (8th Edition), John Wiley and Sons (Asia) Pvt Ltd., Singapore, 2000
- 2 Grewal, B.S., "Higher Engineering Mathematics" (6th Edition) Khanna Publisher, New Delhi, 2001

MA245 MULTIPLE INTEGRALS, DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORMS

Credits: 3:1:0

Unit I: Multiple Integrals

Evaluation of Multiple Integrals, Change of order of Integration, Application of Multiple Integrals to find area enclosed by plane curves and volume of solids.

Unit II: Beta and Gamma Integrals

Definition, relation connecting Beta and Gamma integrals, properties, evaluation of definite integrals in terms of Beta and Gamma functions.

Unit III: Ordinary differential Equation

Simultaneous linear equations with constant coefficients – Linear equations of higher order with constant coefficients – Homogeneous equation of Euler type – Method of variation of parameters.

Unit IV: Vector Calculus

Gradient, Divergence, Curl – Line, surface & volume integrals – Statements of Green's, Gauss divergence and Stokes' theorems (without proof) – verification and applications.

Unit V: Laplace Transforms

Transforms of simple functions – Basic operational properties – Transforms of derivatives and integrals – Initial and final value theorems – Inverse transforms – Convolution theorem – Periodic function – Applications of Laplace transforms of solving linear ordinary differential equations up to second order with constant coefficients and simultaneous equations of first order with constant coefficients.

Text Book:

1. Kandasamy.P, Thilagavathi .K and Gunavathi K., Engineering Mathematics volume II (6th revised Edition), S. Chand & Co., New Delhi, 2003

Reference Books:

1. Kreyszig, E., "Advanced Engineering Mathematics" (8th Edition), John Wiley and Sons (Asia) Pvt Ltd., Singapore, 2000
2. Grewal, B.S., "Higher Engineering Mathematics" (6th Edition) Khanna Publisher, New Delhi, 2001

PH105 APPLIED PHYSICS

Credits: 3:0:0

Unit I:

Particles and waves

Planck's hypothesis- Wave nature of matter- De Broglie wave –De Broglie wavelength of electrons-properties of matter waves, Experimental verification of matter waves- Davisson and Germer experiment, G.P. Thomson's experiment, Heisenberg's uncertainty principle.

Schrodinger's wave equation (Time dependent and time independent equations)- Applications: particle in a box,

Unit II:

Structure of solids

Classification of solids-Fundamental terms of crystallography-Lattice, basis, Unit cell, Crystallographic axis, primitives-Types of crystals-Bravais Lattices, Miller indices-Unit cell characteristics of Simple cubic, BCC, FCC and HCP systems.

Nano Materials

Preparation of Nano Materials-Bottom up, top down approaches-Properties and applications of Carbon nano tubes

Unit III:

Dielectrics

Basic Definitions-Electric field intensity, Electric flux density, Dielectric parameters- dielectric constant- Experimental determination of dielectric constant- Dipoles – Dipole moment- polar and non polar dielectrics, polarization- Types of polarization- Internal field-Clausius-Mosotti equation-Dielectric loss- dielectric breakdown- dielectric properties.

Semiconductors: Classification of solids on the basis of band theory- Conductors, Insulators and semiconductors. Classification of semiconductors-Intrinsic and Extrinsic semiconductors - Solar cells-Light emitting diodes-Liquid crystal display

Unit IV

Lasers

Properties of laser beam-Principle of laser-Einstein's theory of stimulated emission-Population inversion-Types of lasers-Nd:YAG, He:Ne, CO₂ and Semiconductor lasers-Application of lasers-Computer peripherals(CD-ROM)-Industrial applications –drilling and welding.

Fibre optics: Principle of optical fibre-Propagation in optical fibres-Acceptance angle-Numerical aperture-Structure of optical fibres-Fibre optic materials-Classification of optical fibres-Applications-Optical fibres for communication-Fibre optic sensors-Temperature sensor

Unit V

Acoustics

Classification of sound, Characteristic of musical sound-Loudness- Weber and Fechner's law-Decibel- Absorption coefficient- Reverberation time- Sabine's formula (growth and decay), Factors affecting acoustics of buildings and their remedies

Ultrasonics-classification: of ultrasonic waves-properties of ultrasonic waves- ultrasonic production- Magnetostriction and piezoelectric methods, Acoustic grating, SONAR, NDT, applications in medicine and industry

Recommended Text Book

V. Rajendran, A Marikani – Applied physics for Engineers Tata McGraw –Hill Publishing company Ltd Third Edition

Reference Books:

1. M.N. Avadhanulu, P.G. Kshirsagar – A Text Book of Engineering Physics- S.Chand

2. R.K. Gaur, S.L. Gupta – Engineering Physics – Dhanpat Rai Publications
3. P.K. Mittal – Applied Physics – I.K. International
4. M. Arumugam- Materials Science – Anuradha Publications
5. M.R. Srinivasan- Physics for Engineers – New Age international (P) Limited Publishers.

09PH101 APPLIED PHYSICS LAB

Credits: 0:0:2

Course Objective:

- To train engineering students on basis of measurements and the instruments
- To give practical training on basic Physics experiments which are useful to engineers
- To equip the students with practical knowledge in electronic, optics, and heat experiments

Course outcome:

Demonstrate the practical skill on measurements and instrumentation techniques of some Physics experiments.

List of experiments:

1. Rigidity Modulus of the wire - Torsional Pendulum
2. Young's Modulus of a beam- Non-uniform bending
3. Thermal Conductivity of a bad conductor-Lee's Disc
4. Radius of curvature of a lens – Newton's Rings
5. Refractive Index of Prism-Spectrometer
6. Wavelength of mercury source- Spectrometer Grating method
7. Coefficient of Viscosity of a liquid by Poiseuille's method
8. Frequency determination of a tuning fork- Melde's string
9. Particle size measurement-Laser diffraction method
10. Discharge of a capacitor
11. Thickness of a glass plate- Single optic lever
12. Characteristics of Zener diode
13. Efficiency of Solar cell
14. Ultrasonic interferometer

HoD can choose any 10 experiments from the above list at the beginning of the course in each Semester.

10PH201 - ENGINEERING PHYSICS

Credits: 2:0:0

Course Objectives:

- To help to prepare the Engineering students, a stronger foundation in the classical physics and Dynamics of particles

- Greater emphasis through on the role of reference frames in Newton's laws, force laws
- A clear analysis of the concepts of Heat, Energy and laws of Thermodynamics (quantitatively).
- To provide the understanding of concepts of electricity and magnetism.

Course Outcome:

Student understands the classical portions of the Electricity and Magnetism and special momentum to Electromagnetic introduction

Unit I :Particle Dynamics

Classical Mechanics, Newton's First Law, Force, Mass, Newton's Second Law, Newton's Third Law Of Motion, System Of Mechanical Units, The Force laws, Weight And Mass, Static Procedure For Measuring Forces, Applications Of Newton's' Laws Of Motion

Unit II Heat And Thermodynamics

Heat- A Form Of Energy, Quantity Of Heat And Specific Heat, Molar Heat Capacity Of Solids, - Heat Conduction, The Mechanical Equivalent Of Heat
Heat And Work, The First, Second and Third laws Of Thermodynamics, Some Applications

Unit III : Magnetism

Coulomb's Law, Magnetic Potential, Tangent Law, Magnetic Induction, Permeability And Susceptibility, Magnetic Properties Of Materials I-H & B-H Curves, Properties Of Para, Dia and Ferro Magnetic Materials, Measurement Of Magnetic Moment—Stern & Gerlach Experiment

Unit IV: Electrostatics

Electric Field And Electric Intensity, Electrostatic Potential, Gauss's Theorem, Applications Of Gauss's Theorem, Mechanical Force Experienced By Unit Area Of A Charged Field, Electrostatic Potential At A Point Due To A Dipole

Unit V : Electromagnetic Induction

Faraday's Laws Of Electro-Magnetic Induction, Lenz's Law, Fleming's Right Hand Rule, Self Induction, Mutual Induction, Transformer, Practical Applications Of Electromagnetic Induction- Earth Inductor, Dynamo.

Text Books:

1. Fundamentals of Physics, Robert Resnick & David Halliday, Wiley Eastern Publishing Limited 2007
2. Electricity & Magnetism, Brijlal & Subramaniam S. Chand and Co 2004

Reference Books:

1. University Physics, Sears and Zemansky –Pearson Addison Wesley, 2007
2. Fundamentals of Physics, an introductory course, David G. Martindale, Robert W. Heath, D.C. Heath, Canada, 1987
3. Fundamentals of Electrostatics, Joseph M. Crowley, 1986
4. Electricity and Magnetism, William C. Robertson, NSTA press, 2005

5. Heat and thermodynamics by M.S.Yadav, Anmol Publications Pvt. Ltd, 2002

CH106 APPLIED CHEMISTRY

Credits: 3:0:0

Unit I: High Polymers

Classification – Functionality of polymer – Mechanism (Free radical, ionic and zeigler – Nutta) – polymerization – Plastics – Thermoplastics and Thermosetting plastics – Compounding and fabrication of plastics – Important thermoplastic resins – Polythene (P.E.) – Polyvinyl Chloride (P.V.C.) – Important thermosetting plastic resins – Phenolic resin and Silicone resin – Industrial polymers – Nylons – Epoxy resin – Polyester resin – Applications of polymers – Conducting polymers – Semi conducting Polymers

Unit II: Water Technology

Sources of water – Hardness of water – Units of hardness – Estimation of hardness – EDTA method and alkalinity method – Softening of hard water – Lime soda process – Zeolite process – Demineralisation or Ion exchange process – Scale and sludge formation in boilers – Internal conditioning – Boiler corrosion – Caustic embrittlement – Desalination – Water for drinking purpose

Unit III: Fuels and Combustion

Fuels and Classifications - gross and net calorific values - Proximate and ultimate analyses of coal – Significances – Characteristics of metallurgical coke – manufacture by Otto – Hoffman method – Synthetic petrol – Bergius process – Fischer – Tropsch's process – Knocking – Octane number – Improvement of anti knocking characteristics – Cetane number, gaseous fuels – an elementary treatment of Water gas, producer gas and CNG (definition only) – An introduction to Non-conventional Sources of Energy – Biomass – Biogas – Bio fuels (Bio-diesel and Bio-ethanol) - Theoretical calculation of calorific values (Dulong's formula) – Simple problems – Calculation of minimum air requirements – Simple problems – Flue gas analysis – Orsat's apparatus

Unit IV: Electrochemistry

Electrode potential – Measurement of electrode potential – Nernst equation for electrode potential – Electrochemical Series – Electrochemical cell or Voltaic cell – Concentration cell – Primary Cell– Leclanche cell - Secondary batteries – alkaline batteries – Lead acid, and Li batteries – An introduction to Fuel Cell, $H_2 - O_2$ Fuel Cell – Applications
Types of corrosion – Wet or electrochemical corrosion – Types – factors influencing corrosion – Corrosion control methods

Unit V: Emerging Trends in Chemistry

Basics of Nanotechnology - Nanomaterials – Types: Nanowires, Nanotubes – Applications
Chemical aspects of Biotechnology – Fermentation – Manufacture of ethyl alcohol and acetic acid by fermentation – Deamination
Fundamentals of Semiconductor Technology – Semiconductor materials – Basic fabrication steps – oxidation – photolithography and etching – diffusion and ion implantation - metallization

Text Book:

1. P.C. Jain and Monika Jain, "Engineering Chemistry", Dhanpat Rai Publishing Co. (P) Ltd., 15th Edition, 2006

Reference Books:

1. S. Glasstone and D. Lewis – "Elements of Physical Chemistry", McMillan Co. of India Ltd., 2002
2. P.L.Soni, O.P. Dharmarsha and U.N. Dash – "Text Book of Physical Chemistry" Sulthan Chand & Sons, New Delhi, 2001
3. J C Kuriakose, and J Rajaram, "Chemistry in Engineering and Technology", Tata Mcraw-Hill Publications Co. Ltd., New Delhi, 1996
4. V.R. Gowrikar, N.V.Viswanathan and Jaydev Sreedhar, "Polymer Science", New Age International Pvt. Ltd., New Delhi, 2000.
5. Garry S. May and Simon M. Sze, "Fundamentals of Semiconductor Fabrication", Jonh Wiley & Sons, Inc., 2004, Chapter – I
6. C. Daniel Yesudian and D.G. Harris Samuel, "Materials Science & Metallurgy", Scitech Publishers, 2004
7. Charles P. Poole Jr. and Frank J. Ownes, "Introduction to Nanotechnology", Wiley Publishers, 2003

09CH104 – APPLIED CHEMISTRY LAB**Credits: 0:0:2****Objectives:**

1. To understand the principles of estimation in acidimetry, alkalimetry and permanagnometry titrations
2. To understand gravimetric principles involved in complexometric titration
3. To understand the principles of potentiometry, conductometry and pH measurements
4. To understand the principles of spectrophotometry and flame photometry

