NALLAMUTHU GOUNDER MAHALINGAM COLLEGE
(Autonomous)
Pollachi – 642 001

DEPARTMENT OF COMPUTER SCIENCE

BATCH: 2013-2016

Scheme of Examinations effective from 2013 onwards

Semester – I

Sl.No.	Course Code	Part	Title of the Paper	Hours	Credit	Max. Marks Internal	Max. Marks External	Max. Marks Total
1.	13UTA01	Part I	Tamil I	6	3	25	75	100
2.	13UEH01	Part II	English I	5	3	25	75	100
3.	13UCE01	Part III	**Core I-** Programming in C	4	4	25	75	100
4.	13UCE02		**Core II-** Digital Computer fundamentals and organization	4	4	25	75	100
5.	13UCE03		**Allied I-** Mathematics I	4	3	25	75	100
6.	13UCE04		**Core Lab I-** Programming in C	4	2	20	30	50
7.	13ECL01	Part IV	Human Excellence (Yoga)	1	1	-	50	50
8.			Environmental Studies	1				
9.		Part V	Extension activities NCC, NSS, Sports & Games	Grading only				
T O T A L				30	22			600

Semester – II

Sl.No.	Course Code	Part	Title of the Paper	Hours	Credit	Max. Marks Internal	Max. Marks External	Max. Marks Total
10.	13UTA02	Part I	Part I: Tamil II	6	3	25	75	100
11.	13UEH02	Part II	Part II: English II	5	3	25	75	100
12.	13UCE05	Part III	**Allied II-** Mathematics-II	4	4	25	75	100
13.	13UCE06		**Core III-** Data and File Structure	4	4	25	75	100
14.	13UCE07		**Core IV-** COBOL Programming	4	3	25	75	100
15.	13UCE08		**Core Lab II** Programming in COBOL	4	2	20	30	50
16.	13EVS01	Part IV	Environmental studies	1	2	-	50	50
17.	13ECL02		HE (Yoga)	1	1	-	75	75
18.			HE Practical - I	1	-		50	50
19.	13SBE01		Human Rights	1	2	-	50	50
20.		Part V	Extension activities NCC, NSS, Sports & Games	Grading only				
T O T A L				30	22			600

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Semester – III

Sl. No.	Course Code	Part	Title of the Paper	Hours	Credit	Max. Marks Internal	Max. Marks External	Max. Marks Total
18	13UCE09	Part - III	**Core V**-Software Engineering and System Design	5	3	25	75	100
19	13UCE10		**Core VI**- Object Oriented Programming using C++	4	3	25	75	100
20	13UCE11		RDBMS and Oracle	5	3	25	75	100
21	13UCE12		**Allied III**- Resource Management Techniques	5	3	25	75	100
22	13UCE13		**Core Lab III**- Programming in C++	4	2	20	30	50
23	13UCES1		Skill Based Elective I- Programming Lab in Oracle	4	2	20	30	50
24	13ECL03	Part - IV	Yoga	1	-	-	50	50

Total = 600

Semester – IV

Sl. No.	Course Code	Part	Title of the Paper	Hours	Credit	Max. Marks Internal	Max. Marks External	Max. Marks Total
26	13UCE14	Part - III	**Core VIII**- Operating system	5	4	25	75	100
27	13UCE15		**Core IX**- Data Communication and Computer Networks	5	4	25	75	100
28	13UCE16		**Core X**- Java Programming	5	4	25	75	100
29	13UCE17		**Allied IV**- Accountancy for Decision Making	5	3	25	75	100
30	13UCE18		**Core Lab V**- Programming in Java	4	2	20	30	50
31	13UCES2		Skill Based Elective II- Visual Basic	4	2	20	30	50
32	13ECL04	Part - IV	Yoga	1	2	-	50	50
33			Extension Activities	-	1	-	-	-

Total = 600

Semester – V

Sl.No.	Course Code	Part	Title of the Paper	Hours	Credit	Max. Marks Internal	Max. Marks External	Max. Marks Total
35	13UCE19	Part - III	**Core XI**- Dot Net Programming	4	4	25	75	100
36	13UCE20		**Core XII** Web Technology	5	4	25	75	100
37	13UCE21		**Core XIII**- Software Testing	5	4	25	75	100
38	13UCEE1A		**Elective –I** (A) Cyber Security	4	5	25	75	100
39	13UCE22		**Core Lab VII**- Dot Net Programming Lab	6	4	20	30	50
40	13UCE23		**Core Lab VIII**- Web Technology Lab	6	4	20	30	50
41	13ECL05	Part - IV	Yoga	1	-	-	50	50

