

KARANATAKA STATE OPEN UNIVERSITY

DIPLOMA IN COMPUTER ENGINEERING

SEMESTER SYSTEM

SYLLABUS

I YEAR SYLLBUS

(Basic Engineering) (Common to all Branches)

Subject Code	Subject Title	Max Marks	Max Credits
Semester-I			
	Communication English	100	4
	Applied Mathematics-1	100	4
	Engineering Physics-I	100	4
	Engineering Chemistry-I	100	4
	Computer Application Lab	100	2
	Workshop Practice Lab	100	2
Semester -II			
	Applied Mathematics-1I	100	4
	Engineering Physics-II	100	4
	Engineering Chemistry-II	100	4
	Engineering Graphics	100	4
	Physics Lab	100	2
	Chemistry Lab	100	2

**Computer Engineering
III Semester**

Subject Code	Subject Title	Max Marks	Max Credits
	Operating Systems	100	4
	C and Data Structures	100	4
	Basics of Electrical and Electronics Engineering	100	4
	Microprocessor	100	4
	C and Data Structures Lab	100	2
	Basics of Electrical and Electronics Engineering Lab	100	2

IV Semester

Subject Code	Subject Title	Max Marks	Max Credits
	Computer Architecture	100	4
	Web Design	100	4
	Java Programming	100	4
	Software Engineering	100	4
	Java Programming Lab	100	2
	Web Design Lab	100	2

V Semester

Subject Code	Subject Title	Max Marks	Max Credits
	Computer Networks	100	4
	Relational Database Management Systems	100	4
	Dot Net	100	4
	Embedded Systems	100	4
	Networks Lab	100	2
	Dot Net Lab	100	2

VI Semester

Subject Code	Subject Title	Max Marks	Max Credits
	Computer Hardware and Servicing	100	4
	Mobile Computing	100	4
	Multimedia	100	4
	Computer Hardware and Servicing Lab	100	2
	Project	400	8

Total Marks = 3800

Total Credits = 122

SEMESTER : I
Subject Code : BE 101
Subject Title : Communication English

Structure of the Course Content

BLOCK 1 Grammar (Non-Textual)

- Unit 1: Functional Analysis
- Unit 2: Voice and parts of speech
- Unit 3: Direct and indirect speech
- Unit 4: Preposition

BLOCK 2 Grammars

- Unit 1: One word substitute
- Unit 2: Articles and question tags
- Unit 3: Prefixes and suffixes
- Unit 4: Tenses

BLOCK 3 Compositions

- Unit 1: Comprehension
- Unit 2: Simple passage
- Unit 3: Moral story
- Unit 4: Science and technology

BLOCK 4 Letter and dialogue Writing

- Unit 1: Letter writing - personal
- Unit 2: Letter writing - official
- Unit 3: Dialogue writing
- Unit 4: Hints development

BLOCK 5 Proses

- Unit 1: An Astrloger's day – R.K. Narayanan
- Unit 2: The sun, the planets and the stars – C.Jones
- Unit 3: The continuing spell of Ramanujam
- Unit 4: On saying 'please' – A.G.Gardiner

Books:

1. Orient Longman, Anna Salai, Chennai-600002.
2. The Advanced Learners Dictionary of Current English by A.S.Hornby, Oxford University Press. 1973
3. High School English Grammar and Composition by Wren & Martin, S.Chand & Co Ltd., 2005
4. Vocabulary in Practice - Part 1 to 4 by Glennis Pye, Cambridge University Press,
5. Learn Correct English by Shiv K. Kumar & Hemalatha Nagarajan, Pearson Longman, 2005
6. Essential English Grammar by Raymond Murphy, Cambridge University Press,
7. Common Errors in English by M.Thomas, Lotus Press, New Delhi, 2006
8. Basic English Usage by Michael Swan, ELBS/OUP, 1989
9. Communication Skills for Engineers by Mishra ,Ist Edition, Pearson Longman
10. Basic English Dictionary by Longman Longman Ist Edition, Pearson Longman

SEMESTER : I
Subject Code : BE 102
Subject Title : Applied Mathematics - I

Structure of the Course Content

BLOCK 1 Algebra

- Unit 1: Determinants
- Unit 2: Matrices
- Unit 3: Permutation and combination
- Unit 4: Binomial Theorem

BLOCK 2 Complex numbers

- Unit 1: Real and imaginary parts
- Unit 2: Demoivre's Theorem
- Unit 3: Finding the n^{th} roots of unity
- Unit 4: Solving equations

BLOCK 3 Analytical geometry

- Unit 1: Pair of straight lines
- Unit 2: Circles
- Unit 3: Family of circles
- Unit 4: Concentric circles

BLOCK 4 Trigonometry

- Unit 1: Compound angles
- Unit 2: Multiple angles
- Unit 3: Sub multiple angles
- Unit 4: Sum and product formulae

BLOCK 5 Differential calculus

- Unit 1: Limits
- Unit 2: Differentiation
- Unit 3: Differentiation methods
- Unit 4: Successive differentiation

Books :

1. Engineering Mathematics by Dr M.K.Venkatraman, National Publishing Co.
2. Engineering Mathematics by Dr P.Kandasamy, S.Chand & Co, New Delhi
3. Higher Engineering Mathematics by Ramana, Tata McGraw Hill, New Delhi
4. Engineering Mathematics by Singh, Tata McGraw Hill, New Delhi
5. Advanced Engineering Mathematics by N.Bali,M.Goyal,C.Watkins,Lakshmi Publications (Pvt) Ltd, New Delhi
6. Engineering Maths by T.Veerarajan, Tata McGraw Hill, New Delhi
7. Schaum's Outline of Technical Mathematics by Paul Calter, Tata McGraw Hill, New Delhi
8. Engineering Mathematics Vol-III by Dr. B. Krishna Gandhi , Dr. T.K.V Iyengar, S.Ranganatham, , S.Chand & Co, New Delhi
9. Introduction to Engineering Mathematics by H.K. Dass, Dr.Rama Verma, S.Chand & Co, New Delhi
10. Applied Engineering Mathematics Vol-II by H.K.Dass, S.Chand & Co

SEMESTER : I
Subject Code : BE 103
Subject Title : Engineering Physics - I

Structure of the Course Content

BLOCK 1 S I units and Statics

- Unit 1: Fundamental quantities
- Unit 2: Derived quantities
- Unit 3: Concurrent forces
- Unit 4: parallelogram Law of forces

BLOCK 2 Properties of matter

- Unit 1: Stress and strain
- Unit 2: Young's modulus
- Unit 3: Viscosity
- Unit 4: Surface Tension

BLOCK 3 Dynamics

- Unit 1: Projectile Motion
- Unit 2: Angle of projection
- Unit 3: Circular Motion
- Unit 4: Application of circular motion

BLOCK 4 Rotational motions of rigidity bodies

- Unit 1: Moment of Inertia
- Unit 2: Kinetic energy
- Unit 3: Angular Momentum
- Unit 4: Kepler's Law

BLOCK 5 Remote sensing and sound

- Unit 1: Active and Passive remote sensing
- Unit 2: Microwave remote sensing
- Unit 3: Types of sound waves
- Unit 4: Acoustics

Books :

1. Physics by Resnick and Hoilday ,Wisley Toppan Publishers – England
2. Mechanics by Narayana Kurup , S. Chand Publishers – New Delhi
3. Engineering Physics by B.L. Theraja , S. Chand Publishers – New Delhi
4. Remote sensing by Dr.M.Anji Reddy, Jawaharlal Nehru Technological University –Hyderabad.
5. Engineering Physics by V.Rajendran, Tata McGraw Hill, New Delhi
6. Engineering Physics by Vikram Yadav, Tata McGraw Hill, New Delhi
7. Schaum's Outline of Physics for Engineering and Science by Michael Browne, Tata McGraw Hill, New 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 Ghosh, Prabir Kumar Haldar, Lakshmi Publications (Pvt) Ltd, New Delhi

SEMESTER : I
Subject Code : BE 104
Subject Title : Applied Chemistry - I

Structure of the Course Content

BLOCK 1 Acids – Bases, Catalysis

- Unit 1: Theories of Acids and Bases
- Unit 2: Industrial application
- Unit 3: Positive and Negative catalyst
- Unit 4: Characteristics of Catalyst

BLOCK 2 Pollution

- Unit 1: Air Pollution
- Unit 2: Global warming
- Unit 3: Water Pollution
- Unit 4: Green Chemistry

BLOCK 3 Electro chemistry and corrosion

- Unit 1: Types of conductors
- Unit 2: Industrial applications of Electrochemistry
- Unit 3: Electrochemical theory
- Unit 4: Electroplating

