Bharath Postgraduate College
In collaboration with

KARANATAKA STATE OPEN UNIVERSITY
Manasagangotri, Mysore – 570006,

B Tech – COMPUTER SCIENCE

SEMESTER SYSTEM

SYLLABUS

I YEAR SYLLABUS

(Basic Engineering)
(Common to all Branches)

Subject Code	Subject Title	Max marks	Max Credits
Semester-I			
BE1001	English-I	100	**2**
BE1002	Mathematics-I	100	**2**
BE1003	Engineering Physics-I	100	**2**
BE1004	Engineering Chemistry-I	100	**2**
BE1005	Fundamentals of Computing and Programming	100	**3**
BE1006	Physics & Chemistry Laboratory – I	100	**2**
BE1007	Computer Application Lab– I	100	**2**
Semester -II			
BE2001	Technical English	100	**2**
BE2002	Mathematics-II	100	**2**
BE2003	Engineering Physics-II	100	**2**
BE2004	Engineering Chemistry-II	100	**2**
BE2005	Engineering Graphics	100	**3**
BE2006	Computer Application Lab -II	100	**2**
BE2007	Engineering Practices Laboratory	100	**2**

Computer - III Semester

Subject Code	Subject Title	Max Marks	Max Credits
CS3001	Engineering Mathematics	100	2
CS3002	Database Management Systems	100	3
CS3003	Electronic Devices and Circuits	100	3
CS3004	Data Structures	100	3
CS3005	Computer Architecture	100	3
CSP001	Database Management Systems Lab	100	2
CSP002	Data Structures Lab	100	2

Computer -IV Semester

Subject Code	Subject Title	Max Marks	Max Credits
CS4001	Electrical Engineering and Control Systems	100	2
CS4002	Operating Systems	100	3
CS4003	Digital System Design	100	2
CS4004	Software Engineering	100	3
CS4005	Discrete Mathematics	100	3
CSP003	Operating Systems Lab	100	2
CSP004	Digital System Design Lab	100	2

Computer -V Semester

Subject Code	Subject Title	Max Marks	Max Credits
CS5001	Design and Analysis of Algorithms	100	2
CS5002	Soft Computing	100	3
CS5003	Microprocessor and Microcontrollers	100	3
CS5004	Principles of Compiler Design	100	3
CS5005	Digital Signal Processing	100	3
CSP005	Microprocessor and Microcontrollers Lab	100	2
CSP006	Design and Analysis of Algorithms Lab	100	2

Computer -VI Semester

Subject Code	Subject Title	Max Marks	Max Credits
CS6001	Web Technology	100	3
CS6002	System Software	100	3
CS6003	Object Oriented Programming	100	3
CS6004	Artificial Intelligence	100	3
CS6005	Embedded Systems	100	3
CSP007	Web Technology Lab	100	2
CSP008	Object Oriented Programming Lab	100	2

Computer -VII Semester

Subject Code	Subject Title	Max Marks	Max Credits
CS7001	Principles and Management	100	3
CS7002	Computer Networks	100	2
CS7003	Java Programming	100	2
	Elective-I	100	3
	Elective-II	100	3
CSP009	Java Programming Lab	100	2
CSP010	Computer Networks Lab	100	2

Computer -VIII Semester

Subject Code	Subject Title	Max Marks	Max Credits
CS8001	Computer Graphics	100	3
	Elective-III	100	3
	Elective-IV	100	3
CSP011	Computer Graphics Lab	100	2
CSP012	Project	300	6

Total Marks = 5600
Total Credits = 136

List of Electives

Subject Code	Subject Title
CSE001	Advanced Computer Architecture
CSE002	Mobile and Pervasive Computing
CSE003	Advanced Java Programming
CSE004	Grid Computing
CSE005	Advanced Microprocessor
CSE006	Advanced Database Management
CSE007	Real Time Systems
CSE008	Cryptography and Network Security

SEMESTER   : I
Subject Code   : BE 1001
Subject Title   : English - I
Structure of the Course Content
BLOCK 1   Focus on Language (Grammar)
      Unit 1: Prefixes, Suffixes and Synonyms & Antonyms
      Unit 2: Framing of Questions and Subject Verb and Agreement
      Unit 3: Five Major Pattern and Voice
      Unit 4: Preposition, Phrasal Verbs and Use of Conditionals
BLOCK 2   Reading
      Unit 1: Skimming the Text
      Unit 2: Scanning the Text
      Unit 3: Note Making
      Unit 4: Comprehension
BLOCK 3   Writing
      Unit 1: Definition
      Unit 2: Description
      Unit 3: Process Description
      Unit 4: Formal and Informal Letter Writing
BLOCK 4   Listening
      Unit 1: Extensive Listening
      Unit 2: Intensive Listening
      Unit 3: Note Making
      Unit 4: Inferential Comprehension
BLOCK 5   Speaking
      Unit 1: Developing Confidence & Introducing One self
      Unit 2: Describing Objectives
      Unit 3: Analysing Problem & Providing Solutions
      Unit 4: Expressing Opinions and giving instruction

Books:

1. A.S.Hornby, 'The advanced learners Dictionary of current English', Oxford university

2. Longman Basic English dictionary Ist Edition Pearson Longman

3. Department of Humanities and Social Sciences, Anna University, English for Engineers and Technologists, Vol.1, 2nd Edition, Orient Longman Ltd., 2002.

4. Chellammal, V., Learning to Communicate: A Resource Book for Scientists and Technologists, Allied Pub. Pvt. Ltd., Chennai, 2003.

5. Sharon J. Gerson, Steven M. Gerson, Technical Writing – Process and Product, 3rd Edition, Pearson Education (Singapore) Pvt. Ltd., New Delhi, 2004.

6. Vocabulary in Practice - Part 1 to 4 by Glennis Pye, Cambridge University Press,

7. Learn Correct English by Shiv K. Kumar & Hemalatha Nagarajan, Pearson Longman,

8. Essential English Grammar by Raymond Murphy, Cambridge University Press.

9. Common Errors in English by M.Thomas, Lotus Press, New Delhi, 2006

10. Basic English Usage by Michael Swan, ELBS/OUP, 1989

SEMESTER : I
Subject Code : BE 1002
Subject Title : Mathematics - I
Structure of the Course Content
BLOCK 1   Matrices
      Unit 1: Rank of a matrix – Consistency of linear system of equations
      Unit 2: Eigen value problem
      Unit 3: Cayley –Hamilton theorem
      Unit 4: Orthogonal matrices – Orthogonal transformation of a symmetric Matrix
BLOCK 2   Three Dimensional Analytical Geometry
      Unit 1: Direction cosines and ratios – Angle between two lines
      Unit 2: Equations of a plane – Equations of a straight line – Coplanar lines
      Unit 3: Shortest distance between skew lines – Sphere – Tangent plane
      Unit 4: Plane section of a sphere – Orthogonal spheres
BLOCK 3   Geometrical Applications Of Differential Calculus
      Unit 1: Curvature – Cartesian and polar co-ordinates
      Unit 2: Centre and radius of curvature
      Unit 3: Circle of curvature
      Unit 4: Involutes and evolutes – Envelopes
BLOCK 4   Functions Of Several Variables
      Unit 1: Functions of two variables – Partial derivatives – Total differential
      Unit 2: Taylor's expansion, Maxima and minima
      Unit 3: Lagrange's Multiplier method – Jacobians
      Unit 4: Differentiation under integral sign.
BLOCK 5   Ordinary Differential Equations
      Unit 1: Simultaneous first order linear equations with constant coefficients
      Unit 2: Linear equations of second order with constant and variable coefficients
      Unit 3: Homogeneous equations of Euler type
      Unit 4: Equations reducible to homogeneous form, Method of variation of Parameters

Books:

1. Veerarajan,T., "Engineering Mathematics," Second Edition , Tata McGraw–Hill Pub. Co.

2. Venkataraman, M.K., "Engineering Mathematics, Volume I," Fourth Edition, The National Pub. Co., Chennai, 2003.

3. Kreyszig, E., "Advanced Engineering Mathematics", Eighth Edition, John Wiley and Sons (Asia) Ltd., Singapore, 2001.

4. Grewal, B.S., "Higher Engineering Mathematics", Thirty Sixth Edition, Khanna Publish.

5. Kandasamy, P., Thilagavathy, K., and Gunavathy, K., "Engineering Mathematics" Volume I, Fourth Revised Edition, S. Chand & Co., New Delhi, 2000.

6. Widder, D.V. "Advanced Calculus", Second Edition, Prentice Hall of India, New Delhi,

7. Engineering Mathematics Vol-III by Dr. B. Krishna Gandhi , Dr. T.K.V Iyengar, S.Ranganatham, , S.Chand & Co, New Delhi

8. Introduction to Engineering Mathematics by H.K. Dass, Dr.Rama Verma, S.Chand & Co,

9. Applied Engineering Mathematics Vol-II by H.K.Dass, S.Chand & Co.

10. Advanced Engineering Mathematics by N.Bali,M.Goyal,C.Watkins, Lakshmi Publications (Pvt) Ltd, New Delhi

SEMESTER   : I
Subject Code   : BE 1003
Subject Title   : Engineering Physics - I
Structure of the Course Content
BLOCK 1   Acoustics and Ultrasonic
      Unit 1: Sound and Weber Fechner law
      Unit 2: Factors affecting acoustics of buildings
      Unit 3: Ultrasonic production
      Unit 4: SONAR, Measurement of velocity of blood flow & movement of heart
BLOCK 2   Crystallography & Non-Destructive Testing
      Unit 1: Space lattice, unit cell, Bravais space lattices, Lattice planes
      Unit 2: Miller indices Calculation of number of atoms per unit cell, Atomic Radius
      Unit 3: coordination number & packing factor for simple cubic
      Unit 4: NDT methods
BLOCK 3   Wave Optics
      Unit 1: Air wedge and testing of flat surfaces
      Unit 2: Michelson interferometer, Types of fringes
      Unit 3: Theory of plane and Photo elasticity
      Unit 4: Isoclinic and iso-chromatic fringes – Photo elastic bench
BLOCK 4   Quantum Physics
      Unit 1: Planck's quantum theory of black body radiation, Photo electric effect
      Unit 2: Compton effect
      Unit 3: Schrödinger wave equation
      Unit 4: Physical significance of wave function & electrons in a metal
BLOCK 5   Laser & Fibre Optics
      Unit 1: Einstein's coefficients and Laser
      Unit 2: Material processing, CD-ROM & Holography
      Unit 3: Optical fibre
      Unit 4: Fibre optics communication system

Books:

1. Rajendran V. and Marikani A., Applied Physics for Engineers, 3rd Edition, Tata McGraw–Hill Publishing Company Limited, New Delhi, 2003.

2. Arumugam M., Engineering Physics, 5th Edition, Anuradha Agencies, Kumbakonam,

3. Palanisamy P.K., Physics for Engineers, Vol.1 & Vol.2, 2nd Edition, Scitech Publications,

4. Gaur R.K. and Gupta S.L., Engineering Physics, 8th edition, Dhanpat Rai Publications

5. Uma Mukherji, Engineering Physics, Narosa Publishing House, New Delhi, 2003.

6. Modern Engineering Physics by A.S.Vasudeva, S. Chand Publishers, New Delhi

7. Engineering Physics Fundamentals & Modern Applications by P.Khare and A.Swarup, Lakshmi Publications (Pvt) Ltd, New Delhi

8. Engineering Physics by Dipak Chandra Ghosh,Nipesh Chandra chosh,Prabir Kumar Haldar, Lakshmi Publications (Pvt) Ltd, New Delhi

9. Engineering Physics by Vikram Yadav, Tata McGraw Hill, New Delhi

10. Schaum's Outline of Physics for Engineering and Science by Michael Browne, Tata

SEMESTER   : I
Subject Code   : BE 1004
Subject Title   : Engineering Chemistry - I
Structure of the Course Content
BLOCK 1   Electro Chemistry
     Unit 1: Galvanic cells – reversible and irreversible cells
     Unit 2: Single electrode potential, standard electrodes, electrochemical series
     Unit 3: Nernst equation and Metal
     Unit 4: Glass electrode, concentration cells and Kohlrausch law
BLOCK 2   Thermodynamics
     Unit 1: Thermodynamic terms – definition of system
     Unit 2: Thermodynamic equilibrium
     Unit 3: Law of thermodynamics
     Unit 4: Entropy of phase transitions, Gibbs Helmholtz equation
BLOCK 3   Chemical Kinetics
     Unit 1: Kinetics of second order reaction
     Unit 2: Kinetics of opposing, parallel and consecutive reactions
     Unit 3: Decomposition of diethyl ether in gaseous phase – radioactive decay
        of polonium
     Unit 4: Effect of temperature on reaction rate – theory of absolute reaction rate
BLOCK 4   Surface Chemistry And Catalysis
     Unit 1: Adsorption
     Unit 2: Freundlich, Langmuir isotherms
     Unit 3: Catalysis
     Unit 4: Michaelis – Menton equation – acid base catalysis
BLOCK 5   Spectroscopy
     Unit 1: Electromagnetic spectrum
     Unit 2: Electronic transition, Vibrational transition and rotational transition
     Unit 3: Lambert's Law –colorimetric analysis – estimation of concentration of
        a solution by colorimetry
     Unit 4: Visible & UV spectroscopy, IR spectroscopy
Books:

1. Puri B.R., Sharma L.R. and Madan S. Pathania, Principles of Physical Chemistry, Shoban Lal Nagin Chand & Co., Jalandhar, 2000.