List of Experiments:

1. Estimation of Hydrochloric acid
2. Estimation of Sodium Hydroxide
3. Estimation Fe^{2+} ions
4. Estimation of total, permanent and temporary hardness of Water Sample
5. Estimation of alkalinity in water sample
6. Estimation of dissolved oxygen
7. Estimation of Iron in water sample by spectrophotometry
8. pH measuremnts for acid – alkali titration
9. Conductometric estimation of an acid
10. Potentiometric estimation of Fe^{2+} Ions
11. Determination of single electrode potential by potentiometry
12. Determination of rate of corrosion of mild steel by by weight loss method
13. Estimation of sodium present in water by flame photometry

Reference Books

1. G.H. Jeffery, J. Bassett, J. Mendham and R.C. Denney, "Vogel's text book of quantitative chemical analysis", ELBS, 6th Edition, Longman, Singapore publishers, Singapore, 2004
2. I.M. Kolthoff and E.B. Sandell, "Quantitative Chemical Analysis" MacMillan, Chennai, 1980
3. S.K. Bhasin and S.K. Sudha Rani, "Laboratory Manual on Engineering Chemistry", Dhanpat Rai Publishing Company (P) Ltd., 2003

09CH201 – ENVIRONMENTAL STUDIES

Credits: 3:0:0

Objectives:

1. To acquire the knowledge of environmental studies, it's need & importance
2. To understand the concept, structure and function of different ecosystems
3. To know about pollution problems and green technology
4. To develop a sense of responsibility about the role of students in fostering the idea of learning to live in harmony with nature

Unit I - Natural resources, ecosystems and biodiversity

Environment - Definition, scope and importance – Forest resources: Use and overexploitation, Water resources: Use and over-utilization, dams-benefits and problems – Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources – Land resources: land degradation – Role of an individual in conservation of natural resources Ecosystem – Structure and function – Ecological succession – Introduction to various ecosystems. Biodiversity – Definition and types – Threats to Biodiversity in India and its impacts – Conservation of Biodiversity: In-situ and Ex-situ conservation of biodiversity

Unit II – Air pollution and global issues

Air pollution - Introduction – atmospheric constituents – Chemical reaction in the atmosphere – air pollutants – classification – effects on human, animal, plant, property and environment – control methods for particulates and gaseous pollutants – control of pollutants from automobiles – Burning of plastics – PCBs and their impact - Green house gases – Photochemical reaction – green house effects - climate change - global warming and its effects – international climate conventions, protocols and perspectives – technology and policy options for GHG emission mitigation - acid rain, ozone layer depletion and solutions

Unit III – Issues related to other environmental pollution aspects and green technology

Water pollution - sources – characteristics – BOD, COD - pollutants and their effects – heavy metal pollution – inorganic and organic pollutants control methods - Advanced waste water treatment techniques - Basic aspects of soil pollution - marine pollution - noise pollution - thermal pollution - nuclear hazards - Causes, effects and control measures - solid waste management: causes, effects and control measures of urban and industrial solid wastes
Green chemistry and green technology – principles of sustainable and green chemistry - miscelle templated silica as catalyst in green chemistry – biocatalysis – bioproduction of

catalysts in industries – basics of clean energy technology for the future – fuel cells, wind power, solar power

Unit IV – Environmental Legislation

Pollution controls acts – environment protection act – water pollution act – air pollution act – wildlife (protection) act, 1972 – forest (conservation) act, 1980 – polluter pays principle – precautionary principle – Issues in pollution control enforcement and public awareness – issues of environment – public awareness

Unit V - social issues and the environment

From Unsustainable to Sustainable development – Urban problems related to energy – Water conservation, rain water harvesting, watershed management - Population growth, variation among nations – Population explosion – Environment and human health – Role of Information Technology in Environment and human health – Family welfare programme – HIV / AIDS – women and child welfare – Disaster management: floods, earthquake, cyclone and landslides

Text books:

1. Deeksha Dave and S.S. Katewa, “Textbook of Environmental studies”, Cengage Learning, 2008
2. Deswal S and Deswal A, ‘A basic course in Environmental studies’, Dhanpat Rai & Co, First edition, Delhi, 2004
3. Kurian Joseph and Nagendran R, ‘Essentials of Environmental studies’, Pearson Education Pvt Ltd., First edition, Delhi, 2004
4. Santhosh Kumar Garg, Rajeswari Garg and Ranjani Garg, ‘Environmental Science and Ecological Studies’, Khanna Publishers, Second Edition, New Delhi, 2007.

Reference Books:

1. Gilbert M.Masters, ‘Introduction to Environmental Engineering and Science’, Pearson Education Pvt. Ltd., Second Edition, 2004.
2. Tivedi R.K., ‘Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol. I and II, Enviro Media., 1998
3. Cunningham, W.P.Cooper, T.H.Gorhani, ‘Environmental Encyclopedia’, Jaico Publ., House, Mumbai, 2001.
4. Wager K.D., ‘Environmental Management,’ W.B. Saunders Co., Philadelphia, USA, 1998.
5. James Clark & Duncan Macquarie, “Green Chemistry & Technology”, Blackwell publishing, 2002

09ME101 BASIC MECHANICAL ENGINEERING

Credits: 2:0:0

Objective:

To provide knowledge about IC Engines, External combustion Engines, boilers, power plants, metal forming, metal joining, machining process and materials. To understand about CAD and modern design softwares in the mechanical engineering.

UNIT - I

Engine-External combustion engine – Working of Steam Engine – Steam Turbine – Impulse turbine & reaction turbine – Boilers fire tube and water tube boiler – Cochran boiler – Babcock & Wilcox boiler – Internal Combustion Engine – Working of petrol and Diesel Engine – Difference between two stroke and four stroke engines.

UNIT - II

Conventional power plants – Hydro, Thermal, Nuclear power plants – Diesel and Gas Turbine power plants; Non-conventional power plants – Solar, wind and tidal power plants – Geothermal power plant – Ocean Thermal Energy conversion power plant.

UNIT - III

Load – Types of load –stress and strain – Types of stresses and strains –Stress strain curve of ductile materials- Introduction of Mechanical Engineering Software Packages.

UNIT – IV

Metal casting and forming process – Introduction – advantages of casting – patterns – molding – melting of cast iron – forging. Metal joining Process: Introduction - welding – arc welding, gas welding

UNIT –V

Metal machining: Lathe – Drilling machine – Milling machine – Shaping machine. Basic Engineering Materials: Properties of materials – ferrous metals and alloys – Nonferrous metals and alloys.

Text Books:

1. S.R.J.Shantha Kumar, “Basic Mechanical Engineering”, HiTech Publications,2001.
2. G. Shunmagam, “Basic Mechanical Engineering”, Tata McGraw Hill, 2001.

Reference Books:

1. I.E. Paul Degarmo, J.T. Black, Ronald A. Kosher, “Material and Processes in Manufacturing”, 8th Edition, John Wiley and sons, inc., 1999.
2. Dr. O.P. Khanna, “A Text Book of Materials Sciences and Metallurgy”, Dhanpat Rai & Sons, Delhi, 2001.
3. V.Remesh Babu, “A Text Book on Basic Civil Engineering”, Anuradha Agencies,2000
- 4.K.Venugopal,V.Prabhuraja,” Basic Mechanical Engineering”, Anuradha Agencies,2000

09EC218 BASIC ELECTRONICS

Credits: 3:0:0

Objective: To know the basics about semiconductor, integrated circuits and communication system.

Outcome: Students will get overview about the basics of electronics.

UNIT I

Introduction to Semiconductor

Covalent bond – N type & P type semiconductor – conduction in semiconductor – semiconductor devices : diode, transistor, FET, MOSFET, UJT.

UNIT II

Integrated Circuits

IC: OP-amp – introduction-Ideal characteristics-inverting and non-inverting amplifier –adder subtractor-differentiator-integrator- Monolithic IC fabrication techniques.

UNIT III

Digital Systems

Number system – Boolean algebra – logic gates –truth table - combinational circuit -4 x 1 multiplexer – 1 x 4 demultiplexer - digital computer principles.

UNIT IV

Communication

Basic block of communication system – need for modulation – Derivation of AM and FM signal - Amplitude and Frequency Modulation (Balanced modulator and varactor diode modulator)- Demodulation(AM diode detector and balanced slope detector.

UNIT V

Communication systems

Block diagram of AM and FM transmitter - Superheterodyne receiver – satellite communication – Fibre optic communication

Text Book

Muthusubramanian ,R, Salivahanan S, Muraleedharan Ka , “Basic Electrical Electronics & Computer Engineering “Tata Mc.Graw Hill, 2005

Reference Books

1. Robert Boylestad, “Electronic Devices & Circuit Theory”, Eighth Edition, PHI,2002.
2. Anokh Singh, “Principles of Communication Engineering” S.Chand Co., 2001
3. V.K.Metha.”Principles of Electronics”,Chand Publications,2008.

09EE101 BASIC ELECTRICAL ENGINEERING

Credits: 3:0:0

Course Objectives

- To impart the basic knowledge about the Electric and Magnetic circuits.
- To inculcate the understanding about the AC fundamentals.
- To understand the working of various Electrical Machines.
- To know about various measuring instruments and house wiring.

Unit I: DC CIRCUITS

Standard symbols – Units & Abbreviations – Circuit Elements – Current and Voltage Sources – Ohm's and Kirchhoff's law – Resistive circuits – Series and Parallel reduction – Voltage and Current Division – Source transformation – Star Delta Transformation

Unit II: MAGNETIC CIRCUITS

Magnetic flux- flux density – reluctance – permeance-magnetic effect of electric circuit-Law of Electromagnetic induction – induced emf – self and mutual inductance – coupling co-efficient – inductance in series and parallel, Magnetic Materials.

Unit III: AC FUNDAMENTALS

Sources of Electrical Energy – Thermal, Hydro and Nuclear power generating station – Transmission of Electric Power – Introduction to Alternating Quantities – Average and RMS values – Circuit Elements – Series and Parallel Combinations – Phasor representation – Introduction to three phase system.

Unit IV: ELECTRICAL MACHINES

Working principle, operation and application of DC Generator, DC Motor, Transformer, Three Phase Induction motor, Single phase Induction motor, Alternator. (Quantitative approach)

Unit V: MEASURING INSTRUMENTS AND HOUSE WIRING

Classification of Instruments – Essential features of Indicating Instrument – Deflecting, Controlling and Damping Mechanism - Moving Coil instrument – Moving Iron Instrument – Induction type Instruments – examples.

Wiring materials and accessories – Types of wiring – Fluorescent lamp wiring – stair case wiring – basic principles of earthing – layout for a residential building.

Course Outcome

After the completion of the course, the student should be able

- To predict the behavior of any electrical and magnetic circuits.
- To identify the type of electrical machine used for that particular application.
- To wire any circuit depending upon the requirement.

Text Book

Muraleedharan K. A, Muthusubramanian R & Salivahanan S, "Basic Electrical, Electronics & Computer Engineering", Tata McGraw Hill Limited, New Delhi, 2006.

Reference Books

1. Chakrabarti .A, Sudipta nath and Chandan Kumar, "Basic Electrical Engineering", Tata Mc Graw Hill Limited, New Delhi, 1st edition, 2009.
2. Edward Hughes, "Electrical Technology", ELBS, 6th edition, 2002.
3. Mittle. V.N., "Basic Electrical and Electronics Engineering", Tata McGraw Hill Edition, New Delhi, 1st edition, 2007.
4. Openshaw Taylor .E, "Utilization of Electrical Energy in SI Units", Orient Longman limited, New Delhi, 2007.

