MANONMANIAM SUNDARANAR UNIVERSITY
DIRECTORATE OF DISTANCE AND CONTINUING EDUCATION
Scheme and Syllabus

Course Code : 08L B.C.A. (LE)

Eligibility : Three years Polytechnic Diploma

DR1H1 - 1.1 கவிதை, உரைநடை, கதைத்தமிழ், மொழிப்பயிற்சி
DR3B1 - 1.2 Prose, Poetry, Short Stories
DNA2A - 1.3 Network and Computer Architecture
DNA2B - 1.4 Accountancy
DNA2C - 1.5 Mathematics
DNA2D - 1.6 Java Programming
DNA2E - 1.7 Visual Basic
DNA2F - 1.8 Practical III Java Programming
DNA2G - 1.9 Practical IV Visual Basic
DNA3A - 2.1 RDBMS and Oracle
DNA3B - 2.2 Computer Graphics & Multimedia
DNA3C - 2.3 Data Structure
DNA3D - 2.4 Operating system and system Programming
DNA3E - 2.5 Software Engineering
DNA3F - 2.6 Practical V Oracle
DNA3G - 2.7 Project

II Year
Paper 9
NETWORK AND COMPUTER ARCHITECTURE

Unit I

Need for Network –Advantages of Network – Types of Network – Example Network Protocols – Interface & Services – Topologies – Principles of Layers – OSI-layer model.

Unit II

Physical layer – Transmission media – Telephone Network – Data link Layer Protocol – Sliding window Protocol – Stop & Wait Protocol – Simplex Protocol – CSMA/CD – Noisy Channel. LAN – Components of LAN – Characteristics of LAN – Advantages of LAN – Integrated Service Digital Network – LAN Topologies.

Unit III Basic Computer Organization:

Instruction Codes – Computer Registers – Computer Instructions – Timing and Control – Instruction Cycle – Control Memory – Address Sequencing.

Unit IV CPU:

General Register organization – Stack organization – Instruction Formats – Addressing Modes – Program control.

Unit V I/O and Memory Organization

I/O Interface – Asynchronous Data Transfer – Modes of I/O Transfer – Priority Interrupt – Direct Memory Access – Memory Hierarchy – Main Memory – Auxiliary Memory – Associative Memory – Cache Memory – Virtual Memory.

TEXT BOOK

Computer Network   -   Antrew S. Tenenbaum

M. Morris mano, "Computer System Architecture", Third Edition, Reprint 2003 Pearson Education.

Paper 10
ACCOUNTANCY
Unit I

Introduction to Accounting – meaning – objectives –limitations-Accounting concepts – Accounting convention – double entry system – Rules for debit and credit – journals – Ledgers – subsidiary books – Balancing of accounts.

Unit II

Trial balance – Rectification of errors –suspense accounts – Bank Reconciliation Statement – reasons for difference between Cash book and Pass book – Bills of Exchange – honor and dishonor of a bill – renewal of a bill – retirement of a bill – insolvency of acceptors – Accommodation bills.

Unit III

Final Accounts – Trading and Profit and loss Account- Balance sheet – adjustment entries – provision for bad and doubtful debts-provision for discount on debtors and creditors.

Unit IV

Accounts of Non-trading organizations –Receipts and payments accounts – Income and Expenditure account – Balance Sheet – income and Expenditure of profession people.

Unit V

Royalty Accounts – Royalty Receivable and Payable –sub-lease

TEXT BOOKS
1. Advance accountancy – S.P. Jain & K.L. Narang – Kalyani publishers, New Delhi.
2. R.L. Gupta and M. Radhaswamy – Sultan Chand & Sons, New Delhi.

Reference Books:

1. Advanced Accountancy by Dr.M. A. Arulandham & K.S. Raman – Himalaya publishing house, Mumbai.
2. Advanced Accounts – M.C. Shukhala & T.S. Grewal – S. Chand & Company, New Delhi.
3. Accountancy –P.C. Tulsian, Tata McGrew – Hill Edition.
4. Financial accounting – Jae.K. Shim and Joel.G. Single, Schum's Outlines, Tata McGraw-Hill Editions.

