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BSc Software Engineering - I Year - Semester I

CST 105 - Mathematics I

CST 107 - Applied Physics I

CST 109 - Fundamentals of Digital Computers

BSc Software Engineering - Semester II

CST 106 - Mathematics II

CST 108 - Applied Physics II

CST 110 - Practical I - Digital Lab

BSc Software Engineering - Semester III

BSE 201 - Computer Oriented Mathematics

BSE 203 - Software Engineering

BSE 205 - Microprocessors

BSE 207 - Programming In C

BSE 209 - Practical II - C Programming

BSc Software Engineering - Semester IV

BSE 202 - Object Oriented Analysis and Design

BSE 204 - Data Structure

BSE 206 - Object Oriented Software Engineering

BSE 208 - Programming in C++

BSE 210 - Practical III - Data Structures Using C++

BSc Software Engineering - Semester V

BSE 301 - Database Management Systems

BSE 303 - Operating Systems

BSE 305 - Visual Programming

BSE 307 - Software Quality and Assurance

BSE 309 - Practical IV - RDBMS with Visual Programming Lab

BSc Software Engineering - Semester VI

BSE 302 - Multimedia Systems

BSE 304 - Java Programming

BSE 306 - Data Communication and Networking

BSE 308 - Software Project Management

BSE 310 - Practical V - Java Programming Application

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SYLLABUS

Semester I - CST 105 - Mathematics I

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

Algebra: Binomial, exponential and logarithmic series (without proof of theorems) - Problems on summation, approximations and finding coefficients using binomial, exponential and logarithmic series.

Unit II

Trigonometry: Expansion of sin nx, cos nx in terms of sin nx, cos nx - expansion of tan t expansion of sin hx. cos hx in terms of sines or cosines of multiples of x.

Unit III

Power series expansion of sin x, cos x, tan x - Hyperbolic and inverse hyperbolic functions - logarithmic of complex numbers

Unit IV

Applications of differential calculus: Curvature in cartesian and polar coordinates, circle of curvature - evaluate, involute and envelopes.

Unit V

Taylor's expansion for a function of two variables - maxima and minima of a function of two variables - constrained maxima and minima Lagrange's method of undetermined multipliers.

Books for Study and Reference

1. 'Engineering Mathematics', JJ Publications. Madurai 1996.

2. Venkatraman M.K. 'Engineering Mathematics', (VII & II) The National Publication Co, 1981.

3. Narayanan S, Manickavachagam Pillai T.K, Ramanian G, Advanced Mathematics for Engineering Students (Vol.I) S.Viwanathan (Printers & Publishers) Pvt. Ltd 1986.

4. Kandaswamy P, Thilgavathy K, and Gunavathy K, Engineering mathematics (Vol. I & II) S.Chand & Co, New Delhi, Vol. II 1990.

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SYLLABUS

Semester I - CST 107 - Applied Physics I

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

Semiconductor Diode: Introduction - pn junction - current voltage characteristic of a semiconductor diode - zener diode zener diode as a voltage Regulator - Tunnel diode - Schottley diode - Optoelectronic devices - light emitting diode - photo diodes.

Unit II

The Basic Transistors: The bipolar junction transistor - transistor biasing - tansistor circuit configurantions - common base (CB) Common emitter (CE) Common collector (CC) configurations - CB, CE, CC static characteristics - construction of OR, AND and NOR gates using transistors - logic gate parameters - logic families - resistor transistor logic (RTL) - diode transistor logic (DTL) transistor transistor logic (TTL) - fabrication of ICS.

Unit III

Electronic Instruments: Introduction - multimeter - multimeter as voltmeter - multimeter as ammeter - multimeter as ohm meter - applications of multimeter - sensitivity of multimeter - merits and demerits of multimeter - cathode ray oscilloscope

Unit IV

Lasers: Atomic structure - bohr's atomic model - energy levels - energy bands in solids - basic principle of laser operation - population inversion - construction and working of He-Nelaser - C02 laser - Ruby laser - semiconductor laser - applications.

Unit V

Fiber Optic Communication Systems: Introduction to communication - types of optical fibers - single and bundled fibers - fibers materials - attenuation - dispersion fiber optic light sources - detectors - fiber optic communications.