BLOCK 4 Organic coatings

- Unit 1: Paint
- Unit 2: Varnish
- Unit 3: Adhesives
- Unit 4: Lubricants

BLOCK 5 Colloids and Ceramics

- Unit 1: Colloidal solution
- Unit 2: Brownian movement
- Unit 3: Water purification
- Unit 4: Ceramics

Books :

1. Inorganic chemistry by Soni PL, Sultan Chand & sons.
2. Organic chemistry by Soni PL, Sultan Chand & sons.
3. Engineering chemistry by Jain & Jain, Dhanpat rai & co
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 : I
Subject Code : BE 105
Subject Title : Computer Application Lab

Practicals
Windows

- 1.a. Starting a program, running a program.
- b. Starting the Windows in safe mode
- c. Running multiple Programs and switching between windows.
- d. Moving the windows, and the task bar.
- e. Startup to MS-DOS prompt.
- 2.a. Creating and removing a folder.
- b. Making the taskbar wider, arranging icons on the Desktop.
- c. Displaying and hiding the taskbar clock.
- d. Controlling the size of start menu options.
- e. Creating shortcuts.
- 3.a. Installing a screen saver.
- b. Assigning Wallpaper to Desktop.
- c. Adding a program to the start menu.
- d. Recovering files and folders from Recycle bin.
- e. Customizing the mouse settings.
- 4 a. Expanding and collapsing a folder.
- b. Recognizing file types using icons.
- c. Running a program from explorer.
- d. Renaming a file or folder.
- e. Selecting two or more files for an operation.
- 5.a. Displaying the properties for a file or folder.
- b. Using cut and paste operations to copy a file.
- c. Using copy and paste operations to copy a file.
- d. Moving and copying files with mouse.
- e. Sorting a folder.

- 6.a. Finding a file or folder, by name.
- b. Defragmenting the disk using disk defragmenter.
- c. Compressing a file using WinZip.
- d. Controlling the speaker volume.
- e. Recording and saving an audio file.

MS Word

- a. Prepare a newsletter with borders, two columns text, header and footer and a graphic image and spell check the document.
- b. Create a table to show the paradigm of the verb “eat” in all 12 tenses

Tense		Present	Past	Future
Simple	He	Eats	Ate	Will eat
	I	Eat	Ate	Will eat
	You/They	Eat	Ate	Will eat
Continuous	He	Is eating	Was eating	Will be eating
	I	Am eating	Was eating	Will be eating
	You/They	Are eating	Was eating	Will be eating
Perfect	He	Has eaten	Had eaten	Will have eaten
	I	Have eaten	Had eaten	Will have eaten
	You/They	Have eaten	Had eaten	Will have eaten
Perfect continuous	He	Has been eating	Had been eating	Will have been eating
	I	Have been eating	Had been eating	Will have been eating
	You/They	Have been eating	Had been eating	Will have been eating

- c. Prepare your Bio-data/Resume
- d. Do the mail merge operation for sending applications to many companies with your resume

MS EXCEL

- 1. Create a worksheet in Excel for a company:
 - a. Copy, Move and Merge the cells
 - b. Adding Comments
 - c. Adding, Deleting the cells, Rows and Columns
 - d. Hiding and Unhiding the columns, Rows and gridlines.

2. Using formula and functions prepare worksheet for storing subject marks of ten students and perform the following:

- a. Calculate the student wise total and average
- b. Calculate the subject wise total and average
- c. Calculate the overall percentage and also individual percentage of the student.

3. Create Bar Graph and Pie Chart for various data

MS Power Point

a. Create a simple presentation with atleast 5 slides to introduce your friend and include sounds in slides.

b. Create a presentation with 5 slides for the essay Astrologer's Day by R.K Narayanan

Internet

a. Creating an E-Mail account.

b. Sending an E-Mail to a known Address

c. Viewing an E-Mail received from your friend/relative.

d. Printing an E-Mail received

e. Use of Attachment Facility

f. Use of Address Book Facility

g. Use of Sent Folder

h. Use of Save Draft Folder

i. Use of Trash Folder

j. Browse a given web-site address.

k. Search a Particular topic through a Search engine.

SEMESTER : I
Subject Code : BE 106
Subject Title : Workshop Practice

Fitting

1. Fitting
2. V - Joint
3. L - Joint
4. T - Joint
5. Half round joint
6. Dovetail Joint
7. U – Joint
8. Hexagonal – Joint
9. Step - Joint
10. Drilling and Tapping M8
11. Drilling and Tapping M10

Wiring

1. Single lamp controlled by single switch.
2. Two Lamps controlled by Two independent switches.
3. Stair case Wiring
4. Fluorescent lamp circuit.
5. Circuit diagram of a fan
6. Circuit diagram of an iron box
7. Circuit diagram of a mixie
8. Soldering practice

Sheet Metal

1. Hemming
2. Seaming
3. Tray
4. Cylinder
5. Cone
6. Hopper
7. Dust Pan
8. Funnel

SEMESTER : II
Subject Code : BE 201
Subject Title : Applied Mathematics - II

Structure of the Course Content

BLOCK 1 Vector Algebra

- Unit 1: Introduction
- Unit 2: Vector Properties
- Unit 3: Product of Vectors
- Unit 4: Application of Vectors

BLOCK 2 Integral Calculus

- Unit 1: Integration
- Unit 2: Standard Integrals
- Unit 3: Integration by parts
- Unit 4: Bernoulli's Theorem and Applications

BLOCK 3 Differentiation

- Unit 1: Velocity and Acceleration
- Unit 2: Tangents and Normals
- Unit 3: Maxima and Minima
- Unit 4: Partial differentiation

BLOCK 4 Application of Integration

- Unit 1: Definite Integral.
- Unit 2: Area and Volume
- Unit 3: Solution of differential equations
- Unit 4: Second order differential equation with constant coefficients

BLOCK 5 Probability Distributions

- Unit 1: Continuous random variable
- Unit 2: Discrete random variable
- Unit 3: Discrete Distributions (Binomial, Poisson)
- Unit 4: Continuous Distribution

Books :

1. Engineering Mathematics by Dr M.K.Venkatraman, National Publishing Co.
2. Engineering Mathematics by Dr P.Kandasamy, S.Chand & Co, New Delhi
3. Higher Engineering Mathematics by Ramana, Tata McGraw Hill, New Delhi
4. Engineering Mathematics by Singh, Tata McGraw Hill, New Delhi
5. Advanced Engineering Mathematics by N.Bali,M.Goyal,C.Watkins,Lakshmi Publications (Pvt) Ltd, New Delhi
6. Engineering Maths by T.Veerarajan, Tata McGraw Hill, New Delhi
7. Schaum's Outline of Technical Mathematics by Paul Calter, Tata McGraw Hill, New Delhi
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9. Introduction to Engineering Mathematics by H.K. Dass, Dr.Rama Verma, S.Chand & Co, New Delhi
10. Applied Engineering Mathematics Vol-II by H.K.Dass, S.Chand & Co

SEMESTER : II
Subject Code : BE 202
Subject Title : Engineering Physics - II

Structure of the Course Content

BLOCK 1 Heat

Unit 1: Heat - Kinetic Theory of Gases:
Unit 2: Specific Heat
Unit 3: Isothermal Changes
Unit 4: Adiabatic Changes

BLOCK 2 Gases & Non Conversional Energy

Unit 1: Liquefaction of Gases
Unit 2: Joule Thomson Effect & Linde's process
Unit 3: Renewable and Non-renewable sources
Unit 4: Alternate sources of Energy-

BLOCK 3 Light & Magnetism

Unit 1: Optical Instruments
Unit 2: Lasers
Unit 3: Basic definitions of Magnetism
Unit 4: Hysteresis Loop

BLOCK 4 Electricity

Unit 1: Basic laws
Unit 2: Force on a moving charge
Unit 3: Measuring Instruments
Unit 4: Heating Effect of Electric Current

BLOCK 5 Dielectric effect & Electronics

Unit 1: Chemical Effect of Electric Current
Unit 2: Capacitor
Unit 3: Semiconductors , PN Junction & Transistors
Unit 4: Logic Gates

Books :

1. Physics by Resnick and Hoilday , Wisley Toppan Publishers – England
2. Mechanics by Narayana Kurup , S. Chand Publishers – New Delhi
3. Engineering Physics by B.L. Theraja , S. Chand Publishers – New Delhi
4. Remote sensing by Dr.M.Anji Reddy, Jawaharlal Nehru Technological University –Hyderabad.
5. Engineering Physics by V.Rajendran, Tata McGraw Hill, New Delhi
6. Engineering Physics by Vikram Yadav, Tata McGraw Hill, New Delhi
7. Schaum's Outline of Physics for Engineering and Science by Michael Browne, Tata McGraw Hill, New 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 Ghosh, Prabir Kumar Halder, Lakshmi Publications (Pvt) Ltd, New Delhi