2. Jain P.C and Renuka Jain, Physical Chemistry for Engineers, Dhanpat Rai & Sons, Delhi

3. Bahl B.S., Tuli G.D., and Arun Bahl, Essentials of Physical Chemistry, S.Chand& Co.

4. Kuriacose J.C. & Rajaram J, Chemistry in Engineering & Technology, Vol. 1, Tata McGraw

5. Introduction to Engineering Chemistry by Minaxi B Lohani, Upma Misra, S.Chand & Co, New

6. Engineering Chemistry by Dr.A.K.Pahari,Dr.B.S.Chauhan, Lakshmi Publications (Pvt) Ltd,

7. Advanced Engineering Chemistry by M.Senapati, Lakshmi Publications (Pvt) Ltd, New Delhi

8. Engineering chemistry by Uppal , Khanna publishers

9. Environmental chemistry &Pollution control by Dara .SS, S. Chand&co

10. Environmental Pollution by, Tripathy .SN , Sunakar panda - Vrinda publication

SEMESTER   : I
Subject Code   : BE 1005
Subject Title   : Fundamentals of Computing and Programming
Structure of the Course Content
BLOCK 1   Introduction to Computer
      Unit 1: Introduction, Evaluation and generation of Computer
      Unit 2: Classification of Computers
      Unit 3: Basic Computer organization
      Unit 4: Number Systems
BLOCK 2   COMPUTER ARITHMETIC AND SOFTWARE
      Unit 1: Computer Codes
      Unit 2: Computer Arithmetic
      Unit 3: Computer Software
      Unit 4: Logical System Architecture – Software Development Steps
BLOCK 3   PROBLEM SOLVING AND OFFICE AUTOMATION
      Unit 1: Planning the Computer Program – Purpose
      Unit 2: Algorithm – Flow Charts – Pseudocode
      Unit 3: Application Software Packages- Word Processing – Spreadsheet
      Unit 4: Graphics – Personal Assistance.
BLOCK 4   INTRODUCTION TO C
      Unit 1: Overview of C – Constants, Variables and Data Types
      Unit 2: Operators and Expression – Managing Input and Output Operators
      Unit 3: Decision Making and Branching
      Unit 4: Decision Making and Looping
BLOCK 5   FUNCTIONS AND POINTERS
      Unit 1: Arrays – Handling of Character Strings
      Unit 2: User-Defined Functions- Structures and Unions
      Unit 3: Pointers
      Unit 4: Developing a C Programs
Books:
1. Pradeep K.Sinha and Priti Sinha, "Computer Fundamentals: Concepts, Systems and Applications", BPB Publications, 2003.

2. E.Balagurusamy, "Programming in ANSI C", TMH, New Delhi, 2002.

3. Allen B.Tucker et.al, "Fundamentals of Computing I", TMH New Delhi, 1998.

4. V.Rajaraman, "Fundamentals of Computers", Prentice-Hall of India, 2002.

5. Herbert Schidt, "C Made Easy", McGraw-Hill.

SEMESTER   : I
Subject Code   : BE 1006
Subject Title   : Physics & Chemistry Laboratory
Structure of the Course Content
Practical
List of Experiments for Physics

1. Torsional Pendulum – determination of rigidity modulus of wire and moment of inertia of disc.

2. Non Uniform Bending - Young modulus determination

3. Viscosity –Determination of co-efficient of Viscosity of liquid by Poiseuilles flow

4. Lee's disc – Determination of thermal conductivity of a bad conductor

5. Air wedge – Determination of thickness of a thin wire

6. Newton rings – Determination of Focal length of a lens

7. Spectrometer – Dispersive power of a prism

8. Determination of wavelength of Laser using Grating and Particle size determination.

List of Experiments Chemistry

I. Weighing and preparation of standard solutions

1. Preparation of molar and normal solutions of the following substances - oxalic acid, sodium carbonate, sodium hydroxide, hydrochloric acid.

2. Preparation of buffer solutions: borate buffer, phosphate buffer using Henderson equation.

II. Water Analysis

1. Determination of total hardness, temporary & permanent hardness of water by EDTA method.

2. Determination of DO content by Winkler's method.

3. Determination of alkalinity in a water sample.

4. Determination of chloride content of water sample by argentometric method.

III. Conductometry

1. Conduct metric titration of mixture of acids.

2. Conduct metric precipitation titration using $BaCl_2 – Na_2SO_4$.

SEMESTER : I
Subject Code : BE 1007
Subject Title : Computer Application Lab - I
Structure of the Course Content

Practical

MS-OFFICE
a) Word Processing
1. Document creation, Text manipulation with Scientific notations.
2. Table creation, Table formatting and Conversion.
3. Mail merge and Letter preparation.
4. Drawing - flow Chart

b) Spread Sheet
1. Chart - Line, XY, Bar and Pie.
2. Formula - formula editor.
3. Spread sheet - inclusion of object, Picture and graphics, protecting the document and sheet.
4. Sorting and Import / Export features.

C Programming
1. Data types, Expression Evaluation, Condition Statements.
2. Functions, Recursion and parameter passing mechanisms.
3. Arrays
4. Structures and Unions
5. Pointers and Functions
6. File Processing
7. Dynamic allocation & Linked List

SEMESTER   : II
Subject Code   : BE 2001
Subject Title   : Technical English
Structure of the Course Content
BLOCK 1   Focus on Language
>   Unit 1: Cause and Effect Expression
>   Unit 2: Connectives & Imperative and Modal Verbs
>   Unit 3: Infinitives, Gerunds and Reporting Verbs
>   Unit 4: Varied Grammatical Functions of the same word

BLOCK 2   Reading
>   Unit 1: Reading Comprehension
>   Unit 2: Guided note Making
>   Unit 3: Evaluating the style
>   Unit 4: Cloze Reading

BLOCK 3   Writing
>   Unit 1: Formal Letter Writing
>   Unit 2: Technical Report
>   Unit 3: Industrial Report
>   Unit 4: Project Proposal

BLOCK 4   Listening
>   Unit 1: Listening for global Comprehension and Specification information
>   Unit 2: Listening to speech Segments
>   Unit 3: Listening to recorded telephonic conversation
>   Unit 4: Listening to Short and Long conversion

BLOCK 5   Speaking
>   Unit 1: Activities related to professional skills
>   Unit 2: Role plays activities and Conversational etiquette
>   Unit 3: Group discussion & Mock interview
>   Unit 4: Academic skills

Books:

1. A.S.Hornby, 'The advanced learners Dictionary of current English', Oxford university press.

2. Longman Basic English dictionary Ist Edition Pearson Longman

3. Department of Humanities and Social Sciences, Anna University, English for Engineers and Technologists, Vol.2, Orient Longman Ltd., 2002, 2nd Edition.

4. T M Farhathullah, Communication Skills for Technical Students, Orient Longman Ltd., 2002.

5. Andrea J. Rutherford, Basic Communication Skills for Technology, 1st Edn., Pearson Education Asia (Singapore) Pvt. Ltd., Bangalore, 2001.

6. Vocabulary in Practice - Part 1 to 4 by Glennis Pye, Cambridge University Press,

7. Learn Correct English by Shiv K. Kumar & Hemalatha Nagarajan, Pearson Longman,

8. Essential English Grammar by Raymond Murphy, Cambridge University Press.

9. Common Errors in English by M.Thomas, Lotus Press, New Delhi, 2006

10. Basic English Usage by Michael Swan, ELBS/OUP, 1989

SEMESTER : II
Subject Code : BE 2002
Subject Title : Mathematics - II
Structure of the Course Content
BLOCK 1   Multiple Integrals
      Unit 1: Double integration – Cartesian and polar coordinates
      Unit 2: Change of order of integration – Area as a double integral
      Unit 3: Triple integration in Cartesian coordinates
      Unit 4: Change of variables between Cartesian and polar coordinates
BLOCK 2   Vector Calculus
      Unit 1: Gradient, divergence and curl
      Unit 2: Line, surface and volume integrals
      Unit 3: Green's, Gauss divergence
      Unit 4: Stoke's theorems
BLOCK 3   Analytic Functions
      Unit 1: Function of a complex variable – Analytic function
      Unit 2: Cauchy, Riemann equations in Cartesian coordinates
      Unit 3: Determination of harmonic conjugate by Milne – Thomson method
      Unit 4: Conformal mapping and bilinear transformation.
BLOCK 4   Complex Integration
      Unit 1: Cauchy's theorem and Cauchy's integral formula
      Unit 2: Taylor and Laurent expansion – Singularities
      Unit 3: Residues – Cauchy's residue theorem
      Unit 4: Contour integration – Unit circle and semi-circular contours
BLOCK 5   Laplace Transform
      Unit 1: Transforms of elementary functions – Basic properties
      Unit 2: Inverse transforms
      Unit 3: Derivatives and integrals of transforms
      Unit 4: Convolution theorem – Transform of periodic functions

Books:

1. Grewal, B.S., "Higher Engineering Mathematics", Thirty Sixth Edition, Khanna Delhi,

2. Kreyzig, E., "Advanced Engineering Mathematics", Eighth Edition, John Wiley & Sons

3. Narayanan, S., Manicavachagom Pillay, T.K. and Ramaniah, G., "Advanced Mathematics for Engineering Students", Volumes I and III, S. Viswanathan (Printers and Publishers)

4. Grewal, B.S., "Higher Engineering Mathematics", Thirty Sixth Edition, Khanna, Delhi,

5. Kandasamy, P., Thilagavathy, K., and Gunavathy, K., "Engineering Mathematics" Volume II, Fourth Revised Edition, S. Chand & Co., New Delhi, 2000.

6. Widder, D.V. "Advanced Calculus", Second Edition, Prentice Hall of India, New Delhi,

7. Engineering Mathematics Vol-III by Dr. B. Krishna Gandhi , Dr. T.K.V Iyengar, S.Ranganatham, , S.Chand & Co, New Delhi

8. Veerarajan,T., "Engineering Mathematics (for First Year)," Second Edition ,Tata Mc Hill

9. Venkataraman, M.K., "Engineering Mathematics, Volume II," Fourth Edition, The National Pub. Co., Chennai, 2003.

10. Kreyszig, E., "Advanced Engineering Mathematics", Eighth Edition, John Wiley and

SEMESTER   : II
Subject Code   : BE 2003
Subject Title   : Engineering Physics - II
Structure of the Course Content
BLOCK 1   Crystal Defects
    Unit 1: Crystal imperfection – point defects-line defects
    Unit 2: Dislocations
    Unit 3: Burger Vector – Dislocation climb
    Unit 4: Strengthening mechanisms for the improvement of mechanical Properties
BLOCK 2   Conducting and Semi conducting Materials
    Unit 1: Drawbacks of classical theory- Fermi distribution function
    Unit 2: Origin of band gap in solids, Concept of effective mass of electron and hole
    Unit 3: Types of Semiconductor
    Unit 4: Hall effect
BLOCK 3   Magnetic and Dielectric Materials
    Unit 1: Origin of magnetic moment – Bohr magneton
    Unit 2: Weiss theory of Para magnetism, Determination of paramagnetic Substance
    Unit 3: Ferromagnetism, Anti-ferromagnetic materials and Ferrites magnetic
    Unit 4: Storage of magnetic data
BLOCK 4   Nuclear Physics
    Unit 1: Nuclear forces – Einstein's mass energy relation– binding energy
    Unit 2: Nuclear fission
    Unit 3: Nuclear reactor
    Unit 4: Nuclear power station
BLOCK 5   New Engineering Materials
    Unit 1: Superconducting
    Unit 2: Meissner effect, Isotope effect
    Unit 3: Magnetic levitation and SQUIDS - Metallic glasses
    Unit 4: Nano phase materials

Books:

1. Arumugam M, Materials Science, 3rd Edition, Anuradha Agencies, Kumbakonam, 2003.

2. Srivastava C.M. and Srinivsan C, Science of Engineering Materials, 2nd Edition, New Age International (P) Ltd, Publications, New Delhi, 1997.

3. Rajendran V. and Marikani A., Applied Physics for Engineers, 3rd Edition, Tata McGraw.

4. Palanisamy, P.K., Materials Science, 2nd Edition, Scitech Publications (India), Pvt. Ltd.,

5. Murthy V.S.R., Jena AK, Gupta K.P. and Murthy G.S., Structure and Properties of Engineering Materials, Tata McGraw-Hill Publishing Company Ltd, New Delhi, 2003.

6. Kenneth G. Budinski, Michel K. Budinski, Engineering Materials Properties and Selection, 7th Edition, Pearson, Singapore (Prentice Hall), 2002.

7. Vasudeva A.S., Modern Engineering Physics, 2nd Edition, S.Chand & Co. Ltd., Delhi.

8. Modern Engineering Physics by A.S.Vasudeva, S. Chand Publishers, New Delhi

9. Engineering Physics Fundamentals & Modern Applications by P.Khare and A.Swarup, Lakshmi Publications (Pvt) Ltd, New Delhi

10. Engineering Physics by Dipak Chandra Ghosh,Nipesh Chandra chosh, Prabir Kumar

SEMESTER   : II
Subject Code   : BE 2004
Subject Title   : Engineering Chemistry - II
Structure of the Course Content
BLOCK 1   Fuels And Combustion
    Unit 1: Classification of fuels
    Unit 2: Coal varieties, coke and cracking
    Unit 3: Synthetic petrol and Fischer
    Unit 4: Gaseous fuels
BLOCK 2   Mechanical Engineering Materials
    Unit 1: Abrasives
    Unit 2: Refractories
    Unit 3: Lubricants
    Unit 4: Polymer blends and alloys
BLOCK 3   Water Technology And Corrosion
    Unit 1: Corrosion
    Unit 2: Sacrificial anode - boiler feed water
    Unit 3: Boiler compounds – caustic embrittlement – boiler corrosion
    Unit 4: Priming and foaming – desalination by reverse osmosis
BLOCK 4   Phase Rule And Physical Metallurgy
    Unit 1: Phase rule
    Unit 2: Thermal analysis
    Unit 3: Physical metallurgy - powder metallurgy
    Unit 4: Mixing and blending – compacting – sintering
BLOCK 5   Analytical Techniques
    Unit 1: Gravimetry analysis of Pb, Fe, Al, and Ni - complex metric titrations
    Unit 2: Estimation of Ni, Zn, and Mg - redox titrations
    Unit 3: Estimation of iron by dichrometry and copper by iodometry
    Unit 4: Atomic absorption spectroscopy, quantitative estimation of Ni and Cr.
Books:
1. Jain P.C. and Monika Jain, Engineering Chemistry, Dhanpat Rai Pub. Co. (P) Ltd., New Delhi, Edition 2002.