Books for Study

1. Elements of Electronic, M.K.Bagde and S.P.Singh, S.Chand & Co, 1987

2. Basic Electronics Solidstate, B.C.Theraja, S.Chand & Co, 1995

3. principles of Electronics - V.K. metha, S.Chand & Co, 1997

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SYLLABUS

Semester I - CST 109 - Fundamentals of Digital Computers

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

Number System - converting numbers from one base to another - complements - Binary codes - Binary logic - Logic gates - Truth tables

Unit II

Boolean Algebra - axioms - theorems - simplification of boolean functions - map method (upto 5 variables) - McClauky tabulation method.

Unit III

Sequential logic - RS, JK, D and T flip-flops - registers - shift registers - counters - ripple counters - synchronous counters - design of counters

Unit IV

Adders - subtractors - decoders - encoders - multiplexer - demultiplexer - design of circuits using decoders / multiplexers - ROM - PLA - designing circuits using ROM/PLA

Unit V

Design of ALU - design of status register - design of accumulator - introduction to computer design.

Books for Study

1. M.Morris Mano - Digital logic and Computer Design, PHI, 1994.

2. T.C.Bartee, Computer Architecture and logical Design, McGraw hill, 1991

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SYLLABUS

Semester II - CST 106 - Mathematics II

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

Theory of Equations: Relations between roots and coefficient of polynomials - formation of equations - decreasing and increasing the roots - reciprocal equation, Homer's methods to find the roots of polynomial equation.

Unit II

Evaluation of multiple integrals - Double and Triple integrals - geometrical meaning of double integrals - change of order of intlegration - double integrals in polar co ordinates - problems

Unit III

Application of multiple integrals to find area and volume of solid

Unit IV

Vector Calculus: Differential of vectors - gradient, divergence and curl - directional derivative - irrotational and solenoidal fields.

Unit V

Vector Integration: Line, surface and volume integrals - Green's theorem in a plane, Gauss divergence theorem and stoke's theorem (without proof) - simple applications.

Books for Study and Reference

1. 'Engineering Mathematics', JJ Publications, Madurai 1996.

2. Venkatraman M.K, Engineering Mathematics, (VII & II) The National Pub.Co, 1981

3. Narayanan S, Manickavachangam Pillai T.K, Ramanian G, Advanced mathematics for Engineering Students (Vol.I) S.Viswanathan (Printers & Publisher) Pvt Ltd 1986.

4. Kandaswamy P, Thilgavathy K, and Gunavathy K, Engineering Mathematics, (Vol.I & II) S.Chand Co, New Delhi Vol.II 1990

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SYLLABUS

Semester II - CST 108 - Applied Physics II

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

Electrical Properties: Free electron of Drude and Lorentz - Weidman Franz Law - distinction between conductor, semi conductors, and insulators on the basis of baud theory - factors affecting resistivity of a conductor: Temperature, allowing, pressure, strain, magnetic field and environment.

Unit II

Magnetic Materials: Magnetic materials - classification of magnetic materials. ferromagnetism: Domain theory - hysteresis - hard and soft magnetic materials - curie - weiss law - magnetostriction, ferrites, preparation, properties, applications - magnetic bubble memory. magnetic recording - writing magnetic data - reading magnetic data - storage of magnetic data

Unit III

Dielectric materials: Qualitative study of three types of polarization - effect of temperature and frequency on dielectric constant - dielectric loss - ferro electric materials - behviour of barium titanate - pieze - electric materials - breakdown mechanisms - classification of insulating materials on temperature basis

Unit IV

Super conductors: Qualitative study of the phenomenon - critical temperature and critical field. meissner effect - type I and II superconductors. BCS theory of superconductivity (Qualitative) - high temperature superconductor. Applications: Crypton, magnetic leviation - super conducting magnets.

Unit V

Modern engineering materials: Metalic glasses as transformer core material Nanophase materials synthesis - variation of physical properties with Geometry - shape memory allow - characteristics of SMA - Thermomechanical behaviour - commercial SMA - Applications - Biomaterial

Books for Reference

1. R.Raghavan, V: "Materials Science and Engineering A Fist Course", PHI, 1991.

2. Arumugam M, "Materials Science", Anuradha Publications, 1994.

3. P.K.Palanisamy, "Materials Science", Scitech, 2002.

4. Seth & Gupta, "Course in Electrical Engineering Materials", Dhanpat Raj & Sons 1990.

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SYLLABUS

Semester II - CST 110 - Practical I - Digital Lab

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

1. Study of logic gates

a) Logic gates using discrete components
b) Verification of truth table for AND, OR, NOT, NAND, NOR and EXOR gates
c) Realisation of NOT, AND, OR, EX-OR gates with only NAND gates
d) Realisation of NOT, AND, OR, EX-OR gates with only NOR gates