Paper 11
Mathematics

Unit I Differentiation

Algebra of derivative – Derivative of some standard function- Chain inverse function – Differentiation by transfer nation – Logarithemic differentiation – Higer derivatives – Leibniz Theorem.

Unit II Integration

Evaluation of integrals – Methods of substitution – integration of rational and irrational functions – Evaluations of definite integrals – integration by parts – reduction formulae.

Unit III Theory of matrices

Algebra of matrices – Types of matrices – Inverse of Matrices – elementary transformations – rank of matrix – Simultaneous liner Equations – Characteristic polynomial of a matrix.

Unit IV Groups

Definition and Examples – Permutation Groups – Sub groups – Cyclic groups.

Unit V Graph Theory

Finite and infinite graphs – Paths and circuits – isomorphism – Sulgraphs – Connected graphs – Euler graphs – Hamiltonian paths – trees – distance and center in a tree – rooted and binary trees – Spanning tree.

Text Books
1. Arumugam & Isaac, Calculus – Volume I Chapter 3 (for Unit I)
2. Arumugam & Isaac, Calculus – Volume II Chapter 2 (for Unit II)
3. Arumugam & Isaac, Modern Algebra (for Unit III & IV)
4. Narsingh Deo, Graph Theory with application – Engineering & Computer Science (for Unit V).

Paper12
Java Programming

Unit I

Introduction to Java – Java characteristics – Types of programs – java Applet – java Developer Kit – Elements OF java Language – Structure of java program – Data Types – java variables – java literals – Operator.

Unit II

Object & classes – Constructors – wrapper Classes – Conversion of Data type – Command Line Input – Input From Keyboard – Attributes And Methods Control Structure – If, Nested If Else Structure, Switch Structure, Break Statement – While, Do – While, For Loop, Nested Loop, Continue Statement.

Unit III

Data Structure & Arrays – Inheritance & Interfaces – Frame & Windows – Frame Class – Creating & Displaying a Frame, Displaying Messages in Windows – Components Class Methods – Dialog Box.

Unit IV

Applets – Applets Tag in HTML – Multimedia in Applet – Graphics Classes – Graphics – Font Settings – Buttons & labels – Button Class & label class – Applet with Buttons and Labels- Buttons in action – Check Box Choices & List – Text Components.

Unit V

Events Handlings – Exception Handling – Multithreading – Java Data base Connectivity – JDBC drivers Statements – Catching Data Base Result – Storing Classes – Controlling transaction – Escaping Characters – Mapping Database Types.

Text Books

Programming with Java –w   - C. Xavier

Paper 13
VISUAL BASIC

Unit I

Introduction to GUI – Client Server Concept – Fundamentals of Visual Basic – Features of Visual Basic – Project Form – Code Window – Property Setting – Project Explorer – Tool box – Statement in Visual Basic.

Unit II

Variables – Strings – Numbers – Constant – User Defined Data Types – Control Flow Statements – Loop Statement – Controls – Common properties – Events – Methods – Design Form – Write Coding.

Unit III

        Control Array – Project with Multiple Form (MDI) – Build in Functions – User Defined Functions & Procedure – Printing Information the Printing Object – Object – Manipulating of Objects in Visual Basic – Menu Creation.