2. Dara S.S., A text book of Engineering Chemistry, S. Chand Co. (P) Ltd., New Delhi, 2003.

3. Vogel A.I., A text book Quantitative Inorganic Analysis, ELBS, London, 2000.

4. Engineering chemistry by Uppal , Khanna publishers

5. Environmental chemistry &Pollution control by Dara .SS, S. Chand&co.

6. Environmental Pollution by . Tripathy .SN , Sunakar panda - Vrinda publication

7. Rain water Harvesting-hand book by Chennai Metro Water

8. Introduction to Engineering Chemistry by Minaxi B Lohani, Upma Misra, S.Chand & Co, New Delhi

9. Engineering Chemistry by Dr.A.K.Pahari,Dr.B.S.Chauhan, Lakshmi Publications (Pvt) Ltd, New Delhi

10. Advanced Engineering Chemistry by M.Senapati, Lakshmi Publications (Pvt) Ltd, New Delhi

SEMESTER : II
Subject Code : BE 2005
Subject Title : Engineering Graphics
Structure of the Course Content
BLOCK 1 Projection of Points, Lines And Surfaces
    Unit 1: General principles of presentation of technical drawings as per BIS
    Unit 2: First angle projection. And Orthographic projection of points
    Unit 3: Projections of straight lines located in first quadrant only
    Unit 4: Projections of plane surfaces like polygonal lamina and circular lamina
BLOCK 2 Projections of Solids
    Unit 1: Projection of simple prism
    Unit 2: Projection of simple pyramid
    Unit 3: Projection of simple cylinder
    Unit 4: Projection of simple cone
BLOCK 3 Sections of Solids and Development
    Unit 1: Sectioning of simple prisms
    Unit 2: Sectioning of simple pyramids
    Unit 3: Sectioning of simple cylinder
    Unit 4: Sectioning of simple cone and sphere
BLOCK 4 Pictorial Projections
    Unit 1: Isometric views of simple truncated prisms
    Unit 2: Isometric views of pyramids
    Unit 3: Isometric views of cylinders
    Unit 4: Isometric views of cones
BLOCK 5 Free-Hand Sketching
    Unit 1: Free hand sketching techniques
    Unit 2: sketching of orthographic views
    Unit 3: Hand dimensioning.
    Unit 4: Sketching pictorial views from given orthographic views.
Books:
1. Nataraajan K.V, "Engineering Drawing and Graphics ", Private Publisher, Chennai.

2. Venugopal K., "Engineering Graphics", New Age International (P) Limited, 2002.

3. Bertoline and Wiebe, Fundamentals of Graphics Communication, Third edition, McGraw-

4. Warren J. Luzadder and Jon. M.Duff, "Fundamentals of Engineering Drawing", Prentice Hall of India Pvt. Ltd., Eleventh Edition, 2001.

5. Gopalakirishna K.R., "Engineering Drawing (Vol. I & II)", Subhas Publications, 1998.

6. Engineering Drawing by Shah/Rana,Ist Edition Pearson Longman

7. Machine Drawing with AutoCAD by Pohit/Ghosh, Ist Edition Pearson Longman

8. Engineering Graphics by Prof.P.J.Shah, S.Chand & Co, New Delhi

Standards :
1. IS 10711 - 2001 Technical Product Documentation - Sizes of drawing sheets

2. IS 9609 - 1983 Lettering on technical drawings

3. IS 10714 - 1983 General Principles of presentation of technical drawings

4. IS 11669 - 1986 General Principles of dimensioning of technical drawings

SEMESTER   **: II**
Subject Code   **: BE 2006**
Subject Title   **: Computer Application Lab - II**
Structure of the Course Content

Practical

1. UNIX COMMANDS

(i) Study of Unix OS - Basic Commands - Process Management Commands - Unix Editor

2. SHELL PROGRAMMING

(i) Simple Shell program - Conditional Statements - Testing and Loops

(ii) Commands line substitution

3. C PROGRAMMING AND FILE MANAGEMENT

(i) C Program to implement Unix Commands

4. PROCESS MANAGEMENT AND SIGNAL HANDLING

(i) Programs in C for signal handling and Process management

SEMESTER   : II
Subject Code   : BE 2007
Subject Title   : Engineering Practices Laboratory
Structure of the Course Content
                                        Practical

1. CIVIL ENGINEERING PRACTICE
Plumbing

Basic pipe connections involving the fittings like valves, taps

Wood Work

Sawing, planing, making common joints: T-Joint, Dovetail joint.

2. ELECTRICAL ENGINEERING PRACTICE

Basic household wiring using switches, fuse, indicator-lamp, Tube Light

3. MECHANICAL ENGINEERING PRACTICE
Welding

Arc welding of butt joints, lap joints, tee joints.

Basic Machining

Simple turning, and drilling operations

4. ELECTRONIC ENGINEERING PRACTICE
Soldering simple electronic circuits and checking continuity **SEMESTER   : III**

Subject Code : CS3001
Subject Title : **Engineering Mathematics**
Structure of the Course Content
BLOCK 1 PARTIAL DIFFERENTIAL EQUATIONS
Unit 1: Formation of partial differential equations
Unit 2: Solution of standard types of first order partial differential equations
Unit 3: Lagrange's linear equation
Unit 4: Linear partial differential equations of second and higher order

BLOCK 2 Fourier Series
Unit 1: General Fourier series – Odd and even functions
Unit 2: Half range Sine and Cosine series
Unit 3: Complex form of Fourier series
Unit 4: Parseval's identify and Harmonic Analysis

BLOCK 3 Boundary value problems
Unit 1: Second order quasi linear partial differential equations
Unit 2: One dimensional wave and heat equation
Unit 3: Steady state solution of two-dimensional heat equation
Unit 4: Fourier series solutions in Cartesian coordinates

BLOCK 4 Fourier Transform
Unit 1: Fourier integral theorem (without proof) and Fourier transform pair
Unit 2: Sine and Cosine transforms – Properties
Unit 3: Transforms of simple functions
Unit 4: Convolution theorem and Parseval's identity

BLOCK 5 Z -Transform and Difference Equations
Unit 1: Z-transform - Elementary properties
Unit 2: Inverse Z – transform
Unit 3: Convolution theorem
Unit 4: Formation of difference equations

Books:
1. Grewal, B.S., "Higher Engineering Mathematics", Thirty Sixth Edition, Khanna Publishers, Delhi, 2001.

2. Kandasamy, P., Thilagavathy, K., and Gunavathy, K., "Engineering Mathematics Volume III", S. Chand & Company ltd., New Delhi, 1996.

3. Wylie C. Ray and Barrett Louis, C., "Advanced Engineering Mathematics", Sixth Edition, McGraw-Hill, Inc., New York, 1995

4. Andrews, L.A., and Shivamoggi B.K., "Integral Transforms for Engineers and Applied Mathematicians," Macmillen , New York ,1988.

5. Narayanan, S., Manicavachagom Pillay, T.K. and Ramaniah, G., "Advanced Mathematics for Engineering Students", Volumes II and III, S. Viswanathan (Printers and Publishers) Pvt. Ltd. Chennai, 2002.

6. Churchill, R.V. and Brown, J.W., "Fourier Series and Boundary Value Problems", Fourth Edition, McGraw-Hill Book Co., Singapore, 1987

SEMESTER   : III
Subject Code   : CS3002
Subject Title   : Database Management Systems
Structure of the Course Content
BLOCK 1   Introduction to Conceptual Modelling
    Unit 1: Introduction to File and Database systems
    Unit 2: Database system structure – Data Models
    Unit 3: Introduction to Network and Hierarchical Models
    Unit 4: Relational Model – Relational Algebra and Calculus
BLOCK 2   Relational Model
    Unit 1: SQL – Data definition- Queries in SQL
    Unit 2: Integrity and Security
    Unit 3: Relational Database design
    Unit 4: Functional dependences and Normalization for Relational Databases
BLOCK 3   Data Storage and Query Processing
    Unit 1: Record storage and Primary file organization
    Unit 2: Secondary storage Devices
    Unit 3: Operations on Files- Heap File- Sorted Files
    Unit 4: Index Structure for files
BLOCK 4   Transaction Management
    Unit 1: Transaction Processing
    Unit 2: Schedule and Recoverability- Serializability and Schedules
    Unit 3: Types of Locks
    Unit 4: Time stamp based concurrency control
BLOCK 5   Current Trends
    Unit 1: Object Oriented Databases
    Unit 2: Complex Types- Inheritance Reference Types
    Unit 3: XML – Structure of XML- Data- XML Document
    Unit 4: Data Mining and Data Warehousing
Books:

1. Abraham Silberschatz, Henry F. Korth and S. Sudarshan- "Database System Concepts", Fourth Edition, McGraw-Hill, 2002
2. Ramez Elmasri and Shamkant B. Navathe, "Fundamental Database Systems", Third Edition, Pearson Education, 2003.
3. Raghu Ramakrishnan, "Database Management System", Tata McGraw-Hill Publishing Company, 2003.
4. Hector Garcia–Molina, Jeffrey D.Ullman and Jennifer Widom- "Database System Implementation"- Pearson Education- 2000.
5. Peter Rob and Corlos Coronel- "Database System, Design, Implementation and Management", Thompson Learning Course Technology- Fifth edition, 2003

SEMESTER   : III
Subject Code   : CS3003
Subject Title   : Electronic Devices and Circuits
Structure of the Course Content
BLOCK 1   Component and Diodes
      Unit 1: Resistor
      Unit 2: Diode
      Unit 3: Rectifiers
      Unit 4: Filters
BLOCK 2   Bipolar Junction Transistors
      Unit 1: Transistor Biasing
      Unit 2: Transistor Configuration
      Unit 3: RC Coupled Amplifier
      Unit 4: Feedback Amplifiers
BLOCK 3   Transistor Oscillators and FET, UJT
      Unit 1: Oscillator
      Unit 2: FET
      Unit 3: FET Amplifiers and choppers
      Unit 4: UJT
BLOCK 4   Thyristors
      Unit 1: SCR
      Unit 2: DIAC
      Unit 3: TRIAC
      Unit 4: MOSFET and IGBT
BLOCK 5   Opto Electronic Devices and Wave shaping Circuits
      Unit 1: LDR, LED and LCD
      Unit 2: Opto Coupler, Interrupter
      Unit 3: Clipping and Clamping Circuits
      Unit 4: Multivibrators
Books :
1.Principle of Electronics By VK Metha
2.Electronic Principles by Malvino, Tata MC Publishers
3. Electronics Devices and Circuits by Allen Mottershed, Tata McGraw – Hill Publication
4. Electronics Devices and Circuits by Jacob Millman and Halkies, Tata McGraw – Hill Publication
5. Optical Fiber Communication by Gerd Keiser
6. Electronics Devices and Circuits by Sachin S Saharma by Lakshmi Publications Pvt Ltd, New Delhi
7. Electronics Devices and Circuits by Balwinder Singh, Ashish Dixit, Balwant Raj by Lakshmi Publications Pvt Ltd, New Delhi
8. Analog and Digital Electronics by Bhupesh Bhtia, Sunil Paliwal,Balvir Singh, Navneet Sharma, Lakshmi Publications Pvt Ltd, New Delhi
9. Basic Electronics by Rakesh Kumar Garg, Asish Dixit, Pawan Yadav, Lakshmi Publications Pvt Ltd, New Delhi
10. Basic Electronics Engineering & Devices by Dr.R.K.Singh, Asish Dixit, Lakshmi Publications Pvt Ltd, New Delhi

SEMESTER   : III
Subject Code   : CS3004
Subject Title   : Data Structures
Structure of the Course Content
BLOCK 1   PROBLEM SOLVING
 Unit 1: Top-down Design – Implementation
 Unit 2: Verification – Efficiency
 Unit 3: Analysis
 Unit 4: Sample Algorithm

BLOCK 2   LISTS, STACKS AND QUEUES
 Unit 1: Abstract Data Type (ADT)
 Unit 2: List ADT
 Unit 3: Stack ADT
 Unit 4: Queue ADT

BLOCK 3   TREES
 Unit 1: Binary Trees
 Unit 2: AVL Trees
 Unit 3: Tree Traversals and Hashing
 Unit 4: Simple implementations of Tree

BLOCK 4   SORTING
 Unit 1: Insertion Sort
 Unit 2: Shell sort and Heap sort
 Unit 3: Merge sort and Quick sort
 Unit 4: External Sort

BLOCK 5   GRAPHS
 Unit 1: Topological Sort
 Unit 2: Path Algorithms
 Unit 3: Prim's Algorithm
 Unit 4: Undirected Graphs – Bi-connectivity

Books:

1. R. G. Dromey, "How to Solve it by Computer" (Chaps 1-2), Prentice-Hall of India, 2002.

2. M. A. Weiss, "Data Structures and Algorithm Analysis in C", 2nd ed, Pearson Education Asia, 2002.

3. Y. Langsam, M. J. Augenstein and A. M. Tenenbaum, "Data Structures using C", Pearson Education Asia, 2004

4. Richard F. Gilberg, Behrouz A. Forouzan, "Data Structures – A Pseudocode Approach with C", Thomson Brooks / COLE, 1998.