SEMESTER : II
Subject Code : BE 203
Subject Title : Applied Chemistry - II

Structure of the Course Content

BLOCK 1 Nuclear Chemistry

- Unit 1: Radio activity and definitions
- Unit 2: Half life period & Nuclear fission & fusion
- Unit 3: Applications of radio active isotopes
- Unit 4: Abrasives

BLOCK 2 Fuels and Refractory's

- Unit 1: Fuels - classification
- Unit 2: Solid and Liquid Fuels
- Unit 3: Gas Fuels
- Unit 4: Refractory's

BLOCK 3 Water Treatment

- Unit 1: Water Treatment Methods
- Unit 2: EDTA Method
- Unit 3: Water -purification
- Unit 4: Lime and manufacturing process

BLOCK 4 Plastics and Rubber

- Unit 1: Thermoplastics,
- Unit 2: Thermo set plastics
- Unit 3: Natural rubber-
- Unit 4: Synthetic rubber

BLOCK 5 Metallurgy

- Unit 1: Tungsten & Titanium
- Unit 2: Powder metallurgy
- Unit 3: Purpose of alloying
- Unit 4: Non ferrous alloys

Books :

1. Inorganic chemistry by Soni PL, Sultan Chand & sons.
2. Organic chemistry by Soni PL, Sultan Chand & sons.
3. Engineering chemistry by Jain & Jain, Dhanpat rai & co
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 204
Subject Title : Engineering Graphics

Structure of the Course Content

BLOCK 1 Drawing Office Practice

Unit 1: Basics of Engg Drawing

Unit 2: Dimensioning

Unit 3: Scales

Unit 4: Geometrical Constructions, conics and geometrical curves

BLOCK 2 Projection

Unit 1: Orthographic Projection

Unit 2: Projection of simple solids

Unit 3: Section of Solids

Unit 4: Half & Full Sectioning

BLOCK 3 Pictorial drawings

Unit 1: Introduction

Unit 2: Isometric Drawings

Unit 3: Conversion of orthographic views

BLOCK 4 Development of Surfaces:

Unit 1: Cube, Cylinder

Unit 2: Prism

Unit 3: Pyramids

Unit 4: Tee and Elbow

BLOCK 5 AutoCAD

Unit 1: Introduction

Unit 2: AutoCAD commands

Unit 3: Drawing -line, circle, arc, polygon,

Unit 4: Drawing - ellipse, rectangle

Books :

1. Engineering Drawing by Gopalakrishnan.K.R., (Vol.I and Vol.II), Dhanalakshmi publishers, Edition 2, 1970
2. First Year Engineering Drawing by Barkinson & Sinha, Pitman Publishers, London, Edition 3, 1961
3. A Book on AutoCAD Release 2007.
4. Engineering Drawing by Shah/Rana, Ist Edition Pearson Longman
5. Machine Drawing with AutoCAD by Pohit/Ghosh, Ist Edition Pearson Longman
6. Engineering Graphics by Prof.P.J.Shah, S.Chand & Co, New Delhi
7. Computer Graphics including CAD,AUTOCAD &C by A.M.Kuthe, S.Chand & Co, New Delhi
8. Engineering Graphics by Dhawan R.K, S.Chand & Co, New Delhi
9. Auto CAD 2005 for Engineers by Ionel Simon, Lakshmi Publications (Pvt) Ltd, New Delhi
10. Engineering Drawing by Agrawal, Tata McGraw Hill, New Delhi