Total = 600

Elective – I

A. Cyber Security
B. Distributed Computing
C. Open Source Technology

Semester – VI

Sl. No.	Course Code	Part	Title of the Paper	Hours	Credit	Max. Marks Internal	Max. Marks External	Max. Marks Total
43	13UCE24	Part – III	**Core XIV**- Linux	4	4	25	75	100
44	13UCEE2A 13UCEE2B 13UCEE2C		**Elective –II** (A)Data Mining and Warehousing (B) Enterprise Resource Planning (C) Software Project Management	5	4	25	75	100
45	13UCEE3A 13UCEE3B 13UCEE3C		**Elective – III** (A) Multimedia Packages (B) Network Security and Cryptography (C) Mobile Computing	6	4	25	75	100
46	13UCE25		**Core Lab IX** Linux Lab	4	2	20	30	50
47	13UCE26		**Core Lab X** Multimedia Lab	4	2	20	30	50
48	13UCE27		Project (Individual)	6	2	-	100	100
49	13ECL06	Part – IV	Yoga	1	2	-	50	50

Total = 600

Elective – II

A. Data Mining & warehousing
B. Enterprise Information Technology
C. Software Project Management

Elective – III

A. Multimedia & packages
B. Network security
C. Mobile Computing

PROGRAMMING IN 'C'

Sub Code: 13UCE01
(Credits: 4)

Objective: To enable the students to learn all the features available in 'C' and make the Students to apply the same for solving problems by writing algorithms and Program.

UNIT –I **(10 Hrs)**

Introduction to C – Constants – C character set – Delimiters – Keywords – Identifiers – Constants – Variables – Rules for defining variables- Data types, – Declaring and initializing variables – Type conversion– Operators – precedence of arithmetic – operators precedence & associativity – expressions – Mathematical functions -Input/Output statements – IF, IF..ELSE Statements, ELSE...IF ladder – Switch Statement – GOTO Statement – WHILE Statement – Do Statement – FOR Statement – Jumps in Loops.

UNIT –II **(10 Hrs)**

Arrays:

One dimensional Arrays – Two Dimensional Arrays – Multi Dimensional Arrays – Structures – Arrays within Structures – Structures within structures – Structures and Functions- Union – Size of structures.

Characteristics of Arrays & String manipulation:

Introduction - Declaring & Initializing variables – Reading string from terminal, writing string to screen – Arithmetic operations and characters– string handling Functions.

UNIT – III **(11 Hrs)**

Functions:

User-defined functions- A-Multi-function programme- Elements of user define function, definition of function-return value &their types, function calls & declarations- category of functions: No arguments & No return values-arguments that No return values – arguments with return values-No arguments that return a value-Nesting of functions-recursion & passing arrays & strings to functions. The scope, Visibility and lifetime of Variables in functions

UNIT –IV **(11 Hrs)**

***Pointers*:**

Introduction-Accessing, Declaring & Initializing pointer variables-Chain of pointers-Pointer expression, increments-Pointer Arrays-Pointers and Character strings-Array of pointers-Pointers as function arguments-function returning pointers-pointers to functions-Pointers and Structures-Troubles with pointers.

UNIT –V **(10 Hrs)**

Defining and opening a file – Closing a file –I/O operations of file – Error handling during I/O operations – Random access files – Command line argument-preprocessor – Macro Substitution – File Inclusion – Compiler control directives.

TEXT BOOK

1. E.Balagurusamy, "*Programming in Ansi C*", Tata McGraw-Hill Publishing Company Ltd.,
Fourth Edition, 2007.

REFERENCE BOOKS

1. Yaswanth Kanishkar, "*LET US C*", BPB Publications, Seventh Edition, 2007. Schaum Series,
"*Programming in C*", Tata McGraw Publication, Second Edition,1998.

DIGITAL COMPUTER FUNDAMENTALS AND ORGANIZATION

Sub Code: 13UCE02
(Credits: 4)

Objective: To enable the students to understand number systems, logic circuits and gates, arithmetic building blocks, flip-flops, registers and stacks organization, DMA, memory organization.

UNIT- I (10 Hrs)

Number System and Binary Codes-logic circuits: AND, OR, NOT, NOR, NAND gates-Boolean Laws and Theorem-Karnaugh map simplification-Combination of circuit of design with Gates, Arithmetic Building blocks: Half Adder, Full Adder, Subtractors.

UNIT -II (11 Hrs)

Decoders, Encoders, Multiplexer, Flip-Flops: SR, D, JK. Shift Registers, Counters: Binary ripple, Up-down, Ring, Block Diagram of Computer: CPU- Memory-Input Output Units-Machine Instructions -Operation Code, Operand location –Fetch and Execute cycle-Semi conductor memories.

UNIT -III (10 Hrs)

Stack Organization: PUSH and POP Operations-Instruction formats-Addressing Modes-Instruction formats Zero, Single, Double. Data Transfer and Manipulation Instructions. Computer Arithmetic: Addition and Subtraction Algorithms for signed magnitude.

UNIT -IV (11 Hrs)

Peripheral Devices-Input-Output interface- Asynchronous data transfer -Modes of transfer-Priority interrupt- Direct Memory Access-Input- Output Processor.