5. Aho, J. E. Hopcroft and J. D. Ullman, "Data Structures and Algorithms", Pearson education Asia, 1983

SEMESTER   : III
Subject Code   : CS3005
Subject Title   : Computer Architecture
Structure of the Course Content
BLOCK 1   REGISTER TRANSFER LOGIC
      Unit 1: Register transfer language
      Unit 2: bus and memory transfer
      Unit 3: Arithmetic micro operations
      Unit 4: Logic micro operations
      Unit 5: Shift micro operations
BLOCK 2   CPU
      Unit 1: Major components of CPU
      Unit 2: general register organization
      Unit 3: Parallel Processing
      Unit 4: Control Unit
BLOCK 3   INPUT- OUTPUT SYSTEM
      Unit 1: I/ O interface
      Unit 2: Modes of transfer
      Unit 3: I/O Programming
      Unit 4: IOP communications
BLOCK 4   MEMORY ORGANISATION
      Unit 1: Types of Memory
      Unit 2: Associative memory
      Unit 3: Cache memory
      Unit 4: Virtual memory
BLOCK 5   PC ARCHITECTURE
      Unit 1: Block diagram of 8086
      Unit 2: Registers
      Unit 3: Address
      Unit 4: Basic Instructions

Books :

1. Computer System Architecture by Morris Mano.M., Prentice Hall of India
2. Computer Organisation and Architecture by William Stallings Prentice Hall of India, 2002
3. Assembly language and Programming by Peter Abel, Prentice Hall of India
4. Fundamentals of Assembly Language Programming Using IBM PC by Detmer Richard.C, Galgotia Publications Ltd. NewDelhi
5.Computer Architecture (SIE) (Schaum's Outline Series) by Carter, Tata McGraw-Hill
6. Computer Architecture and Organisation: Design Principles and Applications by Govindarajulu, Tata McGraw-Hill
7. Advanced Computer Architecture by Hwang, Tata McGraw-Hill
8. computer Organisation by ISRD Group, Tata McGraw-Hill
9. Computer System Organisation by Jotwani, Tata McGraw-Hill
10. Introduction to Computer Architecture by S.Sridhar,N.V.Publication

SEMESTER   : III
Subject Code   : CSP001
Subject Title   : Database Management Systems Lab
Structure of the Course Content

1.   Data Definition Language (DDL) commands in RDBMS.

2.   Data Manipulation Language (DML) and Data Control Language (DCL) commands in
      RDBMS.

3.   High-level language extension with Cursors.

4.   High level language extension with Triggers

5.   Procedures and Functions.

6.   Embedded SQL.

7.   Database design using E-R model and Normalization.

8.   Design and implementation of Payroll Processing System.

9.   Design and implementation of Banking System.

10.   Design and implementation of Library Information System

SEMESTER : III
Subject Code : CSP002
Subject Title : Data Structures Lab
Structure of the Course Content
Practical
Implement the following exercises using C:

1. Array implementation of List Abstract Data Type (ADT)

2. Linked list implementation of List ADT

3. Cursor implementation of List ADT

4. Array implementations of Stack ADT

5. Linked list implementations of Stack ADT

6. The following three exercises are to be done by implementing the following source files

    (a) Program for 'Balanced Paranthesis'

    (b) Array implementation of Stack ADT

    (c) Linked list implementation of Stack ADT

    (d) Program for 'Evaluating Postfix Expressions'

7. An appropriate header file for the Stack ADT should be #included in (a) and (d)

8. Implement the application for checking 'Balanced Paranthesis' using array implementation of Stack ADT (by implementing files (a) and (b) given above)

9. Implement the application for checking 'Balanced Paranthesis' using linked list implementation of Stack ADT (by using file (a) from experiment 6 and implementing file (c))

10. Implement the application for 'Evaluating Postfix Expressions' using array and linked list implementations of Stack ADT (by implementing file (d) and using file (b), and then by using files (d) and (c))

11. Queue ADT

12. Search Tree ADT - Binary Search Tree

13. Heap Sort

14. Quick Sort

SEMESTER : IV
Subject Code : CS4001
Subject Title : Electrical Engineering and Control Systems
Structure of the Course Content
BLOCK 1 Basic Electrical Circuit
      Unit 1: Dependent and independent sources
      Unit 2: Kirchoff's laws – mesh current and node voltage methods
      Unit 3: Thevenin's – Norton's - superposition – maximum power transfer
      Unit 4: sinusoidal steady state response of simple RLC circuits
BLOCK 2 Electrical Machines and Transformers
      Unit 1: Principles of operation of single phase transformers
      Unit 2: DC motor – principle of operation
      Unit 3: load characteristics of DC shunt motor
      Unit 4: single-phase induction motor
BLOCK 3 Mathematical Models of Physical Systems
      Unit 1: classification of system
      Unit 2: structure of feedback control theory
      Unit 3: Differential equation of physical systems
      Unit 4: Block diagram algebra – Signal flow graphs
BLOCK 4 Transfer Function Analysis
      Unit 1: Frequency response
      Unit 2: Bode plots
      Unit 3: Time Response analysis of II order system
      Unit 4: Time and frequency domain specifications
BLOCK 5 State Variable Analysis
      Unit 1: Concept of state variable
      Unit 2: State models for linear & continuous time systems
      Unit 3: State variable realizations
      Unit 4: Solution of state equation

Books:

1. Smarajit Ghosh, 'Fundamentals of Electrical and Electronics Engineering', 2nd Edition, Prentice-Hall, New Delhi, 2007.
2. Richard C Dorf and Robert H.Bishop, " Modern Control Systems", 8th Edition, Prentice-Hall, (Pearson Education, Inc.), New Delhi, 2005
3. Vincent Del Toro, 'Electrical Engineering Fundamentals', 2nd Edition, Prentice-Hall, (Pearson Education Inc.), 2007
4. John Bird, 'Electrical and Electronics Principles and Technology', 3rd Edition, Elsevier, New Delhi.
5. Joseph J. Distefano, Allen R. Stubberud, Iran J.Williams, "Feedback and Control Systems", 2nd Edition, Tata McGraw Hill, New Delhi, 2007

SEMESTER   : IV
Subject Code   : CS4002
Subject Title   : Operating Systems
Structure of the Course Content
BLOCK 1   OVERVIEW OF OPERATING SYSTEMS AND PROCESSES
      Unit 1: Introduction
      Unit 2: Types of OS
      Unit 3: Process
      Unit 4: Process Scheduling
BLOCK 2   INTERPROCESS COMMUNICATIONS & SYNCHRONIZATION
      Unit 1: Introduction
      Unit 2: Inter process Communication
      Unit 3: Semaphores
      Unit 4: Deadlocks
BLOCK 3 MEMORY MANAGEMENT
      Unit 1: Introduction
      Unit 2: Paging
      Unit 3: Segmentation
      Unit 4: Virtual Memory
BLOCK 4   I/O AND FILE MANAGEMENT
      Unit 1: I/O Management
      Unit 2: File Management
      Unit 3: Secondary Storage Management
      Unit 4: Disk Scheduling
BLOCK 5   LINUX PROGRAMMING AND ADMINISTRATION
      Unit 1: Introduction
      Unit 2: Linux Commands and Utilities
      Unit 3: Shell Scripts
      Unit 4: System Administration

Books :
1. Operating System by William Stallings, Prentice Hall of India, 4th Edition, 2003.
2. Operating System Concepts by Abraham Silberschatz, and James L. Addision Wesley Publishing Company
3. Operating Systems – A Concept Based Approach by D.M. Dhamdhere, TMGH
4. Operating Systems , Concepts and Design by Milan Milenkovie, TMGH, 2000
5. Linux - The Complete Reference by Richard Peterson, Tata McGraw Hill, New Delhi
6. Operating Systems – Design and Implementation by Andrew S. Tanenbaum, Prentice Hall of India, New Delhi
7. Introduction to Operating Systems by Harvey M. Deital, Addision Wesley Publishing Company
8.Operating Systems and Software Diagnostics by Ramesh Bangia, Balvir Singh, Lakshmi Publications (Pvt) Ltd, New Delhi
9.Operating Systems Concepts by P.S.Gill, Lakshmi Publications (Pvt) Ltd, New Delhi
10. Operating Systems Fundamentals by D.Irtegov, Lakshmi Publications (Pvt) Ltd, New Delhi

SEMESTER : IV
Subject Code : CS4003
Subject Title : Digital System Design
Structure of the Course Content

BLOCK 1 NUMBER SYSTEMS
       Unit 1: Types of Number System and Conversion
       Unit 2: Binary Codes
       Unit 3: Boolean expression and De Morgan's Law
       Unit 4: Minimization of Boolean Expression

BLOCK 2 Logical Gates
       Unit 1: Logics and Basic Gates
       Unit 2: Universal Gates
       Unit 3: Special Gates
       Unit 4: Multi Level Gates

BLOCK 3 Combinational Circuits
       Unit 1: Adder and Subtractors Circuit
       Unit 2: Multiplexer and De-multiplexer
       Unit 3: Encoder, Decoder and Code Conversion
       Unit 4: Implementation of Combinational logic using MUX, ROM, PAL and
              PLA

BLOCK 4 Sequential Circuits
       Unit 1: Flip Flops
       Unit 2: Counters
       Unit 3: Design of Synchronous and Asynchronous Counter
       Unit 4: State table and State Minimization

BLOCK 5 Memory Devices
       Unit 1: Classification of Memory Devices
       Unit 2: Memory Decoding and Expansion
       Unit 3: RAM and ROM
       Unit 4: PAL and PLA, FPGA

Books:

1. M. Morris Mano, Digital Design, 3.ed., Prentice Hall of India Pvt. Ltd., New Delhi, 2003/Pearson Education (Singapore) Pvt. Ltd., New Delhi, 2003 – (Unit I, II, V)

2. John .M Yarbrough, Digital Logic Applications and Design, Thomson- Vikas publishing house, New Delhi, 2002. (Unit III, IV)

3. S. Salivahanan and S. Arivazhagan, Digital Circuits and Design, 2nd ed., Vikas Publishing House Pvt. Ltd, New Delhi, 2004

4. Charles H.Roth. "Fundamentals of Logic Design", Thomson Publication Company, 2003.

5. Donald P.Leach and Albert Paul Malvino, Digital Principles and Applications, 5 ed., Tata McGraw Hill Publishing Company Limited, New Delhi, 2003.

6. R.P.Jain, Modern Digital Electronics, 3 ed., Tata McGraw–Hill publishing company limited, New Delhi, 2003.

7. Thomas L. Floyd, Digital Fundamentals, Pearson Education, Inc, New Delhi, 2003

8. Donald D.Givone, Digital Principles and Design, Tata Mc-Graw-Hill Publishing company limited, New Delhi, 2003

SEMESTER : IV
Subject Code : CS4004
Subject Title : **Software Engineering**
Structure of the Course Content
BLOCK 1   Software Process
      Unit 1: S/W Engineering Paradigm – life cycle models
      Unit 2: system engineering – computer based system
      Unit 3: verification – validation – life cycle process
      Unit 4: development process –system engineering hierarchy
BLOCK 2   Software Requirements
      Unit 1: Functional and non-functional - user – system
      Unit 2: feasibility studies – requirements – elicitation – validation and management
      Unit 3: software prototyping – prototyping in the software process
      Unit 4: Analysis and modeling – data, functional and behavioral models
BLOCK 3   Design Concepts and Principles
      Unit 1: Design process and concepts – modular design
      Unit 2: Architectural design – software architecture – data design
      Unit 3: Real time systems - Real time software design – system design
      Unit 4: data acquisition system - monitoring and control system
BLOCK 4   Testing
      Unit 1: Taxonomy of software testing – levels – test activities – types of s/w test
      Unit 2: testing boundary conditions – structural testing
      Unit 3: S/W testing strategies
      Unit 4: unit testing – integration testing – validation testing
BLOCK 5   Software Project Management
      Unit 1: S/W complexity and science measure
      Unit 2: data and logic structure measure
      Unit 3: Software cost estimation – function point models
      Unit 4: Software changes – program evolution dynamics
Books:
1. Roger S.Pressman, Software engineering- A practitioner's Approach, McGraw-Hill International Edition, 5th edition, 2001.
2. Ian Sommerville, Software engineering, Pearson education Asia, 6th edition, 2000.
3. Pankaj Jalote- An Integrated Approach to Software Engineering, Springer Verlag, 1997

SEMESTER   : IV
Subject Code   : CS4005
Subject Title   : Discrete Mathematics
Structure of the Course Content
BLOCK 1   Propositional Calculus
> Unit 1: Propositions – Logical connectives – Compound propositions
> Unit 2: Tautologies and contradictions
> Unit 3: Logical equivalences and implications
> Unit 4: DeMorgan's Laws - Normal forms – Principal conjunctive and disjunctive
>   normal forms

BLOCK 2   Predicate Calculus
> Unit 1: Predicates – Statement function – Variables – Free and bound variables
> Unit 2: Quantifiers – Universe of discourse
> Unit 3: Logical equivalences and implications for quantified statements
> Unit 4: Theory of inference – The rules of universal specification and generalization

BLOCK 3   Set Theory
> Unit 1: Basic concepts – Notations – Subset – Algebra of sets
> Unit 2: Ordered pairs and Cartesian product – Relations on sets
> Unit 3: Relational matrix and the graph of a relation – Partitions
> Unit 4: Partial ordering – Poset – Hasse diagram – Lattices and their properties

BLOCK 4   Functions
> Unit 1: Definitions of functions – Classification of functions –Type of functions
> Unit 2: Composition of functions – Inverse functions
> Unit 3: Binary and n-ary operations
> Unit 4: Characteristic function of a set – Hashing functions – Recursive functions

BLOCK 5   Groups
> Unit 1: Algebraic systems – Definitions – Examples – Properties
> Unit 2: Semi groups, Monoids,– Homomorphism – Sub semigroups and submonoids
> Unit 3: Cosets and Lagrange's theorem – Normal subgroups
> Unit 4: Normal algebraic system with two binary operations

Books:
1. Trembly J.P and Manohar R, "Discrete Mathematical Structures with Applications to Computer Science", Tata McGraw–Hill Pub. Co. Ltd, New Delhi, 2003.
2. Ralph. P. Grimaldi, "Discrete and Combinatorial Mathematics: An Applied Introduction", Fourth Edition, Pearson Education Asia, Delhi, 2002
3. Bernard Kolman, Robert C. Busby, Sharan Cutler Ross, "Discrete Mathematical Structures", Fourth Indian reprint, Pearson Education Pvt Ltd., New Delhi, 2003.
4. Kenneth H.Rosen, "Discrete Mathematics and its Applications", Fifth Edition, Tata McGraw – Hill Pub. Co. Ltd., New Delhi, 2003.
5. Richard Johnsonbaugh, "Discrete Mathematics", Fifth Edition, Pearson Education Asia, New Delhi, 2002

SEMESTER   : IV
Subject Code   : CSP003
Subject Title   : Operating Systems Lab
Structure of the Course Content
1.   Shell programming
         - command syntax
         - write simple functions
         - basic tests
2.   Shell programming
         - loops
         - patterns
         - expansions
         - substitutions
3.   Write programs using the following system calls of UNIX operating system:
         fork, exec, getpid, exit, wait, close, stat, opendir, readdir
4.   Write programs using the I/O system calls of UNIX operating system (open, read,
write, etc)
5.   Write C programs to simulate UNIX commands like ls, grep, etc.
   6. Given the list of processes, their CPU burst times and arrival times, display/print the

