

KONGUNADU ARTS AND SCIENCE COLLEGE [AUTONOMOUS]

COIMBATORE - 641 029

B.Sc INFORMATION TECHNOLOGY [BSC IT]

CURRICULUM & SCHEME OF EXAMINATION UNDER CBCS

**[APPLICABLE TO THE STUDENTS ADMITTED DURING THE
ACADEMIC YEAR 2014-2015 & ONWARDS]**

| Semester | Part | Subject code | Title of the Paper | Instruction Hours / Cycle | Exam. Marks | | | Duration of Exam (hrs) | Credits |
|------------|------|--------------|---|---------------------------|-------------|-----|-------|------------------------|---------|
| | | | | | CIA | ESE | Total | | |
| I | I | 14TML1A1 | Language I@ | 6 | 25 | 75 | 100 | 3 | 3 |
| | II | 14ENG101 | English -I | 6 | 25 | 75 | 100 | 3 | 3 |
| | III | 14UIT101 | Core I - Computing Fundamentals and C Programming | 5 | 25 | 75 | 100 | 3 | 5 |
| | | 14UIT1CL | Core Practical I - Programming Lab - C | 5 | 40 | 60 | 100 | 3 | 2 |
| | | 14UIT1A1 | Allied I - Mathematical Foundations for Computer Science | 6 | 25 | 75 | 100 | 3 | 5 |
| | IV | 14EVS101 | Environmental Studies ** | 2 | - | 50 | 50 | 3 | 2 |
| II | I | 14TML2A2 | Language II@ | 6 | 25 | 75 | 100 | 3 | 3 |
| | II | 14ENG202 | Language - English II | 6 | 25 | 75 | 100 | 3 | 3 |
| | III | 14UIT202 | Core II - Computer Organization and Architecture | 4 | 25 | 75 | 100 | 3 | 4 |
| | | 14UIT203 | Core III - Object Oriented Programming with C++ | 3 | 25 | 75 | 100 | 3 | 5 |
| | | 14UIT2CM | Core Practical II - Programming Lab -C++ | 3 | 40 | 60 | 100 | 3 | 2 |
| | | 14UIT2A2 | Allied II- Computer Oriented Numerical and Statistical Methods | 6 | 25 | 75 | 100 | 3 | 5 |
| | IV | 14VED201 | Value Education - Moral and Ethics ** | 2 | - | 50 | 50 | 3 | 2 |
| III | III | 14UIT304 | Core IV - Data Structures and Algorithms | 5 | 25 | 75 | 100 | 3 | 4 |
| | | 14UIT305 | Core V - Relational Database Management System and ORACLE | 5 | 25 | 75 | 100 | 3 | 4 |
| | | 14UIT306 | Core VI - JAVA Programming | 5 | 25 | 75 | 100 | 3 | 5 |
| | | 14UIT3CN | Core Practical III - Programming Lab - JAVA & ORACLE | 5 | 40 | 60 | 100 | 3 | 2 |
| | | 14UIT3A3 | Allied III - Business Accounting | 6 | 25 | 75 | 100 | 3 | 5 |
| | IV | 14UIT3S1 | Skill Based Subject1 - Multimedia (Photoshop & Pagemaker) | 2 | 25 | 75 | 100 | 3 | 3 |

| | | | | | | | | | |
|---------------|------------------------------------|--|---|----|----|----|-----|----|---|
| | | 14TBT301/ 14TAT301/ 14UHR3N1 | Basic Tamil * / Advanced Tamil **/ Non-Major Elective – I ** (Human Rights) | 2 | - | 75 | 75 | 3 | 2 |
| IV | III | 14UIT407 | Core VII – Operating Systems | 5 | 25 | 75 | 100 | 3 | 4 |
| | | 14UIT408 | Core VIII – Visual Programming | 5 | 25 | 75 | 100 | 3 | 5 |
| | | 14UIT409 | Core IX – Principles of Data Communications and Network | 5 | 25 | 75 | 100 | 3 | 4 |
| | | 14UIT4CO | Core Practical IV – Programming Lab – VB & VB.Net | 5 | 40 | 60 | 100 | 3 | 2 |
| | | 14UIT4A4 | Allied IV – Microprocessors, PC Hardware and Interfacing | 6 | 25 | 75 | 100 | 3 | 5 |
| | IV | 14UIT4S2 | Skill Based Subject 2 (Practical) Multimedia Lab (Photoshop & Pagemaker) | 2 | 40 | 60 | 100 | 3 | 3 |
| | 14TBT402/ 14TAT402/ 14UWR4N2 | Basic Tamil */ Advanced Tamil **/ Non-Major Elective – II ** (Women’s Rights) | 2 | - | 75 | 75 | 3 | 2 | |
| V | III | 14UIT510 | Core X– Client/Server Computing | 6 | 25 | 75 | 100 | 3 | 4 |
| | | 14UIT511 | Core XI – Software Engineering | 6 | 25 | 75 | 100 | 3 | 4 |
| | | 14UIT512 | Core XII – Mobile Communication | 6 | 25 | 75 | 100 | 3 | 4 |
| | | 14UIT5CP | Core Practical V – Software Testing Lab | 5 | 40 | 60 | 100 | 3 | 2 |
| | | 14UIT5E1 | Major Elective I | 5 | 25 | 75 | 100 | 3. | 5 |
| | IV | 14UIT5S3 | Skill Based Subject 3 Animation Techniques (Flash, CorelDraw & MovieMaker) | 2 | 25 | 75 | 100 | 3 | 3 |
| VI | III | 14UIT613 | Core XIII – Open Source Tools | 5 | 25 | 75 | 100 | 3 | 5 |
| | | 14UIT614 | Core XIV - Information Security | 6 | 25 | 75 | 100 | 3 | 4 |
| | | 14UIT6CQ | Core Practical VI – Programming PHP | 5 | 40 | 60 | 100 | 3 | 2 |
| | | 14UIT6E2 | Major Elective II | 6 | 25 | 75 | 100 | 3 | 5 |
| | | 14UIT6Z1 | Project*** | 6 | 20 | 80 | 100 | 3 | 4 |
| | IV | 14UIT6S4 | Skill Based Subject 4 (Practical) Animation Techniques Lab (Flash,CorelDraw & MovieMaker) | 2 | 40 | 60 | 100 | 3 | 3 |
| Part V | \$\$ | Extension Activities * | - | 50 | - | 50 | - | 1 | |

@ Hindi/Malayalam/ French/ Sanskrit – 14HIN/MLM/FRN/SAN101 - 202

* No End-of-Semester Examinations. Only Continuous Internal Assessment (CIA)

** No Continuous Internal Assessment (CIA). Only End-of-Semester Examinations (ESE)

*** Project Report – 60 marks; Viva voce – 20 marks; Internal-20 marks

Major Elective Papers

Elective I

1. Embedded Systems
2. Artificial Intelligence.
3. Object Oriented Analysis And Design(using UML)

Elective II

1. E-Commerce
2. Network Security & Administration
3. Data Mining

Non- Major Elective Papers

1. Human Rights
2. Women's Rights

Note: In core/ allied subjects, no. of papers both theory and practical are included wherever applicable. However, the total credits and marks for core/allied subjects remain the same as stated below.

Tally Table:

| S.NO | PART | SUBJECT | MARKS | CREDITS |
|------|------|--|-------------|------------|
| 1. | I | Language – Tamil/Hindi/French/Malayalam/Sanskrit | 200 | 6 |
| 2. | II | English | 200 | 6 |
| 3. | III | Core – Theory / Practical / Project | 2100 | 77 |
| | | Allied | 400 | 20 |
| | | Electives | 200 | 10 |
| 4. | IV | Basic Tamil / Advanced Tamil / Non – Major elective | 150 | 4 |
| | | Skill Based Subject | 400 | 12 |
| | | Environmental Studies | 50 | 2 |
| | | Value Education | 50 | 2 |
| 5. | V | Extension Activities (NSS/NCC/Sports/YRC) | 50 | 1 |
| | | Total | 3800 | 140 |

Note :

- CBCS – Choice Based Credit system
- CIA – Continuous Internal Assessment
- ESE – End of Semester Examinations

25 % CIA is applicable to all subjects except JOC, COP and Diploma Courses, which are considered as extra credit courses.

1. Break up Marks for CIA of Theory

| | | |
|------------|---|-------|
| CIA Exam | - | 15 |
| Assignment | - | 5 |
| Attendance | - | 5 |
| | | <hr/> |
| Total | | 25 |
| | | <hr/> |

2. Components of Practical:

Break up Marks for CIA of Practical

| | | |
|----------------------|---|-------|
| CIA Practical Exam | - | 25 |
| Observation Notebook | - | 10 |
| Attendance | - | 5 |
| | | <hr/> |
| Total | | 40 |
| | | <hr/> |

Break up Marks for ESE of Practical

| | | |
|------------|---|-------|
| Experiment | - | 50 |
| Record | - | 10 |
| | | <hr/> |
| Total | - | 60 |
| | | <hr/> |

3. Component for Project:

| CIA / ESE | Particulars | Project Out of 100 Marks (UG) |
|-----------------------------|-----------------------------|--|
| CIA | Project Review | 15 |
| | Regularity | 5 |
| | Total Internal Marks | 20 |
| *ESE | Project Report Present | 60 |
| | Viva Voce | 20 |
| | Total External Marks | 80 |
| Total Marks(CIA+ESE) | | 100 |

*** Project report and Viva voce will be evaluated jointly by both the Project Supervisor (faculty of the Department) and an External Examiner.**

QUESTION PAPER PATTERN for CIA and ESE

Theory

Maximum marks 75

Section A (10 x 1 = 10 marks)

Q.No. 1 to 10 : Multiple choice type alone with four distractors each.

Section B (5 x 5 = 25 marks)

Q.No. 11 to 15 : Either or / short notes type questions (one question 'a' or 'b' from each unit).

Section C (5 x 8 = 40 marks)

Q.No. 16 to 20 : Either or / essay type questions (one question 'a' or 'b' from each unit).

