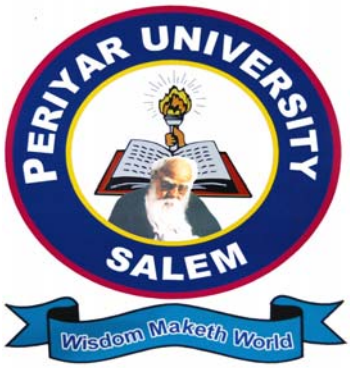
PERIYAR UNIVERSITY
PERIYAR PALKALAI NAGAR
SALEM – 636 011



DEGREE OF MASTER OF SCIENCE

CHOICE BASED CREDIT SYSTEM

SYLLABUS FOR M.SC. SOFTWARE SCIENCE

(FIVE YEAR INTERGRATED PROGRAMME)

FOR THE STUDENTS ADMITTED FROM THE ACADEMIC YEAR 2012 – 2013 ONWARDS

1. OBJECTIVE OF THE PROGRAMME

To produce postgraduates in software science with research experience in-order to fill the gap between the academic and industry.

2. CONDITION FOR ADMISSION

Candidates seeking admission to first year of the integrated M. Sc (Software Science) shall be required to have passed the Higher Secondary Examination (or) Equivalent there to (or) any three year diploma in any Branch of Engineering.

3. DURATION OF THE COURSE

The course for the degree of Master of science in Software Science shall consist of five Academic years divided into ten semesters. Each semester consist of 90 working days.

STRUCTURE OF M. Sc (Software Science) FIVE YEAR INTEGRATED PROGRAMME UNDER CBCS PATTERN FOR AFFILIATED COLLEGES (FROM 2012 AND THEREAFTER)

Curriculum and Scheme of Examinations

Courses	Number of Credits	Hours Per Week	Exam. Duration (hrs)	Marks		
				I. A	E.E	Total
Semester-I						
Course-08PXX01 English	3	6	3	25	75	100
Allied Course-I-08PSSA01- Algebra and Calculus	4	5	3	25	75	100
Allied Course-II-08PSSA02-Applied Physics	4	5	3	25	75	100
Core Course-I-08PSS01-Analog and Digital Electronics	5	6	3	25	75	100
Core Course-II-	3	5	3	40	60	100

08PSSP01- Lab – I MS OFFICE Lab						
Value Education	2	2	3	25	75	100
Environmental Studies	-	1	-	-	-	-
Semester-II						
Allied Course-III- 08PSSA03-Numerical Methods	4	5	3	25	75	100
Allied Course-IV- 08PSSA04- Accounting and Financial Management	4	5	3	25	75	100

Core Course-III-08PSS02-Programming in C	5	6	3	25	75	100
Core Course-IV-08PSS03-Data structures	5	6	3	25	75	100
Core Course-V-08PSSP02 – Lab - II C Programming Lab	3	6	3	40	60	100
Environmental Studies	2	2	3	25	75	100
Extension Activities	1			100		
Semester-III						
Allied Course-V-08PSSA05-Discrete Mathematics	4	5	3	25	75	100
Core Course-VI-08PSS04 Object Oriented Programming in C++	5	6	3	25	75	100
Elective Course–I-08PSSZ__	5	5	3	25	75	100
Core Course-VII-08PSSP03 Lab – III – C++ Lab	3	6	3	40	60	100
EDC - I	2	4	3	25	75	100
SBEC –I	2	2	3	25	75	100
SBEC-II	2	2	3	25	75	100
Semester-IV						
Allied Course-VI-08PSSA06 Optimization Techniques	4	5	3	25	75	100
Core Course-VIII-08PSS05 – Relational Database Management Systems(RDBMS)	5	6	3	25	75	100
Elective Course-II–08PSSZ__	5	5	3	25	75	100
Core Course-IX-08PSSP04 Lab-IV RDBMS Lab	3	6	3	40	60	100
EDC - II	2	4	3	25	75	100
SBEC-III	2	2	3	25	75	100
SBEC-IV	2	2	3	25	75	100
Semester-V						

Core Course-X-08PSS06 Microprocessors	5	6	3	25	75	100
Core Course-XI-08PSS07 Visual BASIC	5	6	3	25	75	100
Elective Course-III–08PSSZ__	5	5	3	25	75	100
SBEC-V	2	2	3	25	75	100
SBEC-VI	2	2	3	25	75	100
Core Course-XII-08PSSP05 Lab-V Visual BASIC Lab	3	5	3	40	60	100
Core Course-XIII-08PSSP06-Lab-VI Assembly Language programming Lab	3	4	3	40	60	100
Semester-VI						
Core Course-XIV-08PSS08 Artificial Intelligence	5	6	3	25	75	100
Core Course-XV-08PSS09 Operating Systems	5	6	3	25	75	100
Core Course-XVI-08PSS10 Java Programming	5	6	3	25	75	100
Core Course-XVII-08PSS11 Computer Networks	5	6	3	25	75	100
Core Course-XVIII-08PSSP07 Lab-VII Java Programming Lab	3	4	3	40	60	100
Core Course-XIX-08PSSP08 Mini project I	4	2	3	40	60	100

Semester –VII						
Core Course-XX- - 08PSS12 Software Engineering	5	6	3	25	75	100
Core Course-XXI- 08PSS13 .Net Programming	5	6	3	25	75	100
Core Course-XXII- 08PSS14 Computer Graphics	5	6	3	40	60	100
Elective Course-IV– 08PSSZ__	5	6	3	25	75	100
Core CourseXXIII- 08PSSP09 Lab-VIII .Net Programming Lab	3	6	3	40	60	100
Semester – VIII						
Core Course-XXIV- 08PSS15 Multimedia and Virtual Reality	5	6	3	25	75	100
Core Course-XXV- 08PSS16 Web Technologies	5	6	3	25	75	100
Elective Course -V– 08PSSZ__	5	6	3	25	75	100
EDC – III	4	4	3	25	75	100
Core Course-XXVI- 08PSSP10 LAB-IX – Web Technolgy Lab	3	4	3	40	60	100
Core Course-XXVII- 08PSSP11 Miniproject-II	4	2	3	40	60	100
Human Rights		2				100

Semester – IX						
Core Course-XXVIII-08PSS17 –Data Mining	5	6	3	25	75	100
Core Course-XXIX-08PSS18 – Soft Computing	5	6	3	25	75	100
Core Course-XXX-08PSS19- C# Programming	5	6	3	25	75	100
Elective Course -VI–08PSSZ__	5	6	3	25	75	100
Core Course-XXX I–08PSSP12 –LAB-X – C## Programming Lab	3	6	3	40	60	100
Semester – X						
Core Course-XXX II-08PSSP13- Project Work and Viva-Voce	15	-	-	50	150	100

Elective -I

Course 08PSSZ01	PC Hardware and Trouble Shooting
Course 08PSSZ02	Computer Architecture
Course 08PSSZ03	Principles of Programming Languages

Elective -II

Course 08PSSZ04	Management Information System
Course 08PSSZ05	System Analysis and Design
Course 08PSSZ06	Organizational Behaviour

Elective -III

Course 08PSSZ07	System Software
Course 08PSSZ08	Compiler Design
Course 08PSSZ09	Theory of Automata

Elective -IV

Course 08PSSZ010	Mobile Computing
Course 08PSSZ011	Client/Server Technology
Course 08PSSZ012	Software Testing

Elective -V

Course 08PSSZ13	E-Technologies
Course 08PSSZ14	Enterprise Resource Planning
Course 08PSSZ15	Distributed Computing

Elective -VI

Course 08PSSZ16	Wireless Applications Protocols
Course 08PSSZ17	Embedded Systems
Course 08PSSZ18	Network Security and Cryptography

EDC-EXTRA DISCIPLINARY COURSE

Students are expected to opt EDC (Non major elective) offered by other departments.

I.A – INTERNAL ASSESSMENT
E.E – EXTERNAL EXAMINATIONS

The content of the syllabus and regulations may be followed for first and second semesters as per the regulations and syllabus passed in the academic year 2006-2007.

EXAMINATIONS

THEORY
EVALUATION OF INTERNAL ASSESSMENT

Test	:	10 Marks
Seminar	:	05 Marks
Assignment	:	05 Marks
Attendance	:	05 Marks

Total	:	25 Marks

The Passing minimum shall be 50% out of 25 marks (13 marks)

EVALUATION OF EXTERNAL EXAMINATIONS
QUESTION PAPER PATTERN
Time duration: 3 Hours Max. Marks : 75

PART- A: 5x5 = 25
Answer all the questions
Either or type for each unit

PART- B: 5x10 = 50
Answer all the questions
Either or type for each unit

The Passing minimum shall be 50% out of 75 marks (38 marks)

PARACTICAL \ MINIPROJECT
EVALUATION OF INTERNAL ASSESSMENT

Test 1	:	15 Marks
Test 2	:	15 Marks
Record	:	10 Marks

Total	:	40 Marks

The Passing minimum shall be 50% out of 40 marks (20 Marks)

EVALUATION OF EXTERNAL EXAMINATIONS
Time duration: 3 Hours Max. Marks : 60
QUESTION PAPER PATTERN
One compulsory question from the given list of objectives : 30 Marks
One Either/OR type question from the given list of objectives : 30 Marks

Distribution of Marks

Problem Understanding	: 05 Marks
Program writing	: 10 Marks
Debugging	: 10 Marks
For Correct Results	: 05 Marks

Mini-Project Viva-voce (joint) : 60 Marks

DISSERTATION

Evaluation (External)	: 50 Marks
Viva-voce (joint)	: 100 Marks

8. REGULATIONS OF PROJECT WORK

a. Students should do their five months [Dec To Apr] Project work in Company / Institutions.
b. The Candidate should submit the filled in format as given in Annexure-I to the department for approval during the Ist Week of January in their Project semester.
c. Each internal guide shall have maximum of eight Students.
d. Periodically the project should be reviewed minimum three times by the advisory committee.
e. The Students should prepare three copies of the dissertation and submit the same to the college on **30th April** for the evaluation by examiners. After evaluation one copy is to be retained in the college library and one copy is to be submitted to the University (Registrar) and the student can hold one copy.
f. A Sample format of the dissertation is enclosed in Annexure-II.
g. Format of the Title page and certificate are enclosed in Annexure III.
h. The Students should use OHP / Power Point Presentation during their Project Viva voce Examinations.

9.PASSING MINIMUM

The candidate shall be declared to have passed the examination if the candidates secure not less than 50 marks in the University examination in each paper/practical. However submission of a record notebook is a must. For the project work and viva-voce a candidate should secure 50% of the marks for pass. The candidate should compulsory attend viva-voce examination to secure pass in that paper.

10. CLASSIFICATION OF SUCCESSFUL CANDIDATES

Candidates who secure not less than 60% of the aggregate marks in the whole examination shall be declared to have passed the examination in the **First Class**. All other successful candidates shall be declared to have passed in the **Second Class**. Candidates who obtain 75% of the marks in the aggregate shall be deemed to have passed the examination in **First Class with Distinction** provided they pass all the examinations prescribed for the course at the first appearance.

Candidates who pass all the examinations prescribed for the course in first instance and within a period five academic years from the year of admission to the course only are eligible for **University Ranking.**

11. COMMENCEMENT OF THESE REGULATIONS

These regulations shall take effect form the academic year 2006-07, i.e.,for students who are admitted to the first year of the course during the academic year 2006-07 and thereafter.

12. TRANSITORY PROVISION

Candidates who were admitted to the PG course of study before 2006-2007 shall be permitted to appear for the examinations under those regulations for a period of three years i.e., up to and inclusive of the examination of April/May 2013. Thereafter, they will be permitted to appear for the examination only under the regulations then in force.

ANNEXURE - I

PERIYAR UNIVERSITY

College Name :

Course :

Student Name :

Register Number :

Title of the Project :

Address of Organization / Institution :

Name of the External Guide :

Designation :

Place :

Date : Signature of External Guide

(with seal)

Name of the Internal Guide :

Qualification :

Teaching Experience :

Place :

Date : Signature of Internal Guide

Principal

[Approved or not Approved]

[University Use]

ANNEXURE II

COLLEGE BONAFIDE CERTIFICATE

COMPANY ATTENDANCE CERTIFICATE

ACKNOWLEDGEMENT

CONTENTS

SYNOPSIS Page No.

1. INTRODUCTION

ORGANIZATION PROFILE

SYSTEM CONFIGURATION

HARDWARE CONFIGURATION

SOFTWARE CONFIGURATION

2. SYSTEM STUDY

EXISTING SYSTEM

DRAWBACKS

PROPOSED SYSTEM

SYSTEM STUDY

FEATURES

3. SYSTEM DESIGN AND DEVELOPMENT

FILE DESIGN

INPUT DESIGN

OUTPUT DESIGN

CODE DESIGN

DATABASE DESIGN

SYSTEM DEVELOPMENT

4. TESTING AND IMPLEMENTATION

CONCLUSION

BIBLIOGRAPHY

APPENDICES

A. DATA FLOW DIAGRAM

B. TABLE STRUCTURE

C. SAMPLE INPUT

D. SAMPLE OUTPUT / REPORT

ANNEXURE III

A. Format of the title page

TITLE OF THE DISSERTATION

A Dissertation submitted in partial fulfillment of

the requirements for the degree of

Master of Science in Software Science

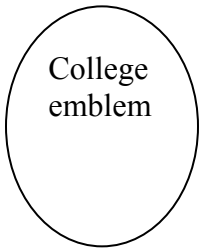
to the

Periyar University, Salem - 11

By

STUDENT NAME

REG. NO.



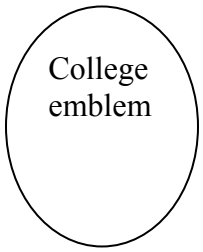
COLLEGE NAME
(AFFILIATED TO PERIYAR UNIVERSITY)
PLACE with Pin Code

MONTH – YEAR

B. Format of the Certificate

COLLEGE NAME

(AFFILIATED TO PERIYAR UNIVERSITY)
PLACE with PIN CODE



MONTH – YEAR

PROJECT WORK

TITLE OF THE DISSERTATION

Bonafide Work Done by

STUDENT NAME

REG. NO.

A Dissertation submitted in partial

fulfillment of the requirements for the award of

Master of Science in Software Science

of the **Periyar University, Salem.**

INTERNAL GUIDE HEAD OF THE DEPARTMENT

Submitted for the Viva-Voce Examination held on _____

Internal Examiner External Examiner

SEMESTER I
08PXX01 ENGLISH

3 Credits

UNIT – I

The following lessons from the prescribed Text :-

1. Global Environmental Concerns - Arvind Gupta.
2. Robots – Irena M. Kunni & Otis Prot.
3. Towards a Wireless World – Ganesh Kollegan.
4. Within Sight of Cyber Cinema – Anand Parthasarathy.
5. Occupational Stress in IT Job – Hema Natarajan.
6. Seven Steps to Successful Managing – S.Ramanujacharya.

The exercise at the end of each lesson on vocabulary – Technical, idioms and phrases Grammar and spoken English are to be carefully studied to strengthen vocabulary and pronunciation.