   Gantt chart for FCFS and SJF. For each of the scheduling policies, compute and print the

   average waiting time and average turnaround time

   7. Given the list of processes, their CPU burst times and arrival times, display/print the

   Gantt chart for Priority and Round robin. For each of the scheduling policies, compute

   and print the average waiting time and average turnaround time

8.   Implement the Producer – Consumer problem using semaphores.
9.   Implement some memory management schemes – I
10.   Implement some memory management schemes – II

SEMESTER : IV
Subject Code : CSP004
Subject Title : Digital System Design Lab
Structure of the Course Content

Practical

1. Design and implementation of Adders and Subtractors using logic gates.

2. Design and implementation of code converters using logic gates

      (i) BCD to excess-3 code and voice versa

      (ii) Binary to gray and vice-versa

3. Design and implementation of 4 bit binary Adder/ subtractor and BCD adder using IC 7483

4. Design and implementation of2Bit Magnitude Comparator using logic gates 8 Bit Magnitude Comparator using IC 7485

5. Design and implementation of 16 bit odd/even parity checker generator using IC74180.

6. Design and implementation of Multiplexer and De-multiplexer using logic gates and study of IC74150 and IC 74154

7. Design and implementation of encoder and decoder using logic gates and study of IC7445 and IC74147

8. Construction and verification of 4 bit ripple counter and Mod-10 / Mod-12 Ripple counters

9. Design and implementation of 3-bit synchronous up/down counter

10. Implementation of SISO, SIPO, PISO and PIPO shift registers using Flip- flopss

SEMESTER : V
Subject Code : CS5001
Subject Title : Design and Analysis of Algorithms
Structure of the Course Content
BLOCK 1   Basic Concept of Algorithms
      Unit 1: Notion of Algorithm, Fundamentals of Algorithmic Solving
      Unit 2: Important Problem types
      Unit 3: Fundamentals of the Analysis Framework
      Unit 4: Asymptotic Notations and Basic Efficiency Classes
BLOCK 2   Mathematical Aspects and Analysis of Algorithms
      Unit 1: Mathematical Analysis of Non-recursive Algorithm
      Unit 2: Mathematical Analysis of Recursive Algorithm
      Unit 3: Fibonacci Numbers – Empirical Analysis of Algorithms
      Unit 4: Algorithm Visualization
BLOCK 3   Analysis of Sorting and Searching Algorithms
      Unit 1: Brute Force – Selection Sort and Bubble Sort
      Unit 2: Sequential Search and Brute-force string matching – Divide and conquer
      Unit 3: Merge sort – Quick Sort – Binary Search – Binary tree
      Unit 4: Traversal and Related Properties – Decrease and Conquer – Insertion Sort
BLOCK 4   Algorithmic Techniques
      Unit 1: Transform and conquer – Presorting – Balanced Search trees
      Unit 2: AVL Trees – Heaps and Heap sort – Dynamic Programming
      Unit 3: Warshall's and Floyd's Algorithm – Optimal Binary Search trees
      Unit 4: Greedy Techniques – Prim's Algorithm – Kruskal's Algorithm
BLOCK 5   Algorithm Design Methods
      Unit 1: Backtracking – n-Queen's Problem
      Unit 2: Hamiltonian Circuit problem – Subset-Sum problem
      Unit 3: Branch and bound – Assignment problem
      Unit 4: Knapsack problem – Traveling salesman problem

Books:

1.   T.H. Cormen, C.E. Leiserson, R.L. Rivest and C. Stein, "Introduction to Algorithms", PHI Pvt. Ltd., 2001
2.   Sara Baase and Allen Van Gelder, "Computer Algorithms - Introduction to Design and Analysis", Pearson Education Asia, 2003.
3. A.V.Aho, J.E. Hopcroft and J.D.Ullman, "The Design and Analysis Of Computer Algorithms", Pearson Education Asia, 2003
4. Anany Levitin, "Introduction to the Design and Analysis of Algorithm", Pearson Education Asia, 2003.

SEMESTER : **V**
Subject Code : **CS5002**
Subject Title : **Soft Computing**
Structure of the Course Content
BLOCK 1   Introduction to Soft Computing
   Unit 1: Approaches to Intelligent Control
   Unit 2: Architecture for Intelligent Control
   Unit 3: Symbolic Reasoning System and Rule Based Systems
   Unit 4: Expert Systems
BLOCK 2   Neural Networks
   Unit 1: Concept of Artificial Neural Networks
   Unit 2: Learning and Training the Neural Network
   Unit 3: Hopfield Network and Self-Organizing Network
   Unit 4: Neural Network Based Controller
BLOCK 3   Fuzzy Logic Systems
   Unit 1: Introduction to Crisp Sets and Fuzzy Sets
   Unit 2: Fuzzy Set Operation and Approximate Reasoning
   Unit 3: Fuzzy Knowledge and Rule Bases
   Unit 4: Fuzzy Modelling and Control Schemes
BLOCK 4   Genetic Algorithms
   Unit 1: Basic Concept of Genetic Algorithm
   Unit 2: Solution of Typical Control Problems
   Unit 3: Concept on Search Techniques
   Unit 4: Techniques for Solving Optimization Problems.
BLOCK 5   Case Studies
   Unit 1: GA Application to Power System Optimisation Problem
   Unit 2: Identification and Control of Linear Dynamic Systems using Mat Lab
   Unit 3: Stability Analysis of Neural-Network Interconnection Systems
   Unit 4: Stability Analysis of Fuzzy Control Systems
Books:
   1.KOSKO,B. "Neural Networks And Fuzzy Systems", Prentice-Hall of India Pvt. Ltd
   2. Jacek.M.Zurada, "Introduction to Artificial Neural Systems", Jaico Publishing House
   3.Driankov, Hellendroon, "Introduction to Fuzzy Control", Narosa Publishers
   4.KLIR G.J. & FOLGER T.A. "Fuzzy sets, uncertainty and Information", Prentice-Hall of India Pvt. Ltd
   5.Zimmerman H.J. "Fuzzy set theory-and its Applications"-Kluwer Academic Publishers

SEMESTER   **: V**
Subject Code   **: CS5003**
Subject Title   **: Microprocessor and Microcontrollers**
Structure of the Course Content
BLOCK 1   8085 CPU
      Unit 1: 8085 Architecture
      Unit 2: Instruction set and Addressing modes
      Unit 3: Timing Diagram
      Unit 4:I/O, Time delay, Counter and Interrupt Program

BLOCK 2   PERIPHERALS INTERFACING
      Unit 1: Interfacing of 8255
      Unit 2: Interfacing of Key board and Display
      Unit 3: Interfacing of ADC & DAC
      Unit 4: Serial and Parallel Port Communications

BLOCK 3   8086 CPU
      Unit 1: Intel 8086 Architecture
      Unit 2: 80806 Addressing Modes
      Unit 3: Instruction Sets and Simple Program
      Unit 4: Interrupts

BLOCK 4   8051 MICROCONTROLLER
      Unit 1: Architecture of 8051
      Unit 2: Memory Organization of 8051
      Unit 3: Special Purpose Registers
      Unit 4: Addressing Modes

BLOCK 5   8051 PROGRAMMING AND APPLICATIONS
      Unit 1: Instruction sets
      Unit 2: I/O port Programming
      Unit 3: Timer and Counter Programming
      Unit 4: Serial Communication

Books:

1. Ramesh S Gaonkar, Microprocessor Architecture, Programming and application with 8085, 4th Edition, Penram International Publishing, New Delhi, 2000. (Unit I, II)

2. John Uffenbeck, The 80x86 Family, Design, Programming and Interfacing, Third Edition. Pearson Education, 2002.

3. Mohammed Ali Mazidi and Janice Gillispie Mazidi, The 8051 Microcontroller and Embedded Systems, Pearson Education Asia, New Delhi, 2003. (Unit IV, V)

4. A.K. Ray and K.M.Burchandi, Intel Microprocessors Architecture Programming and Interfacing, McGraw Hill International Edition, 2000

5. Kenneth J Ayala, The 8051 Microcontroller Architecture Programming and Application, 2nd Edition, Penram International Publishers (India), New Delhi, 1996.

6. M. Rafi Quazzaman, Microprocessors Theory and Applications: Intel and Motorola prentice Hall of India, Pvt. Ltd., New Delhi, 2003

SEMESTER   : V
Subject Code   : CS5004
Subject Title   : Principles of Compiler Design
Structure of the Course Content
BLOCK 1   Introduction to Compiling
Unit 1: Compilers – Analysis of the source program – Phases of a compiler
Unit 2: Grouping of Phases – Compiler construction tools
Unit 3: Lexical Analysis – Role of Lexical Analyzer
Unit 4: Input Buffering – Specification of Tokens
BLOCK 2   Syntax Analysis
Unit 1: Role of the parser –Writing Grammars –Context-Free Grammars
Unit 2: Top Down parsing – Recursive Descent Parsing – Predictive Parsing
Unit 3: Bottom-up parsing – Shift Reduce Parsing – Operator Precedent Parsing
Unit 4: LR Parsers – SLR Parser – Canonical LR Parser – LALR Parser
BLOCK 3   Intermediate Code Generation
Unit 1: Intermediate languages – Declarations
Unit 2: Assignment Statements
Unit 3: Boolean Expressions – Case Statements
Unit 4: Back patching – Procedure calls
BLOCK 4   Code Generation
Unit 1: Issues in the design of code generator
Unit 2: Basic Blocks and Flow Graphs
Unit 3: A simple Code generator
Unit 4: DAG representation of Basic Blocks – Peephole Optimization
BLOCK 5   Code Optimization and Run Time Environments
Unit 1: Principal Sources of Optimization
Unit 2: Introduction to Global Data Flow Analysis
Unit 3: Runtime Environments – Source Language issues
Unit 4: Storage Organization – Storage Allocation strategies
Books:
1.   Allen I. Holub "Compiler Design in C", Prentice Hall of India, 2003.
2.   C. N. Fischer and R. J. LeBlanc, "Crafting a compiler with C", Benjamin Cummings, 2003.
3.   J.P. Bennet, "Introduction to Compiler Techniques", Second Edition, Tata McGraw-Hill, 2003.
4.   Henk Alblas and Albert Nymeyer, "Practice and Principles of Compiler Building with C", PHI, 2001.
5.   Kenneth C. Louden, "Compiler Construction: Principles and Practice", Thompson Learning, 2003
6.   Alfred Aho, Ravi Sethi, Jeffrey D Ullman, "Compilers Principles, Techniques and Tools", Pearson Education Asia, 2003

SEMESTER   : V
Subject Code   : CS5005
Subject Title   : Digital Signal Processing
Structure of the Course Content
BLOCK 1   PARAMETRIC METHODS FOR POWER SPECTRUM ESTIMATION
> Unit 1: Relationship between the auto correlation and the model parameters
> Unit 2: Yule and Walker method for the AR Model Parameters
> Unit 3: Burg Method for the AR Model parameters
> Unit 4: Sequential estimation methods for the AR Model parameters

BLOCK 2   ADAPTIVE SIGNAL PROCESSING
> Unit 1: FIR adaptive filters – steepest descent adaptive filter
> Unit 2: LMS algorithm
> Unit 3: Noise cancellation – channel equalization
> Unit 4: Adaptive recursive filters – recursive least squares

BLOCK 3   MULTIRATE SIGNAL PROCESSING
> Unit 1: Decimation by a factor D – Interpolation by a factor I
> Unit 2: Filter Design and implementation for sampling rate conversion
> Unit 3: Direct form FIR filter structures
> Unit 4: Poly phase filter structure

BLOCK 4   SPEECH SIGNAL PROCESSING
> Unit 1: Digital models for speech signal
> Unit 2: Mechanism of speech production
> Unit 3: Time domain processing of speech signal
> Unit 4: Linear predictive Coding

BLOCK 5   WAVELET TRANSFORMS
> Unit 1: Fourier Transform
> Unit 2: Discrete Time Fourier Transform
> Unit 3: Continuous Wavelet Transform
> Unit 4: Perfect Reconstruction Filter Banks and wavelets

Books:
1. John G.Proakis, Dimitris G.Manobakis, Digital Signal Processing, Principles, Algorithms and Applications, Third edition, (2000) PHI.

2. Monson H.Hayes – Statistical Digital Signal Processing and Modeling, Wiley, 2002.

3. L.R.Rabiner and R.W.Schaber, Digital Processing of Speech Signals, Pearson Education (1979).

4. Roberto Crist, Modern Digital Signal Processing, Thomson Brooks/Cole (2004)

5. Raghuveer. M. Rao, Ajit S.Bopardikar, Wavelet Transforms, Introduction to Theory and applications, Pearson Education, Asia, 2000.