Unit IV

        Windows Common dialog Control – M.S. Flex Grid, Date time Control – Collections – Debugging Technique – Error handligs – Communicate with other window application (OLE)

Unit V

        Data Base Features – Visual Data Manager – Creating Database – Using Data control-SQL statement – Data Access object – Report – Printing – Active X – Document Communicate Using Winsock Control

Text Book
1. Visual Basic 6.0   N. Krishnan
                                 N. Saravanan

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Practical III
Paper 14
Java Programming

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1. Write a Java program to find the factorial of a given number.
2. Write a Java program to demonstrate command line arguments.
3. Write a Java program to demonstrate constructor overloading.
4. Write a Java program to calculate total marks of 3 students using class.
5. Write a Java program to find whether given string is palindrome.
6. Write a Java program to demonstrate interface.
7. Write an applet program to add two numbers (Use Text Field, Label and button).
8. Write an applet program to add three option buttons for representating red, green, blue colors. When you click any of these three buttons the background of Applet window should be changed.
9. Write a JDBC program to retrieve records from the table.
10. Write a jave program to display 3,4,5 multiplication table using multi threading.

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Practical IV - Paper 15 - Visual Basic

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1. Write a VB program to change the background color of a form using scroll bars.
2. Write a VB program to create two buttons representing simple interest and Compound interest. When click up any of the two buttons answer should be displayed.
3. Write a VB program to demonstrate common dialog box.
4. Write a VB program to design simple Calculator.
5. Write a VB program to create procedures for arithmetic operations and call these procedures into any event.
6. Write a VB program to show a flash news in a form.
7. Write a VB program to demonstrate the creation of menu.

8. Writer aVB program to insert records into table using DAO.
9. Write a VB program to demonstrate error handling.
10. Write a VB program for the following output.

```
W
WE
WEL
WELC
WELCO
WELCOM
WELCOME
```

IIII Year
Paper 16
RDBMS AND ORACLE

Unit I

Client – Server Architecture – RDBMS Concept – The database Structure – Logical Database Structure – Table Spaces.

Unit II

Basic SQL Operation – Creation – Insertion – Deletion – Updating table – Querying tables – adding & dropping Column – Join Concept – Arithmetic Operation – Group Function – Use of NULL values – creation of synonyms – indexes views.

Unit III

PL/SQL – Variables and Constants – SQL Functions – Declaration – Relational Operators – IF – THEN, ELSELF – For Loop – While Loop – GOTO Exception – Cursor Management – Sub program and Procedure.

Unit IV

Oracle Forms Components – Object setting & modifying Properties – Property Description – Blocks triggers built in subprograms run form Components building a form programming with triggers – Query processing – validation.

Unit V

Report Layout – Oracle Interface – Building report – Formatting Reports.

Text Books

Understanding Oracle   James T. Perry
                              Joseph G. Lateer.

Manual or Oracle & Developer 2000

Paper 17
COMPUTER GRAPHICS & MULTIMEDIA

Unit I

Display Devices – Hard Copy Devices – Points and Lines – Lines drawing algorithm – Properties of Circle – Mid Point circle algorithm – Character generation algorithm.

Unit II

Two Dimensional Geometric Transformations- Basic Transformations – Translation – Rotation – Scaling- Matrix Representation & Homogeneous Coordinate – Composite Transformation – Translation, Rotation, Scaling.

Unit III

Two Dimensional Viewing – Window to view Port Coordinate Transformation – Clipping Operation – Line Clipping – Three Dimensional Display Methods – Three Dimensional Packages.

Unit IV

Three Dimensional Geometric & Modeling Transformation – Translation – Rotation – Coordinate Axes rotations – General Three dimensional – Rotation – Scaling.

Unit V

Three Dimensional – Viewing – Viewing pipeline – Projection – Parallel Projection – Perspective projection – visible – Surface detection methods.

Text Books

Computer Graphics	-	Donald Hearn
Computer Graphics	-	M. Pauline Baker

Paper 18

DATA STRUCTURE

Unit I – Introduction

Overviews – SPARKS – how to create and analysis programs.
Arrays: Acclimatization – Order lists – SPARSE matrices – Representation of arrays.

Unit II – Stacks and Queues

Fundamentals – Evaluation of expressions – Multiple stacks and Queues.
Linked Lists
Singly linked list – Linked stack and Queues – The storage pool – polynomial addition – more on linked list – doubly linked list and storage management.