UNIT – II

Grammar

Articles and Prepositions.
Prefix and Suffix
Fill in the blanks with appropriate words given below.
Comparison of Adjectives and Adverbs.
Sequence of Tenses.
Conditional Sentences.
Voice.
Concord
Infinitive and Gerund.
Correction of Sentences.
Idioms and Phrases.
Transcription of individual words.

UNIT – III

Reading Comprehension.
Lessons not prescribed for detailed study may be used to teach Reading Comprehension.
Dialogue Writing.

UNIT – IV

Letter Writing - Formal and Informal
Job Application with C.V.

UNIT – V

Organize the following in the form of a Laboratory Report.

Or

Design a Technical Report.
C. Transcoding the given diagram / chart into a report.

TEXT BOOK:

1. T.M.Farhathullah, Effective English For Technical Communication, Emerald Publishers**.**

08PSSA01- ALGEBRA AND CALCULUS

4 Credits

UNIT – I

Algebra: Binomial, Exponential, Logarithmic Series – Summation of Series using Binomial, exponential, Logarithmic Series – finding Coefficients of X ** N in power series Expansion-approximation using binomial,exponential,logarithmic series. Theory of Equations: Relations between Roots and Coefficients of polynomial - Formation of Equations – Decreasing and Increasing of Roots – Reciprocal Equations. Horner's Method of finding the roots of polynomial Equations.

UNIT - II

Trigonometry, Expansion of SINnx, COSnx in terms of sinx, cosx expansion of TANX, Expansion of sin** M*(x), cos**(x) in terms of series of sines or cosines of multiples of power series expansion for sinx, cosx, tanx – hyperbolic and inverse hyperbolic functions – Logarithms of complex numbers.

UNIT – III

Curvature in cartension and polar coordinates – Circles of curvature. Envelopes and evaluates – Statement of Taylor's series for a function of two variables – Maxima and

Minima of two variables – (proof not required). Constrained Maxima and Minima – Lagrange's multipler methods.

UNIT – IV

Multiple Integrals: Evaluation of multiple integrals – changes of order of integration – application of multiple integral to find area and volume of solid. Beta and Gamma Integrals: Definition – Relation connecting Beta and Gama integral – Properties- Evaluation of definite integral in terms of beta and gama functions.

UNIT – V

Vector Calculus: Differentiation of Vectors – Gradient, Divergence of curldirectional derivative – Line, Surface and volume integral – Statement of green's theorem – Gauss Divergence theorem and stoke's theorem – Applications.

NOTE: THE QUESTION PAPER SHOULD CONSIST OF 100% PROBLEMS.

TEXT BOOKS:

1. Venkata Subramanian, N.K., Lakshmi Narayanan, K.A., Sundaram. V.& Balasubramanian. R. Engineering Mathematics, J.J. publishing Company , Madurai, 1996.
2. Venkataraman .N.K., Engineering Mathematics Vol I, II, The National Publishing Company, 1981.

REFERENCE BOOKS:

1. Narayanan. S, Manicka Vachagam Pillai. T.K. & Ramanaian, G. Advanced Mathematics for Engineering Students, VoIIS S.Vishwanathan (Printers and Publishers Pvt Lt., 1986).
2. Kandasamy, P.Thilagavathy, K.& Gunavathy, K. Engineering Mathematics Vol 1,2, S.Chand & Co, New Delhi, Vol-I 1989, Vol-2- 1990.

08PSSA02-APPLIED PHYSICS

4 Credits

UNIT – I

Laser and Fiber Optics : Construction and working of He-nelaser-CO2Laser – Ruby laser-Semi Conductor Laser – Application. Types of Optical Fiber - Singled and Bundled Fibre – Fibre Material - Attenuation – Fibre Optic Light Sources – Detectors – Fibre Optic Communication.

UNIT – II

Super Conductor: Qualitative study of the phenomenon – Critical Temperature and Cirtical Filed. Meissner Effect – Josephson Effect – Type 1 and 2 Super Conductor. BCS theory of Super conductivity(Qualitative) – High Temperature Super Conductor.

UNIT – III

Electrical Properties: Free Electron theory of Drude and Lorentz – Weidmann – Franz Law – Distinction between Conductors, Semi Conductors and Insulators on the basic of Band Theory.

UNIT – IV

Semi Conducting Materials: Intrinsic, Extrinsic Semi conductors – Material Preparation: Czochralski Method – Zone Refining. Hall Effect in Semi Conductor – Applications. Physics of PN Junction diode – Junction transistor.Dielectrics: Permitivity – Dielectric Constant – Dielectric polarization. Types of polarization - Break Down Mechanisms.

UNIT – V

Magnetic Properties: Ferro Magnetism: Domine Theory – Hysteresis – Hard and Soft Magnetic Materials – Curie – Weiss Law – Magnetossniction. Ferrites: Preparation, Properties, Application - Magnetic Bubble Memory.

Note: The question paper should consist of 100% theory

TEXT BOOKS

1. Brijal and Subramanian, Optics S.Chand & Co., 1995
2. Raghvan, V. Material Seience and Engineering – A First Course, PHI.
3. Srinivasan, M.R.Physics For Engineers, New Age International Pvt.Ltd., 1996.

REFERENCE BOOKS

1. Seth & Gupta, Course in Electrical Engineering Materials, Dhanpat Rai & Sons, 1990.
2. Arumugam.M, Material Science, New Age International Pvt Ltd, Publication 1996.
3. Rajendran.V & Marikani.A, Applied physics for Engineers, 2Ed, Tata McGraw-Hill Publishing Co.

08PSS01- ANALOG AND DIGITAL ELECTRONICS

5 Credits

UNIT – I

Number Systems: Introduction to Decimal, Binary, Octal, Hexadecimal Number Systems, BCD Codes, Inter – Conversions of Binary, Decimal and BCD Numbers, Excess 3 and Gray and Johnson's codes – Concepts of parity, ASCII codes. Boolean Arithmetic and Theorem: Basic Theorem and properties – Canonical Forms – Logical Operations – Simplification of Boolean Function.

UNIT – II

Logical Gates and Families: AND, OR, NOT, NAND, NOR, XOR, gates and truth tables. TTL,ECL,CMOS, logical Families. Parameter, Voltage level, Compatibility, Noise Margin Level.

UNIT – III

Combinational Logic Circuit: Encoders, Decoders, Demultipluxers, Ics from TTL, ECL and CD Families. Flipflops; RS, JK, Master slave, D, T Flipflops, Multivibrators – Astable – Monostable and Bistable Multivibrators. Shift Registers and Counters: Parallel / Serial / Inserial outshift registers. Ring Counters, Synchronous and asynchronous, Scaling Circuits, Stack.

UNIT – IV

Electronic components (Passive Elements): Working Principles, Symbols, Types Technical Specifications parameter value identification/ Measurement techniques and Application areas for Resistors, Inductors, Capacitors, Transformer, Relays, Switches, Batteries, Fuses.

UNIT – V

Electronic Components (Active Elements): Working Principles, Symbols, Types, Technical Specifications, parameter Value Identification and Application areas for PN Junction Diodes – Linear, Varactor, Photodiodes, LED, Zener diode, OPTP – Isolators, BJTs – Characteristics, Basic Configurations biasing, Operating Point load length, biasing for stabilization of operating point, UJT,JFET, MOSFET,SCR, DIAC,TRIAC.

Note : The Question Paper Should Consist Of 100% Theory.

TEXT BOOKS:

1. Sedha, R.S. Text Books of Applied Electronics.
2. Malvino Leach, Digital Principles and Applications.

REFERENCE BOOKS:

1. Millman and Halkias, Integrated Electronics, Tata McGraw – Hill publishing Co.Ltd.,
2. Bernard Grob, Basic Electronics, 8th Ed., McGraw-Hill.

08PSSP01-MS OFFICE LAB

3 Credits

MS-WORD :

1. a. Starting MS-Word, Creating, Saving, Printing (with options) Closing and Exiting.
   b. Study of Word – Menu / Toolbars.

2. a. Create a document, save it and edit the document as follows:
   i) Find and Replace options
   ii) Cut, Copy, Paste Options
   iii) Undo and Redo Options
   b. Format the document :
   i) Using Bold, Underline and Italic.
   ii) Change character size using the font dialog box.
   iii) Formatting paragraph: Center, Left aligns & Right aligns.
   Changing paragraph and line spacing, using Bullets and Numbering in paragraphs.
   v) Creating Hanging Paragraphs.

3. Using tab settings enhancing the documents (Header, Footer, Page setup, Border, opening & Closing Toolbars, Print Preview).

4. Creating Tables in a document, Selecting rows & columns sort the record by using tables, Format painter and Auto format.

5. Drawing flow chart using drawing toolbar, inserting picture and setting frames.

6. Mail Merge in word (Creating main document, data source, inserting merge fields and viewing merge data, viewing and printing merged letter, using mail merge to print envelope creating mailing labels).

MS-EXCEL :

1. a. Create a work sheet, moving / copying / inserting deleting rows & columns. (Usage of Cut, Paste commands, Copying a single cell, copying a range of data, Filling up a cell. Undo command, inserting a row and column, deleting rows and columns.)
   b. Formatting worksheets
   1. Bold style
   2. Italic style
   3. Font size Changing
   4. Formatting numbers (Auto fill, selection command, currency format, currency syllabus)
   5. Specifying percentage (%) scientific notations.
   6. Drawing Border around cells
   7. Printing a worksheet (Print preview, Margin setting, Header, Footer)

2. a. Database concept : Database, record field and field name – creating and sorting a database and maintaining a database (data form)
   b. Using auto filter, advanced filter.
   c. Creating subtotals & grand totals – Using Database functions

3. Creating charts.

i) Using chart wizard (5 steps)
ii) Changing the chart type (Pie, Bar, Line)
iii) Inserting titles for the Axes X,Y
iv) Changing colors.
v) Printing charts.

4. a. Using date, time and maths functions :
i) Entering current date
ii) Using date arithmetic (adding and subtracting dates)
iii) Date functions (Day, month, year)
iv) Using time functions (Hour, Minute, Second)

b. Maths functions
i) SUM, COUNT, AVERAGE
ii) MAX, MIN
iii) STDEV, VAR
iv) ABS, EXP, INT
v) LOG 10 & LOG
vi) MOD, ROUND, SORT
vii) Using Auto sum.

c. Logical and Financial functions.
Logical (IF / AND / OR / NOT)
Financial (PMT, FV, NPER, RATE)

5. i) Creating and Running a Macro.
ii) Assigning button to a defined macro.
Editing a macro.

MS-POWER POINT:

1. Creating a presentation using auto content wizard.
2. Different views in power point presentation.
3. Setting animation effects / grouping / ungrouping / cropping power point objects.
4. Printing a presentation / Importing – Exporting files.
5. Creating an organization chart in Power Point.

MS-FRONT PAGE :

1. Creating Web Pages.

SEMESTER II

08PSSA03 – NUMERICAL METHODS
(Proofs are not expected)

4 Credits

UNIT – I

Definition and Elementary properties of Determinants – Cramer's Rule. Matrices – Properties – Rank – inverse – Consistency and Inconsistencies of systems of linear algebraic equations – Eigen Values and Eigen Vectors – Digonalisation.

UNIT – II

Curve fitting by methods of least squares – Only curves of the form or reducible to the form y=ax+b, y=ax**2+bx+c. Finite difference operators – Difference table. Solution of First and Second order linear finite difference equation with constant coefficients.

UNIT – III

Newton's Forward and Backward Formulae – Lagrange's Interpolation Formula. Numerical Differentiation – Numerical Integration using Trapezoidal rule and Simpson's 1/3 rule.

UNIT – IV

Methods of False Position, Interactive method and Newton Raphson method for finding real roots for transcendental and polynomial equations – Graffe's root squaring method and bairstow's method for solving polynomial equations. Power method for finding eigen values and eigen vector of matrices. Methods for solving simultaneous linear algebraic equations – Gauss elimination method – Gauss Jordan elimination method – Gauss Jacobi and Gauss Seidel iterative methods.

UNIT – V

Numerical methods for solving ordinary differential equations. Tayler's series method, Euler's and modified Euler's (Heun's) method – Rungekutta methods of second and fourth order – Milne's predictor and corrector – Adam's predictor and corrector methods.

TEXT BOOKS:

1. Kandasamy. P & Others Engineering Mathematics Vol2, S.Chand & Co, New Delhi, 1987.
2. Venkataraman. N.K, Numerical Methods in Science and Engineering, The National Pub.Co., Chennai,1986.
3. Gerald C.F., Applied Numerical Analysis, Addison Wesley, 1870.

REFERENCE BOOKS:

1. Balagurusamy.E., Theory & Applications of Numerical Computing, Tata McGraw-Hill.
2. Sastry.S.S., Introductory Methods of Numerical Analysis, PHI,1975.
3. Chapra, Numerical Methods for Engineers, 3Ed (with 3.5 Dist), McGraw-Hill.

08PSSA04- ACCOUNTING AND FINANCIAL MANAGEMENT

4 Credits

UNIT I

Accounting: Definition – Objectives - Branches of Accounting - Accounting Concepts and Conventions - Groups Interested in Accounting Information - Accounting Rules – Journal - Ledger - Trial Balance – Preparation Final Accounts of Sole Trading Concerns.

UNIT II

Analysis and Interpretation of Financial Statements: Tools used - Comparative Statement - Common Size Statement and Trend Percentage. Ratio Analysis: Meaning - Advantages and Limitations - Classification of Ratios – Solvency – Profitability - Activity and Capital Structure Ratios.

UNIT III

Fund Flow Analysis: Concept of Funds - Fund Flow Statement - Uses and Limitation - Preparation of Fund Flow Statement. Cash Flow Analysis: Computation of Cash from operation and Preparation of Cash Flow Statement.

UNIT IV

Rate o Budget and Budgetary Control: Meaning – Advantages and limitations - Classification of Budgets - Preparation of Production - Sales - Cash and Flexible Budgets. Capital Budget: Meaning and Importance - Methods of Ranking Investment Proposals - Pay-Back - Average f Return and Discounted Cash Flow Methods.

UNIT V

Marginal Costing: Meaning - Advantages and Uses - Cost Volume - Profit Analysis - Break-even Concept - Uses and Assumptions - Decisions Involving Alternative Choices.

TEXT BOOKS:

1. Shukla M.C. & Grewal T.S., S.Chand, Advanced Accounts, 1991.(Unit I)
2. Dr.S.N.Maheswari, Principles of Management Accounting, Sultan Chand & sons, 2005.(Unit II to Unit V)

REFERENCE BOOKS:

1. S.P.Jain & K.L.Narang,Kalyani, Advanced Accountancy – Part-I , Publishers,1991.
2. Gupta R.L.& Radhasamy M., Advanced Accounts (Vol.II), S.Chand, 1991.
3. R.K.Sharma & Shasi K.Gupta, Management Accounting – Principles And Pratices , Kalyani publishers, 1992.
4. Man mohan & S.N.Goyal, Principles Of Management Accounting, Agra, Sahithya Bhawan, 1987.
5. Hingorani N.L. & Ramanathan A.R., Management Accounting, S. Chand, Edn.2, 1982.