Core I - COMPUTING FUNDAMENTALS AND C PROGRAMMING

Credit Points: 5

Total Hours: 75

Objectives: To provide an in – depth knowledge on Computer fundamentals and the concepts of C programming language.

UNIT I

(13 Hours)

Fundamentals of Computers : Introduction – History of Computers-Generations of Computers- Classification of Computers- Basic Anatomy of a Computer System- Input Devices-Processor- **Output Devices** *-Memory Management – Types of Software- Overview of Operating System- Programming Languages-Translator Programs- Problem Solving Techniques.

UNIT II

(17 Hours)

Overview of C - Introduction - Character set - C tokens - keyword & Identifiers - Constants - Variables - Data types - Declaration of variables - Assigning values to variables - Defining Symbolic Constants - Arithmetic, Relational, Logical, Assignment, Conditional, Bitwise, Special, Increment and Decrement operators - Arithmetic Expressions - Evaluation of expression - precedence of arithmetic operators - Type conversion in expression – operator precedence & associativity - Mathematical functions - Reading & Writing a character - Formatted input and output.

UNIT III

(16 Hours)

Decision Making and Branching : Introduction – If , If...Else, nesting of If ...Else statements- Else If ladder – The Switch statement, The ?: Operator – The Goto Statement. Decision Making and Looping : Introduction- The While statement- the do statement – the for statement-jumps in loops. Arrays – Character Arrays and Strings.

UIT 2

UNIT IV

(13 Hours)

User-Defined Functions: Introduction – Need and Elements of User-Defined Functions- Definition-Return Values and their types - Function Calls – Declarations – Category of Functions- Nesting of Functions - Recursion – Passing Arrays and Strings to Functions - **The Scope, Visibility and Lifetime of Variables** *- Multi file Programs . Structures and Unions

UNIT V

(16 Hours)

Pointers: Introduction-Understanding pointers-Accessing the address of a variable-Declaration and Initialization of pointer Variable – Accessing a variable through its pointer-Chain of pointers- Pointer Expressions – Pointer Increments and Scale factor- Pointers and Arrays- Pointers and Strings – Array of pointers – Pointers as Function Arguments- Functions returning pointers – Pointers to Functions – Pointers and Structures. File Management in C.

* Self-Study And Questions For Examinations May Be Taken From The Self Study Portions Also.

TEXT BOOK:

1. E Balagurusamy, - **“COMPUTING FUNDAMENTALS & C PROGRAMMING”** – Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.

REFERENCE BOOKS:

1. Ashok N Kamthane, - **“PROGRAMMING WITH ANSI AND TURBO C”** - Pearson Edition Publ, 2002.
2. Mark Allen Weiss “ **ANALYSIS IN C**” First Edition Pearson Education,2004.

Core Practical I – PROGRAMMING LAB – C

Credit Points: 2

Total Hours: 75

Objectives: To learn the systematic way of solving problems and to understand the different methods of organizing large amounts of data using c language.

LIST OF PRACTICAL PROGRAM

1. Write a C program to find the sum, average, standard deviation for a given set of numbers
2. Write a C program to generate $-n$ prime numbers.
3. Write a C program to generate Fibonacci series.
4. Write a C program to convert temperature from Fahrenheit to Celsius and vice versa.
5. Write a C program to print magic square of order n where $n > 3$ and n is odd.
6. Write a C program to sort the given set of numbers in ascending order.
7. Write a C program to perform matrix multiplication.
8. Write a C program to check whether the given string is a palindrome or not using pointers.
9. Write a C program to count the number of Vowels in the given sentence.
10. Write a function to perform (a) String copy (b) String concatenation and (c) Reversing the string.
11. Write a C program to find the factorial of a given number using recursive function.
12. Write a C program to print the student's Mark sheet assuming roll no, name, and marks in 5 subjects in a structure. Create an array of structures and print the mark sheet in the university pattern.
13. Write a function using pointers to add two matrices and to return the resultant matrix to the calling function.

UIT 4

14. Write a C program which receives two filenames as arguments and check whether the file contents are same or not. If same delete the second file.
15. Write a program which takes a file as command line argument and copy it to another file. At the end of the second file write the total i)no of chars ii) no. of words and iii) no. of lines.

Guidelines to the distribution of marks for Practical Examinations:

Two Questions will be given for each student. (3 Hours/60 marks)

Record : 10 marks

| Particulars | Program1 (Marks) | Program2 (Marks) |
|--|-----------------------------|-----------------------------|
| Algorithm | 10 | 10 |
| Program Coding | 10 | 10 |
| Execution & Modifications | 5 | 5 |

UIT 5

Semester-II

14UIT202

Core II -COMPUTER ORGANIZATION AND ARCHITECTURE

Credit Points: 4

Total Hours: 60

Objectives: To understand the core concept of hardware and software design for computer systems and also the necessary hardware interfaces for the software.

UNIT I

(12 Hours)

Number System and Binary Codes: Decimal, Binary, Octal, Hexadecimal – Binary addition, Multiplication, Division – Floating point representation, Complements, BCD, Excess3, Gray Code. Digital Logic: The Basic Gates – NOR, NAND, XOR Gates .Arithmetic Circuits: Half adder, Full adder, Parallel binary adder, BCD adder, Halfsubtractor, Full subtractor, Parallel binary subtractor.

UNIT II

(13 Hours)

Combinational Logic Circuits: **Boolean algebra** *–Karnaugh map – Canonical form 1 – Construction and properties – Implicants – Don't care combinations – Product of sum, Sum of products, simplifications. Sequential circuits: Flip-Flops: RS, D, JK, and T -Multiplexers – Demultiplexers

UNIT III

(11 Hours)

Decoder - Encoder – Counters - Central processing Unit – General register organization – Stack organization - Input – Output Organization: Input – output interface – Asynchronous data transfer: Strobe Control and Handshaking – Priority Interrupt: Daisy-Chaining Priority, Parallel Priority Interrupt.

UNIT IV

(12 Hours)

Input – Output Processor: CPU-IOP Communication. Memory Organization: **Memory Hierarchy*** – Main Memory- Associative memory, Hardware Organization, Match Logic, Read Operation, Write Operation.

UIT 6

UNIT V

(12 Hours)

Cache Memory: Associative, Direct, Set-associative Mapping – Writing into Cache Initialization. Virtual Memory: Address Space and Memory Space, Address Mapping Using Pages, Associative Memory Page Table, Page Replacement.

* Self-Study And Questions For Examinations May Be Taken From The Self Study Portions Also.

TEXT BOOKS:

1. V.K. PURI – “**DIGITAL ELECTRONICS CIRCUITS AND SYSTEMS**”, TATA McGRAW-HILL Pub.Company Edition 1 2002.(Unit I ,Unit II)
2. M. MORRIS MANO – “**COMPUTER SYSTEM ARCHITECTURE**”, PHI 1999 Edition 1.(Unit III, Unit IV, Unit V)

REFERENCE BOOK:

1. Miles.J.Murdocca, Vincent, P.Heuring “ **COMPUTER ARCHITECTURE & ORGANIZATION**”,Wiley India Pvt.Ltd,First Edition,2007.

UIT 7
Semester-II

14UIT203

Core III - OBJECT ORIENTED PROGRAMMING WITH C++

Credit Points: 5

Total Hours: 45

Objectives: To teach the basic notion of the Object Oriented Programming and to learn the principles of C++ Programming Language.

UNIT I

(9 Hours)

Introduction to C++ - Key Concepts of OOP - Advantages - OO Languages - I/O in C++ - C++ Declarations - Control Structures - Decision Making Statements - If...Else - Jump - GOTO - Break - Continue - Switch Case Statements - Loops in C++ - For - While -Do...While loops - Functions in C++, In line Functions - Function Overloading.

UNIT II

(9 Hours)

Class and Objects: Declaring objects - Defining member functions - Static member variables and functions - Array of objects - Friend functions - Overloading member functions - **Bit fields and Class** *- Constructor and Destructors - Characteristics - Calling constructor and Destructors - Constructor and Destructor with static member.

UNIT III

(9 Hours)

Operator Overloading: Overloading unary, Binary operators - Overloading friend functions - Type conversion - Inheritance: Types of inheritance: Single, Multilevel, Multiple, Hierarchical, Hybrid and Multi path inheritance - Virtual Base classes - Abstract Classes.

UNIT IV

(9 Hours)

Pointers: Declaration - Pointer to class, object - THIS pointer - Pointer to derived classes and base classes - Arrays - Characteristics - Arrays of classes - Memory models - New and delete operators - Dynamic objects - Binding, Polymorphisms and Virtual functions.

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UNIT V

(9 Hours)

Files: File stream classes – File Modes – Sequential read/write operations – Binary and ASCII files – Random access operation – Templates
– Exception handling – Strings – Declaring and initializing string objects – String attributes – **Miscellaneous functions** *.

* Self-Study And Questions For Examinations May Be Taken From The Self Study Portions Also.

TEXT BOOK:

1. E. Balagurusamy "**OBJECT ORIENTED PROGRAMMING WITH C++**", TMH Pub., Fourth Edition, 2004.

REFERENCE BOOKS:

1. Ashok N Kamthane – "**OBJECT ORIENTED PROGRAMMING WITH ANSI AND TURBO C++**", Pearson Education Publ., 2003
2. Poornachandra Sarang – "**OBJECT ORIENTED PROGRAMMING WITH C++**", Second Edition, PHI Pub., 2009.
3. John R Hubbard – "**PROGRAMMING WITH C++**", TMH Publ. II Edition, 2006.

Core Practical II - PROGRAMMING LAB - C++

Credit Points: 2

Total Hours: 45

Objectives: To provide an awareness to develop the program skills using C++ with object oriented basic concepts.