UNIT -V (10 Hrs)

Memory Hierarchy- Main Memory - Auxiliary Memory – Associative Memory – Cache memory –Virtual memory.

TEXT BOOKS

1. Aldert Paul Malvino ,Donald P.Leach,"*Digital Principles and applications*" TATA McGraw
Hill Publication, Fourth Edition,2007.

2. M.Morris Mano*," Computer System Architecture*", Prentice Hall of India, Third Edition,2003

REFERENCE BOOKS

1. T.C.Bartee," *Digital computer Fundamentals*", Tata McGraw Hill, Sixth edition,1986.
2. William Gear," *Computer organization and Programming*", Tata McGraw Hill Publication,
First Edition, 1985.
3. Chatterjee," Digital Computer Technology ", Khanna Publishing ,Second Editon, 1986

MATHEMATICS-I

Sub Code: 13UCE03
(Credits: 5)

Objective: To make the students to understand and apply the central tendencies deviation, correlation, Statistical Inference tests..- To enable the students to solve liner algebra existences, numerical integration and differential equation using numerical methods

UNIT – I (7 Hrs)

Mean, Median, Mode, Range, Quartile Deviation, Standard Deviation, Rank Correlation, Co-efficient of Correlation, Regression.

UNIT – II (8 Hrs)

Large Sample test: Standard error- Test of Significance of Large Samples – Tests for (i) single proportion (ii) Difference of two proportions (iii) difference of two means (iv) difference of two standard deviations.Small sample test based on t, – t-test for (i) single mean (ii) Difference of two means (iii) Observed sample correlation co-efficient. F-Variance Ratio Test

UNIT – III (8 Hrs)

Test of Hypothesis – Test of significance – 2 X 2 contigency tables – Chi-Square test – Analysis of Variance – One way classification – Two way classifications, Distributions: Binomial Distribution and Poission Distribution - Properties-Fitting of Distributions - Problems.

UNIT – IV (8 Hrs)

Gauss-Seidal method for linear algebric system-Newton's Rapshon method for polynomial system-Newton forward and backward interpolation-Trapezoidal rule-Simpson 1/3 rule and 3/8 rule for Numerical Integration

UNIT – V (8 Hrs)

Solution of numerical algebric and transcendental equation-Bisection method-Method of successive approximation-Method of false position-Ordering differential equation-Runge-Kutta fourth order method for ordering differential equation.

TEXT BOOKS

1. RSN Pillai & Bagavathi ,"*Statistics Theory and Practice",* S.Chand & Company Ltd. July
2011

2. P.Kandasamy, K.Thilagavathy, K.Gunavathy, "*Numerical Methods*", Sultan Chand & Co.
Ltd., Third Edition,2002.

Reference BOOKS

1. S.P. Gupta, "*Statistical Methods*", Sultan Chand & Sons Publishers, Thirty-third Edition, 2002.

2. M.Venkatraman, "*Numerical Methods in Science and Engineering*", The National Publications, Fifth Edition,1999.

3. "*Computer Oriented Statistics and Numerical Method"s*, S.Chand and Co Delhi. 2009

PROGRAMMING IN C

Sub Code: 13UCE04
(Credits: 2)

Objective: To enable the students to write programming in 'C' for solving specified Problems.

- Program to find the greatest number among n numbers.
- Program to Generate a Fibonacci series.
- Program to check whether the given number is Armstrong number or not.
- Program to find Prime numbers between a given range.
- Program for finding Sum of individual digits.
- Program to find the values of the following Series Sin(X), Cos(X), E^x,
- Log(1+X).
- Program to perform the Sequential search.
- Program for Binary search.
- Program to display the Numbers in Ascending order.
- Program to display the Numbers in Descending order.
- Program to display the Names in Alphabetic order.
- Program to find whether a given string is a palindrome or no.t
- Program to generate the Piglatin.
- Program to find a Mean, median & mode for given values.
- Program to find Standard deviation & variance for given values.
- Program to calculate the Matrix addition.
- Program to calculate the Matrix multiplication.
- Program to find the Transpose of a Matrix.
- Program to count vowels, consonants, white spaces in a given sentence.
- Program to illustrate the concept of structures.
- Program to illustrate the concept of Pointers.
- Program to illustrate the concept of subroutine functions.
- Program to create a file.
- Program for processing a file.

Note: Students are expected to submit 50 exercises in the record note.

MATHEMATICS II
(Derivations and Proofs not included)

Sub Code: 13UCE05
(Credits: 5)

Objective: To enable the students to understand the concepts and principles of relations, functions, fuzzy sets, partial ordering, algebric structures, mathematical logic, formal languages and graph theory.

UNIT I **(10 Hrs)**

Relations and Functions:

Composition of Relations – Equivalence Relations – Composition of functions – Inverse functions – One to one, onto functions.