08PSS02- PROGRAMMING IN C

5 Credits

UNIT – I:

Overview Of C: History Of C – Importance Of C – Basic Structure Of C Programs. Constants, Variables And Data Types: Character Set – C Tokens – Keywords And Identifiers – Constants – Variables – Data Types – Declaration Of Variables – Declaration Of Storage Classes-Assigning Values To Variables-Defining Symbolic Constants. Operators And Expression: Arithmetic Operators -Relational Operators – Logical Operators –Assignment Operators –Increment And Decrement Operators – Conditional Operator –Bit wise Operators –Special Operators –Arithmetic Expressions-Evaluation Of Expressions-Precedence Of Arithmetic Operators –Type Conversions In Expressions- Operator Precedence And Associativity-Mathematical Functions. Managing Input And Output Operations: Reading And Writing A Character – Formatted Input And Output.

UNIT – II:

Decision Making And Branching: Simple IF, IF-Else, Nesting Of IF-ELSE,ELSE-IF Ladder, Switch Statements - GOTO Statements. Decision Making And Looping: WHILE Statement- DO Statement- FOR Statement – Jumps In Loops. Arrays: Definition – One - Dimensional Arrays –Declaration Of One -Dimensional Arrays-Initialization Of One - Dimensional Arrays- Two- Dimensional Arrays – Initializing Two Dimensional Arrays – Multidimensional Arrays-Dynamic Arrays.

UNIT – III:

Character Arrays And Strings: Introduction – Declaring And Initializing String Variables - Reading Strings From Terminal – Writing Strings To Screen – String Handling Functions-Table Of Strings. User-Defined Functions: Introduction-Need For User-Defined Function-A Multi-Function Program-Elements Of User-Defined Function-Definition Of Functions- Return Values And Their Types – Function Calls-Function Declaration- Category Of Functions: Functions With No Arguments And No Return Values – Functions With Arguments And No Return Values - Functions With Arguments And One Return Values - Functions With No Arguments But Return Values-Functions That Return Multiple Values – Nesting Of Functions- Recursion- Passing Arrays To Functions-Passing Strings To Functions– The Scope, Visibility And Lifetime Of Variables. Structures And Unions: Introduction-Defining A Structure-Declaring Structure Variables-Accessing Structure Members-Structure Initialization-Copying And Comparing Structure Variables-Operation On Individual Members-Arrays Of Structures-Arrays Within Structures-Structures Within Structures-Structures And Functions-Unions-Size Of Structures-Bit Fields .

UNIT – IV:

Pointers: Introduction-Understanding Pointers-Accessing The Address Of A Variable-Declaring Pointer Variables-Initialization Of Pointer Variables-Accessing A Variable Through Its Pointer-Chain Of Pointers-Pointer Expressions-Pointer Increments And Scale Factor-Pointers And Arrays-Pointers And Character Strings-Arrays Of Pointers-Pointers As Function Arguments-Functions Returning Pointers-Pointers To Functions-Pointers

And Structures. File Management: Introduction-Defining And Opening A File-Closing A File-Input/Output Operations On Files-Error Handling During I/O Operations-Random Access Files-Command Line Arguments. The Preprocessor: Introduction – Macro Substitution – File Inclusion – Compiler Control Directives.

UNIT – V:

Case Studies: Programming Exercises: Producing Fibonacci Series, Finding Perfect Numbers, Find The Largest And Smallest Of Given Numbers, Pascal Triangle Preparation, To Find The Following Series: Sum Of N Numbers, Sum Of Odd And Even Numbers, Sum Of Square Of N Numbers, Sum Of Square Of Odd And Even Numbers, SIN Series, COS Series, Exponential Series, Finding Prime Numbers, Sorting Of Numbers In Ascending And Descending Order, Matrix Manipulation: Addition, Subtraction , Multiplication Of Two Matrices And Transpose Of A Matrix. Counting And Reversing A String, Calculating The Factorial Of N Numbers Using Recursive Function, Swapping Of Two Numbers Using Function and Pointers, Students Mark List Preparation, Pay Bill Preparation,

TEXTBOOK:

1. E.Balgurusamy - Programming in ANSI C, TMH , New Delhi, 3rd Edition.

REFERENCE BOOKS:

1. Ashok N.Kamthane, Programming with ANSI and Turbo C, Pearson Education Asia, 2003.
2. T.Jeyapoovan, A First Course in Programming with C, Vikas 2002.
3. Noel Kalicharan, C By Example , Cambridge, 1994.
4. Yeswanth Kanetkar , Let us C, BPB publications, 2001
5. Yeswanth Kanetkar , Pointers in C, BPB publications

08PSS03-DATA STRUCTURES

5 Credits

UNIT - I

Introduction: Definitions – Concept of Data Structures – Overview of Data Structures – Implementation. Arrays: Definition – Terminology – One-Dimensional Array – Multi-Dimensional Arrays – Pointer Arrays. Linked Lists: Definition – Single Linked List – Circular Linked List – Double Linked List – Circular Double Linked List – Memory Representation - Buddy System – Compaction.

UNIT - II

Stacks: Introduction – Definition – Representation of Stack – Operations on Stacks – Applications of Stacks – Evaluation of Arithmetic Expression – Implementation of Recursion. Queues: Introduction - Definition – Representation of Queues – Various Queue Structures. Tables: Rectangular Tables – Jagged Tables – Inverted Tables - Hashed Tables – Hashing Techniques.

UNIT - III

Trees: Definition – Binary Trees – Properties – Representation – Operations – Threaded Binary Trees – Trees and Forest. Graphs: Introduction – Terminologies – Representation - Linked Representation – Matrix Representation – Operations on Matrix Representation of Graphs.

UNIT - IV

Sorting: Insertion Sort - Shell Sort – Heap Sort – Merge Sort – Quick Sort
- Sorting Large Structures – Bucket Sort – External Sorting: Needs – Model For External Sorting – The Simple Algorithm – Multiway Merge. Search trees: The Search Tree ADT-Binary Search Trees – AVL Trees – B-Trees.

UNIT - V

Application: Sparse Matrix Manipulation – Polynomial representation – Dynamic Storage Management – Tower of Hanoi Problem – Activation Record Management – Simulation – CPU Scheduling in Multiprogramming Environment – Shortest Path – Warshall's Algorithm.

TEXT BOOKS:

1. D.Samanta, Classic Data Structures, Prentice-Hall India Pvt Ltd, Sixth Printing, August 2005.
2. Mark Allen Weiss, Data Structures and Algorithm Analysis in C, Pearson Education, Second Edition, Reprint 2002.(Unit IV)

REFERENCE BOOKS:

1. John Paul Tremlay and Paul G.Sorenson, An Introduction to Data Structures with Applications, TMH, 1995.
2. Horowitz.E. and Sahani, Fundamentals of Data Structures, Galgotia Pub-1982.

08PSSP02 – C PROGRAMMING LAB

3 Credits

Implement the following:

1. Perform various Operations on Single Dimensional Arrays.
2. Perform various Operations on Matrices
3. Perform String Operations using String Library Functions
4. Functions and recursive functions
5. Structures with array elements
6. Array of structures
7. Union
8. Accessing data using Pointers
9. Arrays of pointers and Pointer to arrays and structures
10. String Handling
11. Macros
12. Creation and Processing of sequential files
13. Create random file and perform various Operations
14. Pass Command line arguments to main function and use them
15. Graphics Primitives

SEMESTER III

08PSSA05 DISCRETE MATHEMATICS

4 Credits

UNIT - I

Sets and subsets - Operations on Sets - sequences- Logic: propositions and Logical Operations - Conditional Statements - methods of Proof - mathematical induction - mathematical Statements - logic and problem Solving

UNIT - II

Relations and diagraphs: Product sets and Partitions- Relations and Digraphs - Paths in Relations - Properties- Equivalence relations- data structures for relations and digraphs- operations on relations

UNIT -III

Functions : Introductions - functions for computer science - Growth of functions - permutation Functions- Languages and Finite state machines: Languages Representation of special Grammars and languages - Finite state machines - Monoids, machines and languages- machines and regular languages - Simplification of machines

UNIT -IV

Graph Theory : introduction - Handshaking problem - paths and Cycles - Isomorphism - representations of Graphs- Connected Graphs- konigsberg Bridge Problem

UNIT - V

Trees- Spanning trees- Rooted Trees- Directed Graphs- Applications: Scheduling- Finding a Cycle in a directed graph- Priority in scheduling - Eulerian Circuits

TEXT BOOKS

1. Kolman, Busby, Ross, Discrete mathematical Structures, PHI Private limited, Sixth Edition, 2009 (For Unit I, II & III Chapters 1.1, 1.2, 1.3, 2, 4, 5, 10)

2. Gray Haggard, John Schlipf, Sue Whitesids, Discrete Mathematics for Computer Science, Cengage Learning Publisher Seventh Indian Reprint, 2008
   (for Unit IV and V , Chapter - 6)

REFERENCE BOOK

1. Purna Chandra Biswal, Discrete Mathematics and Graph Theory, PHI Private Limited, 2008
2. Kevin Ferland, Discrete Mathematical Structures, Cengage Learning, First Edition, 2009

08PSS04 OBJECT ORIENTED PROGRAMMING IN C++

5 Credits

UNIT-I

Introduction to C++ language: identifiers- Data types- Variables- constants-Reading and writing data structure of a C++ program: Types of expressions precedence and Associatively- Evaluating & mixed type expressions

UNIT- II

Functions: used- defined functions- standard library functions .Selection: Logical data and operators –Tow- way selection- Multiway selection Repetition: Loops in C++ loop examples- other statements-Recursion

UNIT- III

Text I/O :I/O entities – Streams- Character I/O functions with example- Arrays: Arrays in C++ - Arrays and functions- Sorting- searching- Two Dimensional Arrays – multidimensional arrays pointers : Pointers and functions- pointers to pointer classes: class objects –manager functions –complex class functions

UNIT-IV

More class features and other types: inline functions-overloading – classes and pointers – structure – unions – Enumerated types – Type definition. Inheritance – private, protected, public – manager functions under inheritance – overriding member functions – polymorphism – multiple inheritances.

UNIT- V

Templates: Function templates – class templates strings: string concepts with examples – Arrays of strings – string manipulation functions – C strings. Exception Handling: Exception handling classes – exception specification – exceptions in classes – standard exceptions.

TEXT BOOK:

1. Behrouz A. Forouzan, Richard F.Gilberg, A Structured approach using C++- II Edition 2004.
   Chapter: 2(3,4,5,6,7,8) 3(1,2,3,4,5) 4(3,4,5) 5(1,2,3) 6(5,6,7,9) 7(1,2,6,7) 8(2,3,5,6,7,8) 9(6,7) 10(2,3,6) 11(1,2,3,6,8,9,10,11) 12(1,2,3,4,5,8) 13(1,2) 14(1,2,3,4,5,7) 15(2,3,4,5)

REFERENCE BOOK:

1. Eric Nagler , Learning C++, third edition
2. D.S.Malik C++ Programming Languages

08PSSP03 - OBJECT ORIENTED PROGRAMMING IN C++ - LAB

2 Credits

Implement the following:

1. Simple Programs.
2. Function Overloading
3. Functions with default arguments
4. Constructors and Destructors
5. Passing objects to functions by value and by reference
6. Friend functions
7. Inline functions
8. Operator Overloading
9. Inheritance
10. Pointers to objects
11. This pointer
12. Virtual functions
13. Formatted I/O
14. Files (Formatted and Unformatted)
15. Templates and Exception Handling

08PSSA06 - OPTIMIZATION TECHNIQUES

4 Credits

UNIT- I Linear Programming

Introduction-Concept of Linear Programming Model-Development of Linear Programming Models-Graphical Method-Simplex Method-Big M Method-Dual Simplex Method-Two Phase Method. Duality: Formulation of Dual Problem-Application of Duality.

UNIT- II Transportation and Assignment Problem

Introduction-Mathematical Model of Transportation Problem-Types of Transportation Problem-Methods to solve Transportation problem. Assignment problem: Introduction-Zero-One Programming Model-types of Assignment problem-Hungerian Method.

UNIT- III Inventory Control

Introduction-Models of inventory-Implementation of purchase inventory model-EOQ Model for multi-item joint replenishment.

UNIT- IV Production Scheduling

Introduction-Single Machine Scheduling: Measures of Performance-Shortest Processing Time Rule to Minimize Mean Flow Time-Weighted Shortest Processing Time rule to minimize weighted mean flow time-Earliest Due Date rule to Minimize Maximum Lateness-Model to Minimize total Tardiness. Flow Shop Scheduling: Johnson's Algorithm for n jobs and Two Machines problem-Extension of Johnson's Algorithm for n jobs an Three Machines problem-Job Shop Scheduling.

UNIT- V Queueing Models

Introduction-Terminologies of Queueing System-Empirical Queueing Model: (M/M/1) : (GD/∞/∞) Model-(M/M/C) : (GD/∞/∞) Model-(M/M/1) : (GD/N/∞). Simulation: Need for Simulation-Types of Simulation-Major Steps of simulation-simulation using high-level languages.

TEXT BOOK:

1. Pannerselvam. R., Operations Research, Second Edition, PHI Learning Private Limited, 2008.
   (Chapters: 2.1 – 2.5, 2.7, 3.1 – 3.4, 4.1 - 4.4, 7.1, 7.2, 7.5, 7.8, 9.1, 9.2, 9.3.1-9.3.3, 9.4.1-9.4.4, 14.1, 14.2.1 – 14.2.5, 14.3.1, 14.3.2, 14.4.1)

REFERENCE BOOKS:

1. Nita H Shah, Ravi M. Gor, Hardik Soni, Operations Research, Prentice-Hall of India, 2008.
2. Srinivasan. G., Operations Research, PHI, 2008.
3. Wayne L. Winston, Operations Research, Cengage Learning, 2009.

08PSS05 RELATIONAL DATABASE MANAGEMENT SYSTEMS

4 Credits

UNIT – I

Introduction - Relational Model: Structure of relational databases – Fundamental relational algebra operations – Additional relational algebra operations – Extended relational algebra operations – Null values – Modification of the database. SQL : Data definition – Basic structure of SQL queries – Set operations – Aggregate functions – Null values – Nested subqueries – Complex queries – Views.

UNIT – II

Database design and the ER model : Overview - Entity- Relationship model – Constraints – ER diagrams – Entity relationship design Issues – Weak entity sets- Extended ER features – Other aspects of database design - Relational data base design: Features of good relational designs – atomic domains and first normal form – Decomposition using functional dependencies - Functional dependency theory – Decomposition using Functional dependencies - Decomposition using multivalued dependencies – more normal forms – database design process – Modelling Temporal data.

UNIT –III

Object Based Databases: Complex data types – structured types and inheritance in SQL – Table inheritance – Array and Multiset types in SQL – Object Identity and reference types in SQL – Persistent programming languages – Object oriented versus Object Relational – Query processing : Overview – Measures of query cost – selection operation – sorting – Join operation – other operations – Evaluations of expressions – Query optimization: Overview – transformations of relational expressions – Estimating statistics of Expression results – Choice of evaluation plans.