Drawing Practices

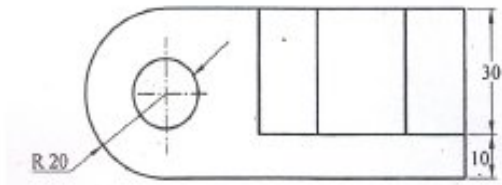


Fig - 1

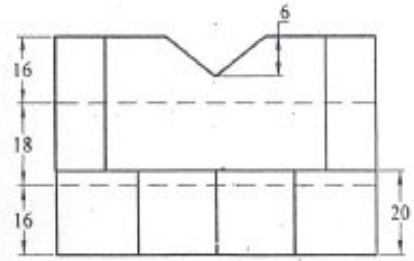


Fig- 2

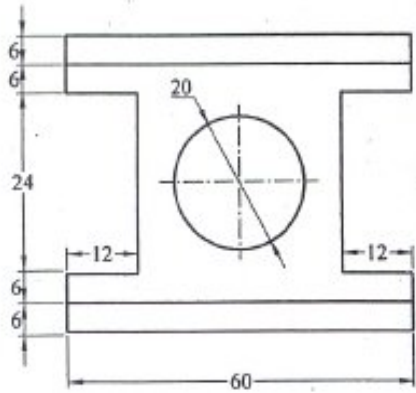


Fig. 3

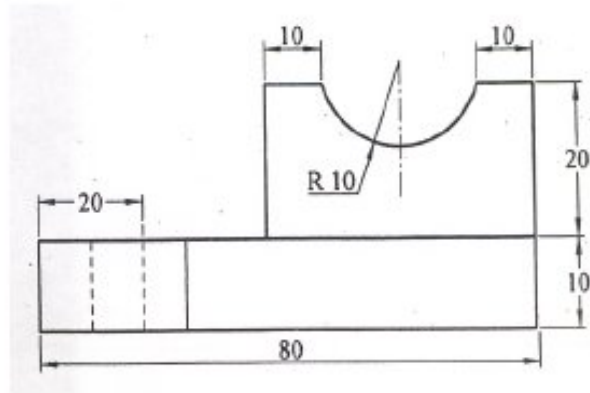


Fig. 4

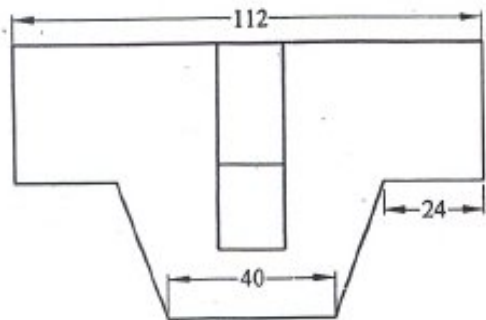


Fig. 5

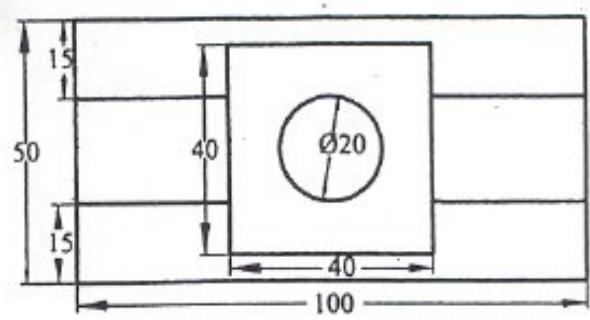


Fig. 6

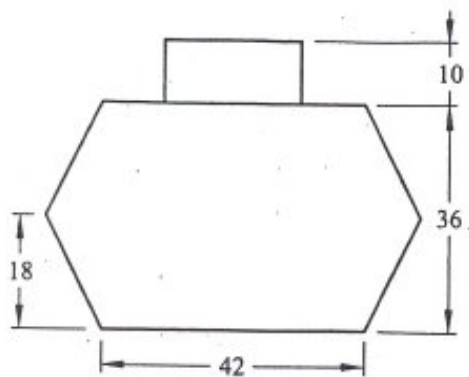


Fig. 7

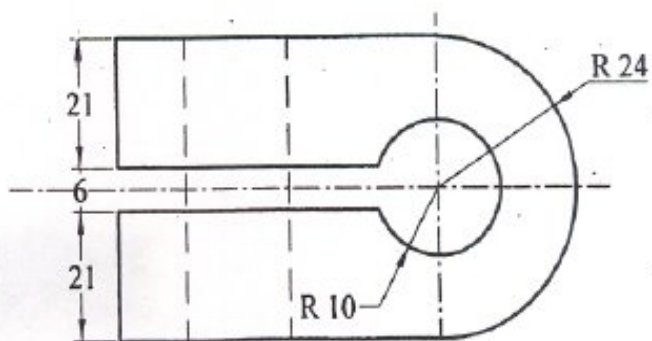


Fig. 8

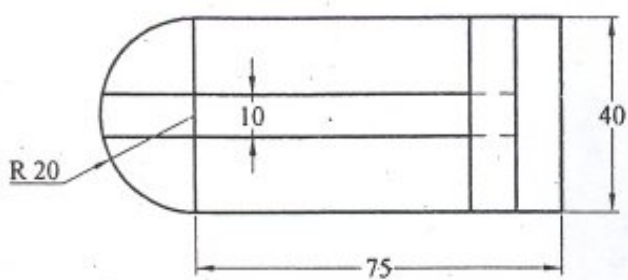


Fig. 9

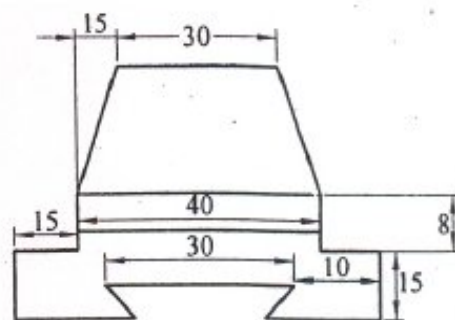


Fig. 10

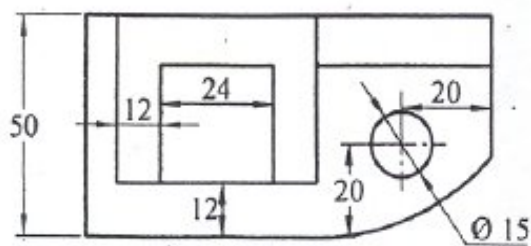


Fig.11

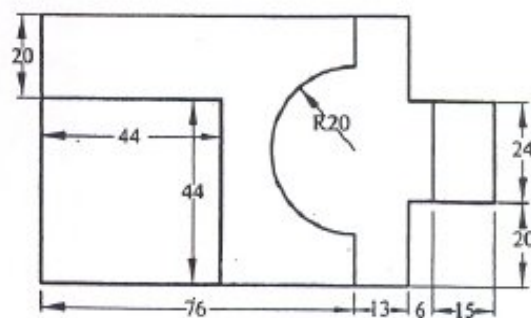


Fig. 12

SEMESTER : II

Subject Code : BE 205

Subject Title : Engineering Physics Lab

List of Experiments

1 VERNIER CALIPERS - To find the volumes of the solid cylinder and hollow cylinder using vernier callipers.

2 SCREW GAUGE – To find the thickness of (a) glass plate (b) given sphere using screw gauge. Hence calculate the volume of the glass plate and the sphere.

3 SIMPLE PENDULUM – To find the acceleration due to gravity in the laboratory, using simple pendulum. Calculate the acceleration due to gravity, by $L-T^2$ graph.

4 CONCURRENT FORCES -To verify the parallelogram law of forces and Lami's theorem.

5 COPLANAR – PARALLEL FORCES – To verify the conditions of the Co-planar parallel forces.

6 TORSION PENDULUM – To find the rigidity modulus of the thin wire and moment of inertia of the disc by using symmetric masses.

7 COMPARISON OF VISCOSITIES – To compare the coefficient of viscosities of two liquids by capillary flow method.

8 VISCOSITY OF A HIGHLY VISCOUS LIQUID – To find the coefficient of viscosity of a highly viscous liquid.

9 SURFACE TENSION: To find the surface tension of the given liquid by capillary rise method

10 YOUNG'S MODULUS – To find the young's modulus of the material of the given metre scale.

11 SPECTROMETER – 1. To find the angle of the prism.

12 SPECTROMETER – 2. To find the refractive index of the material of the prism.

13 DEFLECTION MAGNETOMETER – To compare the magnetic moments of two given magnets by (a) Equal distance method and (b) Null method.

14 SONO METER – To find the frequency of the given tuning fork.

15 JOULE'S CALORIMETER – To determine the specific heat capacity of the given liquid.

16 COPPER VOLTAMETER – To determine electro – chemical – equivalent of copper.

17 OHM'S LAW – To determine the resistance of two given coils of wire using Ohm's law. Also verify the laws of resistances.

18 POTENTIO METER – To compare the e.m.fs of two given cells.

19 PN JUNCTION DIODE – For the given semiconductor diode draw (a) Forward bias (b) Reverse bias characteristic curves.

20 SOLAR CELLS – V. I. Characteristics.

SEMESTER : II

Subject Code : BE 206

Subject Title : Applied Chemistry Lab

List of Experiments

1. Qualitative Analysis

Acid radicals : Chloride, Carbonate, Sulphate, Nitrate

Basic radicals: Lead, Cadmium, Copper, Aluminium, Zinc, Calcium, Magnesium, Ammonium

Identification of acid and basic radicals in

1. Lime Stone (Calcium Carbonate)
2. Pollutant (Lead nitrate or Cadmium Carbonate)
3. Fertilizer (Ammonium sulphate)
4. Electrolyte (Ammonium Chloride)
5. Fungicide (Copper sulphate)
6. Coagulant (Aluminium Sulphate)
7. Mordant (Zinc Sulphate)
8. Gypsum (Calcium Sulphate)
9. Epsom (Magnesium Sulphate)
10. Analysis of an Effluent (containing pollutants like Lead, Cadmium, Zinc, Copper). Students may be given above four pollutants, in four separate test tubes in solution form and asked to report metallic pollutants with procedure (Basic Radical Analysis Procedure) and their harmful effects.

2. VOLUMETRIC ANALYSIS (DOUBLE TITRATIONS)

ACIDIMETRY AND ALKALIMETRY

1. Estimation of Hydrochloric acid
2. Estimation of Sodium Hydroxide
3. Estimation of Sodium Carbonate
4. Comparison of Strengths of two bases

PERMANGANIMETRY

5. Estimation of Ferrous Ammonium Sulphate
6. Estimation of Ferrous Sulphate
7. Comparison of Potassium Permanganate.

WATER ANALYSIS

8. Estimation of Total Hardness by EDTA method.
9. Calculation of pH of four sample solutions and calculation of H⁺ Ion concentration for a particular sample solution.

Subject Code : CS301
Subject Title : Operating System

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. Addison Wesley Publishing Company
3. Operating Systems – A Concept Based Approach by D.M. Dhamdhare, TMGH
4. Operating Systems , Concepts and Design by Milan Milenkovic, 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, Addison 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

Subject Code : CS302
Subject Title : C and Data Structures

Structure of the Course Content

BLOCK 1 BASIC ELEMENTS OF “C” and CONTROL STATEMENTS

- Unit 1: Keywords, Constants, Variables and Data types
- Unit 2: Operators and Expressions
- Unit 3: Control Statements
- Unit 4: Programs using Operators and Control structures
- Unit 5 : Cement

BLOCK 2 ARRAYS, STRINGS, and FUNCTIONS

- Unit 1: Arrays
- Unit 2: Strings
- Unit 3: Functions
- Unit 4: Programs using arrays, functions

BLOCK 3 STRUCTURES AND UNIONS and POINTERS

- Unit 1: Structures and Unions
- Unit 2: Pointers
- Unit 3: Relation of pointers with other elements
- Unit 4: Dynamic memory allocation
- Unit 5: Programs using Structures, Unions and Pointers

BLOCK 4 LINEAR DATA STRUCTURES

- Unit 1: Elementary data organization
- Unit 2: Linked Lists
- Unit 3: Stacks
- Unit 4: Queues

BLOCK 5 NON LINEAR DATA STRUCTURES

- Unit 1: Trees
- Unit 2: Graphs
- Unit 3: Searching
- Unit 4: Sorting

Books :

1. Programming in ANSI C by E. Balagurusamy TMGH, New Delhi
2. Programming with C by Byron Gottfried. Schaum Series -TMGH
3. Let us C by Yashavent Kanethar BPB Publication, 2005, New Delhi
4. Programming in C by Schaum Series, McGraw Hills Publishers
5. Data Structures by Lipschutz Schaum Series
6. Introduction to Data structures by Bhagat Singh, TMGH, New Delhi
7. Introduction to Data structures with applications by Trembley and Sorenson, TMGH
8. Data Structure using ‘C’ by Dr.Prabhakar Gupta, Vineet Agarwal,Manish Varshney, Lakshmi Publications (Pvt) Ltd, New Delhi
9. Data Structure using ‘C++’ by N.Jayalakshmi, Lakshmi Publications (Pvt) Ltd, New Delhi
10. Introduction to Data Structure using C by Venkatesh N.Baitipuli, Lakshmi Publications (Pvt) Ltd, New Delhi

Subject Code : CS303
Subject Title : BASICS OF ELECTRICAL & ELECTRONICS ENGINEERING

Structure of the Course Content

BLOCK 1 DC AND AC FUNDAMENTALS

- Unit 1: DC Circuits
- Unit 2: AC Fundamentals
- Unit 3: Batteries
- Unit 4: Safety measures

BLOCK 2 ELECTRICAL MACHINES

- Unit 1: DC generator
- Unit 2: DC Motors
- Unit 3: Single phase transformer
- Unit 4: AC Motors - Induction motor

BLOCK 3 ANALOG DEVICES

- Unit 1: Semi conductor theory
- Unit 2: Rectifiers
- Unit 3: Special Diodes
- Unit 4: Transistor