2. Implementation of logic circuits

a) Verification of associative law for AND, OR gates
b) Karnaugh's map reduction and logic circuit implementation

3. Adder and subtractor

a) Verification of Dernorgan's law
b) implementation of half-adder and half-subtractor
c) Implementation of full-adder and full-subtractor
d) Four bit binary adder
e) Four bits binary subtractor using 1s and 2s complement

4. Shift registers

a) Implementation of shift register, serial transfer
b) Ring counter
c) 4-bit binary counter
d) BCD counter
e) Counters for arbitrary sequence

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SYLLABUS

Semester III - BSE 201 - Computer Oriented Mathematics

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

Propositions and compound propositions - logical operations - truth tables - tautologies and contradictions - logical equivalence - algebra of propositions - conditional and biconditional statements - arguments - logical implications - quantifiers - negation of quantified statements - basic counting principles - factorial - binomial coefficients - permutations - combinations - pigeonhole principle - ordered and unordered partitions

Unit II

Order and inequalities - mathematical induction - division algorithm - divisibility - Euclidean algorithm - fundamental theorem of Arithmetic - congruence relation - congruence equations - semigroups - groups - subgroups - normal subgroups - homomorphisms - rings - integral domains - fields - polynomials over a field

Unit III

Roots of equations: Graphical methods - bisection methods - false - position method - fixed point interaction - Newton - Raphson method - secant method - multiple roots - system of nonlinear equations - roots of polynomials, conventional methods - Mueller's method - Bairstow's method

Unit IV

Algebraic equations: Gauss elimination - nonlinear system of equations - Gauss Jordan - LU decomposition - matrix inverse - error analysis - tridiagonal systems - cholesky decomposition - Gauss Seidel

Unit V

Differentiation and integration: Trapezzoidal rule - Simpson's rule - Romberg integration - Gauss quadrate - Richardson extrapolation - derivatives and integrals for data with errors

Books for Study

1. Seymour Lipschutz and marc Lipson - Discrete Mathematics Second Edition - Tata McGraw Hill Edition, 1999.

2. Steven C.Chopra and Raymond P.Canale, Numerical methods for Engineers - Third Edition, McGraw Hill International Edition, 1998.

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SYLLABUS

Semester III - BSE 203 - Software Engineering

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

The product - the process - project management concepts - software projects and project metrics.

Unit II

Software project planning - risk analysis and management - project scheduling and tracking - software quality assurance.

Unit III

Software configuration management - system engineering - analysis concepts and principles - analysis modeling.

Unit IV

Design concepts and principles - architectural designs - user interface design.

Unit V

Component level design - software testing techniques - software testing strategies - technical metrics for software

Books for Study

1. Roger S. Pressman - Software Engineering A Practitioner's Approach - 5thedition, McGraw hill

2. an Sonunerville Software Engineering - 5th Edition - Addison Wesley.

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SYLLABUS

Semester III - BSE 205 - Microprocessors

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

Introduction to micro computers - microprocessors and assembly languages - micro processor architecture and its operations - 8085 MPU - 8085 instruction set and classifications.

Unit II

Writing assembly levels programs- programming techniques such as looping - counting and indexing addressing modes - data transfer instructions - arithmetic and logic operations - dynamic debugging

Unit III

Counters and time delays - hexadecimal counter modulo 10 counter - pulse timings for flashing lights - debugging counter and time delay program - stack subroutine - conditional call arid return instructions.

Unit IV

BCD to binary and binary to BCD conversions - BCD to HEX and HEX to BCD conversions - ASCII to BCD and BCD to ASCII conversions - BCD to seven segment LED code conversions - binary to ASCII and ASCII to binary conversions - multi byte addition - multi byte subtraction - BCD addition - BCD subtraction - multiplication and division.

Unit V

Interrupt - implementing interrupts - multiple interrupt 8085 - trap - problems on implementing 8085 interrupt - DMA memory interfaces - RAM & ROM - I/O interface - direct I/O memory trapped I/O.