UNIT –IV

Transactions: Transaction Concept – Transaction state – Implementation of atomicity and durability – concurrent executions – Serializability – Recoverability – Implementation of isolation – Testing for Serializability - Concurrency Control: Lock based protocols – Time stamp based protocols – Validation based protocols – Mulitple Granularity – Multiversion schemes – Dead lock handling – Insert and delete operations – Weak levels of consistency – Recovery System: Failure classification - storage structure – Recovery atomicity – Log based recovery – Recovery with concurrent transactions – Buffer storage – Failure with loass of non volatile storage – Remote backup systems.

UNIT – V

Advanced Application Development: Performance Tuning – Performance Benchmarks – Standardization – Application migration - Advanced Data Types and New Applications: Motivation - Time in Databases – Spatial and Geographic data – Multimedia databases – Mobility and personal databases– network Data Model – Hierarchical data model.

TEXT BOOK:

1. A.Silbherschatz, Henry F.Korth and S.Sudarshan, Database System Concepts, fifth edition,McgrawHill. (CH. 1,2,3.1 to 3.9,6.1 to 6.7,6.10,7,9.1 to 9.6, 9.8, 9.9 ,13,14.1 to 14.4,15,16.1 to 16.8,17,23,24 and Appendix A and B

REFERENCE BOOKS:

1. Peter Rob and Carlos Coronel, Database Systems – Design, Implementation and Management, Cengage Learning, 5th Edition, 2007
2. Ramez Elmasri, Shamkant B.Navathe, Fundamentals of Database Systems ,5/E, Pearson Education.
3. Gary W. Hansen and James V. Hansen, Database Management and Design, Prentice Hall of India Pvt Ltd, 1999.

08PSSP04- LAB-IV RDBMS

3 Credits

1. Simple queries
    - i) Create, insert, update, delete
    - ii) Select
    - iii) Date , string, math functions etc.,
    - iv) Aggregate functions and Join

PL/SQL

2. Preparation of Students mark sheet
3. Electricity bill preparation
4. Computing balance based on the transaction amount (Bank)
5. Library information system
    - 2 Search for a book
    - 3 Issue and return
6. Pay roll preparation

08PSS06- MICROPROCESSORS

4 Credits

UNIT - I

Introduction: Microprocessor system concepts, Microprocessor evolution, Areas of application. Microprocessor architecture and operation: Basic Microprocessor Architecture, Registers, Arithmetic and logic section, control section, Interface section, The 8085 Microprocessor, Architecture, timing and sequencing, state transition sequence, Memory and I/O synchronization. The wait state.

UNIT – II

Programming the 8085: Instruction set, Programming Techniques, counter and time delay programs, stacks and subroutines, code conversion and BCD arithmetic programs. Memory Interfacings: Review of memory types and characteristics, compatibility between memory and microprocessor unit system bus, Address space, Partitioning of the Address space, Dynamic RAM Interfacing

.

UNIT-III

D/A and A/D conversion: variable -register network binary ladder-D/A converter-D/A accuracy and resolution A/D converter (simultaneous Conversion)-A/D conversion (counter method)-continuous A/D conversion-A/D techniques-Dual slope A/D Conversion-A/D accuracy and resolution.
Interfacing Peripherals: Review of data transfer techniques, I/O ports, programmable I/O ports, the 8155h-8255a programmable peripheral interface, 8085 interrupt structure, and 8259a programmable interrupt controller, 8254 programmable interval timer, DMA controller. Serial mode of data transfer, 8251a USART, standard interfaces, interfacing keyboard, interfacing displays, 8279 programmable keyboard display interfaces.

UNIT – IV

The 8086 Processor – Software aspects
Evolution of Microprocessors – 8086 architecture – Addressing modes. Instruction set and assembler directives – Assembly language programming – Interrupts and interrupt service routines.

UNIT –V

8086 System design
8086 signals description – Basic configurations – System bus timing – System design using 8086 – Minimum mode/Maximum dices 8086 system and timings.

TEXT BOOK:

1. Gaonkar, Microprocessor architecture, programming and applications, Wiley Eastern Ltd, 1987.

REFERENCE BOOKS:

1. Kenneth L short, Microprocessor and programming logic, PHI, 1988.
2. Ajith pal, Microprocessors, principles and applications, Tata McGraw Hill, 1990.
3. A.K. Ray & K.M. Bhurcandi, Advanced Microprocessors and peripherals-Architectures, Programming and Interfacing, Tata McGraw Hill, 2002 reprint.
4. Barry B.Brey, The Intel Microprocessors, 8086/8088, 80186/80188. 80286,80386, 80486, Pentium, Pentium Processor, Pentium II, Pentium III, Pentium IV, Architecture, Programming & Interfacing, Sixth Edition, Pearson Education, 2002.
5. Yu-Cheng, Glenn A. Gibson, Microcomputer systems: The 8086/8088 Family architecture, Programming and Design, PHI 2003.
6. Peter Abel, IBM PC Assembly language and programming, Prentice Hall of India Pvt, Ltd.

08PSS07- VISUAL BASIC

5 Credits

UNIT-I

Visual basic: Introduction – Tool bars – forms: common properties- scale properties- color properties - tool box – creating controls – command buttons: properties – events – image controls – text box – labels – Navigating between controls- message box – grid.

UNIT – II

Data types – variables – displaying information on a form –format function - picture box – rich text box- controlling program flow

UNIT-III

Built in functions - Functions and procedures- organizing information via code - control arrays – list and combo boxes – Flex grid control.

UNIT-IV

Common dialog boxes - Microsoft windows common controls- Menus- MDI forms – Mouse event procedures

UNIT-V

Basic file handling – file system controls and file system objects - Overview of COM/OLE- OLE automation – OLE drag and drop- Database development – using the data control .

TEXT BOOK:

1. Gary Cornell, Visual Basic 6 form the groundup,TMH,2005
   (Chapters 1,3,4, 5,6,7,8,9,10,11,14,17,18,19,20,22,23)

REFERENCE BOOKS:

1. Byron. S. Gottfried, Schaum's Outline Visual basic, McGrawHill, 2001
2. Jerke And Noel, Visual Basic 6 , The Complete Reference, TMH, Ist Edition

08PSSP05- LAB-V VISUAL BASIC LAB

3 Credits

1. Preparation of students mark list.
2. Railway Reservation system
3. Telephone bill preparation
4. Payroll
5. Personnel information system
6. Bank management
7. Library information system

08PSSP06- LAB-VI ASSEMBLY LANGUAGE PROGRAMMING LAB

3 Credits

1. Study of Assembler (Turbo) and Assembles directives.
2. Study of INT 21H Functions for input and output.
3. 8-bit and 16-bit Addition
4. 8-bit and 16-bit Subtraction
5. 8-bit and 16-bit Multiplication
6. Packing of BCD digits.
7. Unpacking of BCD digits.
8. Conversion from BCD to ASCII.
9. Conversion from ASCII to BCD.
10. Delay loop implementation.
11. Arranging numbers in ascending order.
12. Arranging numbers in descending order.
13. MACROS – Examples.
14. Implementation of String Functions.
15. Displaying the contents of the memory locations.

08PSS08 ARTIFICIAL INTELLIGENCE

5 Credits

UNIT - I

The AI problems – AI techniques – problems, problems space & search – Defining the problem as a state Search – Production systems – problem characteristics – heuristic search techniques – Generate & test – Hill climbing – Best first search. Problem reduction – constraint satisfaction – means – ends analysis.

UNIT - II

Game playing : Mini – max procedure – Adding Alpha – Beta cutoffs – Additional refinements – Searching AND/OR Graphs – Iterative deepening. Using Predicate Logic – Representing simple facts & logic – Representing instance & IS a Relationships – Computable functions & Predicates – Use of the predicate calculus in AI – Resolution – natural deduction.

UNIT - III

Representing knowledge using Rules – Procedural verses declarative knowledge logic programming – forward versus backward reasoning – Resolving within AND/OR Graphs matching – control knowledge – symbolic Reasoning under uncertainty – non – monotonic reasoning – Implementation Issues – Augmenting a problem solver - Implementation of depth first & breadth first search. Statistical reasoning – Bayee's theorem – Certainity factors & Rule based Systems – Bayesian Networks – Dempston – Shafer theory – Fuzzy logic.

UNIT - IV

Expert Systems – Architectural Components – Explanation facilities – knowledge acquisition.

UNIT - V

Expert System Development process – Non – formal representation of knowledge – semantic Networks – Frames – Scripts – Production Systems – Expert Systems tools.

TEXT BOOKS:

1. Elain Rich & Kevin Kaight – Artificial Intelligence - Tata McGraw Hill – Second Edition, 1991 (For units – I , II , & III :Chapter 1,2,3,5,6,7,9).
2. David W. Roltson – Principles of Artificial Intelligence & Expert Systems Development – McGraw Hill (For units – IV & V : Chapters 1,4,7,8,9).

08PSS09 OPERATING SYSTEMS

5 Credits

UNIT-I

INTRODUCTION : Definition of OS-Mainframe System-Desktop Systems-Multi processor System-Distributed-Clustered-Real time Systems-Handheld Systems-Operating System Structure-System Components-Services-System Calls-System Programs-System Design and Implementation

UNIT-II

PROCESS MANAGEMENT : Concepts-Process Scheduling-Operations on Processes-Co-operating Processes-Inter Process Communication-CPU Scheduling-Scheduling Concepts-Criteria-Scheduling Algorithms-Multiprocessor Scheduling-Real time Scheduling

UNIT-III

PROCESS SYNCHRONIZATION : Critical Section-Synchronization Hardware-Semaphores-Problems of Synchronization-Critical Regions-Monitors-Deadlocks-Characterization-Handling Deadlocks-Deadlock Prevention-Avoidance-Detection-Deadlock Recovery

UNIT-IV

MEMORY MANAGEMENT : Storage Hierarchy-Storage Management Strategies-Contiguous-Non Contigous Storage Allocation-Single User-Fixed Partition-Variable Partition-Swapping-Virtual Memory-Basic Concepts-Multilevel Organization-Block Mapping-Paging-Segmentation-Page Replacement Methods-Locality-Working Sets

UNIT-V

I/O AND FILE SYSTEMS: Disk Scheduling-File Concepts-File System Structure-Access Methods-Directory Structure-Protection-Directory Implementation-Allocation Methods-Free Space Management-Case Study: Linux System

TEXT BOOK

1. Silberschatz and Galvin, Operating System Concepts, 6th Edition, John Wiley & Sons, Inc., 2004

REFERENCES

1. Milankovic M., Operating System Concepts and Design, 2nd Edition, McGraw Hill, 1992
2. P.C.Bhatt, An Introduction to Operating Systems-Concepts and Practice, Prentice Hall Of India, 2004
3. H.M.Deitel, An Introduction to Operating Systems, 2nd Edition, Pearson Education, 2002

08PSS10 JAVA PROGRAMMING

5 Credits

UNIT -I

Java Buzzwords - Data Types- Variables And Arrays- Operators - Control Statements - Classes - Inheritance - Packages And Interfaces - Exception Handling – Input /Output- Java I/O classes Interfaces – File – Stream classes – Byte streams- Character streams.

UNIT - II

Multithreaded Programming - String Handling- The Applet Class- Event Handling - AWT - Working with windows Graphics and Text – AWT Controls - Layout Managers And Menus.

UNIT -III

Java Beans - Java Beans component model – Creating a Java Bean class – Exploring Java Bean property types- Adding custom Event types – Creating Java Bean class with events – Using the BeanInfo classes -

UNIT -IV

Network Programming – Working with URLs – Working with sockets- Using Relational Databases – JDBC Drivers for RDBM systems – SQL to Java Type Mappings –Using Java. Sql API .

UNIT- V

Building web Applications – J2EE web application packaging – Servlets – The Servlet API – Java server pages – JSP tags and API –Java coding in JSPs

TEXT BOOKS

1. Herbert Schildt, The Complete Reference Java 2 , 5th Edition, Tata McGraw Hill, New Delhi - 2008. (Units I & II)- Chapters -1,3,4,5,6,7,8,9,10,11,14, 19,20,21,22.
2. Joe Wigglesworth and Paula McMillan, Java Programming : Advanced Topics Thomson Learning Inc -2007. – (Unit III IV & V) Chapters 8,9,11,13.

REFERENCE BOOKS

1. Keyur shah, Gateway to Java Programmer Sun Certification, Tata Mc Graw Hill,2002.
2. Deitel & Deitel, Java How to Program, Prentice Hall,1999.
3. Phil Kanna, The Complete Reference JSP 2.0, Tata McGrawHill publishing Company Ltd,2003.
4. Jim Keogh, The Complete Reference J2EE, Tata McGrawHill Publishing Company Ltd, 2002.
5. D.S. Malik, Robert P. Burton, Programming with Java- Guided Learning with Early objects, Cengage Learning India Private India – New Delhi – 2009.

08PSS11 COMPUTER NETWORKS

5 Credits

UNIT – I

Introduction – Uses of computer networks – Network hardware: LAN-MAN-WAN – Networks Software: Protocol hierarchies – Reference models: OSI-TCP/IP.

The Physical Layer: Guided transmission media- The public switched telephone network: Structure of the telephone system – Switching.

UNIT – II

The Data Link Layer: Design issues –Error detection and correction – elementary data link protocol – Sliding window protocol – HDLC.

The Medium Access Control Sub Layer: Multiple access protocol: CSMA protocol – collision free protocol – Data link layer switching: Repeaters, Hub, Bridges, Switches, Router, and gateways - Bluetooth.

UNIT – III

The Network Layer: Design issues – Routing algorithms: Optimality principle – Shortest path – Distance Vector – link state – Hierarchal – Broadcasting – Congestion control algorithms – The network layer in internet: IP protocol – IP address.

UNIT – IV

The Transport Layer: The transport service: service provided to the upper layer – Transport service primitives – Berkeley sockets - Elements of transport protocols – The internet transport protocol : UDP: Introduction – RPC - TCP: Service model – TCP segment header.

The Application Layer: DNS – E-Mail: Architecture and services – Message formats - WWW : Architectural overview.

UNIT – V

Network Security: Cryptography: introduction – Substitution and transposition cipher – Symmetric-key algorithm: DES – public-key algorithms: RSA – Digital signature: symmetric and public key signature – Communication security: IPsec – firewalls – VPN. Authentication protocol: Authentication based on shared key – Diffie-hellman key exchange – Email security: PGP – PEM – Web Security: Threats – secure naming – SSL.

TEXT BOOKS:

1. Andrew S. Tanenbaum, "Computer Networks**", 4th edition** by, 2003 PHI.
   (For UNIT – I, Chapters 1.1, 1.2, 1.3, 1.4 2.2, 2.5 , For UNIT – II, Chapters 3.1, 3.2, 3.3, 3.4, 3.6, 4.1, 4.2, 4.6, 4.7, For UNIT – III, Chapters 5.1, 5.2, 5.3, 5.6, For UNIT – IV, Chapters 6.1, 6.2, 6.4, 6.5 7.1, 7.2, 7.3, For UNIT – V, Chapters 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9)

REFERENCE:

1. William Stallings, Data and Computer Communication, **5th edition**, PHI.
2. Behrouz A. Forouzan, Data Communications and Networking, **3rd edition** Tata McGraw-hill.