5. Delton T. Horn, Abraham Pallas, "Basic Electricity and Electronics", McGraw-Hill Limited, Europe, 1993

CS101 PROGRAMMING IN C

Credits: 4:0:0

Unit I

Introductory Concepts - Introduction to Computers– What is a Computer – Block Diagram of Computer – Computer Characteristics – Hardware vs Software – How to Develop a Program – Modes of Operation – Types of Programming Languages – Introduction to C – Desirable Program Characteristics -

Introduction to C Programming - The C Character Set – Writing First Program in C - Identifiers and Keywords – A More Useful C Program – Entering the Program into the Computer – Compiling and Executing the Program - Data Types – Constants – Variables and Arrays – Declarations – Expressions – Statements – Symbolic Constants (Chapters 1,2)

Unit II

Operators and Expressions - Arithmetic Operators – Unary Operators – Relational and Logical Operators – Assignment Operators – The Conditional Operator – Library Functions – Data Input and Output – Preliminaries - Single Character Input & Output – Entering Input Data – More About scanf Function - Writing Output Data – More About printf Function – The Gets and Puts Functions – Interactive Programming – Preparing and Running a Complete C Program – Planning a C Program- Writing a C Program – Error Diagnostics – Debugging Techniques (Chapters 3-5)

Unit III

Control Statements – Preliminaries - Branching – Looping – More Looping – Still More Looping - Nested Control Structures – The switch, break, continue, comma statements – The Goto Statement – Functions Defining a Function – Accessing a Function – Function Prototypes – Passing Arguments to a Function – Recursion (Chapters 6,7)

Unit IV

Program Structure - Storage Classes – Automatic Variables – External Variables – Static Variables – Multifile Programs – More About Library Functions Arrays: Defining an Array – Processing an Array – Passing Arrays to Functions – Multidimensional Arrays – Arrays and Strings- Pointers - Fundamentals – Pointer Declarations – Passing Pointers to Functions – Pointers and One-Dimensional Arrays – Dynamic Memory Allocation - Operations on Pointers – Pointers and Multidimensional Arrays – Arrays of Pointers – Passing Functions to other Functions (Chapters 8-10)

Unit V

Structures & Unions - Defining a Structure – Processing a Structure – User-Defined Data Types – Structures and Pointers – Passing Structures to Functions – Self Referential Structures – Unions. Data Files – Why Files - Opening and Closing a Data File – Reading and Writing a Data File – Processing a Data File – Unformatted Data Files – Concept of Binary Files -

Additional Features of C – Enumerations – Command Line Parameters (Chapters 11, 12, 14.1,14.2)

Text Book:

Byron S. Gottfried, Programming with C, Second Edition, 1996 (Indian Adapted Edition 2006), Tata McGraw Hill, ISBN 0-07-059369-8.

09CS217 PROGRAMMING IN C LAB

Credits: 0:0:2

1. Write a Program to find the Palindrome.
2. Write a Program using switch statement with the multiple cases (Fibonacci Series, Factorial for the Given Number, Armstrong Number or Not, Prime or Not)
3. Sorting of Numbers Using Arrays
4. Printing 10 Numbers both in Ascending and Descending.
5. Pyramid
6. Customer Account Locator.
7. Counting Number of Characters, Number and Special Characters In Given String.
8. Student Record Using Structure.
9. Print Multiplication Table In Reverse Order Using For, While Do While.
10. Matrix Addition, Multiplication Using Functions.
11. Data Files
12. Data Files.

12 Experiments will be notified by the HOD from time to time. A tentative list is mentioned above.

10EN203 ADVANCED ENGLISH

Credits: 2:0:0

Course Objective

To make the learners aware of the importance of correct English both in writing and speaking contexts

To enable the learners to acquire the additional skills required to perfect their language competency

UNIT I

Role of Language in Communication- Basics of Communication – Types and Barriers — Comparison of Oral and Written Communication – Error Analysis in English grammar

UNIT II

Body Language and Communication in English – Types of Non-verbal Communication – Oral Presentation Exercises – Telephone Conversation – Communication Errors in English

UNIT III

Role of English in Interviews - Interview Techniques – Question Types – Interpersonal Communication – Vocabulary for specific interview situations

UNIT IV

Business Letters: Enquiry Letter, Quotation Letter, Purchase Letter & Sales Letter – Sales Advertisement – Headline Writing - Overcoming errors in sentence construction

UNIT V

Email Messages - Circular - Memo – Minutes – Report Writing: Types and Features – Proposal Writing – Resume: Planning and Writing

Text Book:

1. Soundararaj, Francis. Speaking and Writing for Effective Business Communication. Macmillan: New Delhi, 2007.

Reference Books:

1. Mohan, Krishna & Banerji, Meera. Developing Communication Skills. Macmillan: New Delhi, 2009
2. Raman, Meenakshi and Sharma, Sangeeta. Technical Communication: Principles and Practice. OUP: New Delhi, 2004
3. Pal, Rajendra & Korlahalli, J.S. Essentials of Business Communication. New Delhi: Sultan Chand & Sons: New Delhi, 2005

MA 246 COMPLEX ANALYSIS, STATISTICS AND Z-TRANSFORMS

Credits: 3:1:0

Unit I : Analytic Functions

Cauchy Riemann equations – Properties of analytic functions – Determination of harmonic conjugate – Milne – Thomson’s method – Conformal mappings $w = z + a$, az , $1/z$, z^2 , and bilinear transformation.

Unit II: Complex Integration

Cauchy's theorem – Statement and application of Cauchy's integral formulae – Taylor's and Laurent's expansions – Singularities – Classification – Residues – Cauchy's residue theorem – Contour integration – Circular and semi Circular contours (excluding poles on real axis)

Unit III: Statistics

Moments, skewness and kurtosis (based on moments only) – Linear correlation-coefficient of correlation – rank correlation and regression lines – Theoretical Distributions – Binomial – Poisson – Normal.

Unit IV: Testing of hypothesis

Tests based on large samples - Small samples: t mean and difference of means – χ^2 test for goodness of fit and attributes and F - distribution.

Unit V: Z – Transforms

Z-transforms of standard functions, inverse Z-transform (Partial fraction expansions and residues), properties of Z-transform, Solution of difference equations.

Text Book:

1. Kandasamy.P, Thilagavathi .K and Gunavathi K., Engineering Mathematics volume II and III (6th revised Edition), S. Chand & Co., New Delhi, 2003

Reference books:

1. Kreyszig, E., “Advanced Engineering Mathematics” (8th Edition), John Wiley and Sons (Asia) Pvt Ltd., Singapore, 2000
2. Grewal, B.S., “Higher Engineering Mathematics” (6th Edition) Khanna Publisher, New Delhi, 2001

09CS203 PROGRAMMING IN C++

Credits: 3:0:0

Course Objective:

This course provides in-depth coverage of object-oriented programming principles and techniques using C++.

Prerequisite: C programming Knowledge

UNIT I

Objects – classes – inheritance – reusability – creating new data types – polymorphism and overloading. Basic program construction – data types: integer, character, float, double, long, double and Boolean. Input output statements: cin – cout – comments – escape sequence – manipulators – type conversion – arithmetic logical and relational operators – and library function.

UNIT II

For loop – while loop & do loop and if- if...else, switch & other control statements – Structures – Enumeration – Functions: passing arguments to functions – returning values from functions – reference arguments – overloaded functions – inline functions – default arguments – variables and storage class and returning by reference.

UNIT III

A simple class – c++ objects as physical objects – c++ objects and data types – object as function argument – constructors – as function argument – overloaded constructors – copy constructors – returning objects from functions – structures and classes – static class data – const and classes – Arrays and Strings.

UNIT IV

Overloading unary and binary operators – data conversion – and pitfalls. Inheritance: derived class and base class – derived class constructors – overloading member functions – class hierarchies – public and private inheritance – level of inheritance – multiple inheritance. Pointers: address and pointers – pointers and arrays – pointer and c-type strings – new and delete operator – pointers to pointer.

UNIT V

Virtual functions – friend functions – static functions – this pointer. Streams and files: stream classes – stream errors – disk file I/O with streams – file pointers – error handling in file I/O. Templates and exception: function templates – class templates – exceptions.

Text Book:

1. Robert Lafore, Object Oriented Programming in C++, Fourth Edition, Tech Media, 2002. ISBN 0-672-32308-7.

Reference Book:

1. Herbert Schildt, C++: The Complete Reference, Fourth Edition, Tata McGraw-Hill, 2003. ISBN 0-07-053246-X.

09IT204 DIGITAL PRINCIPLES AND SYSTEM DESIGN

Credits: 3: 0: 0

Course Objective:

1. To understand different methods used for the simplification of Boolean functions.
2. To design and implement combinational, synchronous, and asynchronous sequential circuits.
3. To study the fundamentals of HDL.

UNIT I

Boolean algebra And Logic Gates: Review of binary number systems - Binary arithmetic – Binary codes – Boolean algebra and theorems - Boolean functions – Simplifications of Boolean functions using Karnaugh map – Logic gates.

UNIT II

Combinational Logic: Combinational circuits – Analysis and design procedures - Circuits for arithmetic operations - Code conversion – Introduction to Hardware Description Language (HDL).

UNIT III

Design With Msi Devices: Decoders and encoders - Multiplexers and demultiplexers - Memory and programmable logic - HDL for combinational circuits.

UNIT IV

Synchronous Sequential Logic: Sequential circuits – latches -Flip flops – Analysis and design procedures - State reduction and state assignment - Shift registers – Counters - HDL for registers and counters.

UNIT V

Asynchronous Sequential Logic: Analysis and design procedure of asynchronous sequential circuits - Reduction of state and flow tables – Race-free state assignment – Hazards.

Text Book:

M.Morris Mano, Digital Design, Fourth edition, Pearson Education, PHI 2007. ISBN :0131989243

Reference Books:

1. Charles H.Roth, Jr. Fundamentals of Logic Design, Fifth Edition, Ontario-Thomson Publications, 2006. ISBN :0534378048.
2. Donald D.Givone, Digital Principles and Design, Tata McGraw-Hill, 2003. ISBN 0072525037

09CS212 OPERATING SYSTEM

Credits: 3:0:0

Course Objective:

To gain knowledge about the Operating Systems concepts such as process, main memory management, secondary memory management, CPU and disk scheduling etc.

UNIT I

Introduction - What Operating Systems Do - Computer System Organization Computer System Architecture - Operating System Structure - Operating System Operations - Process Management - Memory Management – Storage Management – Protection and Security – Distributed Systems – Special Purpose Systems - Computing Environments – Operating System Services – User Operating System Interface – System Calls – Types of System Calls – System Programs – Operating System Design and Implementation – Operating System Structure – Virtual Machines – Operating System Generation – System Boot.

UNIT II

Process Concept – Process Scheduling – Operation on Processes – Interprocess Communication– Multithreaded Programming –Multithreading models – Thread Libraries - Threading Issues – Process Scheduling – Basic concepts – Scheduling Criteria – Scheduling Algorithms – Multiple Processor Scheduling – Thread Scheduling.

UNIT III

Synchronization – The Critical Section Problem – Peterson’s Solution – Synchronization Hardware – Semaphores – Classic Problems of Synchronization – Monitors - Atomic Transactions – System Model – Deadlock Characterization – Methods for Handling Deadlocks – Deadlock Prevention – Deadlock avoidance – Deadlock detection – Recovery from Deadlock – Memory management Strategies – Swapping – Contiguous memory Allocation – Paging – Structure of the Page Table – Segmentation.

UNIT IV

Virtual Memory Management – Demand Paging – Copy-on-Write - Page Replacement – Allocation of Frames – Thrashing – Memory-mapped Files – Allocating Kernel Memory - Other Considerations – Storage Management - File Concepts – Access Methods – Directory Structure – File System Mounting – File Sharing – Protection – Implementing File Systems -File System Structure – File System Implementation – Directory Implementation – Allocation Methods – Free Space Management – Efficiency and Performance – Recovery.

UNIT V

Secondary Storage Structure – Overview of Mass Storage Structure – Disk Structure – Disk Attachment - Disk Scheduling – Disk Management – Swap-Space Management – RAID Structure – Stable-Storage Implementation – Tertiary Storage Structure - I/O Systems – I/O Hardware – Application I/O interface – Kernel I/O Subsystem – Transforming I/O Requests to Hardware Operations .

Text Book:

Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, Operating System Principles, Seventh Edition, John Wiley & Sons, 2006. ISBN: 9812-53-176-9.

Reference Books:

1. D. M. Dhamdhere, Operating Systems, Second Edition, Tata McGraw-Hill Education (India), 2006. ISBN: 0070611947.
2. Achyut S. Godbole Operating Systems With Case Studies in Unix Netware Windows NT, Tata McGraw-Hill, 2005. ISBN: 007059113X, 9780070591134.
3. Andrew S. Tanenbaum, Modern Operating Systems, Third Edition, Prentice Hall, 2008. ISBN 0136006639, 9780136006633
4. Pramod Chandra P. Bhatt, An Introduction to Operating Systems: Concepts and practice, PHI Learning Pvt. Ltd., 2003. ISBN: 8120323068, 9788120323063.
5. Paul J. Deitel, David R. Choffnes, Operating Systems, Third Edition, Prentice Hall, 2003. ISBN: 0131828274, 9780131828278.

6. Colin Ritchie Operating Systems Incorporating UNIX and Windows: Incorporating Unix and Windows, Fourth Edition, Cengage Learning EMEA, 2003. ISBN: 0826464165, 9780826464163.

09IT201 COMPUTER ARCHITECTURE

Credits: 3:0:0

Course Objectives:

1. To provide a thorough discussion of the fundamentals of computer architecture.
2. To discuss in detail the operation of the control unit and arithmetic operations.
3. To study in detail the different types of control and the concept of pipelining.

UNIT I

Computer organization & architecture, Function & Structure, Top level view of computer components, Computer function, Interrupts, Multiple interrupts Cache memory.

UNIT II

Computer memory systems overview, Semiconductor main memory, Error correction, Advanced DRAM organization, External devices and I/O modules, Programmed I/O, Interrupt driven I/O, Direct Memory

UNIT III

Computer Arithmetic - M/C instruction characteristics, Types of operands, Types of operation, Transfer of control, Pentium operations, PowerPC operations, Assembly language, Addressing, Pentium & PowerPC addressing modes

UNIT IV

Processor and Register organization, Instruction cycle, Instruction pipelining, Intel 80486 pipelining, Pentium & Power PC processors.