BLOCK 4 BOOLEAN ALGEBRA AND LOGIC GATES

- Unit 1: Number representation
- Unit 2: Logic gates
- Unit 3: Logic Simplification
- Unit 4: Arithmetic circuits

BLOCK 5 COMBINATIONAL and SEQUENTIAL LOGIC SYSTEMS

- Unit 1: Multiplexer - De multiplexer
- Unit 2: Flip flops
- Unit 3: Counters
- Unit 4: Registers

Books :

- 1 Electrical Technology by B.L. Theraja S.Chand and Co, New Delhi
- 2 Principles of Electrical Engineering by B.R. Gupta S.Chand and Co, New Delhi
3. Digital Principles & Applications by Albert P.Malvino & Donald P.Leach McGraw-Hill
4. Principles of Electronics by V.K.Metha S.Chand & Co.
5. Electronic Devices and Circuits –An introduction by Allen Mottershed, Prentice-Hall of India
6. Digital Electronics Principles and Applications by Tokheim, Tata McGraw-Hill
7. Digital Electronics by R.P. Jain, TMH, New Delhi
8. Electronics Engineering by Ashish Dixit, Anand Chopra, , Lakshmi Publications (Pvt) Ltd, New Delhi
9. Basic Electronics Engineering & Devices by Dr.R.K.Singh, Ashish Dixit, Lakshmi Publications (Pvt) Ltd, New Delhi
10. Electrical and Electronics Engineering by Vikramaditya Dave, Lakshmi Publications (Pvt) Ltd, New Delhi

Subject Code : CS304
Subject Title : Microprocessor

Structure of the Course Content

BLOCK 1 Introduction

- Unit 1: Evolution of Microprocessors
- Unit 2: Advantages of Microprocessors
- Unit 3: Various MPU Families (SSI, LSI, VLSI, SLSI)

BLOCK 2 8085

- Unit 1: Introduction
- Unit 2: Architecture of 8085
- Unit 3: Block and Pin Diagram of 80851 and it's functions
- Unit 4: BUS Details

BLOCK 3 8085 Programming

- Unit 1: Instruction formats & Addressing Modes
- Unit 2: Instruction Set and It's Cycle
- Unit 3: Timing Diagrams and Status Signals
- Unit 4: Simple Programs

BLOCK 4 8085 Interfacing

- Unit 1: Memory mapping
- Unit 2: Interrupts
- Unit 3: I/O Peripheral Interfacing

BLOCK 5 16 bit Microprocessor

- Unit 1: Introduction to 8086
- Unit 2: Architecture of 8086
- Unit 3: Block and Pin Diagram of 8086 and it's functions
- Unit 4: BUS Details

Books:

1. 8085 Microprocessor and its applications by Ramesh gaonkar, Penram Publishers
2. 8086 Microprocessor by Douglas hall
3. Advanced Microprocessor and Microcontrollers by N.Parasuraman, N.V.Publications
4. www.Intel.com
5. Microprocessors and Interfacing by Douglas V.Hall and Hebbler,K.M, Tata McGraw-Hill
6. Advanced Microprocessors & Peripherals by Dr. Ajoy Kumar Ray and K.M.Burchandi, Tata McGraw-Hill
7. Advanced Microprocessors and Interfacing by Badri Ram, Tata McGraw-Hill
8. Introduction to Microprocessors by A.P.Mathur, Tata McGraw-Hill
Microprocessor 8085 by G.T.Swamy, Lakshmi Publications (Pvt) Ltd, New Delhi
9. Advanced Microprocessor and Microcontrollers by Prof S.K.Venkata Ram, Lakshmi Publications (Pvt) Ltd, New Delhi
10. VLIW Microprocessor Hardware Design by lee Weng Fook, Tata McGraw-Hill

Subject Code : CS305
Subject Title : C AND DATA STRUCTURES LABORATORY

Structure of the Course Content

1. a). Write a program to convert the given temperature in degree centigrade to Fahrenheit and vice versa.
b) Write a program to find the simple and compound interest for the amount (P) at the rate of interest (R) for the year N.
c) Write a program to enter two numbers from the user and prints the sum, product, difference, and quotient of the two numbers.

2. a). Write a program to identify whether a number input from the keyboard is even or odd. If it is even, the program should display the message “Number is even”, else it should display “Number is odd”. (Using if-else)

3. a). Write a program to find out whether a given number is a perfect number. The program should terminate if a negative integer is given as the input. A perfect number is a number whose factors other than itself add up to itself. Example: $6 = 1 + 2 + 3$, $28 = 1 + 2 + 4 + 7 + 14$
b) Develop a simple calculator to accept two floating point numbers from the keyboard. Then display a menu to the user and let him/her select a mathematical operation to be performed on those two numbers. Then display the answer. A sample run of you program should be similar to the following: (Using switch statement)

4. a). Write a program to compute the sum of all integers between any given two numbers.
b) Write a program to find and print the first 10 terms of the Fibonacci sequence. Assume the first two terms are 0 and 1.
c) Write a program to count the number of positive numbers, number of negative numbers and number of zeros in the given N elements.

5. a). Write a program to calculate and display the total and the average of 10 integer numbers.
b) Read 3 subject marks of 4 students. Write a program to calculate and display the total marks of each student. Use a 2D (two-dimensional) array to store the marks

6. a). Devise a function called min (x , y) that returns the smaller of two double values. Test the function with a simple data.
b) Write a function to find the biggest number in a given array using function.
c) Write a program to find the factorial of a given number using recursion.

7. a). Write a C program to find the number of vowels present in the string.
[Assume your string contains both uppercase and lowercase characters]
b) Write a program to find whether a given string is palindrome or not.

c) Read a string, which consists of both lower case characters and upper case characters. Convert the lowercase character into upper case and vice versa. Display the new string.

8. a). Write a program for nested structure, the two structures are declared within a single structure. The two inner structures are : “dob” (fields : dd, mm, yy) and “address” (st, city) and the outer structure “Student” (fields : rollno, name). Write a main program to get and display the details of N students.

b) Write a Program to print the student name, rollno, marks using unions.

9. a). Write a program to swap two integer numbers using pointers.

b) Read a string. Print the above string such that each line contains a single character. (Use pointers)

c) Read an integer array consists of N elements. Print the elements in reverse order 37 using pointers.

10. a). Write a C program to read through an array of any type using pointers. Write a C program to scan through this array to find a particular value

b) Using pointers, find the length of the string.

c) Write a “C” program to concatenate two strings using pointers.

11. a). Write a C program to create a singly linked list . Make necessary assumptions.

b) Write a C program to delete the first node that contains an integer data item of a single linked list.

12. Write a “C” program to perform operations in stack using array.

13. Write a “C” program to convert an infix expression into post fix expression.

14. Write a “C” program to evaluate a postfix expression.

15. Write a “C” program to perform operations in queue using array.

16. Write a “C” program to create a binary tree.

17. Write a “C” program for pre -order traversal of a binary tree.

18. Write a “C” Program for binary searching.

19. Write a “C” program to read 10 elements and sort the above numbers using bubble sort.

20. Write a “C” program to read 10 elements and sort the above numbers using quick sort.

Subject Code : CS306
Subject Title : ELECTRICAL AND ELECTRONICS LABORATORY

Structure of the Course Content

1. Test the value of the resistance by using (i) Analog and Digital multimeter
(ii) Color coding with and without tolerance value.
2. a) Measure current, voltage and resistance using Various test meters – Ammeter, Voltmeter and multi meter.
b) Generate AC and DC signals using signal generator and power supply.
3. Verify Ohm's law and Kirchoff's law.
4. Draw the forward bias characteristics of a PN Junction diode and determine the forward resistance of the diode.
5. Draw the reverse bias characteristics of a Zener diode.
6. Draw the characteristics of Common Emitter Configuration and determine its input impedance, output impedance and current gain.
7. Construct and test half - wave and full - wave rectifier circuits.
8. Verify truth tables of logic gates using IC 7404, 7408, 7432, 7402, 7400 and 7486.
9. Realize the logic gates using Universal gates.
10. Realize the circuit to simplify the logic equation by using karnaugh map.
11. Verify De-Morgan's Theorems.
12. Construct Half adder and full adder circuits using ICs and verify their truth table.
13. Construct Half subtractor and full subtractor circuits using ICs and verify their truth table.
14. Verify the operation of a multiplexer and de-multiplexer using IC's
15. Implement and Test RS, JK, T and D flip-flops.
16. Construct and test 4-bit ripple counter and observe the output waveform.
17. Construct and test 4-bit shift registers.