LIST OF PRACTICAL PROGRAMS

1. Create a class to implement the data structure STACK . Write a constructor to initialize the TOP of the stack to 0 . Write a member function POP() to delete an element . Check for overflow and Underflow conditions.
2. Create a class ARITH which consists of a FLOAT and an integer Variable. Write member ADD (), SUB (), MUL (), DIV (), MOD () to perform addition, multiplication, division and modulus respectively. Write member functions to get and display values.
3. Create a class MAT has a 2-d matrix and R&C represents the rows and columns of the matrix . Overload the operators +,-,* to add subtract and multiply two matrices . Write member functions to get and display MAT object values .
4. Create a class STRING . Write member function to initialize , get and display strings .Overload the operator + to concatenate two strings ,= = to compare two strings and a member function to find the length of the string.
5. Create a class which consists of EMPLOYEE detail like eno,ename,dept, basic-salary, grade. Write member functions to get display them. Derive a class PAY from the above class and write a member function to calculate da , hra , pf depending on the grade and display the Pay slip in a neat format using console I/O.
6. Create a class SHAPE which consist of two VIRTUAL FUNCTIONSCal_Area() and Cal_PERI to calculate AREA and PERIMETER of various figures. Derive three classes SQUARE,RECTANGLE and TRIANGLE from the class SHAPE and

UIT 10

- calculate AREA and PERIMETER of each class separately and Display the result.
7. Create two classes which consists of two private variables, one float And one integer variables in each class. Write member functions to get and display them . Write FRIEND function common to arguments And the integer and float values of both the objects separately and Display the result.
 8. Write a user defined function USERFUN() which has the formatting commands like setw() , showpoint , showpos,precision(). Write a program which prints an multiplication table and uses USERFUN() for formatting.
 9. Write a program to perform Insertion , Deletion and Updation using files .
 10. Write a program which takes a file as argument and copies in to another file with line numbers using Command Line Arguments.

Guidelines to the distribution of marks for Practical Examinations:

Two Questions will be given for each student. (3 Hours/60 marks)

Record : 10 marks

| Particulars | Program1 (marks) | Program2 (marks) |
|--------------------------------------|-------------------------|-------------------------|
| Algorithm | 10 | 10 |
| Program Coding | 10 | 10 |
| Execution & Modifications | 5 | 5 |

Core IV – DATA STRUCTURES AND ALGORITHMS

Credit Points: 4

Total Hours: 75

Objectives: To familiarize basic data structures concept and their use in fundamental algorithms

UNIT I

(13 Hours)

Introduction-Data structure-definition-How to create a program-How to analyze a program-Arrays-Order List –Sparse Matrices-Representation of Arrays-Stacks and Queues- Fundamentals- Evaluation Expression-**Multiple Stacks and Queues** *.

UNIT II

(15 Hours)

Linked Lists-Singly Linked List-Linked Stacks and Queues-Storage pool-Polynomial Addition-More On Linked List-Sparse Matrices-Doubly Linked Lists and Dynamic Storage Management-Garbage Collection and Compaction.

UNIT III

(16 Hours)

Tress: Basic Terminology-Binary Trees-binary Tree representation-Binary Tree Traversal-Threaded binary tree-Country Binary trees.

Graphs: Terminology and representation-Introduction –Definition and Terminology-Graph Representation – Traversals-Connected components and spanning Trees -Shortest path-**Transitive Closure** *.

UNIT IV

(16 Hours)

Internal Sorting- Insertion sort - Quick sort - Merge sort - Heap sort –Radix sort. External Sorting-sorting with Tapes, Sorting with Disks.

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UNIT V

(15 Hours)

Symbol Tables-Static tree tables-Dynamic tree tables-Hash tables- Hashing Functions-Overflow Handling.Files: Files-Queries- Sequential organization - Index Techniques - File organization

* Self-Study And Questions For Examinations May Be Taken From The Self Study Portions Also.

TEXT BOOK:

1. Ellis Horowitz, Sartaj Shani - "**FUNDAMENTALS OF DATA STRUCTURES**", Galgotia Publication Edition 1 , 1983.

REFERENCE BOOKS:

1. Robert Kruse, C.L, Jondo Bruce Leung - "**DATA STRUCTURES AND PROGRAM DESIGN IN C** " , Pearson Edition Asia, Second Edition,

Core V –RELATIONAL DATABASE MANAGEMENT SYSTEM AND ORACLE

Credit Points: 4

Total Hours: 75

Objectives: To learn the basic concepts of database, SQL and PL/SQL languages.

UNIT I

(13 Hours)

Database Concepts: A Relational approach: Database – **Relationships** * – DBMS– Relational Data Model – Integrity Rules – Theoretical Relational Languages. Database Design: Data Modeling and Normalization: Data Modeling –Dependency – Database Design – Normal forms – Dependency Diagrams –Denormalization – Another Example of Normalization.

UNIT II

(17 Hours)

Oracle9i: Overview: Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus – SQL *Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - iSQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

UNIT III

(16 Hours)

Working with Table: Data Management and Retrieval: DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from Table – **Arithmetic Operations** * – restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure. Functions and Grouping: Built-in functions – Grouping Data. Multiple Tables: Joins and Set operations: Join – Set operations.

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UNIT IV

(17 Hours)

A Programming Language: History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. Control Structures and Embedded SQL: Control Structures – Nested Blocks –SQL in PL/SQL – Data Manipulation – Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes –Cursor FOR loops – SELECT...FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.

UNIT V

(12 Hours)

PL/SQL Composite Data Types: Records – Tables –Varrays. Named Blocks: Procedures – Functions – Packages –Triggers –DataDictionary Views.

* - Self Study and questions for examinations may be taken from the self study portions also.

TEXT BOOK:

1. Nilesh Shah – **“DATABASE SYSTEMS USING ORACLE”** –, 2nd edition, PHI 2007.

REFERENCE BOOKS:

1. Arun Majumdar & Pritimoy Bhattacharya – **“DATABASE MANAGEMNET SYSTEMS”** –, 2007, TMH.
2. Gerald V. Post - **“DATABASE MANAGEMENT SYSTEMS”** , 3rd edition, TMH, 2009.

UIT 15

Semester-III

14UIT306

Core VI - JAVA PROGRAMMING

Credit Points: 5

Total Hours: 75

Objectives: The main aim is to learn the basic features of java Programming along with Packages, Applets and Layouts .

UNIT I

(16 Hours)

Introduction to Object-Oriented Programming – The Java language – Variable Declarations and Arrays – Operators in Java. Control Statements: An Introduction – Selection Constructs – Iteration Constructs – Jump Constructs . Introduction to Classes: Instance variables – Class variables – Instance Methods – Constructors – Class Methods – Declaring Objects – Garbage Collection.

UNIT II

(15 Hours)

Classes and Methods in Detail: Method Overloading – Constructor Overloading –The this Reference – Using Objects in Method – Recursion – Access Modifiers –Inner Classes – Command Line Arguments. Inheritance: Basics of Inheritance –Super Class Variable and Subclass Object – The super reference – Constructor chaining – Method Overriding – The final Keyword. Abstract Classes and Interfaces: The abstract Classes and Methods – Defining Interface – Implementing Interfaces –Extending Interface – Interface Reference. Exception Handling: Types of Exceptions-Uncaught Exceptions – Handling Exceptions – **User Defined Exceptions ***

UNIT III

(15 Hours)

Multithreaded Programming: Concept of Threads – Thread Creation – Thread's Life Cycle – Thread Scheduling – Synchronization and Deadlock – Inter-thread Communication. Packages and Access Modifiers: Packages – An Introduction – The package Declaration – The import Statement – Illustration Package – The Java Language Packages. Handling Strings: Creating Strings – Operations on Strings – Character Extractor Methods – String Comparison Methods.

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UNIT IV

(14 Hours)

Input Output Classes: Input and Output Operations – Hierarchy of classes in java.io Package – File class – InputStream and OutputStream.

Classes – FileInputStream and FilterOutputStream Classes – Reader and Writer Classes – RandomAccessFile Class- StreamTokenizer. Applets: Applet Basics – Applet Life Cycle – Running Applets – Methods of the Applet Class – Font Class – **FontMetrics Class** *.

UNIT V

(15 Hours)

Abstract Windowing Toolkit – AWT classes – Hierarchy of Classes – Control Fundamentals – Component Class – Basic Component Classes – Various Container Classes – Frame Window in an Applet – Menus. Layout Management and Event Handling: Layout Management Policies – Standard Layout Managers – Handling Events – Hierarchy of Event Classes – Event Delegation Model – Event Classes – Event Listener Interfaces – Adapter Classes.

* - Self Study and questions for examinations may be taken from the self study portions also.

TEXT BOOK:

1. Instructional Software Research and Development (ISRD) Group, **“INTRODUCTION TO OBJECT ORIENTED PROGRAMMING THROUGH JAVA”**, Tata McGraw-Hill Publishing Company Limited, New Delhi, 2007.

REFERENCE BOOKS:

1. E.BalaGurusamy, - **“ PROGRAMMING WITH JAVA – A PRIMER”**, Tata McGraw-Hill Publishing Company Limited, First Edition, 2008.
2. John R. Hubbard, - **“ SCHAUM’S OUTLINE OF PROGRAMMING WITH JAVA”**, Tata McGraw- Hill Publishing Company Limited, Second Edition, 2007.

Core Practical III – PROGRAMMING LAB – JAVA AND ORACLE

Credit Points: 2

Total Hours: 75

Objectives: To learn and practice the basics of java language and SQL Queries.

LIST OF PRACTICAL PROGRAMS

JAVA

1. Write a program to generate a Pascal Triangle.
2. Write a program for Multithreading.
3. Write a program for preparing mark list using inheritance.
4. Write a program for Multiple inheritance.
5. Write a program for creating your own package.
6. Write a program that right-justifies a text file.
7. Write a program that display a digital clock using applet.
8. Create an applet program to generates a human face .
9. Create an applet containing three buttons labeled red, green and blue, change the background color of the applet based on the button pressed.

ORACLE

10. Write queries for the following
 - i) Create a table student with required fields and insert values to it (use constraints while creating).
 - ii) Alter table student to add a new column.
 - iii) Display only distinct mark from the Student table in descending manner.
11. Create a table employee with required fields and insert values to it.
 - i) Generate a report for an individual employee.
 - ii) Create a View to include all employee information but hide salary.

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12. Write a PL/SQL block

- i) Get input for student Id - If valid retrieve the related information and print the same otherwise raise an error.
- ii) Write a Database trigger before insert for each row on the table student not allowing marks greater than 75.
- iii) Write a Database trigger before delete for each row not allowing deletion and give the appropriate message on the table student.