08PSSP07 JAVA PROGRAMMING LAB

3 Credits

Implement the following:

1. Program to illustrate the use of overloading and overriding
2. Program to implement the concept of Interfaces and packages
3. Program for implementing all types of Inheritance
4. Program for Exception Handling
5. Program for Inter process communication
6. Program using Applets
7. Program for Event Handling (Mouse, Key Events, Text Events etc)
8. Program for accessing database using JDBC
9. Program using Servlets
10. Program using Java Server Pages
11. Program using TCP/IP sockets
12. Program using Datagram sockets

08PSS12 -SOFTWARE ENGINEERING

5 Credits

UNIT – I

A Generic View of Process – Process Models-The Waterfall Model-Incremental Model-Evolutionary Model-Specialized Model-The Unified Process–Agile Process – Agile Models – Software Engineering practice-planning and modeling practice.

UNIT – II

REQUIREMENT ENGINNERING: Requirement engineering tasks - Initiating the Process-Eliciting Requirements-Developing Use Cases-Negotiating Requirements-Validating Requirements – Building the Analysis Models: Concepts

UNIT – III

SOFTWARE DESIGN: Design Process-Design Concepts – Design Models – Pattern Based Design – Software Architectural – Data Design – Component – Designing class based components

UNIT – IV

SOFTWARE TESTING: Software Testing Strategies- Strategic Issues- test Strategies for conventional software- strategies for object oriented software- validation testing-system testing – Art of debugging - Testing Tactics: Testing Fundamentals-Black Box – While Box – Basis Path-Control Structure

UNIT - V

SCM AND QUALITY ASSURANCE: Software quality- frame work of Product metrics- analysis model – Design model – Metrics for source code – metrics for Testing – maintenances Quality Management: Quality concepts – Software Quality Assurances – Software reviews – formal technique review- Formal approaches to SQA- Software Reliability

TEXT BOOKS

1. Roger Pressman.S., Software Engineering: A Practitioner's Approach, 6th Edition, Mcgraw Hill, 2005.
   (For Units I - V, Chapters 2,3,4,5, 7, 8.1, 8.2, 9, 10.1, 10.2, 11.1, 11.2,13, 14.1, 14.2, 14.3, 14.4,14.5, 15, 26)

REFERENCES

1. P. Fleeger, Software Engineering, Prentice Hall, 1999.

2. Carlo Ghezzi, Mehdi Jazayari, Dino Mandrioli, Fundamentals of Software Engineering, Prentice Hall of India 1991.

3. Sommerville, Software Engineering, 5th Edition: Addison Wesley, 1996.

08PSS13 .NET PROGRAMMING

5 Credits

UNIT – I

Microsoft .NET Framework - . NET vision – The .NET Framework classes – Executing code – Common Language Runtime – Common Type system and Common Language specification – Visual studio .NET IDE – Tool box – Modified Hungarian Notation – Code Editor _ Using the Help system

UNIT – II

Visual Basic .NET – Visual Basic .NET IDE – The Profile set up page- Project tab – Menu – Tool bars – Variables – Data types – Comments – Methods – Controlling the flow – if statement – select case – Loops – Arrays – Constants – Structures – Collections and Lists – Look up Tables and Hash table – Dynamic arrays

UNIT – III

Building Windows Applications – Displaying dialog boxes – Creating Menus – Debugging and Error Handling – Accessing databases – Database Programming with SQL server and ADO .NET – Web forms

UNIT – IV

ASP .NET – Introducing web developer tools – Introduction to ASP .NET server Programming – Using variables and constants in web forms – Working with web objects to store data

UNIT -V

Designing .NET web Applications –Programming with Visual Basic .NET – Advanced web controls – Managing data with ASP .NET

TEXT BOOKS

1. Thearon Willis , Jonathan Crossland, Richars Blair, Beginning VB .NET 2003, Wiley Dreamtech publishers – 2004 edition- Chapters 1,2,3,4,6,7,8,9,15,16,17.
2. Kathleen Kalata , Web Applications using ASP .NET 2.0 - Cengage Learning publications.- 1,2,5,10

REFERENCE BOOKS

1. Understanding .NET, David Chappell, Pearson education, 2002
2. Introducing Microsoft .Net, David.S.Platt, PHI, 2003.
3. Microsoft ASP .NET Programming with Microsoft Visual C# .NET step by step , G.Andrw Duthie,PHI ,2003.

08PSS14 COMPUTER GRAPHICS

5 Credits

UNIT – I

Output Primitives: Points and Lines – Line-Drawing algorithms – Loading frame Buffer – Line function – Circle-Generating algorithms – Ellipse-generating algorithms. **Attributes of Output Primitives:** Line Attributes – Curve attributes – Color and Grayscale Levels – Area-fill attributes – Character Attributes.

UNIT - II

2D Geometric Transformations: Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations. **2D Viewing:** The Viewing Pipeline – Viewing Co-ordinate Reference Frame – Window-to-Viewport Co-ordinate Transformation - 2D Viewing Functions – Clipping Operations – Point, Line, Polygon, Curve, Text and Exterior clippings.

UNIT - III

3D Concepts: 3D Display Methods – 3D Graphics Packages. **3D Object Representations**: Polygon Surfaces – Curved lines and Surfaces – Quadric Surfaces – Super quadrics – Blobby Objects – Spline representations. **3D Geometric Modeling and Transformations**: Translation – Rotation – Scaling – Other Transformations – Composite Transformations – 3D Transformation functions..

UNIT - IV

Visible-Surface Detection Methods: Classification of Visible-Surface algorithms – Back-Face Detection – Depth-Buffer Method – A-Buffer method- Scan- Line Method – Depth-Sorting Method – BSP-Tree Method – Area-Subdivision Method – Octree Methods – Ray-casting Methods – Curved surfaces – Wire frame Methods – Visibility-Detection functions.

UNIT - V

Illumination Models: Properties of Light – Standard Primaries ad the Chromaticity Diagram – Intuitive color Concepts – RGB Color Model – YIQ Color Model – CMY Color Model – HSV Color Model – Conversion between HSV and RGB models – Color selection ad Applications.

TEXTBOOKS:

1. **Donald Hearn, M. Pauline Baker COMPUTER GRAPHICS –**, 2nd edition, PHI.

08PSSP09 .NET PROGRAMMING LAB

3 Credits

Write programs to implement the following:

VB .NET

1. Create a simple application in Visual Basic .Net.

2. Create and manage multiple forms in a simple application.

3. Interact with a user by using the message box function. Creating and using arrays

4. Creating functions and procedures.

5. Validating user input.

6. a. Create a new class, including its methods, properties, and data members with appropriate access levels.
   b. Create and use an instance of a class, including instance and shared data members, and shared and non-shared methods.

7. Using Exception Handling

8. Create applications in VB .NET to
   a. Create custom menus to group application commands.
   b. Create a status bar to provide users with feedback about an application.
   c. Create a toolbar to provide a graphical interface with which users can access key functions of an application.

ASP .NET

1. Create, build, and run an application that uses web forms.

2. Using ADO .NET
   a. Create and open a connection to a database
   b. Create, read, update, and delete records in a database.
   c. Use the data form wizard to create a simple data access application.
   d. Display and modify data extracted from a database.

3. Create and customize a setup program for a windows-based application.

08PSS15 MULTIMEDIA AND VIRTUAL REALITY

5 Credits

UNIT - I

Multimedia- Introduction to making Multimedia – Multimedia skills - Hardware – Basic Software Tools – Multimedia authoring tools.

UNIT - II

Multimedia Elements: Text - Sound – Image - Animation– Video: Introduction – Analog Display Standards – Digital Display Standards – Digital Video – Video Recording and tape formats – Shooting and Editing video.

UNIT - III

The Internet and How it Works: Internet History – Internetworking – Connections – Internet Services – The WWW and HTML – Dynamic Web Pages and XML – Multimedia on the Web – Tools for the WWW – Multimedia Application Development : Designing for the WWW – Planning and Costing – Designing and Producing – Content and Talent - Delivering.

UNIT - IV

Virtual Reality: Introduction - Input Devices: Trackers, Navigation and Gesture Interfaces - Output Devices: Graphics, Three-Dimensional sound and Haptic Displays.

UNIT - V

Architecture of VR: PC Graphics Architecture - Workstation based architecture – Distributed VR architecture – Modeling: Geometric Modeling – Kinematics modeling- Physical modeling – Behavior Modeling - VR Programming – Traditional VR Applications- Emerging applications of VR.

TEXT BOOKS

1. Tay Vaughan, Multimedia Making it work, Seventh Edition, Tata McGraw-Hill Edition, Sixth Reprint 2008 (Unit - I: 1, 2, 3, 9, 10, 11 Unit - II: 4, 5, 6, 7, 8 Unit - III: 12, 13, 14, 15, 16, 17, 18)
2. Virtual Reality, Grigore C. Burdea, Philippe Coiffet, Second Edition, A John Wiley & Sons, Inc., Publication 2006. (Unit - IV: 1, 2, 3 Unit - V: 4, 4.2, 4.3, 4.4, 5, 5.1, 5.2, 5.3, 5.4, 6 , 8, 9)

REFERENCE BOOKS

1. Ranjan Parekh, Principles of Multimedia, Tata McGraw Hill Publishing Company Limited, 2009.
2. James E. Shuman, Multimedia in Action, Wadsworth Cengage Learning, 2008
3. John Vince, Virtual Reality Systems, Pearson Education 2008

08PSS16 WEB TECHNOLOGIES

5 Credits

UNIT - I

HTML: introduction - Common tags: List, Tables, images, forms, Frames; Cascading Style sheets. Document Object model and collection-event handling Filter and transitions

UNIT - II

XML: Introduction, displaying an XML Document, Data interchange with an XML Document, Document type definition, XML Schemas, Document Object model, Presenting XML, Using XML Processors: DOM and SAX

UNIT - III

Introduction to JavaScript - History -working with variables and data - syntax and statements-operators and expression- conditional and looping statements-functions

UNIT - IV

Objects in java script- document object model- using java script with web forms-creating and consuming cookies-browsers and JavaScript- JavaScript and CSS

UNIT-V

JavaScript and XML-Loading XML document with JavaScript-Introduction to AJAX: XMLHttpRequest Object -AJAX request- AJAX Responses-XML Responses-Creating an HTML tables with XML and CSS

TEXT BOOKS

1. Burdman, Collaborative Web Development, Addison Wesley.

2. Steve Suehring JavaScript step by step Prentice-Hall of India Private Limited, 2008
   (For Unit III - IV, Chapters 1, 4, 5, 6, 7, 9, 11, 12, 14, and 15)
   (For Unit V, Chapters 17, 18)

REFERENCE BOOK:

1. Web Programming, building internet applications, Chris Bates 2nd edition, WILEY
2. Dreamtech Ed Wilson, Microsoft VB Script Step by Step, PHI, New Delhi, 2008.

08PSSP10 WEB TECHNOLOGY LAB

3 Credits

1. Develop static pages (using Only HTML) of an online Book store. The pages should resemble: www.amazon.com The website should consist the following pages. *Home page *Registration and user Login * User Profile Page
2. Create and save an XML document at the server, which contains 10 users information. Write a program, which takes User Id as an input and returns the user details by taking the user information from the XML document.
3. Write a program to use XML and JavaScript for creation of your homepage.
4. Write a program in XML for creation of DTD which specifies a particular set of rules.
5. Create a Stylesheet in CSS/XSL and display the document in Web Browser.
6. Validate the Registration, user login, user profile and payment by credit card pages using JavaScript.
7. Write a JavaScript Program, embedded in an HTML web page, to play a simple game.
8. Create a script that collects numbers from a page and then adds them up and prints them to a blank field on the page.
9. Create a script that prompts the user for a number and then counts from 1 to that number displaying only the odd numbers
10. Implement Client Side form validation using JavaScript
11. Create a web page to handle events and objects using JavaScript

08PSS17 DATA MINING

5 Credits

UNIT – I

Introduction: Data mining application – data mining techniques – data mining case studies- the future of data mining – data mining software - **Association rules mining: Introduction**- basics- task and a naïve algorithm- apriori algorithm – improve the efficient of the apriori algorithm – mining frequent pattern without candidate generation (FP-growth) – performance evaluation of algorithms.

UNIT – II

Classification : Introduction – decision tree – over fitting and pruning - DT rules-- naïve bayes method- estimation predictive accuracy of classification methods - other evaluation criteria for classification method – classification software

UNIT – III

Cluster analysis: cluster analysis – types of data – computing distances-types of cluster analysis methods - partitioned methods – hierarchical methods – density based methods – dealing with large databases – quality and validity of cluster analysis methods - cluster analysis software.

UNIT – IV

Web data mining: Introduction- web terminology and characteristics- locality and hierarchy in the web- web content mining-web usage mining- web structure mining – web mining software - **Search engines:** Search engines functionality- search engines architecture – ranking of web pages.

UNIT – V

Data warehousing: Introduction – Operational data sources- data warehousing - Data warehousing design – Guidelines for data warehousing implementation - Data warehousing metadata - **Online analytical processing (OLAP):** Introduction – OLAP characteristics of OLAP system – Multidimensional view and data cube - Data cube implementation - Data cube operations OLAP implementation guidelines

TEXT BOOK:

1. G.K. Gupta Introduction to Data mining with case studies, PHI Private limited, New Delhi, 2008.

REFERENCE BOOK:

1. Jiawei Han, Micheline Kamber, Data Mining-Concepts and techniques, Morgan Kaufmann Publishers, Elsevier , India 2003

08PSS18 SOFT COMPUTNG

5 Credits

UNIT I Fundamentals of Neural Networks

Basic Concepts of Neural Network-Model of an Artificial Neuron-Neural Network Architectures-characteristics of Neural Networks-Learning Methods-Taxonomy-History of Neural Network-Early Neural Network Architectures.

UNIT II Backpropagation Networks

Architecture of Backpropagation Network-Backpropagation Learing-Illustratrations-applications-Effect of Tuning Parameters of the Backpropagation Neural Network-Selection of various parameters in Backpropagation Neural Network-Variations of Standard Backpropagation algorithms.

UNIT III Adaptive Resonance Theory (ART)

Introduction- ART1- ART2-Applications

UNIT IV Fuzzy Sets and Systems

Fuzzy Sets-Fuzzy Relations-Fuzzy Logic-Fuzzy Rule based system-Defuzzification Methods-Applications.

UNIT V Fuzzy Backpropagation Networks

LR-Type Fuzzy Numbers-Fuzzy Neuron-Fuzzy Backpropagation Architecture- Learning in Fuzzy Backpropagation-inference in Fuzzy Backpropagation-Applications.

TEXT BOOK:

1. Rajasekaran. S and Vijayalakshmi Pai, Neural Networks, Fuzzy Logic and Genetic Algorithms, PHI, 2008
   (Chapters: 2.1, 2.3-2.9, 3.1-3.7, 5.1-5.4, 6.3, 6.5, 7.3-7.6, 12.1-12.6)

REFERENCE BOOKS

1. Fakhreddine O. Karray, Clarence De Silva, Soft Computing and Intelligent Systems Design, Pearson, 2009.
2. Sivanandam. S. N and Deepa S. N, Principles of Soft Computing, Wiley India, 2008

08PSS19 C# PROGRAMMING

5 Credits

UNIT-I

Introduction to .NET, Overview of .NET applications, .NET Framework – CTS – CLS – CLR – Managed execution, Runtime environment. Understanding assemblers, .NET security.