Fuzzy Sets:

Fuzzy sets – Crisp Sets –Overview of operations on fuzzy sets – Fuzzy complement – Fuzzy union – Fuzzy intersection – Aggregation operations.

UNIT II **(10 Hrs)**

Partial ordering:

Posets – Lattice – definitions and examples only.

Algebric Structures

Semi groups – Monoids – Groups – Cosets – Normal sub groups – Homomorphisms.

UNIT III **(10 Hrs)**

Mathematical logic:

Connectives – Well formed formulas – Tautology – Equivalence – Duality - Normal forms – Predicates – Quantifiers – Free and bound variables.

UNIT IV **(11 Hrs)**

Formal languages:

Regular expressions – types of grammar – Regular grammar – Finite state automata – Context free and context sensitive grammars – Turing machines (Definition only).

UNIT V **(11 Hrs)**

Graph theory:

Graph –Degree of the vertex - Null graph –Simple graph - Regular graph-Complete graph - Sub graph - Path and Circuits – Euler Graphs-Hamiltonian paths & Circuits– Matrix representation of a graph - Adjacency, Incidence, Circuit Matrix and path matrix.

Trees:

Basic definition – Representation – Binary trees – Spanning tree –Prefix, Postfix and Infix formula – application of trees.

REFERENCE BOOKS

1. V. Sundaresan, K.S. Ganapathi Subramanian, K. Ganesan, "*Discrete Mathematics*", A.P.Publications, Sirkali, 2006.

2. George Klir & Tina A Folger,"*Fuzzy Sets, Uncertainity & Information*", Prentice hall of India, Eighth Edition, 2003.

3. J.P.Tremplay & R. Manohar"*Discrete Mathematical structures with Applications to computer Science* ", McGraw Hill Publication 1975

4. Narsing Deo, "*Graph Theory* ", Prentice hall of India, New Delhi, 2008.

5. Rani Sironmani," *Formal Languages* ",The Christian Literature Societry, First Edition,1974.

DATA AND FILE STRUCTURE

Sub Code: 13UCE06
(Credits: 4)

Objective: To enable the students to understand the concepts of array, stack, queue, list, linked list, tree, graph theory, searching and sorting.

UNIT I (10 Hrs)

Introduction – Creation of Programs – Analysis of programs – Arrays – representation of Arrays – Ordered Lists – Polynomials – Stacks and Queues – fundamentals – Evaluation of Expressions – Multiple stacks and queues.

UNIT II (11 Hrs)

Linked List – Singly Linked lists – Linked Stacks and Queues – Polynomial addition using stack – Functions of Linked list – Doubly Linked List – Dynamic Storage Management – Garbage collection and Compaction.

UNIT III
(11 Hrs)

Trees – Basics – Binary Trees – Binary Trees Representation – Binary Trees Traversal – Binary tree representation of Trees .Symbol Tables –Hash table.

UNIT IV (10 Hrs)

Searching and Sorting – Linear search, Binary search & Fibonacci search – Sorting – Insertion, Quick, Merge (2-way), Heap, and Radix.

UNIT V (10 Hrs)

Files: Files, Queries and Sequential Organizations: Storage device types-Query types, Mode of Retrieval, Mode of update– Indexing techniques: Cylinder-Surface Indexing-Hashed Indexes – File Organizations :Sequential Organizations-Random Organizations-Linked Organization-Storage Management.

TEXT BOOK

1. Ellis Horowitz & Sartaz Sahani, "*Fundamentals of Data Structures*" Galgotia Book Source,
1982.

2. ISRD GROUP, *"Data Structures using C"* , Tata McGraw Hill ,Seventh Reprint,2010

REFERENCE BOOK

1. Jean Paul Tremblay and Paul G. Sorenson, "*An Introduction to Data Structures with Applications"* Tata McGraw Hill Publication, Second Edition, 1984.

2. Ellis Horowitz, Sartaj Sahni, Susan Anderson-Freed, "*Fundamentals of Data Structures in C*", Universities Press (India) Private Limited, 2008.

3. R.Krishnamurthy and G. Indirani Kumaravel, "*Data Structures using C*", Tata McGraw – Hill Publishing Company Limited, New Delhi, 2008.

COBOL PROGRAMMING

Sub Code: 13UCE07
(Credits: 4)

Objective: To enable the students to understand the important of MIS to enable the students to learn all the futures of COBOL and make the students to apply the same for writing COBOL programming for solving problems.

UNIT -I (8 Hrs)

Data Processing - Batch Processing - Online Processing - Realtime Processing - Data Files - Organization Of Data.
Introduction to COBOL – History – Coding Format – Structure of a COBOL Program – Character Set – COBOL Words – Data names and Identifiers – Literals – Figurative Constant.

UNIT -II (8 Hrs)

Four Divisions of COBOL–IDENTIFICATION DIVISION–ENVIRONMENT DIVISION – DATA DIVISION – Level Structure – PICTURE Clause -VALUE Clause – FILE SECTION – WORKING STOARAGE SECTION –Editing .