Unit III

Basic terminology – binary trees – binary tree representations – binary tree traversal – threaded binary trees – binary tree representation of trees – binary search trees.

Unit IV – Graphs

Introduction – Definition and terminology – Graph representation – traversals – connected components and spanning trees – shortest paths and transitive closure.

Unit V – Internal Sorting

Searching – Insertion sort – Quick sort – Two way merge sort – Heap sort – Sorting on several keys – Hash tables – theoretical evaluation of over flow techniques.

Text Books

1. Ellis Horowitz and Sartaj Sahni, "Fundamentals of Data Structures" Galgotia publications.

Reference Book

Ellis Horowitz and Sartaj, "**Fundamentals of Computer Algorithms**" Galgotia Publications.

Paper 19

OPERATING SYSTEM & SYSTEM PROGRAMMING

Unit I

Introduction to System Software – Instruction Set & addressing Modes – Assembler Functions – Assembler Design – Two Pass Assembler & Single Pass Assembler

Unit II

Loader Function – Absolute Loader – Compiler and Go Loader – Bootstrap Loader – Linkage Editor – Dynamic Linking Loader.

Unit III

Macro Processor Functions & Features – Macro Processor Design – General Purpose Macro Processor with Translator – Recursive.

Unit IV

Evaluation of Multiple Processors System – I/O Programming – I/O Processor Structure – Communications between the CPU and the Channel – Multiple processor. Memory Management – Single contiguous Allocation – partitioned Allocation – Relocatable Partitioned Allocation – paged Allocation – demand paged Allocation – segmented allocation – Segmented paged Allocation.

Unit V

Processor management- Scheduler – Traffic Controller – Stalemates – Multiprocessor Systems.

Text Books

System Programming   - John Donovan
System Programming & Operating System   - D.M. Dhamdhere

Paper 20
SOFTWARE ENGINEERING

Unit I

System Engineering Hierarchy – System modeling – information Engineering – product Engineering – System Analysis – Business Area Analysis – Processing modeling – Information Flow modeling – System Modeling and simulation – System Specification.

Unit II

Analysis – Requirements – Communication Techniques – Process initiating – Quality function – deployment – Analysis principles – Modeling – Partitioning – implementation views – Software prototyping – Selecting Prototyping Approach – Prototyping methods & Tools.

Unit III

Design Concepts – Design Process – Design & Software Quality – Evolution of software Design – Design Principles – Design Methods – Data Design – Architectural Design – Contributors – Areas of Application – Architectural Design Process – Interface design – Interface Design Guidelines – Procedural Design.

Unit IV

Software Testing Methods – Fundamentals – Objectives, Principals – Text Case design – Wrote Box testing – Basis path testing – Control structure testing – Black Box Testing – GUI – Client/ Server Architectures- Testing Documentation and Help facilities Testing Real – Time systems.

Unit V

Software testing strategies – strategies approach testing – Verification and Validationn – Organizing for testing – Software testing strategies – Criteria for completion of testing – Unit testing- Consideration – Procedures – Integration testing – Top Down, Bottom – up.

Text Book
1. Roger Pressman, Software Engineering, 5th Edition, Tata McGraw Hill publication, 20011.

Reference:
1. Somerville – Software Engineering, Adison Wesley.
   Lethbridge – Object Oriented Software Engineering McGraw Hill.

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Practical V
Paper 21
ORACLE

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1. Create a table student and retrieve the dates using suitable queries.
2. Create two tables and do the set operations.
3. Create one table and performs the aggregate functions.
4. Create two tables and retrieve the records using sub queries.
5. Create a view form the table and do the operations on them.
6. Create a table book and prepare report for total cost of books with publishers name.list the books in author wise and also subject wise.
7. Write a PL/SQL program to find the sum of digits for a firm positive number.
8. Create a function in PL/SQL to find whether given number is a Prime or Not.
9. Write a PL/SQL program to demonstrate package.
10. Write a PL/SQL program to print 5 Multiplication table.

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