UNIT-II

C#: Introduction to C#-Data Types-Statements-Program Control-Calling Methods-Method Overloading-Handling Errors-Console I/O- Namespaces

UNIT-III

Object Oriented Programming: Structs - Classes - Interitence - Boxingand Unboxing - Operator Overloading - Interface - Advanced C# Concepts.

UNIT-IV

Namespaces and Base Classes-Namespaces - Base classes-Manipulating Dates and Times-Files and Folder Operation - Windows Applications - Creating Winforms Applications in VS.NET - Deploying Windows Applications.

UNIT-V

ADO.NET-Benefits of ADO.NET-COM Interoperability COM Components in C# Applications-Calling C# Components from Unmanaged Code-Unsafe and Unmanaged Code

TEXT BOOK

1. Jeffrey R. Shapiro, The Complete Reference Visual Basic.NET, TMH, 2002.(Unit-I)
2. Burton Harvey, Simon Robinson, Julian Templemanm, Karli Watson, C# Programming, Shroff Publishers & Distributors PVT. LTD-Wrox, 3rd Indian Reprint 2001.(Unit-II, III, IV & V)

REFERENCE BOOKS:

1. John Smiley, Learn to Program with C#, Tata McGraw-Hill Publishing Company Limited 2003.
2. Charles Wright, C# Tips and Techniques, Tata McGraw-Hill Publishing Company Limited 2002.

08PSSP12 C# PROGRAMMING LAB

3 Credits

1. Program using Program Control
2. Program using Exception
3. Program using Classes and Constructor
4. Program using Interface
5. Program using String and Arrays
6. Program using Files in C#
7. Program using Windows Concepts
8. Program using ADO.NET
9. Program using COM objects
10. Program using ActiveX Control

ELECTIVE I

08PSSZ01 PC HARDWARE AND TROUBLE SHOOTING

5Credits

UNIT – I

Hardware organization of IBM PC :- Components of IBM PC – Interfaces – Drives – Principles of Magnetic storage – Floppy DISK Drive – Hard Disk drive – IDE Interface – SCSI Interface.

UNIT – II

The Mother board of IBM PC – Motherboard components – Microprocessor – Support chips – Support Functions – I/O Buses – System Resources – Interrupt Requests – DMA Channels – I/O addresses – Utilization of System Resources - ROM bios Services .

UNIT – III

Peripherals :- Video Display system –Keyboard – Mouse – Printer – I/O Buses - ISA bus - MCA bus – EISA bus – Local buses – VL bus – PCI bus- AGP.

UNIT – IV

Identification of cards and systems -Study of PC Configurations - Assembling of PC for a given configuration - Identification of Fault cards through modular diagnosis Approach.

UNIT – V

Formating a hard disk - Installing of typical software

TEXT BOOK:

1. N. Mathivanan, Microprocessrs , PC Hardware and Interfacing PHI – 2003 New Delhi. –Unit I,II & III
2. Govindaraju, IBM PC and clones, Hardware, Trouble shooting and Maintenance, Tata McGraw-Hill.- Unit IV & V

08PSSZ02 COMPUTER ARCHITECTURE

5 Credits

UNIT - I

Introduction – Evolution of Computer systems – Trends of Parallel Processing – Parallelism in Uniprocessor Systems – Architecture, Mechanisms, Multiprogramming and Timesharing – Parallel Computer Structures – Pipeline, Array, Multiprocessor, Performance of Parallel computer, Data Flow – Architectural Classification – Applications.

UNIT - II

An Overlapped Parallelism – Instruction and Arithmetic Pipelines – Principles of Designing Pipeline Processors – Instructions Prefetch and Branch Handling, Data Buffering and Busing Structures – Job Sequencing and Collision Prevention – Vector Processing Requirements – Characteristics of Vector Processing, Pipelined Vector Processing Methods.

UNIT - III

SIMD Array Processors – SIMD Interconnection Networks –Associative Array Processing.

UNIT - IV

Multiprocessor Architecture and Programming: Functional Structures- Interconnection Networks- Parallel Memory Organization.

UNIT - V

Multiprocessor Operating Systems-Interprocessor Communication Mechanisms-Multiprocessor Scheduling Strategies-Parallel Algorithms for Multiprocessors.

TEXTBOOK

1. Kai Hwang, Faye A.Briggs, Computer Architecture And Parallel Processing, McGraw-Hill.

REFERENCE BOOK

1. John P.Hayes, “Computer System Architecture and Parallel Processing”, McGraw-Hill.

08PSSZ03 PRINCIPLES OF PROGRAMMING LANGUAGES

5 Credits

UNIT - I

Language Design Issues: History-Role of Programming languages - environments - Impact of machine Architectures - Lnaguage Translation Issues: Programming language Syntax- Stages in Translation - formal Translation models - recursive descent Parsing

UNIT - II

Modeling Language Prpperties: Formal Properties of Languages- Language Semantics- Elementary data Types: Properties of Types and Object- Scalar Data Types - Composite Data Types

UNIT - III

Encapsulation: Structure data types - Abstract data types - Encapsulation by sub programs Type Definitions Inheritance: - Polymorphisms

UNIT -IV

Functional Programming: Programs as Functions- Functional Programming in an Imperative Language - LISP - Functional Programming with static typing - delayed evaluation- Mathematical functional programming- recursive functions and lambda calculus - Logic programming : Logic and Logic Programs - Horn Clauses - Prolog - Problems with logic programming

UNIT - V

Formal Semantics: Sample small language - operational Semantics - Denotation Semantics - Axiomatic Semantics - Program correctness - Parallel Programming: Parallel Processing and programming languages - threads - Semaphore - monitors-message passing - parallelism Non Imperative Languages

TEXT BOOKS

1. Terrence W Pratt, Marvin V Zelkowitz, Programming Languages - Design and Implementation, PHI Publications, 4th edition, 2008
   UNIT - I: Chapters 1, 2, 3, UNIT - II: Chapters 4 , 5, UNIT - III :Chapters 6 , 7

2. Kenneth C. Louden , programming Languages-Principles and Practics , Cengage Learning Publications , 2 Edition, 2008
   UNIT -IV : Chapters 11,12, UNIT V : Chapter 13, 14

REFERENCE BOOKS

1. Daniel P Friedman, Mitchell Wand, Christopher T Haynes, Essentials of programming languages, 2 Edition, PHI Publishers, 2005

ELECTIVE II
08PSSZ04 MANAGEMENT INFORMATION SYSTEM

5 Credits

UNIT-I

The Role of Information System in Business Today – Perspective On Information System- Improving Decision Making: Using Database to Analyze sales Trends. Business Processes and Information Systems – Types of Business Information Systems-Enterprise Applications –internets and Extranets –E-Business –E-Commerce and E-Government.

UNIT-II

Organization and Information System - How Information System Impact Organization and Business Firms- Using information System to Achieve Competitive Advantage. – Ethics in an Information Society.

UNIT-III

IT Infrastructure-Infrastructure components- Hardware Platform Trends and Emerging Technologies- Software Platform Trends and Emerging – Organizing Data in a Traditional File Environment – The Database Approach to Data Management- using Database to improve Business Performance and Decision making.

UNIT IV

Telecommunication and Networking in today's Business World. – Communications Networks-The Internet-Decision Making and Information Systems- Systems for Decision Support- Executive Support Systems- Group Decision-Support System.

UNIT- V

System as Planned Organizational Change – Overview of Systems Development – Alternative Systems-Building Approaches- Component -based Development and web Services- The importance Project Management-Selecting Project.

TEXT BOOK

1. Kenneth C.Laudon, Jane P. Laudon, Management Information Systems, Pearson/Prentice Hall. (Unit-I: Chapter 1: 1.1 - 1.2-1.4, Chapter 2: 2.1 -2.2-2.3 Unit –II: Chapter 3 : 3.1, 3.2, 3.3 Chapter 4: 4.2 Unit-III: Chapter 5: 5.1, 5.2, 5.3, Chapter 6: 6.1, 6.2, 6.3 Unit-IV: Chapter 7 : 7.1 , 7.2 , 7.3 , Chapter 12 : 12.1, 12.2 , 12.3, 12.4 Unit-V: Chapter 13 : 13.1, 13.2 , 13.3 , 13.4 , Chapter 14 : 14.1 , 14.2).

REFERENCE BOOKS

1. Effy Oz , Management Information System, Galgotia Publication Pvt Ltd
2. Jawadekar, Management Information System, Tata McGraw Hill
3. Suresh K. Basandra, Management Information System, Wheeler Publishing

08PSSZ05 SYSTEM ANALYSIS AND DESIGN

5 Credits

UNIT-I

System Concepts and the Information Systems Environment: Introduction – The systems concept – Characteristics of a system – Elements of a system – Types of Systems – The system Development Life Cycle: Considerations for candidate systems – The role of the systems Analyst: Historical Perspective – The multifaceted role of the analyst – The Analyst/user Interface – Rising positions in system Development.

UNIT-II

Systems planning and the Initial investigation: Determined the user's information Requirement. Case scenario problem – Definition and Project Initiation. Background Analysis. Fact – Finding. Fact Analysis, Determination of Feasibility. Information Gathering: Information Gathering tool – On site observation.

UNIT-III

The tools of structured analysis: The Data flow diagram – Data dictionary – Decision tree and structured English – Decision table – Pros and Cons of Each tool – Feasibility Study: System Performance definition - Feasibility study – Cost/Benefit analysis.

UNIT-IV

The process and stages of systems design – The process of Design – Design Methodologies – Major Development Activities – Audit considerations – Input – Output and Forms Design: Input Design. File organization.

UNIT-V

System Testing and Quality Assurance: Introduction – System testing. The nature of test data – The test plan – Quality Assurance – Role of the Data Processing Auditor Implementation: Conversion – Post implementation Review – Software maintenance: – Security, Disaster/recovery and ethics in system development: System security – Ethics in system development.

TEXT BOOK:

1. Elias M. Awad, 'System Analysis & Design' II Edition –Galgotia Publication, 2003. Chapters: 1,2,3,4,5,6,7,8,9,10,11,12,13,16.

REFERENCE BOOKS:

1. James A. Senn, Analysis and Design of Information System, MGH, 1989.
2. Lee, 'Introducing Systems Analysis & Design', VOL. I & II Galgotia NCC.

08PSSZ06 ORGANIZATIONAL BEHAVIOUR

5 Credits

UNIT-I

Concept of Organizational Behavior: Nature of OB – Organisation Behaviour and similar fields of study – Disciplines contributing OB challenges in OB: Applying OB knowledge to Management practices – Role of OB. Foundation of organizational Behaviour: Scientific management – Fayol's Administration Management – Hawthorne Experiments and Human relations. Individual Dimensions of OB: Personally – perception – Learning – Attitudes and values Emotional intelligence.

UNIT – II

Motivation: Concept – Motivation and Behavior – Motivation and Performance. Theories of Motivation: Maslow's Need Herarchy – Herzberg's Motivation hygiene theory – McGregor's Theory X and Y- Theory Z. Motivation Application: Designing of Reward system – Incentives – Financial Incentive – Non financial Incentives – Empowerment – Quality of work Life – Job Satisfaction.

UNIT –III

Communication: Concept – Process - Two way Communication. Communication Symbols- Oral – written – Non-verbal and Pictorial Communication. Communication Network – Formal and Informal Communication – Direction of Communication flow – Barriers in communication – Making Communication Effective Leadership: Need and Importance – Difference between Leadership and management – Leadership qualities – Leadership styles.

UNIT – IV

Group Dynamics: Concept and Group and Group Dynamics – Formal and Informal Groups – Group Development – Integration of individual and Group – Theories of Group formation – Significance of Informal Group – Dealing with Informal Group – Group Behaviour : External condition – Group member resource – Groups structure – Group process – Group Decision Making : Decision making by committee – positive and Negative Aspect of Group decision making – Techniques for improving Group decision making. Inter group Behaviour.

UNIT – V

Organization structure: Concept organizational structure – need for formal organization structure – Factor in organisational design – mechanism for designing structure – process of Designing structure . Departmentation: Meaning – process- Bases of deparmentation- Span of management – Delegation of Authority – Factors in inadequate Delegation – Making Delegation Effective – Centralization and Decentralization - Form of organization structure : Line – Line and staff – functional – Divisional – Project – Matrix – Free form organization.

TEXT BOOK

1. L.M.Prasad, Organisational Behaviour, Sultan Chand & Sons, Reprint edition 2008. (Unit-I: Chapter 1,2,4,5, 6,7, and 8 Unit-II: Chapter 9 and 10 Unit-III: Chapter 16 and 17 Unit-IV: Chapter 13 Unit-V: Chapter 20 and 21.

REFERENCE BOOK

1. John.W.Slocum Jr.& Don Hellriegel- Fundamentals of organization Behaviour – THOMSON South Western, First Indian Reprint 2007
2. Stephen.P.Ronnins – Essentials of organizational Behaviour – Prentice Hall India (P) Ltd. New Edition.

ELECTIVE III
08PSSZ07 SYSTEM SOFTWARE

5 Credits

UNIT – I

Language Processors: Introduction – Language Processing activities – Fundamentals of language Processing – Fundamentals of Language Specification Language Processor Development tools. Data Structure for Language Processing: Search Data Structures Allocation Data Structures. Scanning and parsing Scanning – Parsing.

UNIT – II

Assemblers: Elements of Assembly Language Programming – A Simple Assembly Scheme – Pass Structure of Assemblers – Design of a Two Pass Assembler. Macros and Macro Processors: Macro Definitions and Call – Macro Expansions – Nested Macro Calls – Advanced Macro Facilities – Design of Macro Preprocessor.

UNIT – III

Compilers and Interpreters: Aspects of Compilation – Memory Allocation – Compilation of Expressions – Compilation of Control Structures – Code Optimization – Interpreters.

UNIT – IV

Linkers: Relocation and Linking Concepts – Design of a Linker – Self – Relocating Programs – A linker for MS – DOS – Linking for Overlays – Loaders. Software Tools: Software Tools for Program Development – Editors – Debug Monitors – Programming Environments – User Interfaces.

UNIT – V

Evolution of OS Functions: Batch Processing Systems – Multiprogramming Systems – Time Sharing Systems – Real Time Operating Systems – OS Structure. Processes: Process Definition – Process Control – Interacting Processes – Implementation of Interacting Processes – Threads. Scheduling: Scheduling Policies – Job Scheduling – Process Scheduling – Process Management in Unix – Scheduling in Multiprocessor OS.

TEXT BOOK

1. D.M. Dhamdhere, System Programming and Operating Systems, Second Revised Edition Tata Mc Graw – Hill Publishing Company Ltd. 15th Reprint 2003 (Unit- I: Chapter 1,2,3.Unit-II: Chapter 4.1,4.2,4.3,4.4,Chapter 5. Unit-III : Chapter 6. Unit-IV : Chapter 7,8.Unit-V : Chapter 8,9,10,11.)