UNIT V

Micro operations, Control of the CPU, Intel 8085, Hardwired implementation, Micro programmed control basic concept, Microinstruction sequencing, Microinstruction execution.

Text Book:

1. William Stallings, Computer Organization and Architecture, Sixth Edition, Prentice Hall India, 2003. ISBN: 81-7808-792-8.

Reference Books:

1. John P.Hayes, Computer Organization and Architecture, McGraw Hill, Third Edition, 1998. ISBN: 0-07-115997-5.
2. John L.Hennessy, David A.Patterson, Computer Architecture, Third Edition. ISBN: 81-8147-205-5.

09IT207 SIGNALS AND SYSTEMS

Credits: 4:0:0

Course Objective:

- 1 To develop continuous-time and discrete-time concepts/methods in parallel, highlighting the similarities and differences
- 2 To Feature introductory treatments to applications in areas such as filtering, communication and sampling.

UNIT I

Signals and Systems: Introduction – Continuous Time and Discrete Time signals – Transformations of independent variable – Exponential and sinusoidal signals – Unit Impulse and Unit Step functions – Continuous Time and Discrete Time systems – Basic system properties.

UNIT II

Linear Time Invariant Systems: Introduction – Discrete Time LTI systems: Convolution sum – Continuous Time LTI systems: Convolution Integral – Properties of Linear Time-Invariant systems – Causal LTI systems described by differential and difference equations – Singularity functions.

UNIT III

Filtering : Frequency shaping and selective filters – **Time and frequency characterization:** Introduction – Magnitude phase representation of Fourier transform – Magnitude phase representation of the frequency response of LTI system – Time Domain properties of ideal frequency selective filters – Time Domain and Frequency Domain aspects of non ideal filters – First order, Second order continuous time system - First order, Second order discrete time system – Example of time and frequency domain analysis of systems

UNIT IV

Sampling: Introduction – Representation of continuous time signal by its samples: Sampling Theorem – Reconstruction of signal from its samples using interpolation – Effect of under sampling: aliasing – Discrete time processing of continuous time signals – Sampling of discrete time signals – Analysis and Characterization of LTI system using the Laplace Transform, System function algebra and block diagram representation – Unilateral Laplace transform.

UNIT V

Representing signals by using Discrete-time complex Exponentials: The Z-transform: Introduction – Region of convergence of Z transform – The inverse Z transform – Geometric evolution of the fourier transform from the Pole-Zero plot – Properties of the Z transform – Some common Z transform pairs - Analysis and Characterization of LTI system using the Z Transform – System function algebra and block diagram representation – Unilateral Z transform.

Text Book:

1. Alan V Oppenheim, Alan S Willsky, and Hamid Nawab S, “Signals and Systems”, second edition, Prentice Hall, New Delhi, 2006, ISBN 0138097313.

Reference Books:

1. John G.Proakis and Dimitris G.Manolakis, Digital Signal Processing, Principles, Algorithms and Applications, Third Edition., PHI, 2007, ISBN 0133737624.
2. Rodger E. Ziemer, William H. Tranter, D. Ronald Fannin, “Signals and Systems: Continuous and Discrete”, Fourth Edition, Prentice Hall, 2001, ISBN 0024316504.
3. Simon Haykin and Barry Van Veen, “Signals and Systems”, Second Edition, John Wiley & Sons Inc., New York, 2003, ISBN 0471164747.
4. Steven T. Karris “Signals and Systems: With MATLAB Applications”, Second Edition, Orchard Publications, 2003, ISBN 970951167.

09CS218 PROGRAMMING IN C++ LAB**Credits: 0:0:2**

1. Student Record Using Structure.
2. Class Example
3. Constructor Example
4. Static, Const Examples
5. Function Overloading
6. Inheritance Example
7. Operator Overloading.
8. Multiple Inheritances.
9. 9.Pointers
10. Virtual Functions
11. File Pointers
12. Exceptions

12 Experiments will be notified by the HOD from time to time. A tentative list is mentioned above.

09IT239 DIGITAL DESIGN LAB**Credits: 0:0:2**

1. Study of Logic Gates
2. Realization of Logic gates using universal gates
3. Half Adder and Full Adder
4. Design of Decoder and Encoder
5. Multiplexer and De-multiplexer
6. Code Converter
7. Parity generator and Checker
8. Study of Flip-Flops
9. Shift Register
10. Counters using Flip Flops

12 Experiments will be notified by the HOD from time to time. A tentative list is mentioned above.

MA247 FOURIER SERIES , TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS

Credits: 3:1:0

Unit I: Fourier series

Euler's formula – Dirichlet's conditions convergence statement only – change of interval odd and even functions. Half range series – RMS value, Parseval's formula – complex form of Fourier series – harmonic analysis.

Unit II: Partial Differential Equations

Formation of equations by elimination of arbitrary constants and arbitrary functions – solution of equations – general, particular and complete integrals – Lagrange's linear equation – standard type of first order equations – second order and higher order equations with constant coefficients, homogeneous and nonhomogeneous equations.

Unit III: One-Dimensional Wave Equations and Heat Equation

One dimensional wave equation – transverse vibration of finite elastic string with fixed ends – boundary and initial value problems – Fourier series solution. One dimensional heat equation – steady and unsteady states, boundary and initial value problems – Fourier series solution. (Proofs and derivations not needed)

Unit IV: Two Dimensional Heat Equation

Two dimensional heat equations – steady state heat flow in two dimensions – Laplace Equations in Cartesian and polar co ordinates Fourier series solution. (Proofs and derivations not needed)

Unit V: Fourier transforms

The infinite Fourier transform – sine and cosine transforms – properties (Proof not needed) – inversion theorem – Finite Fourier Transform – sine and cosine transforms – convolution theorem – Parseval's identity – transform of derivatives. (Proofs and derivations not needed)

Text Books:

1. Kandasamy, P., "Engineering Mathematics", S. Chand & Co., New Delhi, Volume – III, 1996.
2. Venkataraman, M.K., "Higher Engineering Mathematics", National Publishing Co., 1992.

Reference Books:

1. Erwin Kreyzig, "Advanced Engineering Mathematics", Wiley & Co, 1994.
2. Speigal, "Advanced Engineering Mathematics", Schaum's Series, 1995.

09IT206 MICROPROCESSORS AND INTERFACING

Credits: 3: 0: 0

Course Objective:

1. The course deals with applications, organization, architecture and design of microprocessors systems
2. To implement interfacing from a microprocessors based system to peripheral devices

UNIT I

Introduction – 8088 & 8086 Microprocessors architecture – software model of 8088/8086 Microprocessor – Memory address space & data organization – Data types Segment registers and memory segmentation – Dedicated reserved and general use Memory Instruction Pointer – Data Registers – Pointers and Index Registers – Status Registers Generating a Memory Address – The Stack – I/O Address space

UNIT II

Instruction set – Addressing Modes – Integer instructions and computations – Control flow instructions and Program structures.

UNIT III

Memory I/O Interfaces: Minimum-mode and Maximum-mode systems – Minimum-mode and Maximum-mode Interface signals – Electrical Characteristics – Bus cycle & Time states – Hardware organization of the memory address space – Address Bus status codes – Memory control signals – Read/Write Bus Cycles – Memory Interface Circuits – Types of I/O – Isolated I/O interface – I/O Data Transfer – I/O Instructions – I/O Bus Cycles

UNIT IV

I/O Interface circuits: core and special purpose I/O Interfaces – Byte wide I/O ports using Isolated I/O – I/O Handshake and parallel printer interface – 8255A Programmable Peripheral Interface – Memory Mapped I/O 8254A - Programmable Interval Timer- 8237A Programmable Direct Memory Access controller – Serial Communication Interface – Programmable Communication Interface Controllers – Keyboard & Display Interfaces – 8279 Programmable Keyboard/Display Controller.

UNIT V

Interrupt Interface of 8088 & 8086 Microprocessors: Interrupt mechanism – Types & Priority – Interrupt Vector Table – Interrupt Instructions – Enable/Disable of Interrupts – External Hardware – Interrupt sequence – 8259A Programmable Interrupt Controller – Interrupt Interface Circuits using 8259A – S/W Interrupts – NonMaskable Interrupt Reset – Internal Interrupt functions.

Text Book:

1. Walter A. Triebel, Avatar Singh, The 8088 & 8086 Microprocessor, program, Interfacing, Software, Hardware and Applications, Prentice Hall of India, Fourth Edition, 2002. ISBN 81-297-0298-3

Reference Book:

1. Badri .Ram Fundamentals of Microprocessors and Microcomputers, Prentice Hall of India, Fifth Edition, 2003. ISBN 0-07-043448-4
2. Douglas V. Hall, Microprocessors and Interfacing Programming and Hardware, Tata Mc Graw Hill, Second Edition, 1991, Reprint 2004. ISBN 0-07-025742-6

09CS202 OBJECT ORIENTED ANALYSIS AND DESIGN**Credits: 3: 0: 0****Course Objective:**

1. To Design an Application Using Object Management groups UML for Modeling, Describing, Analyzing and Designing an application
2. To develop a proven successful system by applying the best practices and works done by Booch, Rumbaugh, and Jacobson.

UNIT I

Object Basics – Object oriented philosophy – objects, classes, and attributes – object behavior and methods – encapsulation and information hiding – class hierarchy – polymorphism – object relationships and associations – aggregations and object containment – case study – object identity – persistence. Object oriented systems development life cycle: Software development process – building high quality software – use- case driven approach – reusability.

UNIT II

Rumbaugh et al.'s object modeling technique – Booch methodology – Jacobson et al. methodologies, patterns, frameworks, the unified approach – Unified modeling language: Static and dynamic models – UML diagrams – UML class diagrams – use-case diagrams – UML dynamic modeling, packages– UML extensibility and UML metamodel.

UNIT III

Business object analysis – use-case driven object oriented analysis – business process modeling – use-case model – developing effective documentation - case study. Classification: Classification theory – noun phrase approach – common class patterns approach – use-case driven approach, classes, responsibilities, and collaborators– naming classes.

UNIT IV

Association – super-subclass relationships – a-part of relationships - case study, class responsibility – defining attributes for vianet bank objects – object responsibility – defining methods for vianet bank objects –Design process and design axioms: Corollaries, design patterns.

UNIT V

UML object constraint languages – designing classes – class visibility – refining attributes for the vianet bank objects – designing methods and protocols – designing methods for the vianet bank objects – packages and managing classes – Designing Access Layer Classes – Case Study: Designing – The Access Layer for the vianet Bank ATM – Designing View Layer Classes – Macro Level Process – Micro Level Process.

Text Book:

1. Ali Bahrami, Object Oriented Systems Development using the Unified Modeling Language, McGraw Hill, 1999. ISBN: 0-256-25348-X

Reference Books:

1. Simon Benett, Object Oriented Analysis and Design Using UML, Second Edition, McGraw-Hill, 2002. ISBN: 0-07-709864-1.
2. Atul Kahate, Object Oriented Analysis And Design, First Edition, McGraw-Hill, 2004. ISBN:0070583765
3. Joseph Schmuller, UML, Third Edition, Pearson Education, 2004. ISBN: 81-297-0609-1.

09CS208 DATA STRUCTURES

Credits: 3: 0: 0

Course Objective:

To introduce the fundamentals of Data Structures, abstract concepts and to expose the students to problem solving.

UNIT I

Introduction to data structures – Stack - definition and examples – specification and implementation, Polish notation – Idea, Infix to Postfix conversion – Postfix expression evaluation – Recursion – Divide and Conquer – Towers of Hanoi problem.

UNIT II

Queues – definition, implementation – circular queue – priority queue – simulation, Lists – contiguous implementation – singly linked lists – doubly linked lists – circular lists – linked stacks – linked queues.

UNIT III

Tables and Information Retrieval – Rectangular arrays – Tables of various shapes – Searching – Linear and Binary search methods – Sorting - Bubble sort – Selection sort – Shell sort – Insertion sort – Quick sort – Heap sort – Merge sort – Radix sort – Hashing.

UNIT IV

Trees – Binary trees - definition, traversals, linked implementation – Binary Search Trees– Height Balanced Trees – Comparison trees – Multiway Trees – External searching – B-trees.

UNIT V

Graphs – mathematical background, representation – Graph traversals (DFS & BFS) – Shortest path algorithm – Minimum spanning trees.

Text book:

1. R. Kruse, C. L. Tondo, B. P. Leung, Data Structures and Program Design, Third Edition, Pearson Education, 1999. ISBN 81-203-0884-0.