Subject Code : CS401
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

Subject Code : CS402
Subject Title : Web designing

Structure of the Course Content

BLOCK 1 INTERNET CONCEPTS

- Unit 1: Definition of Internet – History of Internet
- Unit 2: Internet Protocols
- Unit 3: Internet Applications
- Unit 4: Application Protocols

BLOCK 2 HTML

- Unit 1: Introduction to HTML
- Unit 2: Basic Tags of HTML
- Unit 3: Special Characters - Working with Images
- Unit 4: Link, List & Table Tags
- Unit 5: Frames & Graphical Components

BLOCK 3 CLIENT SIDE SCRIPTING

- Unit 1: JavaScript Basics
- Unit 2: Object-Based Programming and Message boxes
- Unit 3: JavaScript with HTML
- Unit 4: Using JavaScript URLs

BLOCK 4 SERVER SIDE SCRIPTING

- Unit 1: Client side scripting versus Server Side scripting
- Unit 2: JSP Elements
- Unit 3: Implicit objects
- Unit 4: Writing Simple JSP programs

BLOCK 5 XML and CSS

- Unit 1: Browsing and parsing XML
- Unit 2: XML components
- Unit 3: DTD
- Unit 4: CSS

Books :

1. Internet and Web Design by Ramesh Bangia, Firewall Media
2. Web Design by Jenkins, Wiley India
3. HTML and Web designing by Kris Jama and Konrad King, Tata McGraw Hill Publishing Ltd
4. Using HTML 4, XML and Java 1.2 by Eric Ladd and Jin O'Donwell, Prentice Hall of India, New Delhi
5. Web Technology and Design by C. Xavier, New Age International Publishers, New Delhi
6. Java Server Pages by Ivan Bayross, Shroff publishers & Distributors Pvt Ltd, Delhi
7. Teach yourself web Technologies by Ivon Bayross, BPB publications – 2002
8. Web programming by Chris Bates, Wiley – Dreamtech India Pvt Ltd
9. Web Technology A Developers Perspective by N.P. Goplan J. Akilandeswari, New Age International Publishers, New Delhi
10. Web Technology by Ramesh Bangia, Lakshmi Publications (Pvt) Ltd, New Delhi

Subject Code : CS403
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: Event 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
2. Java – The Complete Reference by Herbert Schildt, Tata McGraw-Hill Publishers , V Edition
3. Java for you by Koparkar, TMH
4. Java Programming Language by Ken Arnold , James Gosling, Addison Wesley
5. Introducing to Oops with Java by C Thomas WU. – 4th Edition, Tata McGraw 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

Subject Code : CS404
Subject Title : Software Engineering

Structure of the Course Content

BLOCK 1 INTRODUCTION TO SOFTWARE ENGINEERING

- Unit 1: Basics of Software Engineering
- Unit 2: Software Development Life cycle
- Unit 3: Software Development Life Cycle Models
- Unit 4: Software Requirement Analysis

BLOCK 2 SOFTWARE DESIGN AND PLANNING

- Unit 1: Software Design
- Unit 2: Software Planning
- Unit 3: COCOMO Model
- Unit 4: CASE

BLOCK 3 SOFTWARE MAINTENANCE AND RISK MANAGEMENT

- Unit 1: Software Maintenance
- Unit 2: Software configuration management activities
- Unit 3: Risk management
- Unit 4: Project scheduling

BLOCK 4 SOFTWARE TESTING

- Unit 1: Software Testing
- Unit 2: Levels of testing
- Unit 3: Software Testing strategies
- Unit 4: Testing Tools

BLOCK 5 SOFTWARE RELIABILITY AND QUALITY ASSURANCE

- Unit 1: Software Quality Assurance
- Unit 2: CMM - Five levels - ISO 9000
- Unit 3: Software Reliability
- Unit 4: Reverse Software Engineering

Books :

- 1 Software Engineering by Ian Sommerville, Pearson Education
- 2 Software Engineering – A practitioner’s Approach by Roger S. Pressman, McGraw-Hill
3. Software Engineering by Sajan Mathew, S. Chand & Company Ltd
4. Integrated approach to Software Engineering by Pankaj Jalote, Narosa Publishing House, 2004
5. Software Engineering fundamentals by Ali Behforooz and Fredrick J Hudson, Oxford University press,2005
6. Software Testing techniques by Bories Beizer, Dream Tech Press,2004
7. Software Engineering by Bharat Bhushan Agarwal, Sumit Prakash Tayal, Lakshmi Publications (Pvt) Ltd, New Delhi
8. Human Aspects of Software Engineering by James E. Tomayko, Orit Hazzan, Lakshmi Publications (Pvt) Ltd, New Delhi
9. System Software by M. Joseph , Lakshmi Publications (Pvt) Ltd, New Delhi
10. The Software Vulnerability Guide by Herbert H. Thompson, Scoot G.Chase, Lakshmi Publications (Pvt) Ltd, New Delhi

Subject Code : CS405
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) $(a \parallel (b > 0))$ 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.

5. 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.

Subject Code : CS406

Subject Title : Web Design Lab

Structure of the Course Content

1. Design a HTML page describing your profile in one paragraph. Design in such a way that it has a heading, a horizontal rule, three links and your photo. Also, write three HTML documents for the links. Include facilities for forward, backward and HOME.
2. Design a HTML page about your friends. List your friends. Each friend's name is a link. Prepare separate HTML documents for each friend and call them in the appropriate link.
3. Design a single page website for your polytechnic containing a description of the courses offered. It should also contain some general information about the university such as its history, the campus, its unique features and so on. The site should be colored and each section should have a different color.
4. Make out a brief bio-data of yours and code it as an HTML page. You can consider using tables to show your academic history.
5. Write a Java script code to validate the username and password. The username and password are stored in variables.
6. Write a Java Script code using frames and Events (When a cursor moves over an object it should display the specification of the object in another frame)
7. Create a site containing banner ads at the top of the page. The ads are changed every 10 or 15 seconds.
8. Collect the definitions of 10 items in chemistry. These definitions are stored in two string arrays name[] and defn[]. Write a JSP which has these two arrays and supplies the definition on request. Write a HTML document which gets the user input of the name of the item and sends the request to the JSP.
9. Write a JSP code to manipulate cookies.
10. Write a JSP code to upload data from client side.
11. Create a JSP application using image map to give information about the institution.
12. Write a program to create the chatting application using Application and Session object.
13. Write a program to check whether a person will be permitted to open a particular page or not. Use permission checker component.
- 14 Write a program for incorporating entities in to XML document using an internal DTD.
15. Write a program using CSS to create a time table for the class.
16. Write a program using CSS to set the background colors, fonts and paragraphs.

Subject Code : CS501
Subject Title : Computer Networks

Structure of the Course Content

BLOCK 1 DATA COMMUNICATIONS

- Unit 1: Components of a data communication
- Unit 2: Types of Networks
- Unit 3: Signals and Modulation
- Unit 4: Transmission Media
- Unit 5: Network devices

BLOCK 2 OSI MODEL AND DATA LINK LAYER

- Unit 1: Network Models
- Unit 2: Error detection & correction
- Unit 3: Flow and Error control
- Unit 4: Flow control protocols

BLOCK 3 LAN PROTOCOLS

- Unit 1: Character oriented Protocol
- Unit 2: 802.X Protocols
- Unit 3: FDDI
- Unit 4: Switching
- Unit 5: ISDN

BLOCK 4 TCP/IP SUIT

- Unit 1: Overview of TCP / IP
- Unit 2: Network Layers Protocol
- Unit 3: IP Addressing
- Unit 4: Application Layer Protocols

BLOCK 5 INTRODUCTIONS TO NETWORK SECURITY

- Unit 1: Introduction to network security
- Unit 2: Types of attacks
- Unit 3: Hacker Techniques
- Unit 4: Threats & Firewall

Books :

- 1 Data Communication and networking by Behrouz A.Forouzan Tata McGraw-Hill,
2. Computer Communication Networks by Achyut S. Godbole Tata McGraw-Hill
3. Data and Computer Communications by William Stallings, Prentice-Hall of India
4. Computer Networks by Andrew S.Tanenbaum, Prentice-Hall of India,New Delhi
5. Network Security a beginner's Guide by Eric Maiwald, Tata Mc Graw-Hill.
6. TCP/IP Protocol Suite by Foruzan, Tata Mc Graw-Hill
7. Communication Networks by Kasera,Sumit, Tata Mc Graw-Hill
- 8.Computer Network by Rachna Sharma, Lakshmi Publications (Pvt) Ltd, New Delhi
9. Introduction to Computer Network by Madhulika Bhatia,Madhurima Bhatia, Lakshmi Publications (Pvt) Ltd, New Delhi
- 10.Data and Computer Communication by Rachna Sharma, Lakshmi Publications (Pvt) Ltd, New Delhi