UNIT -III (8 Hrs)

PROCEDURE DIVISION – Data Movement verb: MOVE – Arithmetic Verbs: ADD, SUBTRACT, MULTIPLY and DIVIDE –Sequence Verb: GOTO, STOP – Conditional Verb: IF, Nested IF.
DATA DIVISION – USAGE clause – DISPLAY clause - SYNCHRONIZED clause – JUSTIFIED clause – REDEFINED clause – RENAMES clause – SIGN clause – Simple Programs.

UNIT -IV (8 Hrs)

Table Handling – OCCURS clause – PERFORM Verb – PERFORM with TIMES, UNTIL, VARYING, VARYING-AFTER Options – SET Verb – SEARCH Verb – EXAMINE Verb – INSPECT Verb – STRING and UNSTRIGN Verbs – Simple Programs.

UNIT –V (7 Hrs)

Sequential File Processing – Indexed File Processing – Relative File Processing – SORT Verbs – MERGE Verbs – Simple Programs
.

TEXT BOOKS

1. M.K. Roy, D.Ghosh Dastidar,"*COBOL Programming*", Tata McGraw Hill –Second Edition,

1998.

2. Philippakkis, ”*Information system through COBOL*”, Tata McGraw Hill-Second Edition 1989

REFERENCE BOOKS

1. Sadagopan,” *Management Information Systems*“, Prentice hall of India, Second Edition, 2002.
2002.

2. Gardon, B.Davis and Margeth, H.Olsen,” *Management Information System*”, Tata McGraw
Hill, Second Edition, 1984.

3. Philippakkis,” *Structured COBOL Programming*”, Tata McGraw Hill, Third Edition, 1990.

PROGRAMMING IN COBOL

Sub Code: 13UCE08 **(Credits: 2)**

Objective: To enable the students to write programming in COBOL for solving specified problems.

- Solve problems using control statements
- Solve problems using string handling
- Solve problems using level numbers
- Solve problems using table handling
- Sequence file creation
- Sequential file processing
- Indexed sequential file creation
- Indexed sequential file processing
- Indexed sequential file updation
- Relative file creation and processing
- Program using subroutines
- Program using screen section
- Program to sort two files
- Program to merge two files
- Program to handle strings

Note: Students are expected to submit minimum 30 Exercises in COBOL Programming

SOFTWARE ENGINEERING AND SYSTEM DESIGN

Sub Code: 13UCE09
(Credit: 4)

Objective: To make the students to learn all the software development approaches & design methodologies and usage of tools in software development process.

UNIT I: (13 Hrs)

Introduction- Software – Software Process – Software Process Model – Software Engineering methods – CASE studies – Attributes
Computer Based System Engineering – System Modeling - System Engineering Process – System Requirements Definition – System Design – System Interpretation – System Installation – System Operation – System Evolution.

UNIT II: (12 Hrs)

Software Processes – Software Process Models: Waterfall model – Evolutionary Development – Reuse Oriented Development – Incremental Development – Spiral Development.

UNIT III: (14 Hrs)

Project Management: Management activities – Project Planning – Project Scheduling – Risk Management: Risk Identification – Risk Analysis – Risk Planning – Risk Monitoring.

UNIT IV: (12 Hrs)

Software Requirements – User Requirements – System Requirements – Requirement Engineering processes – Feasibility Study – Requirement Validation System Models – Behavioral Model – Object Models.

UNIT V: (14 Hrs)

Real Time Software Design – System Design – Real Time Executives – Monitoring and Control Systems – Data acquisition Systems
Quality Management – Quality assurance and standards – Quality Planning – Quality Control – Software measurement and metrics.

TEXT BOOKS

1. IAN Sommerville, "*Software Engineering*", Pearson Education 9th Edition, 2009.

2. Elias M.Awad, "*Systems Analysis and Design*", Galgotia Publications Ltd, Second Edition 2006.

REFERENCE BOOKS

1. Roger Pressman, "*Software Engineering*", Tata McGraw Hill Publication, Sixth Edition, 2001.

OBJECT ORIENTED PROGRAMMING USING C++

Sub Code: 13UCE10
(Credits: 4)

Objective: To enable the students to learn all the features of C++ and make the students to apply the same for writing programming for solving problem.

UNIT -I **(15 Hrs)**

Introduction:

Evolutions of C++- Object oriented Technology- Programming Paradigms- Disadvantages of Conventional Programs- Key concepts of object oriented programming- Advantages of OOPs- Usage of OOPs- Usage of C++.

Input and Output in C++:

Streams in C++- Predefined Streams – Stream Classes- Formatted and Unformatted data - Formatted Console I/O Operations – Unformatted Console I/O operations- Bit Fields – Manipulators.