Books for Study

1. R.S.Gaonkar - Microprocessor architecture - Programming and Application with 8085/8080A - Wiley Eastern Limited - 1990

2. A Mathur - Introduction to Microprocessor - 3rd Edition - Tata McGRaw Hill-1993

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SYLLABUS

Semester III - BSE 207 - Programming In C

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

C fundamentals - character set - indentifier and key works - data types - constants - variables - declarations - expressions - statements - arithmetic - unary. relational and logical, assignment and conditional operators - library functions.

Unit II

Data input/output functions Simple C Programs - flow of control - control struck Switch, break and continue, go to statements - Common Operator.

Unit III

Functions - defining - accessing functions - functions prototypes, arguments - recursions - storage classes - multi file programs.

Unit IV

Array - defining and processing - passing arrays to functions - multidimensional arrays - arrays and string- structures- passing structures to functions - self referential structures - unions.

Unit V

Pointers - declarations - passing pointers to functions - operation in pointers - pointer and arrays - arrays of pointers - structures and pointer-files: creating, processing, opening and closing - bit wise operations.

Books for Study

1. Gottfried B.S - Programming with C - 2nd Edition, TMH Publication Co Ltd

2. Kanetkar YUNIVERSITY OF MADRAS
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SYLLABUS

Semester III - BSE 209 - Practical II - C Programming

Lecture Per Week: 3 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

1. Summation of series

a) sin(x)
b) cos(x)
c) exp(x)

2. String manipulations

a) Counting the number of vowels, consonants, words white spaces in a line of text and array of lines
b) Reverse a strings & check for palindrome
c) Sub string detection and count
d) Sub string removal
e) Find and replacing substrings

3. Recursion

a) nPr
b) nCr
c) GCD of two numbers
d) Maximum & minimum
e) Fibonacci sequence
f) Tower of Honoi

4. Matrix manipuation

a) Addition & subtraction
b) Multiplicaiton
c) Transpose
d) Determinant of a matrix
e) Inverse of a matrix

5. Sorting and searching

a) Insertion sort
b) Bubble sort
c) Selection sort
d) Linear search
e) Binary search - Let us C - PBP Publicaiton

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SYLLABUS

Semester IV - BSE 202 - Object Oriented Analysis and Design

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

System development - object basics - development life cycle - methodologies - patterns - frameworks - unified approach - UML.

Unit II

Use - Case models - object analysis - object relations - attributes - methods, class and object responsibilities - case studies

Unit III

Design processes - design azioms - class design - object storage - object interoperability - case studies.

Unit IV

user interface design - view layer classes - micro - level processes - view layer interface - case studies.

Unit V

Quality assurance tests - testing strategies - object orientation on testing - test cases - test plans - continuous testing - debugging principles - system usability - measuring user satisfaction - case studies.

Books for Study

1. Ali Bahrami - Object Oriented Systems Development - McGraw Hill International Edition - 1999

2. Grady Booch - Object Oriented Analysis and Design - Addison Wesley.

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SYLLABUS

Semester IV - BSE 204 - Data Structure

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

Abstract data types - asymptotic notations - complexity analysis - arrays - representation of arrays - operations on arrays - ordered lists - polynomials.

Unit II

Singly linked lists - circular linked lists - doubly linked lists - general lists - stacks - queues - circular queues - evaluation of expressions.

Unit III

Trees - binary trees - binary tree traversals - binary tree representations - binary search trees - threaded binary trees - application of trees - (sets), representation of graphs - graph implementation - graph traversals - applications of graph traversals - minimum cost spanning trees - shortest path problems.

Unit IV

Internal sorting - Optimal sorting time - Sorting Large Objects - Sorting with Tapes - Sorting with Disks.

Unit V

Hashing - AVL trees - red-black trees - splay trees - B - trees.

Books for Study

1. E.Horowitz, S.Sahni - Fundamentals of Data Structures in C++ - Galgotia, 1999.

2. Gregory L.Heileman - Data Structures, Algorithms and Object Oriented ProgramminUNIVERSITY OF MADRAS
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SYLLABUS

Semester IV - BSE 206 - Object Oriented Software Engineering

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

Introduction to objects - module - cohesion - coupling - data encapsulation - abstract data types - information hiding - objects, - inheritance - polymorphism & dynamic binding - cohesion & coupling of objects. Reusability, protability & interoperability - reuse concepts - impediments to reuse, reuse case studies - objects & productivity - reuse during design & implementation phases - reuse & maintenance, portability, why portability, techniques for achieving portability - ihnteroperability - future trends in interoperability.