08PSSZ08 COMPILER DESIGN

5 Credits

UNIT – I

Introduction to Compliers: Compliers and Translator – Need of Translator – The structure of a Complier – Lexical analysis – Syntax analysis – Intermediate code generation – optimization – code generation – Complier – writing tools. Finite automata and lexical Analysis: The role of the lexical analysis – A simple approach to the design of lexical analyzers- Regular expressions to finite automata – Minimizing the number of states of a DFA.

UNIT – II

The Syntactic specification of programming languages: context free grammars – derivations and parse trees – capabilities of context free grammars. Basic parsing techniques: Parsers – shift – reduce parsing – operator – precedence parsing – top down parsing – predictive parsers – automatic construction of efficient parsers: LR parsers – the canonical collection of LR (o) items - constructing SLR parsing tables – constructing canonical LR parsing tables.

UNIT – III

Syntax – directed translation: syntax – directed translation schemes – implementation of syntax – directed translators – intermediate code – postfix notation – parse trees and syntax trees – 3 address code – quadruples and triples – translation of assignment statements – Boolean expressions – statements that alter the flow of control. Symbol tables: the contents of a symbol table – data structures for symbol table – representing scope information.

UNIT – IV

Run time storage administration: Implementation of a simple stack allocation scheme – implementation of block-structured languages – storage allocation in block structured languages. Error deduction and recovery: errors – lexical phase errors – syntactic phase errors – semantic errors.

UNIT – V

Introduction of code optimization: The principle sources of optimization – loop optimization – the DAG representation of basic blocks – value numbers and algebraic laws – Global data flow analysis. Code generation: Object programs – problems in code generation – a machine model – a simple code generator – register allocation and assignment – code generation from DAG's – peepholes optimization.

TEXT BOOK

1. Alfred V.Aho, Jeffrey D.Ullman "**Principles of Complier Design**" Narosa Pub House.

08PSSZ09 THEORY OF AUTOMATA

5 Credits

Note: Emphasis on Concepts and Applications are expected

UNIT I

Automata Theory: Introduction – Structural representation – Automata and Complexity – Alphabets – Strings – Languages – Problems. Finite Automata: Introduction– Deterministic Finite Automata – Non-Deterministic Finite Automata - Application: Text Search – Finite Automata with Epsilon-Transitions.

UNIT II

Regular Expressions – Finite Automata and Regular Expressions – Applications of Regular Expressions - Algebraic Laws for Regular Expressions – Proving Languages not to be Regular – Decision Properties of Regular Languages – Equivalence and Minimization of Automata – Moore and Mealy Machines.

UNIT III

Context-Free Grammars: Definition – Derivations using a Grammar – Leftmost and Rightmost Derivations – The Language of a Grammar – Sentential Forms - Parse Trees - Pushdown Automata: Definition – Languages of a PDA – Equivalence of PDA's and CFG's - Deterministic Pushdown Automata.

UNIT IV

Turing Machine: Introduction – Notation - Description – Transition Diagram – Languages – Turing Machines and Halting – Programming Techniques for Turing Machines – Multitape Turing Machine – Restricted Turing Machines – Turing Machines and Computers.

UNIT V

Intractable Problems: The Classes P and NP- The NP Complete Problem – Complements of Languages in NP – Problems solvable in polynomial space.

TEXT BOOK:

1. John E. Hopcroft, Rajeev Motwani, Jeffrey D. Ullman, "Introduction to Automata Theory, Languages and Computation", Pearson Education, 2001.

REFERENCE BOOKS:

1. S.P.Eugene Xavier, "Theory of Automata, Formal Languages and Computation", New Age International, 2004.
2. A.M.Natarajan, A.Tamilarasi, P.Balasubramani, "Theory of Computation", New Age International, 2003.
3. E.V.Krishnamurthy, "Introductory Theory of Computer Science", East-West Press Pvt. Ltd, 1983.
4. Bernard M.Moret, "The Theory of Computation", Pearson Education, 1998.

ELECTIVE IV
08PSSZ10 MOBILE COMPUTING

5 Credits

UNIT - I

Introduction: Advantages of Digital Information - Introduction to Telephone Systems – Mobile communication: Need for Mobile Communication – Requirements of Mobile Communication – History of Mobile Communication.

UNIT - II

Introduction to Cellular Mobile Communication – Mobile Communication Standards – Mobility Management – Frequency Management – Cordless Mobile Communication Systems.

UNIT - III

Mobile Computing: History of data networks – Classification of Mobile data networks - CDPD System – Satellites in Mobile Communication: Satellite classification – Global Satellite Communication – Changeover from one satellite to other – Global Mobile Communication – Interferences in Cellular Mobile Communication.

UNIT - IV

Important Parameters of Mobile Communication System – Mobile Internet: Working of Mobile IP – Wireless Network Security – Wireless Local Loop Architecture: Components in WLL – Problems in WLL – Modern Wireless Local Loop – Local Multipoint Distribution Service – Wireless Application Protocol.

UNIT -V

WCDMA Technology and Fibre Optic Microcellular Mobile Communication – Ad hoc Network and Bluetooth technology – Intelligent Mobile Communication system – Fourth Generation Mobile Communication systems.

TEXT BOOK

1. T.G. Palanivelu, R. Nakkeeran, Wireless and Mobile Communication, PHI Learning Private Limited.2009 (Unit-I: 1, 1.1, 2, 3, 3.1, 3.2, 3.3 Unit-II: 4, 5, 6, 7, 8 Unit-III: 9, 9.1, 9.2, 9.3, 10, 10.1, 10.2, 10.3, 11, 12 Unit-IV: 13, 14, 14.1, 15, 16, 16.1, 16.2, 16.3, 16.4, 17 Unit-V: 18, 19, 20, 21)

REFERENCE BOOK

1. Jochen Schiller, Mobile Communications, Second Edition, Pearson Education. 2007

08PSSZ11 CLIENT/SERVER TECHNOLOGY

5 Credits

UNIT - I

Client/server computing: Client/Server-Types of servers-fat server, fat client-2-tier- 3-tier architecture. Client/Server Building Blocks, Clients, Servers, Operating Systems: Anatomy of a Server Program-Services Provided by Server to the Operating System-Server Scalability-Client Anatomy

UNIT - II

NOS: NOS Middleware-,**RPC,Messaging and Peer-To-Peer:** RPC-Peer-to-peer Communications-Messaging and Queuing-MOM versus RPC.**NOS:** Distributed computing Environment **SQL DATABASE SERVERS:** Fundamentals of SQL and Relational Databases-Database Server, Stored Procedure Triggers and rules

UNIT - III

DATA WAREHOUSES: OLTP – DSS-Data Warehouse. **EIS/DIS:** Evolution of EIS/DIS Tools-Query Reporting tools-OLAP and Multi-dimensional Data. **Client/Server Transaction Processing:** ACID Properties, Transaction Models **TP Monitors:** TP Monitors-Transaction Management Standards.

UNIT - IV

Client/Server GroupWare: Groupware - Components of Groupware. **Distributed Objects and Components:** What is Distributed Object?-Component-Super Component-Business Objects. **CORBA:** What is CORBA Distributed Object?-CORBA Components-OMG's Architecture, CORBA Business Objects

UNIT - V

Distributed System Management, Distributed System Management Standards, Client/Server Tools and Application Development

TEXT BOOK

1. Robert Orfali, Dan Harkey,Jeri Edwards The Essential Client/Server Survival Guide, Second Edition, Galgotia Publications (Unit-I : Chapter 2,3,5 Unit-II: Chapter 7,8,9,10 Unit-III : Chapter 12,13,16,17 Unit-IV: Chapter 17,20,22,23 Unit-V: Chapter 32,33,34)

REFERENCE BOOK

1. Patrick Smith,Steve Guengerich, Client/Server Computing PHI, Second Edition

08PSSZ12 SOFTWARE TESTING

5 Credits

UNIT- I

Building a Software Testing Strategy – Software Testing Design Techniques – Software Testing Tools and Selection of Test Automation Products – Software Testing Lifecycle and Software Testing Process

UNIT -II

Testing Effort Estimation and Test Planning – Software Test Effort Estimation Technique – Pre-Development Testing Requirements and Design Phase – Best Practices in Program Phase Unit, System and Integration Testing

UNIT -III

A Case Study on Acceptance Testing – Implementation an Effective Test Management Process – Building an Effective Test Organization – Performance Issues and Optimization Techniques

UNIT -IV

Choosing a Load Testing Strategy – Dodging the Bullets – Validating Mission-Critical Server Software for Reliability – Probing the Blind Spot – Testing in Today's Business and Usability

UNIT -V

Testing of Web-based Applications – Testing of Embedded Software System used in Aerospace Applications – Testing Application for Security – Testing Metrics, Best Practices and Benchmarks

TEXT BOOK

1. Software Testing Effective Methods, Tools and Techniques by Renu Rajani and Pradeep Oak Tata McGraw-Hill

08PSSZ13 E-TECHNOLOGIES

5 Credits

UNIT – I

Introduction to Electronic Commerce: Electronic Commerce– Business Models, Revenue Models, and Business Processes – Economic Forces and Electronic Commerce – Identifying Electronic Commerce Opportunities – International Nature of Electronic Commerce. **Technology Infrastructure**: The Internet and the Word Wide Web– Internet and World Wide Web – Packet – Switched Networks – Internet Protocols – Markup Languages and the Web – Intranets and Extranets – Internet Connection Options - Internet2 and The Semantic Web. **The Environment of Electronic Commerce:** Legal, Ethical and Tax issues.

UNIT – II

Selling on the Web: Revenue Models and Building a Web Presence – Marketing on the Web - Business– to – **Business Strategies:** From Electronic Data Interchange to Electronic Commerce –Online Auctions, Virtual Communities and **Web Protocols:–** Auction Overview – Online Auctions and Related Business – Virtual Communities and Web Portals.

UNIT – III

Web Server Hardware and Software: – Software for Web Servers – Electronic Mail (E-Mail) – Web Site and Internet Utility Programs – Web Server Hardware. **Electronic Commerce Software**: Basic Functions of Electronic Commerce Software – Advanced Functions of Electronic Commerce Software – Electronic Commerce Software for Small and Midsize Companies – Electronic Commerce Software for Midsize to Large Businesses – Electronic Commerce for Large Businesses. **Electronic Commerce Security:** -Payment Systems for Electronic Commerce-Planning for Electronic commerce.

UNIT - IV

E- Marketing: Traditional Marketing – Identifying Web Presence Goals – The Browsing Behavior Model – Online Marketing – E-Advertising - Internet Marketing Trends – Target Markets – E-Branding – Marketing Strategies. - E-security – **E-Payment Systems:** E-Customer Relationship Management: E Supply Chain Management.

UNIT – V

E-Strategy: Information and Strategy – The Virtual Value Chain – Seven Dimensions of E-Commerce Strategy – Value Chain and E-Strategy – Planning the E-Commerce Project – E – Commerce Strategy and Knowledge Management – E-Business Strategy and Data Warehousing and Data mining.**Mobile Commerce:–** Wireless Applications – Technologies for Mobile Commerce– WAP Programming Model – Wireless Technologies – Different Generations in Wireless Communication – Security issues Pertaining to Cellular Technology –M-Commerce in India. Customer – **Effective Web Design:**-Legal and Ethical Issues..

TEXT BOOKS

1. Gary P. Schneider, E-Commerce Strategy, Technology and Implementation, CENGAGE Learning INDIA Private Limited,. Reprint 2008 (Unit-I: Chapter 1,2,3 Unit-II: Chapter 4,5,6,7, & III Chapter – 8,9,10,11,12).

2. P.T. JOSEPH, E-Commerce an Indian Perspective Third Edition Prentice Hall of India, (Unit-IV: Chapter 4,5,6,7,8 & V – Chapter 9,10,11,12).

Reference Books

1. Mike Papazologn, E-Business, Organizational and Technical Foundations, Wiley India Pvt Ltd, 2008
2. Elias M. Awad, Electronic Commerce, Prentice-Hall of India, 2008
3. Kenneth C.Laudon, Carlo Guercio Traver E- Commerce-business, technology, society, Pearson Education 2009.

08PSSZ14 ENTERPRISE RESOURCE PLANNING

5 Credits

UNIT – I

Introduction to ERP: Evolution of ERP – What is ERP? – Characteristics of ERP – Features of ERP– Need for ERP- Benefits of ERP – Enterprise – an Overview – ERP and related Technologies : Business Process Reengineering – Management Information System – Decision Support System – Executive Information System – Data Warehousing – Data Mining – On-line Analytical Processing(OLAP) – Supply Chain Management.

UNIT – II

ERP- A Manufacturing perspective: Introduction - CAD/CAM - Materials requirement planning - Bill of Material - Closed loop MRP- Manufacturing resource planning – Distribution requirements planning- Production data management - Data management - Process management - Benefits of PDM. ERP Modules: Finance management – manufacturing management - Plant maintenance – Quality management – Materials management – Human resources – Sales and distribution.

UNIT – III

ERP Market: SAP AG – Baan company – Oracle corporation – People soft – JD Edwards world solution's company – QUAD – System software associates Inc. (SSA). ERP Implementation life cycle: Pre-evaluation screening – Package evaluation – Project planning phase – Gap analysis – Re-Engineering – Configuration – Implementation team training – Testing - End – user training – Post Implementation.

UNIT – IV

Selection of ERP: Difficulty in selecting ERP – Approach to ERP selection – "Request For Proposal" approach – Proof of Concept (POC) approach - application of POC approach – Comparison of RFP and POC approach – Analytic Hierarchy Process approach - application of AHP in evaluation of ERP - Vendor , Consultants and Users – Future directions in ERP.

UNIT – V

ERP Resources on the Internet – ERP Case studies

TEXT BOOK

1. Alexis Leon, "Enterprise Resource Planning", 1999, Tata McGraw Hill. (Chapters: 1,2,3,4,5,6,7,8,9,10,11)

2. Ravi Shankar S.Jaiswal, "Enterprise Resource Planning" 1999, Galgotia Publications Pvt. Ltd. (Chapters: 1,9)

REFERENCE BOOK

1. Alexis Leon, "ERP Demystified", 2000, Tata McGraw Hill.

2. Ashim Raj Singla, "Enterprise Resource Planning", 2008, Cengage Learning India Pvt. Ltd. New Delhi.

08PSSZ15 DISTRIBUTED COMPUTING

5 Credits

UNIT-I: INTRODUCTION

Characterization of Distributed Systems - Examples - Resource Sharing and the Web - Challenges - System Models - Architectural and Fundamental Models - Networking and Internetworking - Types of Networks - Network Principles - Internet Protocols - Case Studies.

UNIT-II: PROCESSES AND DISTRIBUTED OBJECTS

Inter process Communication - The API for the Internet Protocols - External Data Representation and Marshalling - Client-Server Communication - Group Communication - Case Study - Distributed Objects and Remote Invocation - Communication Between Distributed Objects - Remote Procedure Call - Events and Notifications - Java RMI - Case Study.