Guidelines to the distribution of marks for Practical Examinations:

Two Questions will be given for each student. (3 Hours/60 marks)

Record : 10 marks

| Particulars | Program1 (Marks) | Program2 (Marks) |
|--|-----------------------------|-----------------------------|
| Algorithm | 10 | 10 |
| Program Coding | 10 | 10 |
| Execution & Modifications | 5 | 5 |

UIT 19

Semester-IV

14UIT407

Core VII - OPERATING SYSTEMS

Credit Points: 4

Total Hours: 75

Objectives: To provide the core structure and design principles of operating system with a case study of Linux Systems.

UNIT I

(16 Hours)

Introduction—what is an OS—Mainframe systems—Desktop Systems—multiprocessor systems—Distributed systems—Clustered systems—**Real-Time systems***. Operating system structures: System components—OS services—System calls.

UNIT II

(13 Hours)

Process Management: Process concept –process scheduling—Operations on process –Cooperating process—inter-process communication.

CPU scheduling: Basic Concepts - scheduling criteria—scheduling algorithms—Multiple-processor Scheduling—Real-Time Scheduling

UNIT III

(13 Hours)

Deadlocks: Deadlock characterization—Methods for handling Deadlocks-Deadlocks prevention—Deadlock avoidance—deadlock detection –Recovery from Deadlock.

Memory management: Background-Swapping-Contiguous memory allocation-paging –segmentation—segmentation with paging.

UNIT IV

(16 Hours)

Virtual memory: Demand paging—Process creation –Page replacement-Thrashing. I/O Systems: Disk structure—Disk scheduling –Disk management –**Swap Space management ***.

UIT 20

File systems: File concepts—Access methods- Directory structure -File system structure—File system implementation—Directory implementation—Allocation methods—free space management—Recovery.

UNIT V

(17 Hours)

The Linux Systems: History-Design principles-Kernel modules-Process Management-scheduling-Memory management-File systems-I/O Systems-IPC-Security.

* Self-Study And Questions For Examinations May Be Taken From The Self Study Portions Also.

TEXT BOOK:

1. Abraham Silberschatz, Galvin, Gagne, - "**OPERATING SYSTEMS CONCEPTS**", Sixth Edition, John Wiley&sons., 2004

REFERENCE BOOKS:

2. Andrew S.Tanenbaum - "**MODERN OPERATING SYSTEM**", Prentice Hall of India pvt. Ltd., Delhi, 2006.
3. H.M.Deitel - "**OPERATING SYSTEMS**", Third Edition, Pearson Education Publ, 2009.
4. Achyut S Godbole - "**OPERATING SYSTEMS**", TMH Publ,2006.

UIT 21
Semester-IV

14UIT408

Core VIII - VISUAL PROGRAMMING

Credit Points: 5

Total Hours: 75

Objectives: To impart an in-depth knowledge of Visual Basic and basic knowledge of VB.NET programming.

UNIT I

(14 Hours)

Visual Basic: Getting started – Visual Basic environment: Tool bars – The Toolbox and Custom controls and components – customizing a form and writing simple programs- Building the user interface: creating controls – properties setting –First steps in programming: Code window – Visual Basic’s editing tools.

UNIT II

(15 Hours)

Statements in VB – Data types – Working with variables – Input boxes and Message boxes – displaying information-Controlling program flow – **Built-in functions** *- User defined functions and procedures – Control arrays – List and Combo boxes – the Flex grid control.

UNIT III

(15 Hours)

Finishing the interface: Frames – Option buttons – Check boxes – Scroll bars –Timers –The Microsoft windows common controls 6.0 - Menus – MDI forms Communicating with other window applications: OLE.

UNIT IV

(15 Hours)

Database development with Visual Basic (DAO, ADO). VB.Net: Introduction- Essential visual basic .Net - Putting visual basic to work- The .Net framework and CLR.

UNIT V

(16 Hours)

Building vb.net applications : vb.net IDE . Window Forms: Link Labels - Rich Text Box – Panels – Group box –Checked List Boxes – Splitters – Trackbars –

UIT 22

Pickers – **Notify Icons*** – Tool Tips – Built-in dialog boxes : Open – Save – File – Font.

* - Self Study and questions for examinations may be taken from the self study portions also.

TEXT BOOKS:

1. Gary Cornell, - "**VISUAL BASIC 6.0 FROM THE GROUND UP**", Tata McGraw Hill Edition 1 2007.
2. Steven Holzner - "**VISUAL BASIC.NET BLACK BOOK**", Dream Tech, First Edition, 2006.

REFERENCE BOOKS:

1. Company, 1999 Content Development Group, - "**VISUAL BASIC 6.0 PROGRAMMING**" Tata McGraw-Hill Company, Ninth reprint, 2007.
2. Noel Jerke,- "**THE COMPLETE REFERENCE: VISUAL BASIC 6.0**", Tata Mc Graw- Hill Company, 24th reprint, 2007.
3. Steven S.Holzner – "**VISUAL BASIC 6 PROGRAMMING BLACK BOOK**"- Dreamtech Press,First Edition 2007.

Core IX- PRINCIPLES OF DATA COMMUNICATIONS AND NETWORK

Credit Points: 4

Total Hours: 75

Objectives: To provide an in-depth knowledge about concepts, terminologies and technologies used in data Communication and computer networking and to understand the functions of different layers and protocols .

UNIT I

(15 Hours)

Introduction to Data Communications and Networking: Introduction-Fundamental Concepts - Data Communication – Protocols – **Standards** * – Signal Propagation – Analog and Digital Signals - Information Encoding: Representing Different Symbols – Minimizing Errors - Analog and Digital Transmission Methods – Modes of Data Transmission and Multiplexing – Transmission Errors: Detection and Correction.

UNIT II

(15 Hours)

Transmission Media : Guided Media, Unguided Media – Network Topologies: Mesh, Star, Tree , Ring, Bus – Switching: Circuit switching, Message switching, Packet switching – Routing Algorithms: Routers and Routing – Factors affecting Routing Algorithms – Routing Algorithms – Approaches to Routing – Network Protocols and OSI Model.

UNIT III

(16 Hours)

Local Area Networks (LAN), Metropolitan Area Networks (MAN) and Wide Area Networks (WAN): LAN – Ethernet – MAN – Switched Multimegabit Data Services (SMDS) - WAN – WAN Architecture - WAN Transmission Mechanism - WAN Addressing – Packet Forwarding – Aloha - Integrated Services Digital Network (ISDN) – X.25 Protocol – Frame Relay.

UIT 24

UNIT IV

(14 Hours)

Asynchronous Transfer Mode (ATM) - Internetworking Concepts, Devices, Internet Basics, History and Architecture – An Introduction to TCP / IP, IP, ARP, RARP, ICMP.

UNIT V

(15 Hours)

TCP: Features of TCP, **Relationship between TCP and IP** *, Ports and Sockets, TCP connections, What makes TCP Reliable, TCP Packet Format – User Datagram Protocol (UDP): UDP Packet, Difference between UDP and TCP – Domain Name System (DNS) – Electronic Mail (Email) – File Transfer Protocol (FTP).

* - Self Study and questions for examinations may be taken from the self study portions also.

TEXT BOOK:

1. Achyut S.Godbole, - "**DATA COMMUNICATIONS AND NETWORKS**", Tata McGraw-Hill Publishing Company Limited, Ninth reprint, 2007.

REFERENCE BOOKS:

1. Behrouz A. Forouzan, - "**DATA COMMUNICATIONS AND NETWORKING**" – Second Edition Update " Tata McGraw-Hill Publishing Company Limited, Nineteenth reprint, 2007.
2. Andrew S. Tanenbaum, - "**COMPUTER NETWORKS**", III Edition, Prentice Hall of India, 2001.

Core Practical IV – PROGRAMMING LAB – VB & VB.NET

Credit Points: 2

Total Hours: 75

Objectives: To learn effective program based on concepts of Visual basic and VB.Net Frame Work.

LIST OF PRACTICAL PROGRAMS

VISUAL BASIC

1. Write a simple VB program to accept a number as input and convert them into Binary b. Octal c. Hexa-decimal
2. Write a simple VB program to add the items to list box with user input and move the selected item to combo box one by one.
3. Write a simple VB program to develop a calculator with basic operation.
4. Write a simple program to prepare a Questionnaire.
5. Write a VB Program to develop a menu driven program. Add a MDI window in the form and arrange them in the cascading/horizontal style using menus). Also change the form color using the menu in another menu item
6. Develop a simple project on automated system for telephone billing.
7. Develop a Simple Project for Student Database Management System.

VB.NET

8. Write a simple VB.net program to view customer information using console application.
9. Develop a login page using validation in VB.Net
10. Write a VB.net Program for a notepad application.

Guidelines to the distribution of marks for Practical Examinations:

Two Questions will be given for each student. (3 Hours/60 marks)
Record: 10 marks

| Particulars | Program1 (Marks) | Program2 (Marks) |
|--------------------------------------|-------------------------|-------------------------|
| Algorithm | 10 | 10 |
| Program Coding | 10 | 10 |
| Execution & Modifications | 5 | 5 |

UIT 26
Semester-V

14UIT510

Core X - CLIENT / SERVER COMPUTING

Credit Points: 4

Total Hours: 90

Objectives: To enhance students to understand the role of both server and client in sending and receiving data over a network.

UNIT I **(17 Hours)**

Client - Server computing - What is Client / Server ? - File servers, database servers, Transaction servers, Groupware servers, Object servers, Web servers - **FAT servers or client / server *** - Client / Server building blocks.

UNIT II **(19 Hours)**

Client / Servers and operating systems - The Anatomy of a server program - Needs of Client / Server from an OS - server scalability - Client anatomy - Client and server OS trends - Client OS and Server OS. NOS: Creating the single system image - Remote Procedure Calls (RPC) - Messaging and Queuing: The MOM Middleware.