UNIT -II **(15 Hrs)**

C++ Declarations:

Parts of C++ programs – Types of Tokens, Keywords, Identifiers. Data Types: Basic, Derived, User defined, Void – Operators in C++ - Constants- Memory Management Operators- Precedence of Operators in C++.

Control Structures:

Decision making statements: if- else, nested if – else, goto, break, continue, Switch Case- For loop- While Loop- do while loop.

Functions in C++:

Parts of a function- passing arguments- Inline Function- Function overloading.

UNIT -III **(16 Hrs)**

Classes and Objects:

Classes in C++ - Declaring Objects: Public, Private, Protected-Defining Member functions – Characteristics of Member Functions – Rules for Inline Functions- Array of Objects- Friend functions- Constant Member function- Data Hiding- overloading member function.

Arrays:

Characteristics of arrays- Initialization of Array using functions- Array of Classes.

Constructors and Destructors:

Characteristics of Constructors and Destructors-Application with constructors- Overloading and Copy Constructors.

UNIT -IV **(16 Hrs)**

Operator Overloading and Type Conversion:

Keyword Operator – Overloading Unary Operators- Operator Return Type- Constraint on Increment and Decrement Operators- Overloading with friend functions- Type Conversion- Rules for Overloading Operators.

Inheritance:

Introduction –types of Inheritance: Single, Multi-level, Multiple, Hierarchical, Multi-Path Advantages and its Disadvantages.

Polymorphism:

Introduction- Pointer to derived Class Objects- Virtual Functions- Rules- Pure Virtual functions.

UNIT -V **(16 Hrs)**

Files:

File Stream Classes- Steps of File Operation – Finding End of File- File Opening Modes- Manipulators with Arguments – Sequential Read and Write Operations – Binary and ASCII Files- Command Line Arguments.

Exception Handling- Principles of Exception Handling- Keywords:Try, Throw, Catch- Exception Handling Mechanism- Commonly used header Files.

TEXT BOOKS

1. Ashok N. Kamthane,"*Object Oriented Programming with ANSI and Turbo C++",* Pearson
Education 5th Impression 2008.

2. E. Balagurusamy,*"Object Oriented Programming with C++"*,Tata McGraw Hill publication,
fourth edition, 2008.

REFERENCE BOOKS

1. D.Ravichandran.J, "*Programming with C++*", Tata McGraw Hill publication, fourteenth edition, 2001.

2. Rabort Lafore, "*Object Oriented Programming with C++*", Galgotia Publication Pvt. Ltd,
second edition, 2001.

3. Ashok Kamathane-*"Programming in C++"* Prentice Hall 2003

RELATIONAL DATABASE MANAGEMENT SYSTEM AND ORACLE

Sub Code: 13UCE11
(Credits: 4)

Objective: To make the students to learn all the database management systems, relational model, integrity constraints, object oriented databases, normalization and concurrency control and also to learn all the features of Oracle and make the students to apply the same for writing programming for solving problem

UNIT I (12 Hrs)

Introduction Purpose of a Database System – Views of data – Data abstraction – Data Models – Database Languages – Database Users – DBA – Transaction Management – Database System Structure.
Entity Relationship Model – Basic Concepts – Constraints – Keys – Entity Relationship Diagram.

UNIT II (12 Hrs)

Relational Model – Structure of Relational Databases – Relational Algebra – Operations – Additional Operations – Extended Relational Operations – Modification of the Database. Domain Constraints – Relational Integrity – Assertions – Triggers.

UNIT III
(14 Hrs)

Relational Database design – First Normal Form – Functional Dependencies – Second Normal Form – Third Normal Form – Fourth Normal Form – Boyce – code Normal Form. Introduction to Oracle – Codd's rules – Oracle data types – Create, View, delete, update, modify, truncate, rename, destroy & alter commands.

UNIT IV (14 Hrs)

Data Constraints: types of constrains:
I/O constraints – foreign key constraints – Unique key constraints – default value concepts – Comparisons done on table data – Oracle Functions. Arithmetic, Data, Number, Miscellaneous, conversion and group functions – Set Operators – joins – Sub queries – Views – Pattern matching –Range – Searching – Grouping and Having Cause.

UNIT V (13 Hrs)

Introduction to PL/SQL:
Advantages of PL/SQL – The generic PL/SQL block – The PL/SQL execution environment – PL/SQL data types – Control structures – What is Curser – Types of

Cursers- Implicit curser processing in client server environment-implicit curser attributes-explicit curser. Database trigger: types of triggers, Creating and deleting triggers.

TEXT BOOKS

1. Ivan Bayross - "*SQL, PL/SQL-The programming language of Oracle*", BPB Publication, 3rd edition 2010

2. Henry F.Korth, Abraham Silbershatz Sunar san," *Database System Concepts*", Third edition,
Tata McGraw Hill publication, 1997.