UNIT-III: OPERATING SYSTEM ISSUES – I

The OS Layer - Protection - Processes and Threads - Communication and Invocation – OS Architecture - Security - Overview - Cryptographic Algorithms - Digital Signatures - Cryptography Pragmatics - Case Studies - Distributed File Systems - File Service Architecture - Sun Network File System - The Andrew File System

UNIT-IV: OPERATING SYSTEM ISSUES – II

Name Services -Domain Name System - Directory and Discovery Services - Global Name Service - X.500 Directory Service - Clocks, Events and Process States - Synchronizing Physical Clocks - Logical Time And Logical Clocks - Global States - Distributed Debugging - Distributed Mutual Exclusion – Elections – Multicast Communication Related Problems.

UNIT-V: DISTRIBUTED TRANSACTION PROCESSING

Transactions - Nested Transactions - Locks - Optimistic Concurrency Control - Timestamp Ordering - Comparison - Flat and Nested Distributed Transactions - Atomic Commit Protocols - Concurrency Control in Distributed Transactions - Distributed Deadlocks - Transaction Recovery

TEXT BOOK:

1. George Coulouris, Jean Dollimore and Tim Kindberg, Distributed Systems Concepts and Design, Pearson Education, 3rd Edition, 2002.(Unit-I:Chapter-1,2,3.Unit-II:Chapter-4,5.Unit-III:6,7,8.Unit-IV:9,11,12.Unit-V:13,14)

REFERENCE:

1. Sape Mullender, Distributed Systems, Addison Wesley, 2nd Edition, 1993.
2. Albert Fleishman, Distributes Systems- Software Design and Implementation, Springer-Verlag, 1994
3. M.L.Liu, Distributed Computing Principles and Applications, Pearson Education, 2004.
4. Andrew S Tanenbaum , Maartenvan Steen,Distibuted Systems –Principles and Pardigms,Pearson Education, 2002
5. Mugesh Singhal,Niranjan G Shivaratri,Advanced Concepts in Operating Systems,Tata McGraw Hill Edition, 2001

ELECTIVE - VI

08PSSZ16 WIRELESS APPLICATION PROTOCOL

5 Credits

UNIT -I

Overview of WAP-WAP and the wireless world-WAP application architecture-WAP Internal Structure-Setting up WAP - Available software products-Development toolkit.

UNIT -II

What a WAP Gateway-Functionality of a WAP Gateway-the Web model vs the WAP model –positioning of a WAP Gateway.

UNIT- III

Basic WML-Text formatting-Navigating-Advanced display features-Interacting with user-WML script-variables & Literals, Operators, Control constructs, Functions-Using standard Libraries.

UNIT- IV

Multiple device types using XML and XSLT- Using XML to define data- Transforming XML into other formats - XSLT.

UNIT -V

Interacting with the Mobile Phone - fundamentals of the WTA Architecture-WTA Interfaces-WTA state model-WTA Applications Scenarios-Voice XML-Voice Markup Language.

TEXT BOOK:

1. Professional WAP, Charles Archart, Nirmal Chidambaram & co,Wrox press Ltd, Fourth Edition,2002 - Chapter: 1,2,3,4,5,6,9,10,17,18

Reference Books

1. Dharma Prakash Agrawal, Qing An Zeng, "Introduction to Wireless and Mobile systems ,Cengage Learning, New Delhi -2008.
2. William Stallings, Wireless Communication and Networks, Pearson Education, 2003.
3. Singhal, WAP-Wireless Application Protocol, Pearson Education, 2003.
4. David Hunter & co.,Beginning XML ,Third Edition –Wrox Phublishers-2006

08PSSZ17 EMBEDDED SYSTEMS

5 Credits

UNIT - I

Introduction to Embedded System: An Embedded System – Processor in the System – Other Hardware Units – Software Embedded into a System – Exemplary Embedded Systems.

UNIT - II

Processor and Memory Organization: Structural Units in a Processor – Processor Selection for an Embedded System – Memory Selection for an Embedded system – Direct Memory Access – Devices and Buses for Device Networks: I/O Devices – Timer and Counting Devices – Serial Communication and Parallel Communication – Device Drivers and Interrupts Servicing Mechanism: Device Drivers – Device Drivers for Internal Programmable Timing Devices – Interrupt Servicing (Handling) Mechanism – Context, Latency and Deadline.

UNIT - III

Programming Concepts and Embedded Programming in C and C++: Software Programming in Assembly Language (ALP) and in High Level Language 'C' – Embedded Programming in C++ - Embedded Programming in Java – Optimisation of Memory needs – Inter-Process Communication and Synchronisation of Processes, Tasks and Threads: Multiple Processes in an Application – Problem of Sharing Data by Multiple Tasks and Routines – Inter Process Communication.

UNIT - IV

Real Time Operating Systems: Real-Time and Embedded System Operating Systems – Interrupt Routines in RTOS Environment: Handling of Interrupt Source Call by the RTOSs - RTOS Task Scheduling Models, Interrupt Latency and Response Time of the Tasks as Performance Metrics – Performance Metric in Scheduling model for Periodic, Sporadic and Aperiodic Tasks – List of Basic Actions in a Preemptive Scheduler and Expected Times taken at a Proccessor – Fifteen-Point Strategy for Synchronisation between the Processors, ISRs, OS Functions and Tasks and for Resource Management – Embedded Linux Internals: Linux Kernel for the Device Drivers and Embedded System – OS Security Issues.

UNIT – V

Case Study of an Embedded System for a Smart Card – Hardware-Software Co-Design in an Embedded System: Embedded System Project Management – Embedded System Design and Co-Design Issues in System Development Process – Design Cycle in the Development Phase for an Embedded System – Users of Target System or its Emulator and In-Circuit Emulator(ICE) – Use of Software Tools for Development of an Embedded System – Use of Scopes and Logic Analysers for System Hardware Tests – Issues in Embedded System Design.

TEXT BOOK:

1. Raj Kamal, "Embedded Systems – Architecture, Programming and Design", Tata McGraw-Hill,2003.

REFERENCE BOOKS:

1. David E. Simson, "An Embedded Software Primer", Addisons-Wesley-2001.
2. Steve Heath, "Embedded Systems Design ", Elsevier, 2003.
3. Frank Vahid and Tony Givargis, "Embedded System Design ", John Wiley And Sons, Inc, 2002.

08PSSZ18 NETWORK SECURITY AND CRYPTOGRAPHY

5 Credits

UNIT-I

Types of Physical Medium-Topologies-Wireless Networking: Wireless Protocols. Data Link Layer: Layered Data Link Protocols-SLIP and PPP-MAC and ARP. Network Layer: Routing Risks-Addressing-Fragmentation-Security.

UNIT-II

Internet Protocol: IP Addressing-ICMP-Security options. Transport Layer: Common Protocols-Transport Layer Functions-Gateways. TCP: Connection Oriented Protocols-TCP Connections-UDP. Session Layer: Session State Machine-Session and Stacks. SSL: SSL Functionality-Certificates. SSH: SSH and Security-SSH Protocols. STMP: Email Goals-Common servers. HTTP: HTTP Goals-URL.

UNIT-III

Security: Importance-Threat Models-Concepts-Common Mitigation Methods. Network theory: Standards Bodies-Network Stacks-Multiple Stacks-Layers and Protocols-Common Tools. Cryptography: Securing Information-Necessary Elements-Authentication and Keys-Cryptography and Randomness-Hashes-Ciphers-Encryption-Steganography.

UNIT-IV

Data Encryption Techniques-Data Encryption Standards-Symmetric ciphers. Public key Cryptosystems-Key Management.

UNIT-V

Authentication-Digital Signatures-E-Mail Security-Web Security-Intrusion-Firewall.

TEXT BOOKS

1. Neal Krawetz, Introduction Network Security, India Edition, Thomson Delmar Learning. 2007 (Unit-I:5.1,5.4,7.2,8.3,9,10,11.2,11.3,11.5,11.9,Unit-II: 12.1,12.2,12.4,14.1,14.2,14.3,15.1,15.2,15.7,16.2,16.3,19.2,19.3,20.1,20.2,22.2,22 23.1,23.2,Unit-III:1.1,1.2,1.3,1.4,3.1,3.2,3.3,3.4,3.5,4.1,4.2,4.3,4.4,4.5,4.6,4.7,4.8)

2. V.K.Pachghare, Cryptography and Information Security, PHI Learning Private Limited 2009, (Unit-IV: 2,3,5,7,8, Unit-V: 9,10,11,13,14,16)

REFERENCE BOOK:

1. William Stallings, Cryptography and Network Security, Prentice –Hall of India, 2008

SKILL BASED ELECTIVE COURSES

SBEC 1- OFFICE AUTOMATION

2 Credits

UNIT – I

Getting Started: Starting a Program – Identifying Common Screen Elements – Choosing Commands – Finding Common Ways to Work – Getting Help with Office

UNIT – II

MS-WORD: Learning Word Basics – Formatting a Word Document – Working with Longer Document.

UNIT – III

MS-EXCEL: Creating a Simple Spreadsheet – Editing a Spreadsheet – Working with Functions and Formula – Formatting Worksheets – Completing Your Spreadsheet – Creating Charts

UNIT – IV

MS-POWERPOINT: Creating and Viewing Presentations – Editing a Presentation – Working with Presentation Special Effects

UNIT – V

MS-ACCESS: Creating an Access Database – Modifying an Access Database-reports

TEXT BOOK:

1. Microsoft Office XP – fast & easy, DIANE KOERS, Prentice Hall of India Private Limited, 2001

SBEC – II DTP PACKAGES

2 Credits

UNIT – I

INTRODUCTION: Choosing the printing house - Hardware Requirement for DTP - General Design Considerations - Text Organization – Design Common Media Publication.

UNIT – II

PAGEMAKER: Getting Started with PageMaker – Working in PageMaker – The PageMaker window – Working with text – Multiple Text Block. **Editing Text:** Making Changing in the Publication – Searching by Format – Replacing the Text **Formatting Text:** Changing the Font Size – Making the text bold – Removing Boldface from the text – Underlining the text – Aligning the text.

UNIT – III

Master pages: Adding Text to the Publication – Element on master pages – Creating a new Publication – Working with Columns. **Managing and Printing a publication:** Page Orientation – Page Numbering – Page Size – Dimension – Table of Contents – Managing Books – Printing a Publication.

UNIT – IV

PHOTOSHOP- Starting Photoshop CS2 - Photoshop Program Window **Working with Images:** Editing Images – Color Modes

UNIT – V

Making Selections: Moving a Portion of Images – Editing Selections – Filling a Selection - Transforming Selections **Painting Tools**: Drawing Tools –Retouching Tools.

TEXT BOOK

"COMDEX-DTP Course Kit" Vikas Gupta, Dreamtech Publishers- New Delhi, 2008.

SBEC – III MULTIMEDIA PACKAGE

2 Credits

UNIT – I

Introducing Flash: How Flash works – Uses of Flash – Obtaining Flash – Installing Flash – The Flash Environment- Getting Started: The Timeline – The Stage – Tools and toolbars –

UNIT – II

The Menu bar – Properties Inspector – Panels – Viewing options – Quick Start templates – Accessibility Creating Objects: Stage and overlay objects – Tools panel. Editing Objects : Grouping objects – Free Transform tool – Reshaping objects – Aligning objects

UNIT – III

Pixel snapping – Stacking order – Cut aways – Paste in place. Color and Text: Standard Color palette – Adding solid colors – Adding gradients – Fill Transform tool – More color options – Selecting colors – Adding, Formatting and Manipulating text.

UNIT – IV

Symbols and Instances: Definitions – The Library – Converting objects to symbols – Creating a new symbol – Symbol Editing Mode – Editing symbols – Editing Instances.
Sound and Video: Using sound – Importing sound – Editing sounds, Adding video – Manipulating video.

UNIT – V

Frames and Layers: Working with frames – Adding frames – Deleting and copying frames – Frame properties – Working with layers – Inserting layers – Deleting and copying layers –Animation: Elements of animation – Scenes – Frame-by-frame animation – Motion tweening – Motion guides – Shape tweening – Animating text – Distribute text to layers – Movie clips.

TEXT BOOK

1. "FLASH MX in easy steps" - NICK VANDOME, Dreamtech, New Delhi.

SBEC – IV SOFT SKILLS

2 Credits

UNIT - I

Nature of technical communication: Stages of communication – Channels of communication – Nature of technical communication – Importance and need for technical communication – Technical communication skills.

UNIT - II

The Listening process: Types of listening – Listening with a purpose – Barriers to listening – The speech process – Conversion and oral skills – Body language.

UNIT - III

Job interviews: Pre – interview preparation techniques – Interview questions – Answering strategies – Frequently asked interview questions – Projecting a positive image – Alternative interview formats.

UNIT - IV

Group Discussion: Nature of group discussion – Characteristics of successful group discussions – Selection group discussion – Group discussion strategies – Techniques for individual contribution – Group interaction strategies.

UNIT - V

Presentation Skills: Planning the presentation – Preparing the presentation – Organizing your presentation – Rehearsing the presentation – Improving delivery

TEXT BOOK

1. Effective Technical Communication , M. Ashraf Rizvi, Tata McGraw – Hill Publishing Company Limited , New Delhi.

SBEC – V HTML and Web Design

2 Credits

UNIT – I

Intermediate HTML: Introduction – unordered list – nested and ordered list – Basic HTML Tables – Intermediate HTML table and Formatting – basic HTML Forms and Formatting –

UNIT – II

More Complex HTML Forms – Frameset Element – Nested Frameset. Style Sheets and Graphics: Introduction to Style sheets – Formatting Text by Using Style Sheets – Formatting Paragraphs by Using Style Sheets

UNIT – III

Graphics: Selecting a Graphics Format – Preparing Graphics for Web Use – Inserting Graphics – Arranging Elements on the Page – Controlling Image Size and Padding –

UNIT – IV

Hyperlinking from Graphics – Utilizing Thumbnail Graphics – Including Alternate Text for Graphics.

Navigation: Creating Navigational Aids – Creating Tables – Formatting Tables Layouts: Creating Division-Based Layouts

UNIT – V

Creating User Forms – Using Frames for Layout – Incorporating Audio and VideoDynamic HTML: Introduction

TEXT BOOK

1. Microsoft Step by Step – HTML and XH, Faithe Wempen, Prentice Hall of India Private Limited, New Delhi, 2006

SBEC – VI Web Programming (Java script and VB script)

2 Credits

UNIT – I

Java script: Introduction to Scripting: Introduction – memory concepts – arithmetic – decision-making – java script Internet & www resources. Java script Arrays: Passing arrays to functions – Multi Subscripted array.

UNIT – II

Java Script Control Structures – Selection Structure: If – If Else, Repetition Structure: While – For – Do While – Logical operators.

UNIT – III

Java Script Functions: Introduction – program modules in java script programmer defined functions – Function Definition: Duration of identifiers – scope rules – recursion – java script global functions

UNIT – IV

Java Script Objects: Introduction – Thinking about objects – Math, Strings, Date, Boolean and Number Objects.

UNIT – V

VB Script: Introduction- Operators – Data Type and Control Structures – VB Script Functions – Array – String Manipulation – Classes and Objects – Operator Precedence Chart- The MsgBox functions – input boxes – controlling the flow of code -Simple Program

Text Book

1. **Web Technology – A Developer's Perspective,** N.P. Gopalan, J. Akilandeswari**,** Prentice Hall of India Private Limited, New Delhi,, New Delhi.