Unit II

Planning and estimation - planning and the software process - estimating duration and cost - components of a software project management plan - software project management plan frame work - IEEE software project management plan - planning of testing - planning of object oriented projects - training requirements - documentation standards - CASE tools for planning and estimating - testing the software project management requirements phase - requirements analysis techniques - reusing the prototyping - human factors - rapid prototyping as a specification technique - reusing the rapid prototyping - other uses of rapid prototyping - management implication of the application design (JAD) - Comparison of requirement analysis techniques - testing during requirement phase - CASE tools for the requirement phase - metrics for the requirement phase - obsert oglesby case study: requirements phase obsert oglesby case study - rapid prototype - object oriented requirements.

Unit III

Specification phase - specification document informal - specification - structured, systems analysis - other semi formal techniques - entity relationship modeling - finite. state machines - Petrinets z357 - other formal techniques - comparison of specification techniques - testing during specification phase - CASE tools for the specification phase - metrics for the specification phase - obvert oglesy case study: Structured systems analysis - software project management. Object oriented analysis phase - object oriented versus structured paradigm - object oriented

analysis - elevator problem - use case modeling - dynamic modeling - testing during object oriented analysis phase - case tools - software project management.

Unit IV

Design phase - design and abstraction - action oriented design - data flow analysis - transaction analysis - data oriented design - object oriented design - elevator problem - formal techniques for detail designs - real time design techniques - testing - case tools - metrics - object oriented design.- Implementation phase: choice or programming language - forth generation language - good programming practice - coding standards - module reuse - module test case selection - black box - glass box module testing techniques - comparison clean room - potential problems when testing objects - management aspects of module testing - CASE tools for implementation phase.

Unit V

Implementation and integration phase - testing - graphical user interfaces - product testing - acceptance testing - case tools for this phase - integration enviromnents for business applications - public tools infrastructure - potential problems with environments. Maintenance phase - why maintenance is necessary - case study - management - maintenance of objet oriented software - maintenance skill versus development skills - reverse engineering - testing - case tools.

Books for Study

1. Stephen R. Schach - Classical and Object oriented Software Engineering 4th Edition - McGraw Hill

2. Ivar Jacobson - Object Oriented Software Engineering - Addison Wesley.

g, McGraw Hill International Editions – 1996

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SYLLABUS

Semester IV - BSE 210 - Practical III - Data Structures Using C++

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

1. Implements PUSH, POP operations of stack using arrays.
2. Implements PUSH, POP operations of stack using pointers.

3. Implement add, delete operations of a queue using arrays.
4. Implement add, delete operations of queue using pointers.
5. Conversion of infix to postfix using stack operations.
6. Posffix expression evaluation.
7. Addition of two polynomials using Arrays and Pointers.
8. Polynomial multiplication using singly linked list.
9. Creation, Insertion and deletion in doubly linked list.
10. Binary tree traversals (inorder, preorder and post order) using linked list and recursion.
11. Non-recursive inorder traversal.
12. Non-recursive preorder traversal.
13. Non-recursive postorder traversal.
14. Depth first search for graphs using recursion
15. Breadth first search for graphs.

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SYLLABUS

Semester V - BSE 301 - Database Management Systems

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

Advantages and Components of a Database Management Systems - Feasibility Study - Class Diagrams - Data Types - Events - Normal Forms - Integrity - Converting Class Diagrams to Normalized Tables - Data Dictionary.

Unit II

Query Basics - Computation Using Queries - Subtotals and GROUP BY Command - Queries with Multiple Tables - Subqueries - Joins - DDL & DML - Testing Queries.

Unit III

Effective Design of Forms and Reports - Form Layout - Creating Forms - Graphical Objects - Reports - Procedural Languages - Data on Forms - Programs to Retrieve and Save Data - Error Handling.

Unit IV

Power of Application Structure - User Interface Features - Transaction - Forms Events - Custom Reports - Distributing Application - Table Operations - Data Storage Methods - Storing Data Columns - Data Clustering and Partitioning.

Unit V

Database Administration - Development stages - Application Types - Backup and Recovery - Security and Privacy - Distributed Databases - Client/Server Databases - Web as a Client / Server System - Object Oriented Databases - Integrated Applications.

Books for Study and References:

1. G.V. Post - Database Management Systems Designing and Building Business Application - McGraw Hill International edition - 1999.