3. C.J.Date,"*An Introduction to Database Systems*", third edition, Addison Wesley Publishing
Company, 1995.

REFERENCE BOOKS

1. Ivan Bayross, "*Commercial Application Development Using Oracle*", BPB Publication. 2000.

2.George Koch, "*The Complete Reference - Oracle 8i* ", Tata McGraw Hill publication, 2000.

RESOURCE MANAGEMENT TECHNIQUES
(Problems and formula only no derivations, no theory questions)

Sub Code: 13UCE12 **(Credits: 5)**

Objective: To enable the students to understand and to apply the resource management techniques available in OR including linear programming transportation assignment problem, inventory control, queuing theory and network problems.

UNIT I **(12 Hrs)**
Origin and development of OR – Applications of OR – Linear programming – Mathematical formulation of the problem – Graphical solution method – Simplex method – Dual simplex method.

UNIT II **(10 Hrs)** Transportation problems (North West corner, Matrix minima, Vogel's Approximation methods) – Assignment problem – Routing problem – Sequencing problem – Problems with n jobs and 2 machines – Problems with 'n' jobs and 'k' machines.

UNIT III **(10 Hrs)** Inventory control – Types of inventory – Inventory costs – Factors involved in inventory analysis – Economic order quantity – EOQ problem with no shortages and several production runs of unequal length – Production problem with no shortages – Production problem with shortages – ABC analysis.

UNIT IV **(10 Hrs)** Queueing theory – Characteristics of queueing system – Queueing models

(M/M/1) : (∞/ FIFO)
(M/M/1) : (N/ FIFO)
(M/M/C) : (∞/ FIFO)
(M/M/C) : (N/ FIFO)

UNIT V **(10 Hrs)** Network and basic components – Network construction – time calculation – critical path method – PERT, PERT calculations.

TEXT BOOK

1. Kanti Swarup, PK Gupta, Man Mohan, "*Operations Research* ", Sulthan Chand & Sons, Seventh edition, 1996

REFERENCE BOOKS

1. S. Dharani Venkatakrishnan,"*Operations Research*". Keerthi Publishing(p) ltd. 2002.

2. PK Gupta , Man Mohan, "*Problems in Operations Research*". Manmohan: 3rd Ed.(1985).

Lecture hrs: 52 hrs.

PROGRAMMING IN C++

Sub Code: 13UCE13 **(Credits: 2)**

Objective: To enable the students to write programming in C++ for solving specified problems.

- Program to print Floyd's triangle.
- Program to illustrate the concept of class and object.
- Program to illustrate the concept of function without return statement.
- Program to illustrate the concept of function with return statement.
- Program to illustrate the concept of Inline function.
- Program to illustrate the concept of Default argument.
- Program to illustrate the concept of Friend function.
- Program to illustrate the concept of function overloading.
- Program to illustrate the concept Array of Object.
- Program to illustrate the concept of objects as Function argument.
- Program to illustrate the concept of returning by objects.
- Program to illustrate the concept of constructors.
- Program to illustrate the concept of destructors.
- Program to illustrate the concept copy constructor.
- Program to illustrate the concept overloading unary operators.
- Program to illustrate the concept overloading binary operators.
- Program to illustrate the concept of single inheritance.
- Program to illustrate the concept of multiple inheritances.
- Program to illustrate the concept pointers to objects
- Program to illustrate the concept pointers to derived objects.
- Program to illustrate the concept virtual function.
- Program to illustrate formatted console I/O operations.
- Program to illustrate formatting with manipulators.
- Program to illustrate working with single file.
- Program to illustrate working with multiple files.

SKILL BASED I:PROGRAMMING IN ORACLE

Sub Code: 13UCES1 **(Credits: 2)**

Objective: To enable the students to write programming in Oracle for solving specified problems.

- DDL Commands
- DML Commands
- TCL Commands
- SQL Operations
- Views
- Reverse A Number
- Joins
- Set Operators
- Odd Or Even Numbers
- Fibonacci Series
- Prime Or Not
- Index
- Area Of Circle
- Salary Calculation Using Cursor
- Sub Queries
- Security Trigger
- Trigger
- Bonus Calculation Using Functions

OPERATING SYSTEM

Sub Code: 13UCE15
(Credits: 4)

Objective: To enable the students to understand the concepts of operating system including process management, storage management, scheduling and distributed operating system.

UNIT –I (12 Hrs)

Introduction:
Definition of operating system – History of operating system.
Hardware:
Interrupts and polling – Buffering – Storage protection – online and offline operation – Cycle stealing – Problem state – Virtual storage – Multi processing – Storage Hierarchy – RISC.
Software:
Machine Language programming – Spooling – Optimizing Compiler – Object oriented programming – Emulation.
Process Management:
Definition – process states – The Process Control Block – Operations on process – Interrupt Processing – Nucleus of OS.

UNIT – II (14 Hrs)

Storage Mangement
Real Storage:
Storage organization – Management – Hierarchy – Storage management Strategies – Contiguous Vs Non-contiguous storage allocation – Fixed partition multiple programming – Variable partition multiple programming - Multiprogramming with storage swapping – Virtual storage organization – Concepts – Paging – Segmentation – Paging /segmentation systems.