Reference Books:

1. S. Tanenbaum, Y. Langsam, and M. J. Augenstein, Data Structures Using C & C++, Second Edition, PHI/Pearson Education, 1996. ISBN 978-81-203-1177-0.
2. Mark Allen Weiss, Data Structures and Algorithm Analysis in C++, Third Edition, Addison Wesley, 2006. ISBN: **032144146X**.
3. Alfred V. Aho, J. D. Ullman, J. E. Hopcroft, Data structures and algorithms, Second Edition, Pearson Education, 1999. ISBN: 81-7758-826-5.
4. Bhagat Singh, Thomas L. Naps, Introduction to Data Structures, Tata McGraw-Hill, 1986.

09CS204 PROGRAMMING IN JAVA

Credits: 3:0:0

Course Objective:

1. **To learn the Java programming language fundamentals: its syntax, idioms, patterns, and styles.**
2. To learn object oriented programming concepts.
3. To learn the essentials of the Java class library.

UNIT I

The History and evolution of Java – An Overview of Java – Data Types, Variables and Arrays – Operators – Control Statements.

UNIT II

Introducing Classes – A Closer look at Methods and Classes – Inheritance – Packages and Interfaces – Exceptions Handling.

UNIT III

Multithreaded Programming – Enumerations – Autoboxing and Metadata – Generics.

UNIT IV

String Handling – Input/Output: Exploring java.io – Networking – The Applet Class.

UNIT V

Event Handling-Introducing the AWT: Working with Windows – Graphics and Text – Using AWT Controls – Layout Managers – Menus.

Text Book:

1. Herbert Schildt, Java - The Complete Reference, Tata McGraw- Hill, Seventh Edition, 2008. ISBN 13: 978-0-07-063677-4

Reference Books:

1. Kathy Sierra, Bert Bates, Head First Java, Second Edition, O'Reilly Media, 2005. ISBN:10-0596004656, ISBN-13:9780596004651.
2. Harvey M. Dietel, Java How to Program, Seventh Edition, Prentice Hall, 2007. ISBN:10-0132222205, ISBN:13-978-0132222204
3. Bruce Eckel, Thinking in Java, Fourth Edition, Prentice Hall, 2006. ISBN: 978-0131872486.
4. Ivor Horton, Beginning Java 2 JDK, Fifth Edition, Wiley, 2004. ISBN: 978-0-7645-6874-9.
5. Ken Arnold, James Gosling, David Holmes, The Java Programming Language, Fourth Edition, Prentice Hall Professional Technical Reference. ISBN-13:9780321349804
6. E. Balagurusamy, Programming with Java: A primer, Third Edition, Tata McGraw-Hill, 2007.

10VE201 VALUE EDUCATION

Credits: 2:0:0

Course Objectives:

1. To give an understanding of life in all its complexities and to provide practical opportunities and mold students to meet the needs of the people.
2. To sharpen the capacity of the student in enabling them to make right moral and ethical choices,
3. To develop professionals with social concern reaching out to the nation as leaders and serving the needy with divine grace and power.

UNIT-I

Introduction: Vision and Mission of Karunya. Value Education, Purpose and priority areas of Value Education. Importance of Values in Life – what is a Value system? Types of values, Value inculcation process, Clarifying values – Importance of Values in Life – what is a Value system? What kinds of values need to be inculcated eg. Ethical, moral and spiritual instead of materialistic values, value inculcation, trend of values such as a permissive culture. Character Building – advantages of good character, importance of trust, honesty, integrity, morality, and reliability as qualities of a good character. Building Relationship – Objectives, Ways to improve relationship, Issues that hinder relationship, Tools for effective relationship

UNIT- II

Personality Development- definition, types and ways to improve Personal effectiveness. Purpose and philosophy of Life – Learning the purpose driven life, Decision making skills,

Introspection, Moralization of Desires. Leadership – Qualities of a good leader, Types and Principles. Communication – Principles and Types, advantages and disadvantages to communication. Communication skills

UNIT-III

Foundation for success – Definition, Approaches for successful living, overcoming obstacles for success, and winning strategies – Desire, commitment, responsibility hard work and discipline. Emotions detrimental to personal growth - Hurt feelings – Dealing with anger, guilt, depression and stress.

Attitude – Definition, types, factors and steps to build positive attitude, benefits of positive attitude and consequences of negative attitude. Self-Esteem – Definition, Types, Characteristics of high and low self-esteem, Causes of low self-esteem and steps to build high self-esteem.

UNIT – IV

Biographical Studies –Founder Dr. D. G. S. Dhinakaran, Mother Teresa, Ida Scudder, William Carey, Amy Carmichael, George Muller – Their life and secret to success, values inculcated by such personalities. Social Issues – Corruption, Cyber Crime, AIDS Awareness, and Substance abuse-concept, source, consequences and remedy - Jesus Calls Ministry – History and Developments – 21 facets of Jesus Calls ministry.

UNIT – V

Sin and Temptation – Nature and Sources of sin, Ways to overcome temptation. Inner Life Integrity – Understanding Personality, Self-centered and God-centered Personality, Integrity in Time, Talent and Treasures. Human Resource Development – Eradication of worries, Benefits of Blessings, Greatness of Friendship, Purity in thought, Love and Compassion. Peace and Harmony – Individual Peace, Seven Steps to individual peace, Promoting World peace, Unity in diversity.

Reference Books:

1. C. Maxwell John. (2001). Power of Leadership, USA: River Oak Publishing.
2. Geoffrey Hanks. (1992). 70 Great Christians, Secunderabad: OM Books.
3. Khera Shiv. (1988). You Can Win, New Delhi: Mac Millan India Limited.
4. Khera Shiv. (2003). Living With Honour, New Delhi: Mac Millan India Limited.
5. Mani Jacob, ed., (2002). Resource for Value Education, New Delhi: Institute of Value Education.

10VE202 VALUE EDUCATION

Credits: 2:0:0

Course Objectives:

1. To give an understanding of life in all its complexities and to provide practical opportunities and mold students to meet the needs of the people.

2. To sharpen the capacity of the student in enabling them to make right moral and ethical choices,
3. To develop professionals with social concern reaching out to the nation as leaders and serving the needy with divine grace and power.

UNIT-I

Introduction: Vision and Mission of Karunya. Value Education, Purpose and priority areas of Value Education. Importance of Values in Life – what is a Value system? Types of values, Value inculcation process, Clarifying values Importance of Values in Life – what is a Value system? What kinds of values need to be inculcated eg. Ethical, moral and spiritual instead of materialistic values, value inculcation, trend of values such as a permissive culture. Character Building – Advantages of good character, Importance of trust, honesty, integrity, morality, and reliability as qualities of a good character. Building Relationship – Objectives, Ways to improve relationship, Issues that hinder relationship, Tools for effective relationship

UNIT- II

Personality Development- Definition, Types and ways to improve Personal effectiveness. Purpose and philosophy of Life – Learning the purpose driven life, Decision making skills, Introspection, Moralization of Desires. Leadership – Qualities of a good leader, Types and Principles. Communication – Principles and Types, advantages and disadvantages to communication. Communication skills

UNIT-III

Foundation for success – Definition, Approaches for successful living, overcoming obstacles for success, and winning strategies – Desire, commitment, responsibility hard work and discipline. Emotions detrimental to personal growth - Hurt feelings – dealing with anger, guilt, depression and stress.

Attitude – Definition, types, factors and steps to build positive attitude, benefits of positive attitude and consequences of negative attitude. Self-Esteem – Definition, Types, Characteristics of high and low self-esteem, causes of low self-esteem and steps to build high self-esteem.

UNIT – IV

Biographical Studies –Founder Dr. D. G. S. Dhinakaran, Mother Teresa, Ida Scudder, William Carey, Amy Carmichael, George Muller – Their life and secret to success, values inculcated by such personalities. Social Issues – Corruption, Cyber Crime, AIDS Awareness, and Substance abuse-concept, source, consequences and remedy - Jesus Calls Ministry – History and Developments – 21 facets of Jesus Calls ministry.

UNIT – V

Concept of God –Understanding and knowing God, Nature of God , Concept of Holy Spirit – The Gifts and the Fruit of the Holy Spirit, Concept of Man – His personality and accountability. Communication with God and Personal Devotion – Prayer, Quiet time and Practical Christian Living.

Sin and Temptation – nature and sources of sin, Ways to overcome temptation.

Inner Life Integrity – Understanding Personality, Self-centered and Christ-centered Personality, Integrity in Time, Talent and Treasures.

Reference Books:

1. C. Maxwell John. (2001). Power of Leadership, USA: River Oak Publishing.
2. Dr. D. G. S. Dhinakaran. Gifts of the Holy Spirit, Chennai: Jesus Calls.
3. E. M. Bounds. (2006). How to Pray Effectively, USA: Whitaker House.
4. Geoffrey Hanks. (1992). 70 Great Christians, Secunderabad: OM Books.
5. Khera Shiv. (1988). You Can Win, New Delhi: Mac Millan India Limited.
6. Mani Jacob, ed., (2002). Resource for Value Education, New Delhi: Institute of Value Education.
7. Valentine Davidar. (2000), Being Made whole, Hyderabad: Haggai Institute.

09CS225 DATASTRUCTURES IN C++ LAB

Credits: 0:0:2

1. Structures and Pointers
2. Classes and Objects
3. Implementation of Singly Linked List
4. Array Implementation of Stack
5. Array Implementation of Queue
6. Implementation of Doubly Linked List
7. Conversion of Infix to Postfix Expression
8. Binary Tree Traversal
9. Implementation of Function Overloading
10. Implementation of Operator Overloading
11. Sorting
12. Implementation of Inheritance

12 Experiments will be notified by the HOD from time to time. A tentative list is mentioned above.

09IT241 MICROPROCESSORS AND INTERFACING LAB

Credits: 0:0:2

1. Study of 8086 /8088
2. Arithmetic Operations
3. String Operations
4. Operations on arrays
5. Code Conversion
6. 8255 Programmable peripheral Interface
7. 8253 Programmable Interval Timer

8. 8259 Programmable Interrupt Controller
9. 0809 Analog to Digital Converter
10. 0800 Digital to Analog Converter
11. 8279 Programmable Display Interface
12. Stepper Motor Interface

12 Experiments will be notified by the HOD from time to time. A tentative list is mentioned above.

09IT236 CASE TOOLS LAB

Credits: 0:0:2

1. Study of software engineering basics and UML
2. Study of UML diagrams with an example
3. Implementation of use case diagram with an example
4. Implementation of class diagram with an example
5. Implementation of sequence diagram with an example
6. Implementation of collaboration diagram with an example
7. Implementation of state chart diagram with an example
8. Implementation of Activity diagram with an example
9. Implementation of Component diagram with an example
10. Implementation of Deployment diagram with an example
11. Forward and Reverse Engineering

12 Experiments will be notified by the HOD from time to time. A tentative list is mentioned above.

09CS222 JAVA PROGRAMMING LAB

Credits: 0:0:2

1. Basic Java Programs
2. Command Line Arguments
3. Arrays and Array of objects
4. Linked List Implementation using classes and objects
5. Inheritance
6. Package
7. Interface
8. Exception Handling
9. Synchronization with Multithreading
10. File management
11. Applets
12. Network programming

13. Event programming with AWT
12 Experiments will be notified by the HOD from time to time. A tentative list is mentioned above.

MA249 DISCRETE MATHEMATICS

Credits: 3:1:0

Unit I

Fundamentals: set and subsets – operation on sets – sequences – division in the integers – matrices – mathematical structures.

Logic: propositions and logical operation – conditional statements – methods of proof – mathematical induction.

Unit II

Relations and digraph: products sets and partitions – relations and digraphs – paths in relations and digraphs – properties of relations – equivalence of relations – computer representation of relations and digraphs – operations on relations – transitive closure and Wars hall's algorithm. Functions: functions – functions for computer science – growth of functions – permutation functions.

Unit III

Order relations and structures: partially ordered sets – external elements of partially ordered sets – lattices – finite Boolean algebras – functions on Boolean algebra.

Trees: trees – labeled trees – tree searching – undirected trees – minimal spanning trees.

Unit IV

Topics in graphs theory: graphs –euler paths and circuits –Hamiltonian Paths and circuits – transport networks – matching problems – coloring graphs.

Semi-groups and groups: binary operations revisited – semi-groups – products and quotients of groups.

Unit V

Languages and finite state machines : languages – representations of special grammars and languages – finite state machines – monoids ,machines and languages – machines and regular languages – simplification of machines.

Groups and coding: coding of binary information and error detection – decoding and error correction.

Text Book:

Bernard Kolman, Robert C. Busby ,Sharon Cutler Ross, “Discrete Mathematical Structures”, 5th Edition, Pearson Education, 2004

09CS209 SYSTEM SOFTWARE

Credits: 3:0:0

Course Objective:

To view some of the major tasks of the system software of a computer system, focusing on internal working of the hardware and software interface of a typical system.

UNIT I

Background: Introduction – System Software and Machine Architecture – The Simplified Instructional Computer (SIC) – Traditional (CISC) Machines – RISC Machines.