2. Raghu Ramakrishnan - Database Management Systems - WCB/McGraw Hill - 1998.

3. C.J. Date - An Introduction to Database Systems - 7th Edition - Addison Wesley - 2000. UNIVERSITY OF MADRAS
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SYLLABUS

Semester V - BSE 303 - Operating Systems

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

Introduction -. Multiprogramming - Time sharing - Distributed system - real - time Systems - I/O structure - Dual - mode operation - Hardware protection - General system architecture - Operating system services - System calls - System programs - System design and implementation.

Unit II

Process Management: Process concept - Concurrent process - scheduling concepts - CPU scheduling - Scheduling algorithms, Multiple processors Scheduling - Critical section - Synchronization hardware - Semaphores, classical problem of synchronization, Interprocess communication. Deadlocks: Characterization, Prevention, Avoidance and Detection.

Unit III

Storage management - Swapping, single and multiple partition allocation - paying - segmentation - pages segmentation, virtual memory - demand paging - page replacement and algorithms, thrashing. Secondaiy storage management - disk

structure - free space management - allocation methods disk scheduling - performance and reliability improvements - storage hierarchy.

Unit IV

Files protection - files systems organization - file operations - access methods - consistency semantics - directory structure organization - file protection - implementation issues - security - encryption.

Unit V

Case Studies: MS-DOS and UNIX operating systems.

Books for Study:

1. A. Silberschatz and P.B. Galvin - Operating System Concepts - Addison - Wesley Publishing Company.

2. A.S. GodUNIVERSITY OF MADRAS
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SYLLABUS

Semester V - BSE 305 - Visual Programming

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

Customizing a Form - Writing Simple Programs - Toolbox, Creating Controls - Name property - Command Button - Access Keys - Image Controls - Text Boxes - Labels - Message Boxes - Grid - Editing Tools - Variables - Data Types - String - Numbers.

Unit II

Displaying Information - Determinate Loops - Indeterminate Loops Conditionals - Built in Functions - Functions and Procedures.

Unit III

Lists - Arrays - Sorting and Searching - Records - Control Arays - Combo Boxes - Grid Control - Projects with Multiple forms - Do Events and Sub Main - Error Trapping.

Unit IV

VB Objects - Dialog Boxes - Common Controls - Menus - MDI Forms - Testing, Debugging and Optimization - Working with Graphics.

Unit V

Monitoring Mouse activity - File Handling - File System Controls - File System Objects - COM / OLE - automation - DLL Servers - OLE Drag and Drop.

Books for Study:

1. Gray Cornell - Visual Basic 6 from the Ground up - Tata McGraw Hill - 1999.

2. Noel Jerke - Visual Basic 6 (The Complete Reference) - Tata McGraw Hill - 1999.

bole - Operating Systems - Tata McGraw Hill - 1999.

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SYLLABUS

Semester V - BSE 307 - Software Quality and Assurance

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

Introduction - Quality and the quality system - standards and procedures technical activities. Software tasks - management responsibility - quality system - contract review - design control - document control - purchasing product identification and traceability.

Unit II

Process control - checking - identification of testing tools - control of nonconforming product - Corrective action.

Unit III

Handling, storage, packing and delivery - Quality records - Internal quality audits - Training - Servicing - statistical techniques.

Unit IV

QA and new technologies - QA and Human - Computer interface - process modeling - standards and procedures.

Unit V

ISO - 9001 - Elements of ISO 9001 - Improving quality system - Case study.

Books for Study:

1. An introduction to software quality assurance and its implementation, MGH. 1994.

2. ISO 9001 and software quality assurance, MGH, 1994.

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SYLLABUS

Semester V - BSE 309 - Practical IV - RDBMS with Visual Programming Lab

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Students are advised to use the concepts like Data Nomalization, Link between table by means of foreign keys and other relevant data base concepts for developing databases for the following problems. The implementation of each problem should have necessary input screen Menu - driven query processing and pleasing reports. The choice or RDBMS is left to the students. Necessary validations must be done after developing database.

1. Library Information Processing
2. Students Mark sheet processing.
3. Telephone Directory maintenance.
4. Gas booking and delivering system.
5. Electricity Bill Processing.
6. Bank Transactions.
7. Pay roll processing.
8. Personal Information system.
9. Question Database and Conducting quiz.