SEMESTER   : V
Subject Code   : CSP005
Subject Title   : Microprocessor and Microcontrollers Lab
Structure of the Course Content

Practical

1. Programs for 8/16 bit Arithmetic operations (Using 8085).

2. Programs for Sorting and Searching (Using 8085, 8086).

3. Programs for String manipulation operations (Using 8086).

4. Programs for Digital clock and Stop watch (Using 8086).

5. Interfacing ADC and DAC.

6. Parallel Communication between two MP Kits using Mode 1 and Mode 2 of 8255.

7. Interfacing and Programming 8279, 8259, and 8253.

8. Serial Communication between two MP Kits using 8251.

9. Interfacing and Programming of Stepper Motor and DC Motor Speed control.

10. Programming using Arithmetic, Logical and Bit Manipulation instructions of 8051microcontroller.

11. Programming and verifying Timer, Interrupts and UART operations in 8031 microcontroller.

12. Communication between 8051 Microcontroller kit and PC

SEMESTER : V
Subject Code : CSP006
Subject Title : **Design and Analysis of Algorithms Lab**
Structure of the Course Content

1. Simple recursive programs like Towers of Hanoi ,Generating Permutations.

2. Sort algorithms.

3. Randomized quicksort algorithm.

4. Merge sort using Divide and Conquer approach.

5. Generation of Huffman code using Greedy Approach.

6. Floyd's Algorithm -Dynamic Programming

7. Simplex Method.

8. String matching algorithms.

9. Study of Benchmarking algorithms.

10. Study of Algorithms Tools

SEMESTER   : VI
Subject Code   : CS6001
Subject Title   : Web Technology
Structure of the Course Content
BLOCK 1   Java Fundamentals
      Unit 1: Java fundamentals – Class, Object
      Unit 2: Inheritance – Polymorphism
      Unit 3: Packages –Interfaces
      Unit 4: Exception handling
BLOCK 2   Threads
      Unit 1: I/O – AWT – Event handling
      Unit 2: Introduction to Threads - Basics of Networking
      Unit 3: TCP and UDP sockets
      Unit 4: Connecting to the Web
BLOCK 3   Applets
      Unit 1: Applets
      Unit 2: JDBC
      Unit 3: Swings
      Unit 4: Remote Method Invocation
BLOCK 4   WWW
      Unit 1: World Wide Web – HTML
      Unit 2: List –Tables – Frames – Forms – HTTP commands
      Unit 3: XML – DTD, Schema – XSLT
      Unit 4: XML Parser – Client side scripting
BLOCK 5   JSP
      Unit 1: Server side scripting
      Unit 2: JSP, Servlets
      Unit 3: Session management
      Unit 4: Cookies

Books:

1. Herbert Schildt, "Java – The Complete Reference", 7th ed., Tata McGraw Hill, 2007.
2. Chris Bates, "Web Programming", 3rd ed., Wiley, 2006.
3. Black Book, "Java 6 Programming", Dreamtech Press, 2007.
4. Deitel, "Java How to Program", Pearson Education, 2003.
5. W Clay Richardson, et al, "Professional Java JDK 6 Edition", Wrox, 2007
6. Deitel and Deitel, "Java – How to program", 3rd ed., Pearson Education, 2001.
7. Robert W. Sebesta, "Programming the World Wide Web", 3rd ed., Pearson Education, 2006

SEMESTER   : VI
Subject Code   : CS6002
Subject Title   : System Software
Structure of the Course Content
BLOCK 1   Introduction to System Software
      Unit 1: System software and machine architecture
      Unit 2: The Simplified Instructional Computer
      Unit 3: Machine architecture - Data and instruction formats
      Unit 4: addressing modes - instruction sets - I/O and programming
BLOCK 2   Assemblers
      Unit 1: Basic assembler functions - A simple SIC assembler
      Unit 2: Instruction formats and addressing modes
      Unit 3: Machine independent assembler features
      Unit 4: Types of Assemblers
BLOCK 3   Loaders and Linkers
      Unit 1:   Basic loader functions - Design of an Absolute Loader
      Unit 2: Algorithm and Data Structures for Linking Loader
      Unit 3: Machine-independent loader features
      Unit 4: Loader design options - Linkage Editors – Dynamic Linking – Bootstrap
          Loaders
BLOCK 4   Macro Processors
      Unit 1: Basic macro processor functions
      Unit 2: Macro Processor Algorithm and data structures
      Unit 3: Machine-independent macro processor features
      Unit 4: MASM Macro Processor – ANSI C Macro language
BLOCK 5   System Software Tools
      Unit 1: Text editors - Overview of the Editing Process
      Unit 2: User Interface – Editor Structure
      Unit 3: Interactive debugging systems - Debugging functions and capabilities
      Unit 4: Relationship with other parts of the system – User-Interface Criteria.

Books:
1.   D. M. Dhamdhere, "Systems Programming and Operating Systems", Second Revised Edition, Tata McGraw-Hill, 1999.
2.   John J. Donovan "Systems Programming", Tata McGraw-Hill Edition, 1972.

3.   Leland L. Beck, "System Software – An Introduction to Systems Programming", 3rd Edition, Pearson Education Asia, 2000

SEMESTER   : VI
Subject Code   : CS6003
Subject Title   : Object Oriented Programming
Structure of the Course Content
BLOCK 1   OBJECT ORIENTED PROGRAMMING AND BASICS OF C++
     Unit 1: Object oriented programming paradigm
     Unit 2: Benefits of OOP – Object-oriented languages – Applications of OOP
     Unit 3: Tokens – Keywords – Identifiers and constants – Basic data types
     Unit 4: Operators in C++ – Scope resolution operator –Type cast operator
BLOCK 2   CLASSES AND OBJECTS
     Unit 1: member functions
     Unit 2: Arrays within a class – Memory allocation for objects
     Unit 3: Constructors: Parameterized constructors
     Unit 4: Dynamic constructors – Destructors
BLOCK 3   OPERATOR OVERLOADING, INHERITANCE AND POLYMORPHISM
     Unit 1: operator overloading
     Unit 2: Rules for overloading operators
     Unit 3: inheritance
     Unit 4: pointers
BLOCK 4   JAVA EVOLUTION,
     Unit 1: Java program structures
     Unit 2: Java virtual machine – Command line arguments
     Unit 3: Defining a class – Adding variables and methods – Creating objects
     Unit 4: Arrays
BLOCK 5   PACKAGES, MULTITHREADING
     Unit 1: interfaces – Extending interfaces – Implementing interfaces
     Unit 2: Creating threads – Extending the thread class
     Unit 3: Types of errors: Exceptions – Syntax of exception handling code
     Unit 4: Designing a web page – Applet tag – Adding applet to HTML file
Books:

1. E.Balagurusamy, 'Object Oriented Programming with C++', Second edition, Tata McGraw Hill

2. E.Balagurusamy, 'Programming with JAVA – A Primer', Second edition, Tata McGraw Hill, 2003

3. Herbert Schildt, 'C++ - The Complete Reference', Tata McGraw Hill, 1997.

4. Bjarne Stroustrup, 'The C++ Programming Language', Addison Wesley, 2000.

5. John .R .Hubbard, 'Schaums Outline Programming with C++', Tata McGraw Hill, 2003.

6. Kris Jasma, 'Java Programming – A Complete Reference', Galgotia publication, 1994.

SEMESTER   : VI
Subject Code   : CS6004
Subject Title   : Artificial Intelligence
Structure of the Course Content
BLOCK 1   Introduction to Artificial Intelligence
      Unit 1: Intelligent Agents – Agents and environments
      Unit 2: The nature of environments – structure of agents
      Unit 3: Problem Solving - problem solving agents
      Unit 4: searching for solutions – uniformed search strategies
BLOCK 2   Searching Techniques
      Unit 1: Informed search and exploration – Informed search strategies
      Unit 2: local search algorithms and optimistic problems – local search in continuous
            spaces
      Unit 3: Constraint satisfaction problems
      Unit 4: Structure of problems - Adversarial Search – Games – Optimal decisions in
            games
BLOCK 3   Knowledge Representations
      Unit 1: First order logic – representation revisited – Syntax and semantics for first
            order logic
      Unit 2: Knowledge engineering in first order logic
      Unit 3: forward chaining – backward chaining - Resolution - Knowledge
            representation
      Unit 4: Categories and objects – Actions - Simulation and events
BLOCK 4   Learning
      Unit 1: Learning from observations - forms of learning - Inductive learning
      Unit 2: Knowledge in learning – Logical formulation of learning
      Unit 3: Inductive logic programming - Statistical learning methods
      Unit 4: Neural networks - Reinforcement learning – Passive reinforcement learning
BLOCK 5   Applications
      Unit 1: Communication – Communication as action
      Unit 2: Syntactic analysis – Augmented grammars – Semantic interpretation
      Unit 3: Discourse understanding – Grammar induction
      Unit 4: Probabilistic language models – Information retrieval
Books:
1.   Nils J. Nilsson, "Artificial Intelligence: A new Synthesis", Harcourt Asia Pvt. Ltd., 2000.
2.   Elaine Rich and Kevin Knight, "Artificial Intelligence", 2nd Edition, Tata McGraw-Hill, 2003.
3.   George F. Luger, "Artificial Intelligence-Structures And Strategies For Complex Problem Solving", Pearson Education / PHI, 2002
4.   Stuart Russell, Peter Norvig, "Artificial Intelligence – A Modern Approach", 2nd Edition, Pearson Education / Prentice Hall of India, 2004

SEMESTER   : VI
Subject Code   : CS6005
Subject Title   : Embedded Systems
Structure of the Course Content
BLOCK 1   Embedded Hardware and Software
      Unit 1: Memory
      Unit 2: Direct Memory Access
      Unit 3: Interrupt Latency
      Unit 4: Shared Data Problems
BLOCK 2   Hardware and Software Partitioning
      Unit 1: Hardware/Software Co-Design
      Unit 2: Single-Processor Architectures &, Multi-Processor Architectures
      Unit 3: Models of Computation
      Unit 4: Embedded System Specification
BLOCK 3   Hardware and Software Co-Synthesis
      Unit 1: The Co-Synthesis Problem
      Unit 2: State-Transition Graph
      Unit 3: Refinement and Controller Generation
      Unit 4: Distributed System Co-Synthesis
BLOCK 4   Memory Interfacing
      Unit 1: Memory Writes ability and Storage Performance
      Unit 2: Advance RAM Interfacing Communication Basic
      Unit 3: Arbitration Multilevel Bus Architecture
      Unit 4: Serial Protocol and Parallel Protocols
BLOCK 5   Concurrent Process Models
      Unit 1: Finite State Machines
      Unit 2: HCFSL and State Charts
      Unit 3: State Machine Models
      Unit 4: Hardware Software Co-Simulation

Books:

1. Frank Vahid and Tony Gwargie, "Embedded System Design", John Wiley & sons
2. Raj Kamal, "Embedded Systems- Architecture, Programming and Design"
3. David. E. Simon, "An Embedded Software Primer", Pearson Education
4. Tammy Noergaard, "Embedded System Architecture, A comprehensive Guide for Engineers and Programmers", Elsevier
5. Steve Heath, "Embedded System Design", Elsevier, Second Edition
6. Ralf Niemann, "Hardware/Software Co-Design for Data Flow Dominated Embedded Systems", Kluwer Academic Pub
7. Jorgen Staunstrup, Wayne Wolf, "Harware/Software Co-Design:Principles and Practice", Kluwer Academic Pub
8. Giovanni De Micheli, Rolf Ernst Morgon, "Reading in Hardware/Software Co-Design" Kaufmann Publishers

SEMESTER   : VI
Subject Code   : CSP007
Subject Title   : Web Technology Lab
Structure of the Course Content

1. Java Fundamentals, Classes, Objects

2. Inheritance, Polymorphism

3. Interfaces, Exception handling

4. I/O, AWT

5. Socket Programming

6. Applets, Swings

7. Database connectivity

8. RMI

9. XML, Style sheet, Parser

10. Client side scripting

11. JSP, Servlets

12. Session Management

SEMESTER : VI
Subject Code : CSP008
Subject Title : Object Oriented Programming Lab
Structure of the Course Content

1. String concatenation using dynamic memory allocation concept.

2. Implementation of arithmetic operations on complex numbers using constructor overloading.

3. To read a value of distance from one object and add with a value in another object using friend function.

4. Implementation of + and - operator overloading and implementation of addition operation of octal object with integer using operator overloading.

5. Implementation of addition and subtraction of two polynomial objects using operator overloading.

6. Managing bank account using inheritance concept.

7. To compute the area of triangle and rectangle using inheritance and virtual function.

8. Writing simple programs in Java.

9. Use of interfaces in Java.

10. Developing packages in Java

SEMESTER   : VII
Subject Code   : CS7001
Subject Title   : **Principles and Management**
Structure of the Course Content
BLOCK 1   OVERVIEW OF MANAGEMENT
Unit 1: Definition - Management - Role of managers
Unit 2: Evolution of Management thought
Unit 3: Organization and the environmental factors
Unit 4: Trends and Challenges of Management in Global Scenario

BLOCK 2   PLANNING
Unit 1: Planning process - Types of plans
Unit 2: Managing by objective (MBO) Strategies
Unit 3: Policies
Unit 4: Decision Making

BLOCK 3   ORGANIZING
Unit 1: Organization structure
Unit 2: Departmentation - Span of control - Centralization and Decentralization
Unit 3: Staffing - Selection and Recruitment - Orientation
Unit 4: Training - Performance Appraisal

BLOCK 4   DIRECTING
Unit 1: Creativity and Innovation - Motivation and Satisfaction
Unit 2: Leadership Styles - Leadership theories
Unit 3: Communication
Unit 4: Organization Culture

BLOCK 5   CONTROLLING
Unit 1: Process of controlling - Types of control
Unit 2: Budgetary and non-budgetary control techniques
Unit 3: Managing Productivity - Cost Control
Unit 4: Quality Control - Planning operations

Books:

1. Stephen P. Robbins and Mary Coulter, 'Management', Prentice Hall of India, 8th edition.

2. Charles W L Hill, Steven L McShane, 'Principles of Management', Mcgraw Hill Education, Special Indian Edition, 2007.

3. Hellriegel, Slocum & Jackson, ' Management - A Competency Based Approach', Thomson South Western, 10th edition, 2007.

4. Harold Koontz, Heinz Weihrich and Mark V Cannice, 'Management - A global& Entrepreneurial Perspective', Tata Mcgraw Hill, 12th edition, 2007.