UNIT III **(18 Hours)**

SQL Database Servers: What does SQL do ? - The ISO standards - What does a database server do ? - Stored procedures, Triggers and Rules. Data warehouses - OLTP (Online Transaction Processing) - Decision Support Systems (DSS) - Executive Information System (EIS) - comparing Decision Support and OLTP systems - Production vs Information Databases - The dataware house.

UNIT IV **(17 Hours)**

Client / Server Transaction Processing - The ACID properties - Transaction Models - TP monitors - Client / Server groupware - Importance of Groupware- What is Groupware - The components of Groupware. Distributed Objects, CORBA

UIT 27

style – Object management architecture – Compound Documents –The compound document frame work.

UNIT V

(19 Hours)

Web client / server – What is URL? – Shortest HTML tutorial – HTTP – 3 tier client / server – HTML web based forms – CGI : The server side of the web –web security – **The internet and the intranets** * – Compound documents and the object web – The DCOM / OLE Object Web – The CORBA object web.

* - Self Study and questions for examinations may be taken from the self study portions also.

TEXT BOOK:

1. Robert Orfali, Dan Harkey & Jeri Edwards, - "**THE ESSENTIAL CLIENT / SERVER SURVIVAL GUIDE**", Galgotia Publication Private Limited, Second Edition, 2002.

REFERENCE BOOKS:

1. Dawna Travis Dewire, -" **CLIENT / SERVER COMPUTING** ",Tata McGraw-Hill,INC publications,First Edition 2007.
2. Patrick Smith , Steve Guengerich "**CLIENT / SERVER COMPUTING**" Second Edition,PHI Pub.,2002.
3. Steven M. Bobrowski, - "**MASTERING ORACLE 7 AND CLIENT/SERVER COMPUTING**",BPB Publications

UIT 28

Semester-V

14UIT511

Core XI – SOFTWARE ENGINEERING

Credit Points: 4

Total Hours: 90

Objectives: To inculcate the methodologies involved in the development and maintenance of software over its entire life cycle.

UNIT I

(17 Hours)

Introduction – The evolving role of S/W – **S/W Crisis** * – S/W Myths – S/W engineering technology – the S/W Process – S/W Process models – the prototyping model. Requirements engineering – System modeling – requirements analysis and elicitation for s/w – s/w prototyping – specification.

UNIT II

(19 Hours)

Mechanics of structured analysis – data dictionary –elements of analysis model- data modeling – functional modeling and information flow. Mapping requirements into a s/w architecture – transform mapping – transaction mapping – user interface design – Interface design activities.

UNIT III

(18 Hours)

Object oriented design – design for object-oriented systems-the system design process – s/w design and s/w engineering – the design process- design principles-design concepts – effective modular design – design heuristics for effective modularity.

UNIT IV

(17 Hours)

S/w testing techniques: S/w testing fundamentals – White box testing – Basis path testing – control structure testing – Black Box testing.

UIT 29

UNIT V

(19 Hours)

Testing strategies – A strategic approach to s/w testing – validation testing – system testing – the art of debugging – s/w quality – s/w reengineering – reverse engineering – Building blocks of CASE – **a taxonomy of CASE tools** *

* - Self Study and questions for examinations may be taken from the self-study portions also.

TEXT BOOK:

1. Roger S Pressman, - "**SOFTWARE ENGINEERING**", 5th Edition, Reprint 2005, TMH Publishers.

REFERENCE BOOKS:

1. Watts S Humphrey, - "**A DISCIPLINE FOR SOFTWARE ENGINEERING**", Pearson Education Publishers, 2008.
2. Ian Somerville, - "**SOFTWARE ENGINEERING**", 7th Edition, Pearson Education Publication, 2007.

Core XII - MOBILE COMMUNICATION

Credit Points: 4

Total Hours: 90

Objectives: To provide the basics for various techniques in Mobile Communications and Mobile content services.

UNIT I

(18 Hours)

Introduction to Mobile Communication – Replacement of wired Networks – Infotainment – location department services – Mobile and wireless devices – simplified reference model. Wireless Transmission: Frequencies of transmission – Signal – **signal propagation's** * - Multipath Propagation's multiplexing.

UNIT II

(18 Hours)

Tele Communication system – GSM (Global system for Mobile Communication) mobile services – Bearer services – Tele services – GSM system architecture – Radio sub system – network and switching subsystem – operation subsystem – Radio interface- Protocols – Hand over – Types of Hand over.

UNIT III

(20 Hours)

Medium Access Control (MAC) – Specialized MAC – Hidden and exposed terminals – Near and far terminals – SDMA – FDMA – TDMA – Aloha – Slotted Aloha. Security – Authentication – Encryption – New data services – HSCSD – GPRS – DECT – DECT system architecture – DECT protocol architecture.

UNIT IV

(18 Hours)

Satellite Systems: Application- GEO-CEO-MEO-routing- localization- Hand over – Broadcast system – cyclical Repetition of data – digital audio broadcasting. Multimedia object transfer protocol – digital video broadcasting.

UIT 31

UNIT V

(16 Hours)

Wireless LAN – Infrared Vs Radio transmission – Infrastructure and adhoc networks – wireless ATM. **Case studies on mobile cellular networks** *.

* - Self Study and questions for examinations may be taken from the self-study portions also.

TEXT BOOK:

1. Jochen Schiller, -"**MOBILE COMMUNICATIONS**" Addison Wesley Pub, Second Edition, 2004.

REFERENCE BOOKS:

1. Asoke K Talukder , Roopa R Yavagal – "**MOBILE COMPUTING**" TMH,First Edition, 2009.
2. UWE Hansmann, Lothar Merk,Martin.S – "**PRINCIPLES OF MOBILE COMPUTING**",Second Edition,Springer 2006.
- 3 Jeyasri Arokiamary –"**MOBILE COMMUNICATIONS**",First Edition,Anuradha agencies ,2005

Core Practical V – PROGRAMMING LAB – SOFTWARE TESTING

Credit Points: 2

Total Hours: 75

Objectives: To make student accustom with various automated tools used for software testing

LIST OF PRACTICAL PROGRAMS

1. Perform windows calculator validation.
2. Perform windows paint verification.
3. Display user entered data on an Ms-Excel application for default.
4. Display user entered data on an Ms-Excel application for specific fields.
5. Perform database verification.
6. Test Bitmap objects in an application.
7. Perform properties check for graphical objects.
8. Verify text area of an application.
9. Perform synchronization check for a vb application.
10. Generate user report message for a vb application.

Guidelines to the distribution of marks for Practical Examinations:

Two Questions will be given for each student. (3 Hours/60 marks)

Record : 10 marks

| Particulars | Program1 (Marks) | Program2 (Marks) |
|--|-----------------------------|-----------------------------|
| Algorithm | 10 | 10 |
| Program Coding | 10 | 10 |
| Execution & Modifications | 5 | 5 |

Core XIII - OPEN SOURCE TOOLS

Credit Points: 5

Total Hours: 75

Objectives: To learn about advantages and Application of Open sources, PHP Concepts.

UNIT-I

(14 Hours)

Introduction to open sources – Need of open sources – advantages of open sources – application of open sources. Open source operating systems: LINUX: Introduction to Linux – Linux Distributions – Operating Systems and Linux – Linux Overview – Open Source Software – Linux Software – Online Linux Information Sources – **Linux Documentation***.

UNIT-II

(15 Hours)

Introducing PHP – Basic development Concepts – Creating first PHP Scripts – Using Variable and Operators – Storing Data in variable – Understanding Data types – Setting and Checking variables Data types – Using Constants – Manipulating Variables with Operators.

Controlling Program Flow: Writing Simple Conditional Statements – Writing More Complex Conditional Statements – Repeating Action with Loops – Working with String and Numeric Functions.

UNIT-III

(16 Hours)

Working with Arrays: Storing Data in Arrays – Processing Arrays with Loops and Iterations – Using Arrays with Forms – Working with Array Functions – Working with Dates and Times. Using Functions and Classes: Creating User – Defined Functions – Creating Classes – Using Advanced OOP Concepts.

UIT 34

UNIT-IV

(15 Hours)

Working with Files and Directories: Reading Files – Writing Files – Processing Directories. Working with Databases and SQL: Introducing Databases and SQL- Creating and Populating a Database - Using PHP's SQLite Extension - Introducing SQLite – Retrieving Data – Adding or Modifying Data – Handling Errors –Using PHP's PDO Extension – Retrieving Data – Adding and Modifying Data –**Switching to a Different Database***.

UNIT-V

(15 Hours)

Working with XML : Introducing XML – XML Basics – Anatomy of an XML Document – Well-Formed and Valid XML – XML Parsing Methods – XML Technologies – Simple XML and DOM Extensions

* - Self Study and questions for examinations may be taken from the self study portions also.

TEXT BOOKS:

1. Vikram Vaswani, "**PHP – A BEGINNER'S GUIDE**", Tata McGraw–Hill, 2008.
2. Richard Petersen, "**LINUX – THE COMPLETE REFERENCE**", Tata McGraw–Hill, Sixth Edition, 2008.

REFERENCE BOOKS:

1. Steven Holzner, "**THE PHP COMPLETE REFERENCE**", Tata McGraw–Hill, 2007.
2. Steven Holzer, "**SPRING INTO PHP5**", Addison Wesley, 2005

Core XIV – INFORMATION SECURITY

Credit Points: 4

Total Hours: 90

Objectives: To learn about the basic technological aspects of information security .

UNIT I **(17 Hours)**

Is there Security Problem in Computing? : What does Security mean? – Attacks-The Meaning of Computer Security-Computer Criminals. Protection in general purpose operating systems : Protected Objects and Methods of Protection-Memory and Address Protection-Control of Access to General Objects-File Protection Mechanisms-User Authentication.

UNIT II **(19 Hours)**

Program Security: Secure Programs- Nonmalicious Program Errors – Viruses and other Malicious Code- Targeted Malicious Code-Controls against Program Threats.

UNIT III **(18 Hours)**

Database and Data Mining Security: Intoduction to Databases- Security Requirements-Reliability and Integrity- **Multilevel Databases*** – Proposals for Multilevel Security- Data Mining.

UNIT IV **(17 Hours)**

Security in Networks: **Network Concepts***-Threats in Networks-Firewalls-Intrusion Detection Systems.