Subject Code : CS502

Subject Title : Relational Database Management Systems

Structure of the Course Content

BLOCK 1 BASIC CONCEPTS OF DBMS

Unit 1: Database terms

Unit 2: Components of a DBMS

Unit 3: Data abstraction

Unit 4: DBMS system architecture types:

BLOCK 2 RELATIONAL DATABASE APPROACH

Unit 1: Relational data structure

Unit 2: Table

Unit 3: E-R model & Normalization

Unit 4: Normalization

BLOCK 3 STRUCTURED QUERY LANGUAGE

Unit 1: Data Definition Language

Unit 2: SQL Commands

Unit 3: Functions and Operators

Unit 4: Transaction control statements

BLOCK 4 PL/SQL

Unit 1: Control statements

Unit 2: Cursors

Unit 3: Exceptions

Unit 4: PL/SQL tables and records

BLOCK 5 ENHANCED DATABASE MODELS

Unit 1: Characteristics, functioning and architecture of Data Warehousing

Unit 2: data modeling

Unit 3: Data Clustering

Unit 4: Applications of Data mining problem

Books :

1. Database Management System by Date ,C.J., Galgotia Publications
2. Fundamentals of Database System by Elmasri, R.A.,Navathe, Shyam B. Narosa Publishing House.
3. Database Management System by Post, Gerald V, Tata McGraw-Hill, 2004
4. An introduction to Database Systems by Bipin C Desai, Galgotia Publications (P) Ltd., 2005
5. Database system concepts by Abraham Silberschatz, Henry F Korth and Sudharshan S, Mc Graw Hill Publishing Company Limited, 2004
6. Database Management Systems by Raghu Ramakrishnan, Mc Graw Hill Publishing Company Limited, 2004
7. Fundamentals of Data base management Systems by Leon, Tata McGraw-Hill
8. Introduction to Data base management Systems by ISRD Group, Tata McGraw-Hill
9. Data base management Systems by POST, Mc Graw Hill Publishing Company Limited
10. DBA Study Guide: OCP Prep Guide by Lakshmi Publications (Pvt) Ltd, New Delhi

Subject Code : CS503

Subject Title : Dot Net

Structure of the Course Content

BLOCK 1 INTRODUCTION TO .NET FRAMEWORK

- Unit 1: Managed Code and the CLR
- Unit 2: Automatic Memory Management
- Unit 3: Language Concepts and the CLR
- Unit 4: The Framework Class Library

BLOCK 2 INTRODUCTIONS TO VISUAL BASIC.NET

- Unit 1: Elements
- Unit 2: Types
- Unit 3: Windows programming
- Unit 4: Menus and Dialog Boxes

BLOCK 3 APPLICATION DEVELOPMENT USING ADO .NET

- Unit 1: Architecture of ADO.NET
- Unit 2: Command
- Unit 3: Accessing Data
- Unit 4: Create an ADO.NET application

BLOCK 4 INTRODUCING ASP.NET

- Unit 1: ASP.NET Features
- Unit 2: Creating Web Controls
- Unit 3: Creating Web Forms
- Unit 4: Adding ASP.NET Code to a Page.

BLOCK 5 XML WEB SERVICES

- Unit 1: XML Serialization in the .NET Framework
- Unit 2: web services protocol and standards
- Unit 3: UDDI
- Unit 4: Web Service by Using Visual Studio .NET.

Books :

1. Introduction to Visual basic.NET by NIIT Prentice Hall of India,2005
2. Introducing Microsoft .NET by David S. Platt Microsoft Press”, Saarc Edition, 2001
3. Introduction to Microsoft® ASP.NET Work Book by Microsoft Microsoft Press
4. Developing XML Web Services Using Microsoft® ASP.NET by Microsoft, Microsoft Press
5. Designing Microsoft ASP.NET Applications by Douglas J. Reilly, Microsoft Press
6. ASP.NET by Danny Ryan and Tommy Ryan, Hungry Minds Maran Graphics
7. www.microsoft.com
8. Dot Net by Kumaran S, N.V.Publications

Subject Code : CS504
Subject Title : Embedded Systems

Structure of the Course Content

BLOCK 1 PIC INTRODUCTION

- Unit 1: Architecture of PIC controller
- Unit 2: Memory Organization
- Unit 3: Bus architecture
- Unit 4: Basic Instruction set

BLOCK 2 PIC 16F877 CPU

- Unit 1: Basic Programming in PIC 16F877
- Unit 2: Port Programming
- Unit 3: Timer Programming
- Unit 4: Serial Port Programming
- Unit 5: Interfacing (Switch, LCD, Relay, Memory, etc)

BLOCK 3 ARM INTRODUCTIONS

- Unit 1: ARM Architecture
- Unit 2: Memory & Bus Interfacing
- Unit 3: Addressing Signal & Timing
- Unit 4: ARM7TDMI Core and System state

BLOCK 4 LPC2148 ARM CPU

- Unit 1: Architectural overview
- Unit 2: Memory mapping
- Unit 3: Port Programming
- Unit 4: Timer & Serial Port Programming

BLOCK 5 OPERATING SYSTEMS OVERVIEW

- Unit 1: Functions of OS
- Unit 2: Introduction to Kernel
- Unit 3: Task & Scheduling
- Unit 4: μ C / OS - II

Books :

1. Data Sheet for PIC Controller
2. Embedded System Architecture by Tammy Noergaard
3. ARM System Developer's Guide by Andrew N. Sloss
4. ARM Architecture Reference Manual by David Seal
5. ARM System-on-chip Architecture by Steve Furbe (Second Edition)
6. MicroC / OS – II The Real Time Kernel by Jean J. Labrosse
7. Real Time Concepts for Embedded Systems by Qing Li and Caroline Yao
8. Embedded / Real Time Systems: Concepts, Design & Programming by Dr. K.V.K.K. Prasad
9. LPC2148 User Manual
10. Embedded Systems: Architecture, Programming and Design by Raj Kamal, Tata McGraw-Hill

Subject Code : CS505
Subject Title : Networks Lab

Structure of the Course Content

1. Do the following Cabling works in a network
 - a) Cable Crimping b) Standard Cabling and c) Cross Cabling
2. Establish a LAN connection using three systems using bus topology.
3. Establish Peer to Peer network connection using two systems in a LAN
4. Interface PCs using connectivity devices – Hub, router and switch.
5. a) Configure IP Address in a system in LAN (TCP/IP Configuration)
b) Configure DNS to establish interconnection between systems
6. a) Transfer files between systems in LAN using FTP Configuration
b) Login a system remotely using telnet protocol.
7. a) Install and configure Network interface card in LAN system
b) Share a file and printer (remotely) between two system in a LAN
8. Establish security in a system using firewall configuration
9. Create and share the user rights by accessing server for a specific user groups
10. Install and configure the following
 - a) A DHCP server in windows with IP Address ranging from 192.168.1.1 to 192.168.1.100
 - b) Configure a DHCP Client
11. Transfer Files between wireless Communication.
12. Configure Mail server
The Following programs to be written in 'C'
13. Write a program that takes a Binary file as input and finds error check using different mechanism.
14. Write a Client program to download a file from HTTP server.
15. Write a program to Simulate Sliding Window Protocol

Subject Code : CS506

Subject Title : Dot Net Lab

Structure of the Course Content

1. Accept a character from console and check the case of the character.
2. Write a program to accept any character from keyboard and display whether it is vowel or not.
3. Write a VB.Net program to accept a string and convert the case of the characters.
4. Develop a menu based VB.Net application to implement a text editor with cut, copy, paste, save and close operations.
5. Write a program to implement a calculator with memory and recall operations.
6. Develop a Form in VB.NET to pick a date from Calendar control and display the day, month, year details in separate text boxes.

7. Develop a VB.Net application to perform timer based quiz of 10 questions.

8. Develop a VB.Net application using the File, Directory and Directory controls to implement a common dialog box.
9. Develop a database application to store the details of students using ADO.NET

10. Develop a database application using ADO.NET to insert, modify, update and delete operations.

11. Develop a VB.Net application using DataGrid to display records.

12. Develop a VB.Net application using DataGrid to add, edit and modify records.
ASP.NET

13. Create a simple ASP.NET page to Output Text with a form, two HTML text boxes, an HTML button, and an HTML element. Create an event procedure for the button.

14. Create a web controls to a page with three different controls to the ASP.NET page for reserving rooms in hotel. The three controls are a button control, a label control, and a drop-down list control.

15. Create an application for Accessing a SQL Database by Using ADO.NET by connecting to the SQL Server database and call a stored procedure. You then display the data in a Repeater control.

16. Create a web services application for calling a Web service for a hotel named Full. And you will call another Web service for a hotel named Empty, and then retrieve information regarding room availability. The Web service for the Full hotel is named Hotel_Full.dll. The Web service for the Empty hotel is named Hotel_Empty.dll. There are five methods in each service.