UNIT II

Assemblers: Basic assembler functions: A simple SIC assembler – Assembler algorithms and data structures – Machine dependent assembler features: Instruction formats and addressing modes – Program relocation – Machine independent assembler features: Literals – Symbol-defining statements – Expressions – Program Blocks – Control Sections and Program Linking – One Pass Assembler and Multipass Assemblers – Implementation examples: MASM assembler.

UNIT III

Loaders and Linkers: Basic Loader functions: Design of an Absolute Loader – A Simple Bootstrap Loader. Machine dependent Loader features: Relocation – Program Linking – Algorithm and Data Structures for Linking Loader. Machine-independent Loader features: Automatic Library Search – Loader Options. Loader design options: Linkage Editors – Dynamic Linking – Bootstrap Loaders. Implementation examples: MSDOS linker.

UNIT IV

Macro Processors: Basic Macro Processor functions: Macro Definition and Expansion – Macro Processor Algorithm and data structures. Machine-independent Macro Processor features: Concatenation of Macro Parameters – Generation of Unique Labels – Conditional Macro Expansion – Keyword Macro Parameters – Macro Processor Design Options – Recursive Macro Expansion – Algorithm – General Purpose Macro Processors – Macro Processing within Language Translators – Implementation examples: MASM Macro Processor – ANSI C Macro language.

UNIT V

Other System Software: Database Management System: Basic concepts of a DBMS Level – Levels of a data description – Use of a DBMS. Text editors: Overview of Editing Process – User Interface – Editor Structure. Interactive Debugging systems: Debugging functions and capabilities – Relationships with Other parts of the system – User Interface Criteria.

Text Book:

- 1 L. Beck, System Software, An Introduction to System Programming, Addison Wesley, 1999. ISBN: 81-7808-036-2.

Reference Books:

- 1 D. M. Dhamdhere, Systems Programming and Operating Systems, Tata McGraw-Hill Company, 1999. ISBN: 0-07-463579-4.
- 2 John J. Donovan, Systems Programming, Tata McGraw Hill-Edition, 1972.
- 3 D. M. Dhamdhere, Operating Systems: A Concept-based Approach, Second Edition, Tata McGraw-Hill, 2006. ISBN 0070611947.

09CS214 PRINCIPLES OF COMPILER DESIGN

Credits: 3:0:0

Course Objectives:

1. To introduce the major concept areas of language translation and compiler design
2. To develop an awareness of the function and complexity of modern compilers.
3. To provide practical, hands on experience in compiler design.

UNIT I

Introduction to Compilers: Translators-Compilation and Interpretation – The phases of Compiler-Errors encountered in different phases-The grouping of phases – cousins of the compiler-Compiler construction tools – A simple one-pass compiler– Context Free Grammars-Derivation – Reduction and Ambiguity.

UNIT II

Lexical Analysis: Need and role of lexical analyzer – Lexical errors-Expressing tokens by Regular Expression – Converting regular expression to DFA – Minimization of DFA – Language for specifying lexical analyzers – LEX-Design of lexical analyzer for a sample language.

UNIT III

Syntax Analysis: Need and role of the parser – Context Free Grammars – Top Down parsing – General strategies – Recursive Descent Parser – Predictive Parser – LL(1) Parser – Shift Reduce Parser – LR Parser – LR (0) item – Construction of SLR Parsing table – Introduction to LALR Parser – Error handling and recovery in syntax analyzer – YACC – Design of a syntax analyzer for a sample language.

UNIT IV

Syntax Directed Translation and Type Checking: Definitions – Construction of syntax trees – Bottom-up evaluation of S-attributed and L-attributed definitions – Top down translation – Bottom up evaluation – Forms of intermediate code – Translation of Assignment, Boolean Expression and Control statements – Backpatching type systems – Specification of a simple type checker – equivalence of type expressions – Type conversions.

UNIT V

Code Optimization and Code Generation: Principal sources of Optimization – DAG – Optimization of basic blocks – Global data flow analysis – Efficient data flow algorithms – Source language issues – Storage organization – Symbol tables – Dynamic storage allocation – Issues in design of a code generator – A simple code generator algorithm.

Text Book:

1. Alfred V Aho, Ravi Sethi and Jeffrey D Ullman, Compilers – Principles, Techniques and Tools, First Edition, Pearson Education, Nineteenth Indian Reprint, 2005. ISBN: 81-7808-046-X.

Reference Books:

- 1 Dick Grone, Henri E Bal, Cerial J H Jacobs and Koen G Langendoen, Modern Compiler Design, John Wiley and Sons, USA, 2000. ISBN-10: 0-471-97697-0.
- 2 Allen I. Hollub, Compiler Design in C, PHI, 1990. ISBN: 978-0131550452.

09CS206 UNIX ARCHITECTURE**Credits: 3:0:0****Course Objective:**

1. This course describes the algorithms, memory architecture, process management, system calls, interrupts and exceptions, and system startup.
2. To learn the internal working of Unix Kernel its Data Structures and System calls.

Pre Requisites: Operating System and Data Structure**UNIT I**

UNIX Operating System – History – Commands – essential Unix commands – vi editor – shell programming – The First Step – Taking Decisions – The Loop Control structure. Introduction to Kernel: Architecture of the UNIX operating system – introduction to system concepts. The buffer cache – Buffer headers – structure of the buffer pool – scenarios for retrieval of a buffer – Reading and writing disk blocks – advantages and disadvantages of the buffer cache.

UNIT II

The internal representation of Files – INODE - structure of a regular file – directories – conversion of a path name to an INODE – Super block – INODE assignment to a new file. System calls for the file system: Open – read – write – file - record locking – Adjusting the position of the file I/O-lseek - close – File creation – creation of special files – change directory change root – Change owner and change mode – Stat and fstat – pipes – DUP file Systems – link and unlink

UNIT III

The structure of processes: process states and transitions – Layout of system memory – The context of a process – saving the context of a process – Manipulation of the process address space - sleep – Process Control: Process Creation - signals – Process termination – Awaiting process termination – invoking other programs – the user ID of a process – Changing the size of a process – Process Scheduling and time: process scheduling – System calls for time- clock.

UNIT IV

Memory Management policies: Swapping – Demand Paging – The I/O subsystem: driver interfaces – Disk drivers. Terminal driver's stream.

UNIT V

Inter process Communication: Process Tracing – System V IPC – Network Communications – Sockets.

Text Book:

Maruice J. Bach, The design of the UNIX operating system, Prentice Hall of India, 1990. ISBN 0-13-201799-7.

Reference Books:

1. Kay A. Robbins, Steve Robbins, UNIX Systems Programming, Pearson Education, 2004. ISBN: 0-13-042411-0
2. Kenneth Rosen, Douglas Host, James Farber, Richard Rosinki, UNIX-The Complete Reference, McGraw- Hill, 1999. ISBN: 007211892X, 9780072118926.
3. Prabhat K. Andleigh, UNIX System Architecture, Prentice Hall, 1990. ISBN: 0139498435, 9780139498435.
4. Ed Dunphy, The UNIX Industry: Evolution, Concepts, Architecture, Applications and Standards, QED Technical Pub, 2007. ISBN: 089435390X, 9780894353901.
5. Andleigh, UNIX System Architecture, Prentice Hall, 1991. ISBN: 0139233016, 9780139233012.

09IT214 COMPUTER NETWORKS

Credits: 3:0:0

Course Objective:

1. To introduce key trends on network principles and practices.
2. To provide a top down approach which focus on the internet and its accessible styles.

UNIT I

Introduction: Computer Networks and the Internet-The network edge-The Network Core- Access networks and physical media- ISPs and Internet backbones- Delay and loss in packet switched networks- Protocol layers and their service models

UNIT II

Application Layer: Principles of network applications- The web and the HTTP- File transfer: FTP- Electronic mail in the internet- DNS- The Internet's Directory Service- P2P file sharing- Socket Programming with TCP, Socket Programming with UDP

UNIT III

Transport Layer: Introduction to transport layer services- Multiplexing and De-Multiplexing- Connectionless transport: UDP- Principles of reliable data transfer- Connection-oriented transport: TCP- Principles of congestion control- TCP congestion control

UNIT IV

Network Layer: Introduction-Virtual circuit and datagram networks- What's inside a router?- The Internet protocol (IP): Forwarding and addressing in the internet- Routing algorithms- Routing in the Internet

UNIT V

Link layer: introduction and services- Error detection and correction techniques- multiple access protocols-Link layer addressing-Ethernet, **Network Management:** Introduction-The Infrastructure for Network Management- the Internet standard management framework-ASN 1

Text Book:

J. F. Kurose, K. W. Ross, Computer Networking, A Top-Down Approach Featuring the Internet, 4th Ed, Addison-Wesley, 2007, ISBN 0321497708.

Reference Books

1. William Stallings, Data and Computer Communications, Prentice Hall, Eighth Edition, 2007, ISBN 9780132433105
2. Andrew S. Tanenbaum, Computer Networks, Prentice Hall of India, fourth edition, 2002 ISBN 0130661023.
3. F. Halsai, Data Communications, Computer Networks and Open Systems, Addison-Wesley Publications, Fourth Edition, 1996, ISBN 9780201422931
4. W. Richard Stevens, TCP/IP Illustrated Volume – I “The Protocols”, Addison Wesley Longman, 1995, ISBN 9780201633542

09CS207 ANALYSIS OF ALGORITHMS

Credits: 3:0:0

Course Objectives:

1. To provide an introduction to asymptotic algorithm analysis.
2. To develop algorithms for sorting, searching, insertion and matching.
3. To introduce the concept of computational intractability and NP completeness.

UNIT I

Introduction – Notion of algorithm – Fundamentals of algorithmic problem solving – important problem types – Fundamentals of the Analysis of Algorithm Efficiency – Analysis framework – Asymptotic notations and basic efficiency classes – Mathematical analysis of non-recursive algorithms – Mathematical analysis of recursive algorithms.

UNIT II

Brute Force – Selection sort and bubble sort – Sequential search and brute force string matching. Divide-and-Conquer – Merge sort – Quick sort – Binary search – Binary tree traversals and related properties.

UNIT III

Decrease-and-Conquer – Insertion sort, Depth-first search and breadth-first search – Topological sorting. Transform-and-Conquer – Presorting, Balanced search trees – Heaps and heap sort.

UNIT IV

Space and Time Tradeoffs – Sorting by counting – Input enhancement in string matching, Hashing – B-trees. Dynamic Programming – Computing a binomial coefficient – Warshall's and Floyd's algorithms.

UNIT V

Greedy Technique – Prim's algorithm – Kruskal's algorithm – Dijkstra's algorithm – Huffman trees – Iterative Improvement: The simplex method – The maximum matching in Bipartite Graph – Limitations of Algorithm Power – P, NP and NP- complete problems.

Text Book:

Anany Levitin, Introduction to the Design & Analysis of Algorithms, Pearson Education, 2007. ISBN-10: 0321358287.

Reference Books:

- 1 S. K. Basu, Design Methods and Analysis of Algorithms, Prentice-Hall India, 2005. ISBN: 81-203-2637-7.
- 2 Jeffrey Mcconnell, Analysis of Algorithm, Jones and Battlet, 2008. ISBN-10: 0-7637-0782-1.
- 3 Jon Bentley, Programming Pearls, Second Edition, Pearson Education, 2000.
- 4 Cormen, Leiserson, Rivest, Stein, Introduction to Algorithms, Second Edition, Prentice Hall, 2001.
- 5 A.V. Aho, J. E. Hopcroft and J. D. Ullman, The Design and Analysis of Computer Algorithms, Pearson Education Asia, 2003.
- 6 Sara Baase and Allen Van Gelder, Computer Algorithms - Introduction to Design and Analysis, Pearson Education Asia, 2003.

10MS202 BUSINESS ENVIRONMENT

Credits: 2:0:0

Objectives

To understand the overall business environment and evaluate its various components in business decision making.

Learning Outcome:

The course helps the students to familiarise with the nature of business environment and its components. The course contents facilitate the students to develop conceptual framework of business environment and generate interest in international business.

Unit I - Business Environment – Types– micro environment –macro environment - global environment –competitor analysis –environment analysis – forecasting techniques.

Unit II - Nature of International Business – International business and domestic business –FDI – factors – International operations managements –strategic issues.

Unit III - Technological Environment – source of technological dynamics – appropriate technology – technology adaption –globalization – transfer of technology.

Unit IV - Financial system – monetary and fiscal policies – credit market – money market and capital market- nature and constituents –industrial financing institutions (an overview).

Unit V - Global environment – WTO – multinational corporations – export and import policy – foreign exchange FERA and FEMA -corporate governance –social responsibility and business.

Text Books

1. Francis Cherunilam, Business Environment- Text and Cases, Himalaya Publishing House, New Delhi (latest Edition)
2. Aswathappa, International Business, The McGraw Hill Companies, New Delhi (latest edition)
3. Shaikh Saleem, Business Environment, New Delhi, Pearson, 2006.