UNIT V **(19 Hours)**

Legal and Ethical Issues in Computer Security: Protecting Programs and Data- Information and the Law-Computer Crime- Ethical Issues in Computer Security.

UIT 36

TEXT BOOK:

1. Charles P.Pfleeger, Shari Lawrence Pfleeger, Deven N.Shan, "**SECURITY IN COMPUTING**" Fourth Edition, Prentice Hall, 2007.

REFERENCE BOOKS:

1. Ross J. Anderson and Ross Anderson, "**SECURITY ENGINEERING: A GUIDE TO BUILDING DEPENDABLE DISTRIBUTED SYSTEMS**", Wiley, 2001.
2. Debby Russell and Sr. G. T. Gangemi, "**COMPUTER SECURITY BASICS (PAPERBACK)**", 2nd Edition, O'Reilly Media, 2006.

Core Practical VI – PROGRAMMING LAB – PHP

Credit Points: 2

Total Hours: 75

Objectives: To help the students to create Web pages using PHP.

LIST OF PRACTICAL PROGRAMS

1. Develop a PHP program using controls and functions
2. Develop a PHP program and check message passing mechanism between pages.
3. Develop a PHP program using String function and Arrays.
4. Develop a PHP program to display student information using MYSQL table.
5. Develop a PHP program to design a college application form using MYSQL table.
6. Develop a PHP program using parsing functions (use Tokenizing)
7. Develop a PHP program and check Regular Expression, HTML functions, Hashing functions.
8. Develop a PHP program and check File System functions, Network functions, date and time functions.
9. Develop a PHP program using session
10. Develop a PHP program using cookie and session

Guidelines to the distribution of marks for Practical Examinations:

Two Questions will be given for each student. (3 Hours/60 marks)

Record : 10 marks

| Particulars | Program1 (Marks) | Program2 (Marks) |
|--------------------------------------|-------------------------|-------------------------|
| Algorithm | 10 | 10 |
| Program Coding | 10 | 10 |
| Execution & Modifications | 5 | 5 |

PROJECT WORK AND VIVA-VOCE

Credit Points: 4

Total Hours: 90

Objectives: To guide the students to develop a project in an organization and examine their performance.

MARK DISTRIBUTION

| Particulars | Marks |
|-------------------------|--------------|
| CIA | 20 |
| VIVA –VOCE * | 20 |
| PROJECT RECORD * | 60 |

*** Both Internal and External Examiners shall evaluate Project & Viva-Voce jointly**

MAJOR ELECTIVE PAPERS

UIT 39
ELECTIVES FOR FIFTH SEMESTER

ELECTIVE - EMBEDDED SYSTEMS

Credit Points: 5

Total Hours: 75

Objectives: To teach all aspects of design and development of an embedded system including hardware and embedded software development.

UNIT I (15 Hours)

Introduction to Embedded System: An Embedded System – Processor in the System– Other Hardware units – Software embedded into a system – Exemplary embedded system – Embedded system on chip and in VLSI circuit. Processor and Memory organization: Structural units in a processor – Processor selection – **Memory devices , Memory selection** *- Allocation of memory – DMA.

UNIT II (14 Hours)

Devices and buses for device networks: I/O devices – Device drivers and Interrupts servicing mechanism: Device drivers – Parallel port device drivers – Serial port device drivers– Interrupt servicing mechanism – Context and the periods for context-switching, dead-line and interrupt latency.

UNIT III (16 Hours)

Program modeling concepts in single and multiprocessor systems: Modeling process for software analysis before software implementation – Programming models for event controlled or response time constrained real time programs. Inter-process communication and synchronization of processes, tasks and threads: Multiple processor – Problem of sharing data by multiple tasks and routines – Inter process communication.

UNIT IV (15 Hours)

Real time operating systems: Operating system services – I/O subsystem – Network operating systems – Real time and embedded operating systems – Interrupt routine in RTOS environment – RTOS task scheduling.

UIT 40

UNIT V

(15 Hours)

Embedded system project management – embedded system design and code design issues in system development process – Uses of target system or its emulator and In circuit emulator – Uses of scopes and logic analysers for system h/w tests – **Issues in embedded system design***.

* - Self Study and questions for examinations may be taken from the self study portions also.

TEXT BOOK:

1. RajKamal - "**EMBEDDED SYSTEMS – ARCHITECTURE, PROGRAMMING AND DESIGN**", TMH,2007.

REFERENCE BOOKS:

1. David E Simon - "**AN EMBEDDED SOFTWARE PRIMER** ", Pearson Education Asia, 1999, Timmy noeragaard
2. Newmes - "**EMBEDDED SYSTEM ARCHITECTURE** ", – Oxford 2005.

UIT 41
ELECTIVE - ARTIFICIAL INTELLIGENCE

Credit Points: 5

Total Hours: 75

Objectives: To have enriched knowledge regarding heuristic search and knowledge representation techniques.

UNIT I (14 Hours)

Introduction: AI Problems - AI techniques - Criteria for success. Problems, Problem Spaces, Search: State space search - Production Systems - Problem Characteristics - **Issues in design of Search ***.

UNIT II (15 Hours)

Heuristic Search techniques: Generate and Test - Hill Climbing- Best-First Search - OR Graphs - A* Algorithm - Problem Reduction - AND-OR Graph - AO* Algorithm, Constraint Satisfaction, Means-ends analysis.

UNIT III (15 Hours)

Knowledge representation issues: Representations and mappings - Approaches to Knowledge representations -Issues in Knowledge representations - Frame Problem.

UNIT IV (16 Hours)

Using Predicate logic: Representing simple facts in logic - Representing Instance and Is a relationships - Computable functions and predicates - Resolution - Natural deduction.

UNIT V (15 Hours)

Representing knowledge using rules: Procedural Vs Declarative knowledge - **Logic programming - Forward Vs Backward reasoning *** - Matching - Control knowledge.

UIT 42

* - Self Study and questions for examinations may be taken from the self study portions also.

TEXT BOOK:

1. Elaine Rich and Kelvin Knight, - "**ARTIFICIAL INTELLIGENCE**", Tata McGraw Hill Publishers company Pvt Ltd, Second Edition, 2000. (chapters 1-6 only).

REFERENCE BOOKS :

1. Ben Coppin, - "**ARTIFICIAL INTELLIGENCE ILLUMINATED**", Narosa publishing house, First Edition, 2004.
2. Dan W. Patterson - "**INTRODUCTION TO AI AND EXPERT SYSTEMS**", First Edition, PHI 2007.

UIT 43

ELECTIVE – OBJECT ORIENTED ANALYSIS AND DESIGN(using UML)

Credit Points: 5

Total Hours: 75

Objectives: To learn the essential modeling elements of Unified Modeling Language.

UNIT I

(15 Hours)

Introduction to UML: Importance of modeling, principles of modeling, object oriented modeling, conceptual model of the UML, Architecture, **Software Development Life Cycle***.

UNIT II

(16 Hours)

Basic Structural Modeling: Classes, Relationships, common Mechanisms, and diagrams. Advanced Structural Modeling: Interfaces, Types and Roles, **Packages***.

UNIT III

(14 Hours)

Class & Object Diagrams: Terms, concepts, modeling techniques for Class & Object Diagrams.

UNIT IV

(15 Hours)

Basic Behavioral Modeling-I: Interactions, Interaction diagrams. Basic Behavioral Modeling-II: Use cases, Use case Diagrams, Activity Diagrams.

UNIT V

(15 Hours)

Advanced Behavioral Modeling: Events and signals, state machines, processes and Threads. Architectural Modeling: **Deployment***

* - Self Study and questions for examinations may be taken from the self study portions also.

UIT 44

TEXT BOOKS:

1. Grady Booch, James Rumbaugh, Ivar Jacobson - **"THE UNIFIED MODELING LANGUAGE USER GUIDE"**, Pearson Education 2nd Edition 2005.
2. Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado -**"UML 2 TOOLKIT"**, WILEY-Dreamtech India Pvt. Ltd 2009.

REFERENCE BOOKS:

1. Pascal Roques -**"MODELING SOFTWARE SYSTEMS USING UML2"**, WILEY-Dreamtech India Pvt. Ltd 1st Edition 2008.
2. Craig Larman -**"APPLYING UML AND PATTERNS: AN INTRODUCTION TO OBJECT – ORIENTED ANALYSIS AND DESIGN AND UNIFIED PROCESS"**, Pearson Education 3rd Edition 2008.

UIT 45

ELECTIVES FOR SIXTH SEMESTER

ELECTIVE – E-COMMERCE

Credit Points: 5

Total Hours: 90

Objective: To inculcate knowledge on E-Commerce concepts in the present IT world.

UNIT-I: (19 Hours)

What is e-commerce? – E-Commerce is not E-Business – the drivers – Myths You should know – Advantages and Issues in E-Commerce – Benefits and Limitations of the Internet – Role of E Strategy – Integrating E-commerce – E-Commerce Business Models – Management Implications.

UNIT-II: (17 Hours)

Mobile-Commerce-The Business of Time: What is M-Commerce? – Why wireless? – How wireless Technology is employed? – Wireless LAN – Wireless application Protocol -**Implications for Management ***.

UNIT-III: (18 Hours)

Business-to-Business E-Commerce: What is B2B E-Commerce? – Supply chain Management and B2B – B2B Models – B2B Tools-EDI.

UNIT-IV: (19 Hours)

E-Security: Security in Cyberspace – Designing for Security – How much risk you afford? – The VIRUS – Security Protection and Recovery – Role of Biometrics – How to secure your system? – Security and Terrorism.

UNIT-V: (17 Hours)

Getting the money: Real World Cash – Electronic Money – **Requirements for Internet*** - Based Payments – How would you like to pay? – B2B and E-Payment – M-Commerce and M-Payment – General Guide to E-Payment.

UIT 46

* Self Study and questions for examinations may be taken from the self study portions also.