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SYLLABUS

Semester VI - BSE 302 - Multimedia Systems

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

What is Multimedia:

Definitions - CD-ROM and the Multimedia Highway - where to use Multimedia - introduction to Making Multimedia: The stages of a Project - What you need - Multimedia Skills and Training : The terms - Macintosh and Windows Production Platforms: Macintosh Veruss PC - The Macintosh Platform - The Windows Multimedia PC platform - Networking Macintosh and Windows Computers - Hardware Peripherals Connection - Memory and Storage Devices - Input Devices - Output Hardware - Communication Devices.

Unit II

Basic Tools:

Text Editing and Word Processing Tools - OCR Software - Painting and Drawing Tools - 3-D Modeling and Animtion Tools - Image - Editing Tools - Sound Editing Tools - Animation, Video and Digital Movies Tools - Helpful Accessories - Making Instant Multimedia: Linking Multimedia Objects - Office Suites - Word Procçssors - Spread sheets - Databases - Presentation Tools. Multimedia Authoring Tools: Types of Authoring Tools - Card and page Based Authoring Tools - Icon - Based Authorised Tools - Time Based Authoring Tools - Object - Oriented Authoring Tools - Cross - Platform Authoring Notes.

Unit III

Text:

The Power of Meaning - About Fonts and Faces - Using Text in Multimedia - Computers and Text - Font Editing and Design Tools - Hypermedia and Hypertext - Sound: The Power of Sound - Multimedia System Sounds - MIDI Versus Digital Atidid - Digital Audio - Making MIDI Audio - Audio File Formats - Working with

Sound on the Macintash - Notation Interchange File Format (NIFF) - Adding Sound to Your multimedia Project - Toward professional Sound - The Red Books standard production tips.

Unit IV

Images :

Making Still Images - Color - Image File Formats. Animation: The Power of Motion - Principles of Animation - Making Animations That Work - Video: Using video - How video works - Broadcast Video Standards - Integrating Computers and Television - Shooting and Editing Video - Video Tips - Recording Formats - Digital Video.

Unit V

Planning and Costing:

Project planning - Estimating - RFPs and Bid proposals - Designing and producing: Designing - Producing - Content and Talent: Acquiring Content - Using content created by others - Using Content created for a Project - Using Talent Delivering: Testing - Preparing for Delivery - Delivering on CD-ROM - Compact Disc Technology - Wrapping It Up - Delivering on the World Wide Web.

Books for Study:

1. Tay Vaughan - Multimedia : Making it work - Fourth Edition - Tata McGraw-Hill Edition - 1999.

2. Walterworth John A - Multimedia Technologies and Application - Ellis Horwood Ltd. - London- 1991.

3. John F Koegel Buford - Multimedia Systems - Addison Wesley - First Indian Reprint - 2000.

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SYLLABUS

Semester VI - BSE 304 - Java Programming

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

Introduction to Java - Features of Java - Object Oriented Concepts - Lexical Issues - Data Types - Variables - Arrays - Operators - Control Statements.

Unit II

Classes - Objects Contractors - Overloading method - Access Control - Static and fixed methods - Inner Classes - String Class - Inheritance - Overriding methods - Using super - Abstract class.

Unit III

Packages - Access Protection - Importing packages - Interfaces - Exception Handling - Throw and Throws - Thread - Synchronization - Messaging - Runnable Interface - Inter thread Communication - Deadlock - Suspending, Resuming and stopping threads - Multithreading.

Unit IV

I/O Streams - File Streams - Applets - String Objects - String Buffer - Char Array - Java Utilities - Code Documentation.

Unit V

Networks basic - Socket Programming - Proxy Servers - TCP/IP Sockets - Net Address - URL - Datagrams - Working with windows using AWT Classes - AWT Controls - Layout Managers and Menus.

Books for Study:

1. Cay S. Horstmann, Gray Cornell - Core Java 2 volume I - Fundamentals - Addison Wesley.

2. P. Naughton and H. Schildt - Java2 (The complete Reference) - Third Edition.

3. K. Arnold and J.Gosling - The Java Programming Language - Second Edition.

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SYLLABUS

Semester VI - BSE 306 - Data Communication and Networking

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

Introduction to Data Communication, Network. Protocols & standards and standards organizations - Line Configuration - Topology - Transmission node - Classification of Network OSI Model - Layers of OSI Model.

Unit II

Parallel and Serial Transmission - DTE/DCE/such as EIA-449, EIA-53O EIA-202 and x.21 interface - Interface standards - Modems - Guided Media Unguided Media - Performance - Types of Error - Error Detection - Error Corrections.