Subject Code : CS601
Subject Title : Computer Hardware and Servicing

Structure of the Course Content

BLOCK 1 INSIDE THE PC

- Unit 1: Evolution of Computer
- Unit 2: Mother Board & Chipsets
- Unit 3: Bus Standards & Bios-setup
- Unit 4: Processors

BLOCK 2 MEMORY AND DAUGHTER BOARDS

- Unit 1: Memory
- Unit 2: Graphic Cards
- Unit 3: Sound Cards
- Unit 4: Displays & Display adapter
- Unit 5: Keyboard, and Mouse and barcode scanner

BLOCK 3 DISK DRIVES

- Unit 1: Hard Disk
- Unit 2: CD/DVD ROM
- Unit 3: Special type of drives
- Unit 4: I/O Ports

BLOCK 4 I/O DEVICES AND POWER SUPPLY

- Unit 1: Printers
- Unit 2: Scanners
- Unit 3: Web Camera, Biometric devices
- Unit 4: SMPS

BLOCK 5 TROUBLE SHOOTING PC

- Unit 1: Room Preparation and Power supply
- Unit 2: Installation practice
- Unit 3: Faults elimination process
- Unit 4: Diagnostic Software and Viruses

Books :

1. IBM PC and CLONES by B.Govindrajalu, Tata McGraw-Hill Publishers
2. Computer Installation and Servicing by D.Balasubramanian, Tata McGraw Hill , 2005
3. Computer Installation and Troubleshooting by M.Radhakrishnan, ISTE- Learning Materials 2001
4. The complete PC upgrade and Maintenance by Mark Minasi, BPB Publication
5. Inside the PC by Peter Norton, Tech Media
6. Troubleshooting, Maintaining and Repairing PCs by Stephen J Bigelow, Tata MCGraw Hill Pub 2001
7. Basic Refrigeration and Air-Conditioning by Ananthanayanan P.N, Tata McGraw-Hill
8. PC hardware by Balvir Singh, Lakshmi Publications (Pvt) Ltd, New Delhi
9. PC Repair and Maintenance: A Practical Guide by Joel Rosenthal, Kevin Irvin, Lakshmi Publications (Pvt) Ltd, New Delhi
10. PC Architecture and Peripherals-I by Dinesh Maidasani, Lakshmi Publications (Pvt) Ltd, New Delhi

Subject Code : CS602
Subject Title : Mobile Computing

Structure of the Course Content

BLOCK 1 WIRELESS COMMUNICATION FUNDAMENTALS

- Unit 1: History of cellular mobile communication
- Unit 2: Multiplexing
- Unit 3: Medium Access Control
- Unit 4: Telecommunication Systems and Cellular Wireless Networks

BLOCK 2 WIRELESS LOCAL AREA NETWORK

- Unit 1: Definition – Advantages and Disadvantages of LAN
- Unit 2: WLAN technologies
- Unit 3: IEEE 802.11
- Unit 4: HIPERLAN

BLOCK 3 BLUETOOTH TECHNOLOGY

- Unit 1: Bluetooth Radio
- Unit 2: Bluetooth Protocol Architecture
- Unit 3: Bluetooth Security
- Unit 4: Comparison of wireless LAN and Bluetooth technology.

BLOCK 4 MOBILE NETWORK LAYER

- Unit 1: Mobile IP
- Unit 2: Dynamic Host Configuration protocol
- Unit 3: Routing
- Unit 4: Transport Layer

BLOCK 5 WIRELESS APPLICATION PROTOCOL

- Unit 1: WAP components
- Unit 2: WAP client & network architecture
- Unit 3: WAP Programming model
- Unit 4: WAP 2.0 additional services.

Books :

1. Mobile Communications by Jochen Schiller Pearson Education, New Delhi.
2. Wireless Communication of Networks by William Stallings PHI
3. BlueTooth Demystified by Nathan J.Muller, Tata McGraw – Hill Publication, New Delhi
4. Mobile Cellular telecommunications: Analog and Digital Systems by Lee, Tata McGraw Hill Publication
5. Mobile Communication Engineering by Lee, Tata McGraw Hill Publication
6. Wireless Communication Networks by Misra, Tata McGraw Hill Publication
7. Wireless Communications by Signal, Tata McGraw Hill Publication
8. Mobile Ado Networks by Aggelou, Tata McGraw Hill Publication
9. 2.5G Mobile Networks by Kasera, Tata McGraw Hill Publication
10. Communication Networks by Kasera, Sumit, Tata McGraw Hill Publication

Subject Code : CS603
Subject Title : Multimedia
Structure of the Course Content

BLOCK 1 INTRODUCTION TO MULTIMEDIA

Unit 1: Definitions - History of Multimedia;
Unit 2: Image
Unit 3: Product
Unit 4: Evolution

BLOCK 2 MULTIMEDIA HARDWARE AND SOFTWARE

Unit 1: Hardware
Unit 2: Basic Software Tools
Unit 3: Making instant Multimedia
Unit 4: Multimedia authoring tools

BLOCK 3 MULTIMEDIA BUILDING BLOCKS

Unit 1: Text
Unit 2: Sound
Unit 3: Images
Unit 4: Video

BLOCK 4 MULTIMEDIA AND THE INTERNET

Unit 1: Internet Services
Unit 2: Multimedia on the Web
Unit 3: Tools for the World Wide Web
Unit 4: Designing for the World Wide Web

BLOCK 5 DESIGNING OF PROJECTS

Unit 1: Multimedia File Handling
Unit 2: Multimedia Development Team
Unit 3: Graphic artist
Unit 4: Multimedia development process

Books:

1. Multimedia making it work by Tay Vaughan, Tata McGraw-Hill, Delhi
2. Multimedia – Technology and applications by David Hillman, Galgotia Publications, Delhi
3. Multimedia Technologies by Banerji, Tata McGraw-Hill
4. Principles of Multimedia by Parekh, Tata McGraw-Hill
5. Computer Graphics by ISRD Group, Tata McGraw-Hill
6. Multimedia Applications and Web Designing by Dinesh Maldasani, Lakshmi Publications (Pvt) Ltd, New Delhi
7. Multimedia Basics- Technology(Vol.I) by Andreas Holzinger, Lakshmi Publications (Pvt) Ltd, New Delhi
8. Multimedia Basics- Learning (Vol.II) by Andreas Holzinger, Lakshmi Publications (Pvt) Ltd, New Delhi
9. Multimedia Basics- Design (Vol.III) by Andreas Holzinger, Lakshmi Publications (Pvt) Ltd, New Delhi

Subject Code : CS604

Subject Title : Computer Hardware and Servicing Lab

Structure of the Course Content

1. Identification of System Layout:
 - a.) Front panel indicators and switches
 - b.) Front side and rear side connectors

2. Familiarize the computer system Layout : Making positions of SMPS, Motherboard, FDD, HDD, CD, DVD and add on cards.

3. BIOS set up: Configuring bios setup program and practicing the trouble shooting of typical problems using BIOS utility.

4. a.) Install Hard Disk,
 - b.) Configure CMOS-Setup
 - c.) Partition HDD using FDISK,d.) Format Hard Disk.
 - e.) Master /Slave / IDE Devices.

5. a.) Install and Configure a CD-Writer and a DVD writer.
 - b.) Recording a Blank CD and DVD.

6. Printer Installation and Servicing:
 - a.) Head Cleaning
 - b.) Install and configure Dot matrix printer and Laser printer
 - c.) Troubleshoot the above printers.
 - d.) Check and connect the data cable connectivity

7. Modem and TV Tuner card Installation:
 - a.) Install and configure Internal and External Modem
 - b.) Install and Configure TV tuner card.

8. a.) NIC, Router Installation
 - b.) Installing NIC, router and Modem for XP / Linux environment.
 - c.) Configuring using device drivers
 - d.) Diagnosis and trouble shooting.

9. a.) Install audio/video devices,microphone, speaker and head set and Digital camera.
 - b.) Trouble shoot the audio-video devices.

10. a.) Install and configure Scanner . Trouble shoot the problems..
 - b.) Install and configure Web cam.

11. a.) Identify the problems in Pentium System with add on Cards.
b.) Identify problems with software installation using drivers available in the motherboard CD.
12. Practice with scan disk, disk cleanup, disk De-fragmenter, Virus Detecting and Rectifying Software
13. Practice with back up and restoring data in a network server using external storage Device
14. Assemble a Pentium (II/III/IV) system with add on cards and check the working condition of the system.
15. Windows XP- Operating system Installation.
16. Install and Set up Dish connection to system.
17. Identify the connectors using wireless devices.
18. Interfacing the cell phone with system.

Subject Code : **CS605**
Subject Title : **Project**