TEXTBOOK:

1. Elias M. Awad – **“ELECTRONIC COMMERCE from Vision to Fulfillment**
”– 3rd edition, PHI.(*Chapters: 1, 6, 11, 13 &15*)

REFERENCE BOOKS:

1. Charles Trapper - **“E-COMMERCE Strategies”** – PHI Publication 2001 edition.
2. Agarwal & Others - **“AN INTRODUCTION TO THE WHATS AND HOWS OF E-COMMERCE ”** – first edition Mac Millan Ind Ltd 2000.

UIT 47
ELECTIVES FOR SIXTH SEMESTER

ELECTIVE - NETWORK SECURITY & ADMINISTRATION

Credit Points: 5

Total Hours: 90

Objectives: To inculcate the concept of transferring authentic data along the network with several methods and algorithms.

UNIT I

(19 Hours)

Attacks on computers and computer security : Introduction –Need for security –**Security approaches** *-principles of security –Types of attacks. Cryptography: Concepts and techniques - introduction – plain text and cipher text – encryption and decryption – symmetric and asymmetric key cryptography – possible types of attacks.

UNIT II

(17 Hours)

Symmetric Key Algorithms and AES: Introduction - Algorithm Types and modes –An overview of symmetric key cryptography – Data encryption Standard (DES): How DES works –International Data Encryption Algorithm (IDEA): How IDEA Works – Advanced Encryption Standard (AES) . Asymmetric Key Algorithms: Digital Signature and RSA : Introduction – brief history of Asymmetric Key cryptography – An Overview of Asymmetric Cryptography - The RSA algorithm – Symmetric and asymmetric cryptography together – digital signatures

UNIT III

(18 Hours)

Digital certificate and Public Key Infrastructure (PKI) : Introduction – digital certificates - the PKIX model – XML, PKI and Security – Creating digital certificates using JAVA. Internet Security Protocols : Introduction – basic concepts – Secure Socket Layer –(SSL) – Transport Layer Security(TLS) – Secure Hyper Text Transfer Protocol (SHTTP) – Time Stamping Protocol (TSP) – Secure Electronic Transaction (SET) – SSL Versus SET – 3-D secure Protocol – Electronic Money - Email security : PEM –PGP.

UIT 48

UNIT IV

(19 Hours)

User Authentication and Kerberos : Introduction – **Authentication basics***- Passwords – Authentication Tokens – Kerberos – Key distribution center –Single sign on (SSO) Approaches – Cryptographic Toolkits – Security and Operating Systems – Database Security .

UNIT V

(17 Hours)

Network Security Firewalls and Virtual Private Networks (VPN) : Introduction – Brief introduction to TCP/IP – Fire walls – IP security – Virtual Private networks (VPN) –Case Studies on Cryptography and Security : Introduction – Cryptographic Solutions a Case Study – DOS Attacks – IP Spoofing Attacks – Cross Site Scripting Vulnerability (CSSV) – Contract signing – secret Splitting - virtual elections – secure multiparty calculations .

* - Self Study and questions for examinations may be taken from the self study portions also.

TEXT BOOK:

1. ATUL KAHATE - "**CRYPTOGRAPHY AND NETWORK SECURITY**", Second Edition,2008

REFERENCE BOOK :

1. Charlie Kaufman, Radia Pearlman, Mike Speciner, - "**NETWORK SECURITY PRIVATE COMMUNICATION IN PUBLIC WORLD** ", EEE Publications, Second Edition, 2006.

UIT 49
ELECTIVES FOR SIXTH SEMESTER

ELECTIVE - DATA MINING

Credit Points: 5

Total Hours: 90

Objectives: To teach the core concepts of Data Mining

UNIT I **(18 Hours)**

Basic Data Mining Tasks – Data Mining Versus Knowledge Discovery in Data Bases – Data Mining Issues – Data Mining Matrices – **Social Implications of Data Mining *** – Data Mining from Data Base Perspective.

UNIT II **(18 Hours)**

Data Mining Techniques – a Statistical Perspective on data mining – Similarity Measures – Decision Trees – Neural Networks – Genetic Algorithms.

UNIT III **(18 Hours)**

Classification : Introduction – Statistical – Based Algorithms – Distance Based Algorithms – Decision Tree – Based Algorithms – Neural Network Based Algorithms – Rule Based Algorithms – Combining Techniques.

UNIT IV **(18 Hours)**

Clustering : Introduction – Similarity and Distance Measures – Outliers – Hierarchical Algorithms - Partitional Algorithms.

UNIT V **(18 Hours)**

Association Rules : Introduction - Large Item Sets – Basic Algorithms – Parallel & Distributed Algorithms – Comparing Approaches – Incremental Rules – Advanced Association Rules Techniques – **Measuring the Quality of Rules ***.

* - Self Study and questions for examinations may be taken from the self study portions also.

UIT 50

TEXT BOOK:

1. Margaret H.Dunbam – — Data Mining Introductory and Advanced Topics – Pearson Education – 2008

REFERENCE BOOK :

1. Jiawei Han & Micheline Kamber – — Data Mining Concepts & Techniques – 2006 Academic Press.

ALLIED PAPERS

UIT 51
Semester-IV

14UIT4A4

ALLIED IV – MICROPROCESSORS, PC HARDWARE AND INTERFACING

Credit Points: 5

Total Hours: 90

Objectives: To teach the architecture and instruction set of different Microprocessors. Microcontrollers, Peripheral and ports.

UNIT I

(18 Hours)

8086 Microprocessor: Introduction – general organization of a Microcomputer - 8086 internal Architecture- **Addressing modes** * – Instructions- Data Transfer, Arithmetic, Bit Manipulation, String. The 8086 based system design: Pins and Signals-Pin Configuration, Signals, Interfacing memory-Memory Devices, Memory Banks- Interrupts.

UNIT II

(18 Hours)

Peripheral Devices: Introduction- Programmable Peripheral Interface (8255A)-Internal blocks of 8255A ,Operating Modes-Priority Interrupt Controller (8259A)-Internal Block Diagram ,Operations-Direct Memory Access Controller (8237)-Organisation of 8237-The Programmable Interval Timer (8254)-Internal Block Diagram-Universal Asynchronous Receiver Transmitter(UART)-Internal Block Diagram, Internal Registers.

UNIT III

(18 Hours)

Advanced Microprocessors: 80386-Internal Block Diagram , Internal Registers, Modes of Operation , 80486-Internal Blocks and signals , Internal Registers, Pentium - Internal Blocks and Signals, Pentium MMX, Pentium Pro, Pentium-II Microprocessor. Motherboard of IBM PC: Introduction, Motherboard Components.

UIT 52

UNIT IV

(18 Hours)

Drives: Introduction – Principles of Magnetic Storage – **Floppy Disk Drive – Hard disk drive-CD –ROM Drive** *. Peripherals: Video display system-Keyboard-Printer.

UNIT V

(18 Hours)

Parallel & Serial Ports: Parallel port – Standard Parallel port (SPP)- Enhanced Parallel port (EPP) –Serial Port: -Pins and Signals of serial port –BIOS serial port services. Universal Serial Bus: Introduction – Features of USB – USB System – USB Transfer – USB Controller

* - Self Study and questions for examinations may be taken from the self study portions also.

TEXT BOOK:

1. N. Mathivanan – **“MICROPROCESSORS, PC HARDWARE AND INTERFACING”**- PHI Publications, New Delhi 2005.

REFERENCE BOOKS:

1. AdityaP.Marthur-**“INTRODUCTION TO MICROPROCESSORS”**,Third Edition,TMH 2002.
2. Brey.Barry.B,Sharma C.R – **“THE INTEL MICROPROCESSORS”** – PHI Publications First Edition,2007.

SKILL BASED PAPERS

UIT 53

Semester-III

14UIT3S1

SKILL BASED SUBJECT 1

MULTIMEDIA(PHOTOSHOP & PAGEMAKER)

Credit Points: 3

Total Hours: 30

Objectives: To learn the basic concepts of Multimedia ,Photoshop and Pagemaker tools.

UNIT I

(6 Hours)

Multimedia in use – Introducing Multimedia-What is multimedia using multimedia- **Applications** *, benefits and problems.

UNIT II

(6 Hours)

Technology – System components, Multimedia platforms–personal computers for multimedia today – multimedia hardware – system software. Development tools – Developing applications, **commercial tools** *.

UNIT III

(6 Hours)

Images – images and applications, image capture, compressions. Image Types – Seeing Color – Color Models – Basic Steps for Image Processing – Photoshop: Introduction to Photoshop – Feature of Photoshop – Work Area – Tool Box –Resolution – Duplication – Saving – Color Management – Printing Images – Filling & Stroking – Layers – Filters.

UNIT IV

(6 Hours)

Adobe PageMaker: Introduction - Making Documents – Using Master Pages- Using Rulers, Guides – Placing Page Numbers – Toolbox and its Functions.

UNIT V

(6 Hours)

Formatting Text – Graphics – Templates – Layouts – Printer Settings – Book Preparation.

UIT 54

* Self Study and questions for examinations may be taken from the self study portions also.

TEXT BOOKS:

1. Judith Jeffcoate - "**MULTIMEDIA IN PRACTICE TECHNOLOGY AND APPLICATIONS**" – New Delhi, 2007.
2. Deke McClelland & Laurie Ulrich Fuller - "**PHOTOSHOP CS2 BIBLE**" –, Wiley India first edition 2005.
3. Carolyn M Collally - "**PAGE MAKER 7**"- The Ultimate Reference"- 2005

REFERENCE BOOKS:

1. Tay Vaughan - "**MULTIMEDIA: MAKING IT WORK**", TMH 7th edition, 2002

SKILL BASED SUBJECT 2 (PRACTICAL)
MULTIMEDIA (PHOTOSHOP, PAGEMAKER)

Credit Points: 3

Total Hours: 30

Objective: To create and design programs using Photoshop and Pagemaker

LIST OF PRACTICAL PROGRAMS

1. Create Sun Flower using Photoshop.
2. Create Water Drops using Photoshop.
3. Create Web Page using Photoshop.
4. Convert Black and White Photo to Color Photo using Photoshop.
5. Create a Banner for Department Function using Photoshop.
6. Edit a photo using digital Painting in Photoshop.
7. Create a Student ID card using Photoshop.
8. Create a news letter using PageMaker.
9. Create a Broacher using PageMaker.
10. Create a Book Front cover using PageMaker.