5. Andrew J. Dubrin, 'Essentials of Management', Thomson Southwestern, 7th edition, 2007.

SEMESTER   : VII
Subject Code   : CS7002
Subject Title   : Computer Networks
Structure of the Course Content
BLOCK 1   Network Fundamentals
      Unit 1: Data Communication Networking
      Unit 2: Overview of OSI
      Unit 3: IP Addressing
      Unit 4: Routing
BLOCK 2   Data Communications
      Unit 1: Data Encoding
      Unit 2: Flow and Error Control
      Unit 3: Routers, Switches and Bridges
      Unit 4: Congestion Control
BLOCK 3   Wireless LAN
      Unit 1: Fundamentals of WLANs
      Unit 2: IEEE 802.11 Standards
      Unit 3: WLL
      Unit 4: IEEE 802.16 Standards
BLOCK 4   Routing Protocols
      Unit 1: MAC Protocols
      Unit 2: Hybrid Routing Protocols
      Unit 3: Multicast Routing Protocols
      Unit 4: Tree-based and Mesh-based Protocols
BLOCK 5   Transport Layer
      Unit 1: Transport layer Protocol
      Unit 2: TCP over Adhoc wireless Networks
      Unit 3: Network security attacks
      Unit 4: Security routing
Books:

      1. Mohammad Ilyas, The Handbook of AdHoc Wireless Networks, CRC press
      2.Douglas E.Comer, "Internetworking with TCP/IP, Vol. 1", Third Edition, Prentice Hall
      3. Behrouza A Forouzan,"Data Communications and Networking" Fourth edition, TMH
      4.Wayne Tomasi, "Introduction to Data communications and Networking" Pearson Education
      5.Al Williams, "Embedded Internet Design", Second Edition, TMH
      6.Cory L. Clark, "LabVIEW Digital Signal Processing and Digital Communication", TMH edition
      7.Krishna Kant,"Computer based Industrial control",PHI
      8.Gary Johnson, "LabVIEW Graphical Programming", Second edition, McGraw Hill, Newyork
      9.Kevin James, "PC Interfacing and Data Acquisition: Techniques for measurement, Instrumentation and control, Newnes

SEMESTER   : VII
Subject Code   : CS7003
Subject Title   : Java Programming
Structure of the Course Content
BLOCK 1   INTRODUCTION TO OOPS AND JAVA
        Unit 1: Introduction to Oops:
        Unit 2: History Java
        Unit 3: Types of java program
        Unit 4: Elements
BLOCK 2   CONTROL STRUCTURES, ARRAYS, VECTORS & STRINGS
        Unit 1: Decision making
        Unit 2: Branching
        Unit 3: Arrays
        Unit 4: Strings
BLOCK 3   CLASSES, INTERFACES AND PACKAGES
        Unit 1: Class
        Unit 2: objects
        Unit 3: Inheritance
        Unit 4: Packages
BLOCK 4   APPLETS, AWT CONTROLS AND EXCEPTION HANDLING
        Unit 1: Applets
        Unit 2: AWT Components
        Unit 3: Even Handlers
        Unit 4: Exception Handling
BLOCK 5   MULTITHREADS, STREAMS, and NETWORKING & DATABASE
        Unit 1: Multithreading
        Unit 2: I/O Streams
        Unit 3: Networking
        Unit 4: JDBC
Books :
1, Programming with Java by E. Balagurusamy, Tata McGraw-Hill Publishers , II Edition
1.Java – The Complete Reference by Herbert Schildt, Tata McGraw-Hill Publishers , V Edition
2.Java for you by Koparkar, TMH
3.Java Programming Language by Ken Arnold , James Gosling, Addison Wesley
5.Introducing to Oops with Java by C Thomas WU. – 4th Edition, Tata Mc-Graw Hill
6. Internet and Java Programming by Harish Kumar Taluja, Lakshmi Publications (Pvt) Ltd, New Delhi
7. Programming Engineering Computations in Java by Dr.Raja Subramanian, Lakshmi Publications (Pvt) Ltd, New Delhi
8. Simply Java:An Introduction to Java Programming by James R.Levenick, Lakshmi Publications (Pvt) Ltd, New Delhi
9. Java: J2SE 5-A Practical Approach by B.Mohamed Ibrahim, Lakshmi Publications (Pvt) Ltd, New Delhi
10. Advance Java by Gajendra Gupta, Lakshmi Publications (Pvt) Ltd, New Delhi
 (Pvt) Ltd, New Delhi

SEMESTER   : VII
Subject Code   : CSP009
Subject Title   : Java Programming Lab
Structure of the Course Content

1. a). Write a Program to find the area of a rectangle.
b) Write a program to find the result of following expressions (Assume a = 10, b = 5)
i) (a << 2) + (b >>2) ii) (a) || (b>0) iii) (a + b * 100) /10 iv) a & b

2. a). Write a program that asks the user to enter two integers, obtains the numbers from the user, and then prints the larger number followed by the words "is larger." If the numbers are equal, print the message "These numbers are equal."
b) Write a program that reads an integer and determines and prints whether it is odd or even.

3. a). Write a program to find the sum of the digits of a given number.
b) Write a program to find the first 15 terms of the Fibonacci sequence.

4. a). Write a program to read N numbers and find the largest and smallest numbers.
b) Write a program for the multiplication of two matrices.

4. Write a program that accepts a shopping list of four items from the command line and stores them in a vector. Write a Menu based Program to perform the following operations using vector
      a. To add an item at a specific location in the list.
      b. To delete an item in the list.
      c. To print the contents of the vector.
      d. To delete all elements
      e. To add an item at the end of the vector

6. a) Write a program in Java to create a String object. Initialize this object with your name. Find the length of your name using the appropriate String method. Find whether the character 'a' is in your name or not; if yes find the number of times 'a' appears in your name. Print locations of occurrences of 'a'.
b) Create a String Buffer object and illustrate how to append characters. Display the capacity and length of the string buffer.

7. a). Write a program to display total marks of 5 students using student class. Given the following attributes: Regno(int), Name(string), Marks in subjects(Integer Array), Total (int).
b) Write a program in Java with class Rectangle with the data fields width, length, area and colour. The length, width and area are of double type and colour is of string type. The methods are get_length(), get_width(), get_colour() and find_area().

8. Create a class to represent complex numbers. A complex number has the form real part + i * imaginary part. Provide constructor to enable an object of this class to be initialized when it is declared. Provide a no-argument constructor with default value in case no initializes are provided. Provide public methods for the following
      i) Addition of two complex numbers
      ii) Subtraction of two complex numbers

iii) Printing complex numbers in the form (a,b) where a is the real part and b is the imaginary part

9. a). Write a program to show how a class implements two interfaces.
b) Show through a program that fields in an interface are implicitly static and final and methods are automatically public.

10. Write a program to create a package for Book details giving Book Name, Author Name, Price, year of publishing.

11. A color can be created by specifying the red, green, blue values as integer parameters to the constructor of class Color. The values range from 0 to 255. Provide three horizontal scroll bars and ask the user to select the values of the colors by dragging the thumb in the scroll bar. Using the color selected, draw a rectangle.

13. Create an applet for simple calculator to perform Addition, Subtraction, Multiplication and Division using Button, label and Text field classes.

14. Draw a bar chart for the following details using Applets.

15. Write a Java program to catch more than two exceptions.

16. Write a Java program for producer and consumer problem using Thread.

17. Write a program to transfer the file between client and server using TCP/IP

18. a) Write a program to create a text file using Byte stream classes
b) Write a program to copy a file to another file.

19. Write a Java Program to connect to a database created in MS-ACCESS using JDBC Concept. Perform basic operations of Selection, Insertion and deletion on the database.

SEMESTER   : VII
Subject Code   : CSP010
Subject Title   : Computer Networks Lab
Structure of the Course Content

Practical

1. PC to PC Communication

   a. Parallel Communication using 8 bit parallel cable

   b. Serial communication using RS 232C

2. Ethernet LAN protocol

3. To create scenario and study the performance of CSMA/CD protocol ethrol simulation

4. Token bus and token ring protocols

5. To create scenario and study the performance of token bus and token ring protocols through simulation

6. Wireless LAN protocols

7. To create scenario and study the performance of network with CSMA / CA protocol and compare with CSMA/CD protocols.

8. Implementation and study of stop and wait protocol

9. Implementation and study of Goback-N and selective ret protocols

10. Implementation of distance vector routing algorithm

11. Implementation of Link state routing algorithm

12. Implementation of Data encryption and decryption

13. Transfer of files from PC to PC using Windows / Unix socket processing

SEMESTER   : VIII
Subject Code   : CS8001
Subject Title   : Computer Graphics
Structure of the Course Content
BLOCK 1   2D Primitive
      Unit 1: output primitives – Line, Circle and Ellipse drawing algorithms
      Unit 2: Attributes of output primitives
      Unit 3: Two dimensional Geometric transformation
      Unit 4: Two dimensional viewing –Line, Polygon, Curve and Text clipping
          algorithms

BLOCK 2   3D Concepts
      Unit 1: Parallel and Perspective projections
      Unit 2: Three dimensional object representation
      Unit 3: Polygons, Curved lines, Splines, Quadric Surfaces
      Unit 4: Visualization of data sets - 3D transformations

BLOCK 3   Graphics Programming
      Unit 1: Color Models – RGB, YIQ, CMY, HSV – Animations
      Unit 2: General Computer Animation, Raster, Keyframe
      Unit 3: Graphics programming using OPENGL – Basic graphics primitives
      Unit 4: Drawing three dimensional objects - Drawing three dimensional scenes

BLOCK 4   Rendering
      Unit 1: Introduction to Shading models – Flat and Smooth shading
      Unit 2: Adding texture to faces – Adding shadows of objects
      Unit 3: Building a camera in a program
      Unit 4: Creating shaded objects– Rendering texture – Drawing Shadows

BLOCK 5   Fractals
      Unit 1: Fractals and Self similarity – Peano curves
      Unit 2: Creating image by iterated functions
      Unit 3: Mandelbrot sets – Julia Sets – Random Fractals – Overview of Ray Tracing
      Unit 4: Intersecting rays with other primitives – Adding Surface texture

Books:

1. James D. Foley, Andries Van Dam, Steven K. Feiner, John F. Hughes, Computer
Graphics- Principles and practice, Second Edition in C, Pearson Education, 2007
2. Donald Hearn, Pauline Baker, Computer Graphics – C Version, second edition,
Pearson Education,2004.
3. F.S. Hill, Computer Graphics using OPENGL, Second edition, Pearson Education,
2003

SEMESTER   : VIII
Subject Code   : CSP011
Subject Title : Computer Graphics Lab
Structure of the Course Content

1. Implementation of Bresenhams Algorithm – Line, Circle, Ellipse.

2. Implementation of Line, Circle and ellipse Attributes

3. Two Dimensional transformations - Translation, Rotation, Scaling, Reflection,

Shear.

4. Composite 2D Transformations

5. Cohen Sutherland 2D line clipping and Windowing

6. Sutherland – Hodgeman Polygon clipping Algorithm

7. Three dimensional transformations - Translation, Rotation, Scaling

8. Composite 3D transformations

9. Drawing three dimensional objects and Scenes

10. Generating Fractal images

SEMESTER : VIII
Subject Code : CSP012
Subject Title : Project
Structure of the Course Content

Practical

The objective of the project work is to enable the students to work in convenient groups of not more than four members in a group on a project involving theoretical and experimental studies related to Computer Engineering. Every Project Work shall have a Guide who is a member of the faculty of Computer Engineering of the college where the student is registered. The hours allotted for this course shall be utilized by the students to receive directions from the Guide, on library reading, laboratory work, computer analysis or field work and also to present in periodical seminars the progress made in the project.

Each student shall finally produce a comprehensive report covering background information, literature Survey, problem statement, Project work details and conclusions. This experience of project work shall help the student in expanding his / her knowledge base and also provide opportunity to utilise the creative ability and inference capability

ELECTIVE
Subject Code   : CSE001
Subject Title   : Advanced Computer Architecture
Structure of the Course Content
BLOCK 1   Introduction to Computer Architecture
  Unit 1: Fundamentals of Computer Design – Measuring and reporting performance
  Unit 2: Quantitative principles of computer design. Instruction set principles
  Unit 3: Classifying ISA – Design issues. Pipelining – Basic concepts
  Unit 4: Hazards – Implementation – Multicycle operations
BLOCK 2   Instruction Level Parallelisms with Dynamic Approaches
  Unit 1: Dynamic Scheduling
  Unit 2: Dynamic hardware prediction
  Unit 3: Multiple issue – Hardware based speculation
  Unit 4: Limitations of ILP
BLOCK 3   Instruction Level Parallelisms with Software Approaches
  Unit 1: Compiler techniques for exposing ILP – Static branch prediction
  Unit 2: VLIW – Advanced compiler support
  Unit 3: Hardware support for exposing more parallelism
  Unit 4: Hardware versus software speculation mechanisms
BLOCK 4   Memory and I/O
  Unit 1: Cache performance – Reducing cache miss penalty and miss rate
  Unit 2: Reducing hit time – Main memory and performance
  Unit 3: Memory technology. Types of storage devices – Buses – RAID
  Unit 4: Reliability, availability and dependability – I/O performance measures
BLOCK 5   Multiprocessors and Thread Level Parallelism
  Unit 1: Symmetric and distributed shared memory architectures
  Unit 2: Performance issues – Synchronization
  Unit 3: Models of memory consistency
  Unit 4: Multithreading
Books:
1. John L. Hennessey and David A. Patterson, "Computer Architecture: A Quantitative Approach", Morgan Kaufmann, 2003, Third Edition
2. D.Sima, T.Fountain and P.Kacsuk, "Advanced Computer Architectures: A Design Space Approach", Addison Wesley, 2000.