09CS220 SYSTEM SOFTWARE AND COMPILER LAB

Credits: 0:0:2

1. Token Separation
2. Simulation of Macro-processor
3. Simulation of Assembler
4. Simulation of Loader
5. Symbol Table Generation
6. Token Separation using Lex Compiler
7. A lex program which replaces vowels in the input string to 'V'
8. A lex program to count the occurrence of 'aaa' in the input string
9. Intermediate Code Generation
10. Minimization of DFA
11. FIRST and FOLLOW of Predictive Parser
12. Conversion of Regular Expression to NFA

12 Experiments will be notified by the HOD from time to time. A tentative list is mentioned above.

09CS219 UNIX AND LINUX LAB

Credits: 0:0:2

1. Study Experiment- UNIX basics
2. Basic Shell Programming (Fibonacci Series generation, Factorial of a given number, Checking for Armstrong number)

3. Designing a Arithmetic calculator
4. Generation of Multiplication table
5. Base Conversion (Decimal to Binary, Binary to Decimal)
6. Checking for a Palindrome of a number
7. Finding the information about the Login name and File name
8. Students Evaluation
9. Process Creation (Basics, Arithmetic operations on processes, Displaying process ID, Creation of grandchild processes)
10. System calls (Usage of link(), Usage of dup(), Renaming a file)
11. Inter Process Communication using Named Pipe
12. Inter Process Communication using Unnamed Pipe
13. Inter Process Communication using Shared Memory
14. Sockets

12 Experiments will be notified by the HOD from time to time. A tentative list is mentioned above.

09IT242 NETWORKING LAB

Credits: 0:0:2

1. TCP two way communication
2. UDP two way communication
3. File Transfer Protocol
4. Remote method Invocation
5. Shortest path Algorithm
6. Study of Wireless Network
7. Realization of wireless network using WAP and wireless adaptors
8. Router Management
9. Introduction of OPNET
10. Simulation of LAN and Ethernet
11. Simulation of WAN
12. Simulation of TCP
13. Network Design
14. Video Conferencing Application

12 Experiments will be notified by the HOD from time to time. A tentative list is mentioned above.

10MS201 ENGINEERING PROJECT COSTING

Credits: 2:1:0

Objective:

The basic objective of the course is to give an insight about the importance of costing and to create necessary cost awareness to the students which adds to their knowledge a focused approach /path in the present highly competitive globalised arena. This paper provides the

necessary inputs particularly for students pursuing Engineering courses and imbibe knowledge on project cost analysis etc

Learning Outcome:

At the end of the course the students will be able to know and apply the cost concepts in real life projects. Project costing knowledge gives the students a practical and foreseeing insight in his area of employment. It enables them to have an awareness on cost consciousness and helps them to take cost effective decisions.

UNIT-1 : INTRODUCTION: Costing –Scope, Objectives ,Advantages ,Limitations, Role of Costing in WTO Objections against costing, steps in installation of cost accounting system in business, Characteristics of an ideal costing system

UNIT-2: CONCEPTS: Cost concepts- cost classification-Elements of cost –simple Cost sheet - Unit costing, Service costing - Project Cost Estimate - Application –Tender-Calculation of Machine hour rate

UNIT-3: APPLICATIONS: Job costing-Objectives, merits, limitations, Application –Process costing- application, abnormal loss, abnormal gain- - Simple break even analysis- Inventory control in projects-

UNIT-4: PROJECT COST MANAGEMENT: Key project parties-Managing risk in private infrastructure project-Project related activities-PPP (Public private partnership in infrastructure projects-outline Facet of project analysis –Key issues in major investment decisions –statement of analysis of cost variation

UNIT-5: PROJECT INVESTMENT BUDGETING:- Objectives, common weakness-techniques(NPV, Payback, ARR, Profitability index)-Project disparities and conflict in ranking-Project control and Performance Analysis - Decision making.

Text Books:

1. Jain .S.P,Narang.K.L(2007) Kalyani publishers ,New Delhi
2. Prasanna Chandra 2009 7th edition, McGraw Hill, New Delhi

Reference Book:

1. Bhavesh M Patel, Project Management, (2009) Recent Reprint, Vikas Publishing House, Noida (UP)

09CS205 SOFTWARE ENGINEERING

Credits: 3: 0: 0

Course Objective:

To learn

1. Different life cycle models.

2. Requirement dictation process.
3. Analysis modeling and specification.
4. Architectural and detailed design methods.
5. Implementation and testing strategies.
6. Verification and validation techniques.
7. Project planning and management.
8. Use of CASE tools

UNIT I

Introduction: A Generic View of Process – Process Models-The Waterfall Model-Incremental Model-Evolutionary Model-Specialized Model-The Unified Process–Agile Process – Agile Models – Software Cost Estimation – Planning – Risk Analysis – Software Project Scheduling.

UNIT II

Requirement Analysis: System Engineering Hierarchy – System Modeling – Requirements Engineering: Tasks- Initiating The Process-Eliciting Requirements-Developing Use Cases-Negotiating Requirements-Validating Requirements – Building the Analysis Models: Concepts.

UNIT III

Software Design :Design Concepts – Design Models – Pattern Based Design – Architectural Design – Component Level Design – Component – Class Based And Conventional Components Design – User Interface – Analysis And Design.

UNIT IV

Software Testing :Software Testing – Strategies: Conventional - Object Oriented – Validation Testing – Criteria – Alpha – Beta Testing- System Testing – Recovery – Security – Stress – Performance - Testing Tactics – Testing Fundamentals-Black Box – While Box – Basis Path-Control Structure.

UNIT V

SCM And Quality Assurance :Software Configuration And Management-Features-SCM Process-Software Quality Concepts – Quality Assurance – Software Review–Technical Reviews – Formal Approach To Software Quality Assurance – Reliability – Quality Standards – Software Quality Assurance Plan

Text Book:

Roger Pressman.S., Software Engineering: A Practitioner's Approach, Sixth Edition, McGraw- Hill, 2005. ISBN: 007-124083-7.

Reference Books:

1. Sommerville, Software Engineering, Eighth Edition: Addison Wesley, 2007. ISBN: 032-131379-8.
2. Carl Dichter, Mark Pease, Software Engineering with Perl, Prentice Hall, 2007. ISBN: 013-016965-X.
3. James F Peters, Witold Pedrycz, Software Engineering-An Engineering Approach, John Witold Pedrycz, 2004. ISBN: 997-1513099.

4. P. Fleeger, Software Engineering, Third Edition, Prentice Hall, 1999. ISBN: 013-146913-4.
5. Carlo Ghezzi, Mehdi Jazayari, Dino Mandrioli, Fundamentals Of Software Engineering, Prentice Hall Of India 1991. ISBN: 013-820432-2.

ME243 PRINCIPLES OF RESOURCE AND QUALITY MANAGEMENT

Credits: 3:1:0

UNIT – I : Linear Programming

Linear Programming-Formation of the problem-Graphical Method-Simplex method-Primal dual Problems-Dual Simplex method – Two Phase Method – assignment models – transportation models – degeneracy in transportation models.

UNIT – II : Network Analysis

Resource scheduling – Sequencing in jobs through two machines and three machines, network analysis: PERT and CPM – Network Diagram – Probability of achieving completion date – Crash time – Cost analysis.

UNIT – III : Queuing and Game Theory

Queuing theory: Characteristics of Queuing model – Single channel models with Poisson arrival and exponential service (To be illustrated with engineering application – No derivation)
Game Theory: Two persons – Zero sum games – Pure Strategies and Mixed Strategy – Saddle point method – Graphical method – Concept of Dominance.

UNIT – IV : Introduction to Quality Management

Definition of quality – Dimensions of Quality – Basic Concept of Total Quality Management – Historical review – Principles of TQM – Seven tools of quality – Deming philosophy – Barriers to TQM implementation – Benchmarking definition – Reasons to Benchmark – Procedure, Quality function Deployment - definition – Benefits – Procedure – 5S Kaizen concepts of Six Sigma and its overview.

UNIT – V : Quality Systems

Need for ISO 9000 and Other quality systems – ISO 9000, 2000 Quality Systems – Elements - Implementation of Quality systems – Documentation – Quality Auditing – QS 9000 - ISO 14000 – Concept, Requirements and benefits.

Text Books

1. S.Bhaskar, Operations Research, Anuradha Agencies, 1999. (Chapters 2, 3, 4.1 – 4.8, 4.12 – 4.13, 6.1 – 7.6, 8, 9.2, 11, 13.1 – 13.5)
2. Dale H. Besterfield, Total Quality Management, Pearson Education Asia, 2002. (Chapters 1, 9, 10, 11)
3. J.M.Juran, Quality Planning and Analysis, Fifth Edition, Tata McGraw Hill Publishers, 1998.(Chapter 17)

09CS201 DATABASE SYSTEMS

Credits: 3:0:0

Course Objectives:

1. To develop an enterprise data model that reflects the organization's fundamental business rules.
2. To be able to create databases and pose complex SQL queries of relational databases.
3. To develop and refine the conceptual data model, including all entities, relationships, attributes, and business rules.
4. To integrate and merge database views into conceptual model.
5. To apply normalization techniques.
6. To identify data integrity and security requirements.
7. To derive a physical design from the logical design taking into account application, hardware, operating system, and data communications networks requirements.

UNIT I

Introduction: Database-System Application – Purpose of Database System – View of Data, Database Language – Relational Database – Database Design – Object-Based and Semi structured Databases – Data Storage and Querying – Transaction Management – Data mining and Analysis – Database Architecture – Database Users and Administrators. Relational Model: Structure of Relational Databases – Fundamental Relational-Algebra operations – Additional Relational-Algebra operations – Extended Relational Algebra – Null value, Modification of the database.

UNIT II

SQL: Background – Data Definition – Basic Structure of SQL Queries – Set Operations – Aggregate functions – Null values – Nested sub queries – Complex Queries – Views – Modification of Database. Advanced SQL: SQL Data Types and Schema – Integrity Constraint – Authorization – Embedded SQL – Dynamic SQL. Application Design and Development: Triggers – Authorization in SQL

UNIT III

Database Design and E-R Model: Overview of the design process – E-R model – Constraints – E-R Diagram – E-R Design Issues – Weak Entity – Extended E-R Features – Database Design for Banking Enterprise – Reduction to Relational Schema. Database-System Architecture: Centralized and Client-Server Architecture – Server System Architecture.

UNIT IV

Relational Database Design: Features of good Relational Design – Atomic Domains and First Normal Form – Decomposition Using Functional dependencies – Functional Dependency Theory – Decomposition Using Functional Dependencies – Multivalued Dependencies – More Normal form – Database-Design Process – Modeling Temporal data.

UNIT V

Storage and File Structure: File organization – Organization of records in files – Data Dictionary Storage. Indexing and Hashing: Basic Concept – Ordered Indices – B+ Tree Index Files – B-Tree Index Files – Multiple-Key Access – Static Hashing – Dynamic Hashing – Comparison of Ordered Indexing and Hashing. Transaction: Transaction concepts – Transaction State – Implementation of atomicity and durability – Concurrent executions – Serialization.

Text Book:

1. Abraham Silberschatz, Henry F. Korth and S. Sudarshan, Database System Concepts, Fifth Edition, Mc Graw-Hill International, 2006. ISBN 007-124476-X.

Reference Book:

1. Ramez Elmasri, Durvasula V. L. N. Somayajulu, Shamkant B. Navathi and Shyam K. Gupta, Fundamentals of Database Systems, Pearson Education, 2006. ISBN 81-7758-476-6.

09IT208 WEB TECHNOLOGY

Credits: 3:0:0

Course Objective:

- 1.To build web applications using ASP and client side script technologies use with Microsoft's IIS.
- 2.To build XML applications with DTD and style sheets that span multiple domains ranging from finance to vector graphics to genealogy for use with legacy browsers.

UNIT I

VBScript Language Elements: Constants - Variables and Data Types - Mathematical Operations - Logical Operators - Looping and Decision Structures.VBScript Functions and Objects: Data Conversion Functions - Mathematical Functions - Data Formatting Functions - Text Manipulation Functions - Data and Time Functions - Built-in Objects.

UNIT II

ASP fundamentals: Using Server – Side Includes- Learning the SSI Directives – Creating Modular ASP Code. Using the Request Object: Using Form Information - Using Query String Information – Using Server Variables. Using the Response Object: Create Output – Managing Output – Managing the Connection.

UNIT III

Using Cookies: Introduction to Cookies – Cookies and Your Browser – Creating a Cookie – Modifying and removing Cookies – Tracking Preferences with Cookies Using the Application, Session, and Server Objects: The application Object - The Session Object – The Server Object – Using the global .asa file - Active Data Objects Essentials: Microsoft's Universal Data Access Strategy – The Connection Object – The Record set and Field Objects – The Command and Parameter Objects – Using the Errors Collection.