Guidelines to the distribution of marks for Practical Examinations:

One Question will be given for each student. (3 Hours/60 marks)

Record Work: 10 marks

| Particulars | Program1 (Marks) | Program2 (Marks) |
|--|-----------------------------|-----------------------------|
| Algorithm | 10 | 10 |
| Program Coding | 10 | 10 |
| Execution & Modifications | 5 | 5 |

UIT 56

Semester-V

14UIT5S3

SKILL BASED SUBJECT 3- ANIMATION TECHNIQUES (FLASH, CORELDRAW & MOVIE MAKER)

Objective: To learn the animation techniques using Flash, CorelDraw and Moviemaker.

Credit Points: 3

Total Hours: 30

UNIT I

(6 Hours)

Flash: Introduction – Introducing the Flash Workspace – Creating a New Flash Document- Movie Properties –Scenes in Flash – Layers in Flash – Concept of Frames – Publishing a Flash Movie – Working with Graphics: Drawing Models in Flash – Selecting Objects in Flash – Creating Graphics in Flash.

UNIT II

(6 Hours)

Working with Colors in Flash: The Color Palette – Working with Text – Modifying the Text Attributes – Transforming the Text – Tweening.

UNIT III

(6 Hours)

Corel Draw: Introduction – Dialog Boxes- Rollup Window- Utility, Drawing and text tools- **Outline and fill tools** *- The file menu- The edit menu- The Layout menu.

UNIT IV

(6 Hours)

Effects menu- Arrange menu- The text Menu- The Display Menu- The special Menu- The Object menu. Corel Draw utility: Corel TRACE- Opening files- Tracing files- Menus- importing corel TRACE image into Corel DRAW.

UIT 57

UNIT V

(6 Hours)

Audio – Audio applications, Audio capture, compression. Video -Video applications, video capture. Movie Maker: How to import digital photos into Movie Maker - Design, create and edit a movie using Movie Maker - Import audio clips into Movie Maker - **Add titles and customize motions** * -Save your movie to a PC or media file.

* Self Study and questions for examinations may be taken from the self study portions also.

TEXT BOOKS :

1. Shalini Guptha & Adity Gupta - "**FLASH 8 IN SIMPLE STEPS**" -, 2007, Dreamtech.
2. Webster & Associates - "**COREL DRAW 4**", Galgotia Publications First edition.

REFERENCE BOOKS :

1. Ethan Waterall & Norbert Herber - "**FLASH 8**", Dreamtech publication First edition 1995.
2. William D Harrel, "**COREL DRAW 5 REVELED**", Galgotia Publications, First edition 1997 .

UIT 58

Semester-VI

14UIT6S4

**SKILL BASED SUBJECT 4 (PRACTICAL)
ANIMATION TECHNIQUE LAB
(FLASH, CORELDRAW & MOVIE MAKER)**

Credit Points: 3

Total Hours: 30

Objective: To apply animation techniques using Flash, CorelDraw and MovieMaker.

LIST OF PRACTICAL PROBLEMS

1. Create Shapes and Drawings in Flash.
2. Change a Shape to another Shape using Shape Animation.
3. Draw a Bird with Flash tools and make it fly with key Frame Animation.
4. Change the Colors of an object with the help of Animation.
5. Use Corel Draw to select a part of an image using marquee selection.
6. Use Corel Draw to rotate and skew objects.
7. Use Corel Draw Mirroring objects.
8. Use Corel Draw to select, More, Edit Control Nodes.
9. Import digital photos into Movie Maker.
10. Create ,design and edit a movie using a Movie Maker.
11. Import Text, Effect and audio clips into Movie Maker.

Guidelines to the distribution of marks for practical Examinations:

One question will be given for each student (3 Hours / 60 Marks)

1. Record Work : 10 Marks

| Particulars | Program1 (Marks) | Program2 (Marks) |
|--|-----------------------------|-----------------------------|
| Algorithm | 10 | 10 |
| Program Coding | 10 | 10 |
| Execution & Modifications | 5 | 5 |

NON -MAJOR ELECTIVE PAPERS

UIT 59

Semester III

Non- Major Elective - I "Human Rights"

14UHR3N1

(2010-11 onwards)

Credit Points: 2

Total Hours: 30

UNIT – I :

**Concept of Human Values,
Personal Development:**

Value

Education

**(6 Hours)
towards**

Aim of education and value education; Evolution of value-oriented education; Concept of human values; types of values; Components of value education.

Personal Development :

Self-analysis and introspection; sensitization towards gender equality, physically-challenged, intellectually-challenged. Respect to - age, experience, maturity, family members, neighbours, co-workers.

Character Formation towards Positive Personality:

Truthfulness, Constructivity, Sacrifice, Sincerity, Self-Control, Altruism, Tolerance, Scientific vision.

UNIT – II :

(6 Hours)

**Value Education towards National and Global Development
National and International Values:**

Constitutional or national values - Democracy, socialism, secularism, equality, justice, liberty, freedom and fraternity. Social Values - Pity and probity, self-control, universal brotherhood. Professional Values - Knowledge thirst, sincerity in profession, regularity, punctuality and faith. Religious Values - Tolerance, wisdom, character. Aesthetic Values - Love and appreciation of literature and fine arts and respect for the same. National Integration and international understanding.

UIT 60

UNIT – III :

(6 Hours)

Impact of Global Development on Ethics and Values:

Conflict of cross-cultural influences, mass media, cross-border education, materialistic values, professional challenges and compromise. Modern challenges of adolescent emotions and behavior sex and spirituality: comparison and competition; positive and negative thoughts. Adolescent emotions, arrogance, anger, sexual instability, selfishness, defiance.

UNIT- IV :

(6 Hours)

Therapeutic Measures:

Control of the mind through

- a. Simplified physical exercise
- b. Meditation – Objectivess, types, effect on body, mind and soul
- c. Yoga – Objectivess, types, Asanas
- d. Activities:
 - (i) Moralisation of Desires
 - (ii) Neutralisation of Anger
 - (iii) Eradication of Worries
 - (iv) Benefits of Blessings

UNIT- V :

(6 Hours)

Human Rights:

1. Concept of Human Rights – Indian and International Perspectives
 - a. Evolution of Human Rights
 - b. Definitions under Indian and International documents
2. Broad classification of Human Rights and Relevant Constitutional Provisions.
 - a. Right to Life, Liberty and Dignity
 - b. Right to Equality
 - c. Right against Exploitation

UIT 61

- d. Cultural and Educational Rights
 - e. Economic Rights
 - f. Political Rights
 - g. Social Rights
 - h. Right to Information
3. Human Rights of Women and Children
- a. Social Practice and Constitutional Safeguards
 - (i) Female Foeticide and Infanticide
 - (ii) Physical assault and harassment
 - (iii) Domestic violence
 - (iv) Conditions of working women
4. Institutions for Implementation
- a. Human Rights Commission
 - b. Judiciary
5. Violations and Redressal
- a. Violation by State
 - b. Violation by Individuals
 - c. Nuclear weapons and terrorism
 - d. Safeguards

Note: Study material can be obtained from the Office of the Controller of Examinations of our College.

UIT 62

Semester IV

**Non- Major Elective - II "Women's Rights" 14UWR4N2
(2010-11 onwards)**

Credit Points: 2

Total Hours: 30

UNIT I (6 Hours)
Laws, Legal Systems and Change:

Definition - Constitutional law, CEDAW and International Human Rights –
Laws and Norms – Laws and Social Context – Constitutional and Legal
Framework.

UNIT II (6 Hours)
Politics of land and gender in India:

Introduction – Faces of Poverty – Land as Productive Resources – Locating
Identities – Women's Claims to Land – Right to Property - Case Studies.

UNIT III (6 Hours)
Women's Rights: Access to Justice:

Introduction – Criminal Law – Crime Against Women – Domestic Violence
– Dowry Related Harassment and Dowry Deaths – Molestation – Sexual Abuse
and Rape – Loopholes in Practice – Law Enforcement Agency.

UNIT IV (6 Hours)
Women's Rights:

Violence Against Women – Domestic Violence - The Protection of Women
from Domestic Violence Act, 2005 - The Marriage Validation Act, 1982 - The Hindu
Widow Re-marriage Act, 1856 - The Dowry Prohibition Act, 1961

Special Women Welfare Laws:

Sexual Harassment at Work Places – Rape and Indecent Representation – The Indecent Representation (Prohibition) Act, 1986 - Immoral Trafficking – The Immoral Traffic (Prevention) Act, 1956 - Acts Enacted for Women Development and Empowerment - Role of Rape Crisis Centers.

REFERENCE BOOKS:

1. Nitya Rao - "**GOOD WOMEN DO NOT INHERIT LAND**" Social Science Press and Orient Blackswan 2008
2. International Solidarity Network - "**KNOWING OUR RIGHTS**" An imprint of Kali for Women 2006
3. P.D. Kaushik "**WOMEN RIGHTS**" Bookwell Publication 2007
4. Aruna Goal - "**VIOLENCE PROTECTIVE MEASURES FOR WOMEN DEVELOPMENT AND EMPOWERMENT**" Deep and Deep Publications Pvt. 2004
5. Monica Chawla - "**GENDER JUSTICE**" Deep and Deep Publications Pvt. Ltd. 2006
6. Preeti Mishra - "**DOMESTIC VIOLENCE AGAINST WOMEN**" Deep and Deep Publications Pvt. 2007
7. Clair M. Renzetti, Jeffrey L. Edleson, Raquel Kennedy Bergen, Source Book on - "**VIOLENCE AGAINST WOMEN**" Sage Publications 2001.

UIT 64

14UHR3N1 & 14UWR4N2

**NON-MAJOR ELECTIVES I & II
(2012 - 2013 onwards)**

QUESTION PAPER PATTERN

Duration : 3 Hours

Max. Marks : 75

Answer ALL Questions

SECTION A (5 x 5 = 25 marks)

Short answers, either or type, one question from each unit.

SECTION B (5 x 10 = 50 marks)

Essay type questions, either or type, one question from each unit.