3.   Kai Hwang and Zhi.Wei Xu, "Scalable Parallel Computing", Tata McGraw-Hill, New Delhi, 2003

ELECTIVE
Subject Code   : CSE002
Subject Title   : Mobile and Pervasive Computing
Structure of the Course Content
BLOCK 1   Mobile Networks
    Unit 1: Cellular Wireless Networks – GSM – Architecture – Protocols
    Unit 2: Connection Establishment – Frequency Allocation
    Unit 3: Routing – Mobility Management
    Unit 4: Security –GPRS.
BLOCK 2   Wireless Networks
    Unit 1: Wireless LANs and PANs
    Unit 2: IEEE 802.11 Standard – Architecture
    Unit 3: Services –Network –HiperLAN
    Unit 4: Blue Tooth- Wi-Fi – WiMAX
BLOCK 3   Routing
    Unit 1: Mobile IP
    Unit 2: DHCP
    Unit 3: Proactive and Reactive Routing Protocols
    Unit 4: Multicast Routing
BLOCK 4   Transport and Application Layers
    Unit 1: Mobile TCP– WAP – Architecture
    Unit 2: WWW Programming Model– WDP – WTLS
    Unit 3:   WTP –WSP – WAE
    Unit 4: WTA Architecture – WML – WML Scripts
BLOCK 5   Pervasive Computing
    Unit 1: Pervasive computing infrastructure-applications- Device Technology
    Unit 2: Hardware, Human-machine Interfaces, Biometrics, and Operating systems
    Unit 3: Device Connectivity – Protocols, Security, and Device Management
    Unit 4: Pervasive Web Application architecture- Access from PCs and PDAs
Books:
1. Frank Adelstein, Sandeep KS Gupta, Golden Richard, Fundamentals of Mobile and Pervasive Computing, McGraw-Hill 2005
2. Debashis Saha, Networking Infrastructure for Pervasive Computing: Enabling Technologies, Kluwer Academic Publisher, Springer; First edition, 2002
3. Introduction to Wireless and Mobile Systems by Agrawal and Zeng, Brooks/ Cole (Thomson Learning), First edition, 2002
4. Uwe Hansmann, Lothar Merk, Martin S. Nicklons and Thomas Stober, Principles of Mobile Computing, Springer, New York, 2003
5. Jochen Schiller, "Mobile Communications", PHI, Second Edition, 2003.
6. Jochen Burkhardt, Pervasive Computing: Technology and Architecture of Mobile Internet Applications, Addison-Wesley Professional; 3rd edition, 2007

ELECTIVE
Subject Code   : CSE003
Subject Title   : Advanced Java Programming
Structure of the Course Content
BLOCK 1   INTRODUCTION TO JAVA
      Unit 1: Java I/O streaming
      Unit 2: filter and pipe streams
      Unit 3: Byte Code interpretation
      Unit 4: Threading –Swing
BLOCK 2   NETWORK PROGRAMMING IN JAVA
      Unit 1: Sockets – secure sockets – custom sockets – UDP datagrams
      Unit 2: multicast sockets –URL classes – Reading Data from the server
      Unit 3: configuring the connection– Reading the header
      Unit 4: telnet application – Java Messaging services
BLOCK 3   APPLICATIONS IN DISTRIBUTED ENVIRONMENT
      Unit 1: Remote method Invocation – activation models
      Unit 2: RMI custom sockets – Object Serialization – RMI – IIOP implementation
      Unit 3: CORBA – IDL technology – Naming Services
      Unit 4: CORBA programming Models - JAR file creation
BLOCK 4   MULTI-TIER APPLICATION DEVELOPMENT
      Unit 1: Server side programming – servlets – Java Server Pages
      Unit 2: Applet to Applet communication – applet to Servlet communication
      Unit 3: JDBC – Applications on databases
      Unit 4: Multimedia streaming applications – Java Media Framework
BLOCK 5   ENTERPRISE APPLICATIONS
      Unit 1: Server Side Component Architecture
      Unit 2: Introduction to J2EE
      Unit 3: Session Beans – Entity Beans
      Unit 4: Persistent Entity Beans
Books :
1. Elliotte Rusty Harold, " Java Network Programming", O'Reilly publishers, 2000
2. Ed Roman, "Mastering Enterprise Java Beans", John Wiley & Sons Inc., 1999.
3. Hortsmann & Cornell, "CORE JAVA 2 ADVANCED FEATURES, VOL II", Pearson Education, 2002.
4.Introducing to Oops with Java by C Thomas WU. – 4th Edition, Tata Mc-Graw Hill
5. Web reference: http://java.sun.com.
6. Patrick Naughton, "COMPLETE REFERENCE: JAVA2", Tata McGraw-Hill, 20038.
 7. Simply Java:An Introduction to Java Programming by James R.Levenick, Lakshmi Publications (Pvt) Ltd, New Delhi
8. Java: J2SE 5-A Practical Approach by B.Mohamed Ibrahim, Lakshmi Publications (Pvt) Ltd, New Delhi
9. Advance Java by Gajendra Gupta, Lakshmi Publications (Pvt) Ltd, New Delhi

ELECTIVE
Subject Code   : CSE004
Subject Title   : Grid Computing
Structure of the Course Content
BLOCK 1   Concepts and Architecture
      Unit 1: Parallel and Distributed Computing-Cluster Computing
      Unit 2: Grid Computing
      Unit 3: Anatomy and Physiology of Grid
      Unit 4: Review of Web Services-OGSA-WSRF
BLOCK 2   Grid Monitoring
      Unit 1: Grid Monitoring Architecture (GMA)
      Unit 2: An Overview of Grid Monitoring Systems
      Unit 3: Grid ICE – JAMM -MDS-Network Weather Service
      Unit 4: R-GMA-Other Monitoring Systems- Ganglia and GridMon
BLOCK 3   Grid Security and Resource Management
      Unit 1: Grid Security-A Brief Security Primer-PKI-X509 Certificates
      Unit 2: Grid Security-Grid Scheduling and Resource Management-Scheduling
             Paradigms
      Unit 3: Working principles of Scheduling
      Unit 4: A Review of Condor, SGE, PBS and LSF-Grid Scheduling with QoS
BLOCK 4   Data Management and Grid Portals
      Unit 1: Data Management-Categories and Origins of Structured Data
      Unit 2: Data Management Challenges-Architectural Approaches
      Unit 3: Collective Data Management Services-Federation Services
      Unit 4: Grid Portals-First-Generation Grid Portals-Second-Generation Grid Portals
BLOCK 5   Grid Middleware
      Unit 1: List of globally available Middlewares
      Unit 2: Case Studies
      Unit 3: Studies-Recent version of Globus Toolkit and gLite
      Unit 4: Architecture, Components and Features

Books:

1. Ian Foster & Carl Kesselman, The Grid 2 – Blueprint for a New Computing
Infrascture , Morgan Kaufman – 2004
2. Joshy Joseph & Craig Fellenstein, "Grid Computing", Pearson Education 2004.
3. Fran Berman,Geoffrey Fox, Anthony J.G.Hey, "Grid Computing: Making the Global
Infrastructure a reality", John Wiley and sons, 2003
4. Maozhen Li, Mark Baker, The Grid Core Technologies, John Wiley & Sons ,2005

ELECTIVE
Subject Code : CSE005
Subject Title : Advanced Microprocessor
Structure of the Course Content
BLOCK 1 ADVANCED MICROPROCESSOR ARCHITECTURE
      Unit 1: Internal Microprocessor Architecture
      Unit 2: Real mode memory addressing – Protected Mode Memory addressing
      Unit 3: Data and Program memory addressing modes
      Unit 4: Data movement, Program control, Arithmetic and Logic instructions

BLOCK 2 MODULAR PROGRAMMING AND ITS CONCEPTS
      Unit 1: Modular programming
      Unit 2: Data Conversions
      Unit 3: Disk files
      Unit 4: Interrupt hooks- using assembly languages with C/ C++

BLOCK 3 PENTIUM PROCESSORS
      Unit 1: Introduction to Pentium Microprocessor
      Unit 2: Special Pentium registers and memory management
      Unit 3: New Pentium Processor and Special Pentium pro features
      Unit 4: Pentium 4 processor

BLOCK 4 16-BIT MICRO CONTROLLERS
      Unit 1: 8096/8097 Architecture-CPU registers
      Unit 2: RALU-Internal Program and Data memory Timers
      Unit 3: High speed Input and Output –Serial Interface-I/O ports
      Unit 4: Interrupts –A/D converter-Watch dog timer –Power down feature

BLOCK 5 RISC PROCESSORS AND ARM
      Unit 1: RISC Architecture
      Unit 2: RISC Pipe lining
      Unit 3: ARM Processor
      Unit 4: ARM instruction and Branching instruction

Books:
1. Barry B.Brey, The Intel Microprocessors 8086/8088, 80, 86, 80286, 80386 80486, Pentium, Pentium Pro Processor, Pentium II, Pentium III, Pentium 4, Architecture, Programming and interfacing, Prentice Hall of India Private Limited, New Delhi, 2003. (UNIT I, II and III)

2. John Peatman, Design with Microcontroller McGraw Hill Publishing Co Ltd, New Delhi. (UNIT IV)

3. Alan Clements, "The principles of computer Hardware", Oxford University Press, 3rd Edition, 2003. (UNIT V)

4. Rajkamal, The concepts and feature of micro controllers 68HC11, 8051 and 8096; S Chand Publishers, New Delhi.

ELECTIVE
Subject Code : CSE006
Subject Title : Advanced Database Management
Structure of the Course Content
BLOCK 1   Distributed Database
      Unit 1: Distributed DBMS Concepts and Design
      Unit 2: Functions and Architecture of DDBMS – Distributed Relational Database
          Design
      Unit 3: Distributed Transaction Management – Concurrency control – Deadlock
          Management
      Unit 4: Database recovery – The X/Open Distributed Transaction Processing Model
BLOCK 2   Object Oriented Databases
      Unit 1: Object Oriented Concepts Storing Objects in Relational Databases
      Unit 2: Next Generation Database Systems – Object Oriented Data models
      Unit 3: Issues in OODBMS – Object Oriented Database Management System
          Manifesto
      Unit 4: Object Oriented Database Design – OODBMS Standards and Systems
BLOCK 3   Web Databases
      Unit 1: Web Technology And DBMS
      Unit 2: The Web as a Database Application Platform – Scripting languages
      Unit 3: Common Gateway Interface – HTTP Cookies
      Unit 4: Web Server – Java – Microsoft's Web Solution Platform
BLOCK 4   Intelligent Databases
      Unit 1: Enhanced Data Models For Advanced Applications
      Unit 2: Active Database Concepts And Triggers
      Unit 3: Temporal Database Concepts
      Unit 4: Deductive databases – Knowledge Databases
BLOCK 5   Current Trends
      Unit 1: Mobile Database – Geographic Information Systems
      Unit 2: Genome Data Management – Multimedia Database – Parallel Database
      Unit 3: Spatial Databases - Database administration
      Unit 4: Data Warehousing and Data Mining
Books:
1. Ramez Elmasri & Shamkant B.Navathe, "Fundamentals of Database Systems", Fourth Edition , Pearson Education , 2004.
2. M.Tamer Ozsu , Patrick Ualduriel, "Principles of Distributed Database Systems", Second Edition, Pearso nEducation, 2003.
3. C.S.R.Prabhu, "Object Oriented Database Systems", PHI, 2003.
4. Peter Rob and Corlos Coronel, "Database Systems – Design, Implementation and Management", Thompson Learning, Course Technology, 5th Edition, 2003
5. Thomas M. Connolly, Carolyn E. Begg, "Database Systems - A Practical Approach to Design , Implementation , and Management", Third Edition , Pearson Education, 2003

ELECTIVE
Subject Code   : CSE007
Subject Title   : Real Time Systems
Structure of the Course Content
BLOCK 1   Introduction to Real Time Systems
> Unit 1: Issues in Real Time Computing
> Unit 2: Structure of a Real Time System
> Unit 3: Performance Measures for Real Time Systems
> Unit 4: Task Assignment and Scheduling

BLOCK 2   Programming Languages and Tools
> Unit 1: Desired language characteristics
> Unit 2: Data typing and Control structures
> Unit 3: Facilitating Hierarchical Decomposition and Packages
> Unit 4: Low level programming and Task Scheduling

BLOCK 3   Real Time Databases
> Unit 1: Real time Vs General Purpose Databases
> Unit 2: Main Memory Databases
> Unit 3: Concurrency Control Issues
> Unit 4: Disk Scheduling Algorithms

BLOCK 4   Communications
> Unit 1: Real Time Communication media, Network Topologies Protocols
> Unit 2: Fault Tolerance Techniques
> Unit 3: Fault Types and Fault Detection
> Unit 4: Fault Error Containment Redundancy

BLOCK 5   Evaluation Techniques
> Unit 1: Reliability Evaluation Techniques
> Unit 2: Reliability Models for Hardware Redundancy
> Unit 3: Software Error Models
> Unit 4: Fault Tolerant Synchronization in Software

Books:
> 1.C.M. Krishna, Kang G. Shin, "Real – Time Systems", McGraw – Hill International Editions
> 2. Stuart Bennett, "Real Time Computer Control – An Introduction", Prentice Hall of India
> 3. Rajib Mall, "Real-time systems: theory and practice", Pearson Education
> 4. Peter D.Lawrence, "Real Time Micro Computer System Design – An Introduction", McGraw Hill
> 5. S.T. Allworth and R.N.Zobel, "Introduction to real time software design", Macmillan,   2nd Edition
> 6. R.J.A Buhur, D.L Bailey, "An Introduction to Real – Time Systems", Prentice – Hall   International
> 7. Philip.A.Laplante, "Real Time System Design and Analysis", Prentice Hall of India, 3rd   Edition

ELECTIVE
Subject Code   : CSE008
Subject Title   : Cryptography and Network Security
Structure of the Course Content
BLOCK 1   INTRODUCTION
    Unit 1: OSI Security Architecture
    Unit 2: Classical Encryption techniques
    Unit 3: Cipher Principles and Data Encryption Standard
    Unit 4: Block Cipher Design Principles and Modes of Operation
BLOCK 2   PUBLIC KEY CRYPTOGRAPHY
    Unit 1: Key Management
    Unit 2: Elliptic Curve Architecture and Cryptography
    Unit 3: Introduction to Number Theory
    Unit 4: Public Key Cryptography and RSA.
BLOCK 3   AUTHENTICATION AND HASH FUNCTION
    Unit 1: Authentication requirements and functions
    Unit 2: Hash Functions
    Unit 3: MD5 message Digest algorithm
    Unit 4: Authentication Protocols
BLOCK 4   NETWORK SECURITY
    Unit 1: Authentication Applications
    Unit 2: X.509 Authentication Service
    Unit 3: Electronic Mail Security – PGP
    Unit 4: IP and Web Security.
BLOCK 5   SYSTEM LEVEL SECURITIES
    Unit 1: Intrusion detection and password management
    Unit 2: Viruses and related Threats
    Unit 3: Virus Counter measures
    Unit 4: Firewall Design Principles
Books:
1.   William Stallings, "Cryptography And Network Security – Principles and Practices", Pearson Education, Third Edition, 2003.

2.   Behrouz A. Foruzan, "Cryptography and Network Security", Tata McGraw-Hill, 2007

3.   Bruce Schneier, "Applied Cryptography", John Wiley & Sons Inc, 2001.

4.   Charles B. Pfleeger, Shari Lawrence Pfleeger, "Security in Computing", Third Edition, Pearson Education, 2003

5.   Wade Trappe and Lawrence C. Washington , " Introduction to Cryptography with coding theory" , Pearson Education, 2007.

6.   Wenbo Mao, " Modern Cryptography Theory and Practice" , Pearson Education ,

7.   Thomas Calabrese, "Information Security Intelligence : Cryptographic Principles and Applications", Thomson Delmar Learning,2006.

8.   Atul Kahate, "Cryptography and Network Security", Tata McGraw-Hill, 2003.

        , Pearson Education, 2005