UNIT IV

Introducing XML: What is XML - Why are Developers Excited About XML? – The Life of an XML documents - Related technologies- Your First XML Document: Hello XML – Exploring the Simple XML Document – Assigning Meaning to XML Tags – Writing a Style Sheet for an XML Document – Attaching a Style Sheet to an XML Document – Style Languages: CSS Style Sheets,CSS Layouts,CSS Text Styles.

UNIT V

Attributes, Empty tags & XSL: Attributes – Attributes versus Elements – Empty Elements and Empty Element Tags – XSL-DTDs and Validity: Document Type Definitions - Element Declarations – DTD Files – Document Type Declarations – Validating Against a DTD-Element Declaration - Entity Declarations: What Is an Entity – Internal General Entities – External General Entities – Internal Parameter Entities – External Parameter Entities – Building a Document from Places-Attribute Declaration: What is an Attribute – Declaring Attributes in DTDs - Declaring Multiple Attributes – Specifying Default Values for Attributes – Attribute Types – Predefined Attributes – A DTD for Attribute- Based Baseball Statistics.

Text Books:

1. Eric A. Smith, “ASP 3 Programming Bible”,Wiley-Dreamtech India (P) Ltd, 2003, ISBN: 81- 265-0049-2.
2. Elliotte Rusty Harold, “XML Bible”, IDG Books India (P) Ltd, 2003,Second Edition , ISBN: 81- 265-0212-6.

Reference Books:

1. Dave Mercer, ASP 3.0 Beginners Guide, Tata McGraw-Hill Edition, Sixth reprint, 2004, ISBN: 0072127414.
2. Kenneth L. Spencer, Kenneth C. Miller & Lauran Lassesen, Introducing VBScript &
3. ActiveX, Comdex Computer Publication, 1997, ISBN: 9780764580109.

09CS221 DATABASE SYSTEMS LAB

Credits: 0:0:2

1. Basic SQL Commands
2. Working With Single-Row Functions
3. Joins And Group Functions
4. Sub Queries
5. Advanced Sub Queries And Co-Related Sub Queries
6. Creation Of Views And Other Data Base Objects
7. Triggers
8. PL/SQL
9. Functions And Procedures
10. Exception Handling
11. JDBC-Online Quiz
12. JDBC –Online Shopping

12 Experiments will be notified by the HOD from time to time. A tentative list is mentioned above.

09IT238 WEB TECHNOLOGY AND MULTIMEDIA LAB

Credits: 0:0:2

1. Working with HTML
2. Working with VB-Script
3. Form validation using VB-Script
4. Usage of Session Object
5. Online Ticket Reservation
6. Word game design using ASP
7. Working with Database
8. Working with XML and CSS
9. Working with XML and XSL
10. Adobe Photoshop
11. Macromedia Flash MX
12. Macromedia Flash MX- Calculator

12 Experiments will be notified by the HOD from time to time. A tentative list is mentioned above.

09CS213 INTELLIGENT SYSTEMS

Credits: 3:0:0

Course Objectives:

1. To introduce the basic concepts of artificial intelligence.
2. To introduce new approaches to solve a wide variety of research-oriented problem.

Prerequisite: Basic concepts of computer science such as algorithms and data structure.

UNIT I

What is Artificial Intelligence? – Problems, Problem Spaces, and Search – Heuristic Search Techniques.

UNIT II

Knowledge Representation Issues – Using Predicate Logic.

UNIT III

Representing Knowledge Using Rules – Symbolic Reasoning under Uncertainty – Statistical Reasoning.

UNIT IV

Weak Slot-and-Filler Structures – Strong Slot-and-Filler Structures – Knowledge representation Summary – planning.

UNIT V

Learning : What is learning – Rote learning – Learning by taking advice – Learning in problem-solving – Learning from Examples: Induction – Explanation-based Learning – Discovery – Analogy – Formal learning theory – Neural net learning and genetic learning. Expert Systems.

Text Books:

1. Elaine Rich, Kevin Knight, Shivashankar B. Nair, Artificial Intelligence, Third Edition, McGraw-Hill, 2009. ISBN -13: 973-0-07-008770-5. ISBN-10 : 0-07-008770-9

Reference Books:

1. Stuart Russell, Peter Norvig, Artificial Intelligence a modern Approach, Second Edition, Pearson Education, 2003. ISBN: 81-297-0041-7.
2. Nils J. Nilsson, Artificial Intelligence: A New Synthesis, Harcourt Asia PTE Ltd., 2000. ISBN: 981 4033 464.
3. Dan W. Patterson, Introduction to Artificial Intelligence and Expert Systems, Prentice-Hall India, 2001. ISBN: 81-203-0777-1.

09CS216 VISUAL PROGRAMMING

Credits: 3:0:0

Course Objectives:

1. To introduce the concepts of visual programming.
2. To introduce GUI programming using Microsoft foundation classes.
3. To enable the students to develop programs and simple application using Visual C++.

UNIT I

Programming with Visual C++ 2008: The .NET Framework – The Common Language Runtime (CLR) – Writing C++ Applications – Learning Windows Programming - What Is the Integrated Development Environment? – Using the IDE. Windows Programming Concepts: Windows Programming Basics – The Structure of a Windows Program – Windows Program Organization – The Microsoft Foundation Classes – Using Windows Forms

UNIT II

Windows Programming with the Microsoft Foundation Classes: The Document/View Concept in MFC – Creating MFC Applications. Working with Menus and Toolbars: Communicating with Windows – Extending the Sketcher Program – Elements of a Menu – Adding Handlers for Menu Messages – Adding Toolbar Buttons – Menu and Toolbars in a C++/CLI Program. Drawing in a Window: Basics of Drawing in a Window – The Drawing Mechanism in Visual C++ – Drawing Graphics in Practice – Programming the Mouse – Exercising Sketcher – Drawing with the CLR.

UNIT III

Creating the Document and Improving the View: The MFC Collection Classes – Using the CList Template Class – Creating the Sketch Document – Improving the View – Deleting and Moving Shapes – Implementing a Context Menu – Dealing with Masked Elements – Extending CLRSketcher. Working with Dialogs and Controls: Understanding Dialogs – Understanding Controls – Creating a Dialog Resource – Programming for a Dialog – Supporting the Dialog Controls – Completing Dialog Operations – Using a Spin Button Control – Using the Scale Factor – Working with Status Bars – Using a List Box – Using an Edit Box Control – Dialogs and Controls in CLR Sketcher.

UNIT IV

Storing and Printing Documents: Understanding Serialization – Serializing a Document – Applying Serialization – Exercising Serialization – Moving Text – Printing a Document – Implementing Multipage Printing – Serialization and Printing in CLR Sketcher. Writing Your Own DLLs: Understanding DLLs – Deciding What to put in a DLL – Writing DLLs.

UNIT V

Connecting to Data Sources: Database Basics – A Little SQL – Database Support in MFC – Creating a Database Application – Sorting a Recordset – Using a Second Recordset Object – Viewing Customer Details. Updating Data Sources: Update Operations – A Simple Update Example – Managing the Update Process – Adding Rows to a Table.

Text Book:

Ivor Horton, Beginning Visual C++ 2008, Wiley Dreamtech India Pvt. 2008. ISBN:978-0-470-22590-5

Reference Books:

1. Steve Holzner, Professional Visual C++ 6 Programming, Wiley Dreamtech India Pvt. 1998
2. David J. Kruglinski, George Shepherd and Scot Wingo, Programming Microsoft Visual C++, Fifth Edition, Microsoft Press 1998.
3. Yashavant Kanetkar, Visual C++ Programming, BPB publications 1998.

09IT210 COMPUTER GRAPHICS

Credits: 3:0:0

Course Objective:

The aim of this course is to give the fundamentals of graphics and animation. The concept of Principles of 2D Graphics, 3D Graphics, Visible Surface Determination, are studied in detail for a competitive computer professional

UNIT I

Basic principles of two dimension graphics : Raster versus vector graphics-The first java 2D program-Basic geometric objects-Geometric transformations-Homogenous coordinates-Applications of transformations-Geometric transformations in java 2D-Animation and

movements based on transformations- Interpolators for continuous changes- implementations of interpolators in Java 2D-Single or double precision

UNIT II

Drawing lines and curves: Lines and pixel graphics-The midpoint algorithm for lines-Structural algorithms-Pixel densities and line styles-Lineclipping-Midpoint algorithm for circles-Drawing arbitrary curves-Antialiasing-Drawing thick lines-Filling areas-Buffered images in java 2D-Displaying text-Text in java 2D-Grey images and intensities-Colour Model-Colour Interpolation with java 2D.

UNIT III

Basic principles of three-dimensional graphics :Geometric transformations-The scenegraph-Elementary geometric objects in java 3D-The scenegraph in java 3D- Animations and moving objects- Projections in Java 3D-Modelling Three dimensional objects-Three Dimensional objects and their surfaces-Topological notions-Modelling techniques-Surface Modeling with polygons in java 3D-importing geometric objects in to java3D-Parametric curves and freedom surfaces-normal vectors for surfaces

UNIT IV

Visible surface determination: Clipping volumes-Algorithms for visible surface determination-Image precision techniques-Priority algorithms-Illumination and shading- Light sources-Light sources in java 3D-Reflection-Shading in java 3D-Shading-Shadows-Transparency-Textures-Textures in java 3D-The radiosity model-Ray tracing.

UNIT V

Special effects and virtual reality: Fog and particle systems- Fog in Java 3D- Dynamic surfaces- Interaction-Interaction in Java 3D-Collision detection-Collision detention in Java 3D-Sound effects-Sound effects in Java 3D- stereoscopic viewing

Text Book:

Frank Klawonn, Introduction to Computer Graphics Using Java 2D and 3D, Springer, 2008, ISBN: 978-1-84628-847-0

Reference Books:

1. Rick Parent, Computer Animation Algorithms and Techniques, Morgan Kaufmann publishers, 2002, ISBN 1558605797
2. James D.Foley, et al, Computer Graphics Principles and Practices, Addison Wesley, 1996,ISBN-31-2043-22-2,
3. F.S.Hill,jr ,Computer graphics using Open GL,Prentice Hall of India,2006,iSBN—81-203-2813-2
4. Peter Shirley, et al, Fundaments of Computer Graphics, AK Peters Ltd, 2005, ISBN: 978-1-56881-269-4.
5. Issac Victor Kerlow, The Art of 3D Computer Animation and Effects, John Wiley,2004, ISBN:0471430366 .

09MS209 MANAGERIAL SKILL

Credits: 2:0:0

Unit: I – (5 hrs)

Creativity - Basic concepts – Mental Abilities - Barriers to creativity – Convergent and Divergent thinking - Improving creativity – Creative Problem Solving methods – Steps to creative problem solving- Games on Creativity

Unit: II – (6 hrs)

Governance Types of Governance: **Global governance – Democratic governance – Participatory governance - Corporate governance - Project governance – e-governance – Elements of effective Governance- Case study of effective governance models.**

Unit III – (7 hrs)

Team Building & Conflict Management - Groups and Teams – Teams basics – Stages of Team building – Forming, Storming, Norming, Performing, Adjourning – Characteristics of effective teams – **Conflicts** - Positive and Negative effects of conflict – Types and stages of conflict – Conflict Management styles - Role plays

Unit: IV – (7 hrs)

Group Discussion & Personal Interview

Preparation for Group Discussions - Techniques – Do's & Don'ts of a GD – **Personal Interview:** Types of Interviews - Preparation for interview – Criteria for successful interview – Mock Sessions.

Unit IV – (5hrs)

Adapting to Corporate life – Corporate Dressing – Dress codes – Grooming for men and women – Business Etiquettes – Table manners – Dealing with people – Peers, Subordinates & Bosses – Communication media etiquettes.

Practical Sessions:

1. Resume writing, Group Discussion, & Interview.

Recommended Text Book

Stephen P. Robbins, Essentials of **Organizational Behavior**, (2002) John Wiley & Sons, , New York,

Reference Books:

1. **Timpe, Dale A. (2005)**, “**Creativity**” M/s. **Jaico Publishing House**, New Delhi
2. **Rao. V.M. E-Governance (2006)** ABD Publishers. Jaipur
3. Jerald Greenberg, Robert A. Baron / Carol A. Sales / Frances A. Owen / Verlag (1999) Behaviour in Organizations,: Pearson Education
4. Pradip. N. Khandwalla (2006) The Winning Edge, Corporate Creativity. published by Tata Mcgraw Hill
5. John L. Colley, Corporate Governance Jacqueline L. Doyle, Published 2003 McGraw-Hill Profession

09CS226 VISUAL PROGRAMMING LAB

Credits: 0:0:2

1. Creating simple window application using MFC
2. Basics of Drawing in a Window
3. Programming the Mouse
4. Creating Menus
5. Dialog Based applications
6. Creating spin control / List box and other controls
7. Creating MDI applications
8. Creating DLLs and using them
9. Document view Architecture, Serialization
10. Data access through ODBC

12 Experiments will be notified by the HOD from time to time. A tentative list is mentioned above