Unit III

Multiplexing - types of Multiplexing - Multiplexing Application - Telephone systems project 802 - Ethernet - Token Bus - Token Ring FDD IEEE 802.6 - SMDS - Circuit Switching - Packet switching - Message switching Connection oriented and connectionless services.

Unit IV

History of Analog and Digital Network - Access to ISDN - ISDN Layers - Broadband ISDN X.25 Layers - Packet Layer Protocol - ATM - ATM Technology - ATM protocol.

Unit V

Repeaters Bridges Routers - Gateway - Routing algorithms - TCP/IP Network, Transport and Application Layers of TCP/IP - World Wide Web.

Books for Study:

1. Behrouz and Forouzan - Introduction to Data Communication and Networking - 2nd Edition - TMH - 2001.

2. Jean Walrand Communication Networks (A first course) - Second Edition - WCB McGraw Hill - 1998.

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SYLLABUS

Semester VI - BSE 308 - Software Project Management

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

Unit I

Introduction to Software Project Management Software project versus other types of project - problems - management control - stakeholders - Requirement specifications - Information and control in organizations. Introduction to step wise project planning - Select - identify scope and objectives - identify project infrastructure - Analyse project characteristics - products and activities - Estimate effort for each activity - Identify activity risks - Allocate resources - Review / publicise plan - Execute plan and lower levels of plarming. Project evaluation - Introduction - Strategic assessment - technical assessment - cost benefit analysis - cash flow forecasting - cost benefit evaluation techniques - risk evaluation.

Unit II

Selection of an appropriate project approach - choosing technologies - technical plan contents list - choice of process models - structured methods - rapid application development - waterfall model - v - process model - spiral model - software prototyping - ways of categorizing prototypes - tools - incremental delivery - selecting process model - Software effort estimation - introduction - where - problems with over and under estimates - basis for software estimating - software effort estimation technique - expert judgement - Albercht function point analysis - Function points Mark II - Object points - procedural code oriented approach - COCOMO - Activity Planning - Objectives - Project schedules - projects and activities - sequencing and scheduling activities - network planning models - formulating a network model - using dummy activities - representing lagged activities adding time dimentions - forward pass - backward pass - identifying the critical path - Activity float - shortening project duration - identifying critical activities - precedence networks.

Unit III

Risk Management - nature of risk - managing - identification - analysis - reducing - evaluating - z values. Resources allocation - nature of resources - requirements - scheduling - critical paths - counting the cost - resources schedule - cost schedule - scheduling sequence. Monitoring and control - creating the frame work - collecting the data - visualizing the progress - cost monitoring - earned value - prioritizing monitoring - Change control.

Unit IV

Managing contracts - types of contract - stages in contract placement - terms of a contract - contract management - acceptance. Managing people and organizing teams - organizational behaviour background - selecting the right person for the job - instruction in the best methods - motivation - decision making - leadership - organizational siructures. Software quality - importance - defining - 1S09126 practical measures - product versus process quality management - external standards - techniques to help enhance software quality.

Unit V

Small projects - some problems - contact of a project plan. PRINCE 2 - an overview BS 6079: 1996 - an overview - Euro method an overview.

Books for Study:

1. Bob Hughes and Mike Cotterell - Software project management - second edition - McGraw Hill

2. Walker Royce - Software Project Management - Addison Wesley.

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SYLLABUS

Semester VI - BSE 310 - Practical V - Java Programming Application

Lecture Per Week: 6 hrs
Duration of Examination: 3 hrs
Maximum Marks: 100
Credits: 4

1. Finding area and Perimeter of a circle. Use Buffered Reader class.
2. Substring Removal from a String. Use String Buffer Class.
3. Determining the order of numbers generated randomly using Random Class.
4. Implementation of Point Class for Image manipulation.
5. Usage of Calender Class and manipulation.
6. String Manipulation using Char Array.
7. Database Creation for storing e-mail addresses and manipulation.
8. Usage of Vector Classes.
9. Implementing Thread based applications & Exception Handling.
10. Application using synchronization such as Thread based, Class based and synchronized statements.

Applets

11. Working with Frames and various controls.
12. Working with Dialogs and Menus.
13. Working with Panel and Layout.

14. Incorporating Graphics.
15. Working with colours and Fonts.