UNIT –III (14 Hrs)

Job and Processor Scheduling:
Introduction –Scheduling levels – Scheduling objectives – Scheduling criteria – Preemptive Vs Non-preemptive scheduling – Priorities – FIFO – Round Robin –
Quantum size – Shortest job – Shortest remaining time – Highest response ratio next.
Deadlock:
Definition – Examples – Deadlock prevention, avoidance, detection and recovery – Banker's Algorithm only.

UNIT – IV (12 Hrs)

Auxillary Storage Management:

Disk performance optimization: Why Disk scheduling is necessary – Desirable characteristics of disk scheduling polices – Seek optimization – Disk Caching – RAM Disks.
File and Database Systems :
Introduction – File system- File system function – Blocking and buffering – File Organization – Allocating and freeing space – File Descriptor – Access Control matrix – access control by user classes – Backup and recovery.

UNIT –V **(13 Hrs)**

Distributed operating system & Security Introduction – Distributed computing system models-Issues in designing Distributed operating
Security:
Introduction, Potential attacks to computer system Cryptography-Digital signatures.

TEXTBOOKS

1. Harvey M.Deitel "*An Introduction to Operating System*", 1990, Addison-Wesley Publishing
Company, Second Edition (For Units I – IV).

2. Achyat S Godbole ,"*Operating System*", 1996, Tata McGraw Hill Publishing, (For Unit V).

3. Balakrishna Prasad – "*Operating System"*, Scitech Publisher. 1998

REFERENCE BOOKS

1. Charles Crowley, "*Operating System"*1996, Tata McGraw-Hill, Revised Edition.

2. Mad nick John & Henry Donovan, "*Operating System*", 2008, Tata McGraw Hill Publication, Sixth Edition

DATA COMMUNICATION AND COMPUTER NETWORKS

Sub Code: 13UCE16
(Credits: 4)

Objective: To enable the students to understand the concepts and principles of data communication and networking including topology, protocols, LAN features and aim.

UNIT I (12 Hrs)

Introduction: Communications and Networking-fundamental concepts-Data communications-Protocols-Standards-Signal Propagation-Analog and Digital Signals-Parallel and Serial Communications-Simplex, Half-duplex and full duplex communications-Multiplexing-Transmission errors-Detection and Correction-Error classification-Delay Distortion-Attenuation-noise. Types of Error-Error Detection.

UNIT II (14 Hrs)

Transmission Media: Guided Media-Twisted Pair-Coaxial Cable-Optical fiber-Unguided Media-Microwave Communication-Satellite Communication-FDMA CDMA-SDMA.
Network Topology: Mesh Topology-Star Topology-Tree Topology-Ring Topology-Bus Topology-Hybrid Topology.
Switching and Routing: Switching basics-Circuit switching-Packet switching-Message switching-Router and Routing .

UNIT III (13 Hrs)

Networking protocols and OSI model-Protocols in Computer Communication-OSI Reference Models-Physical layer-Data link layer-Network layer-Transport Layer-Session Layer-Presentation Layer-Application Layer-Internet Layer.

UNIT IV (13 Hrs)

Local Area Network (LAN)-Ethernet-Ethernet properties-CSMA/CD-Metropolitan Area Network (MAN)-Distributed Queue Dual Bus(DQDB)-Switched Multimegabit Data Services(SMDS)-Wide Area Network(WAN)-WAN Architecture

UNIT V (13 Hrs)

Integrated Services Digital Network(ISDN)-ISDN Architecture-ISDN Interfaces-X.25 Protocol-Understanding and Working of X.25 protocol.
TCP/IP: An Introduction to TCP/IP- Basics- Why IP Addresses?-Logical Addresses-TCP/IP Example. ARP-RARP.

TEXT BOOKS

1. Achyit S Godbole,"*Data Communications And Computer Networks*", - TataMcGraw Hill,
Fourteenth Edition, 2007

2. William Stallings," *Data and Computer Communications*", Pearson Education, Sixth Edition, 2000

REFERENCE BOOKS

1. Andrew S. Tannenbaum,"*Computer Networks*", Prentice hall of India, Fourth Edition, 2003.

2. W.Stallings,"*Data and Computer Communications*", Prentice hall of India, Seventh Edition,
2004.

JAVA PROGRAMMING

Sub Code: 13UCE17
(Credits: 4)

Objective: To enable the students to learn all the features of JAVA and make the students to apply the same for writing JAVA programming for solving problems.

UNIT-I **(14 Hrs)**

Java Evolution-Overview of Java Lanaguage-Constants, Variables & Datatypes-Operators & Expressions-Decision making & branching-Decision making & looping.

UNIT-II **(16 Hrs)**

Classes, Objects & methods- Arrays, Strings & Vectors-Interfaces: Multiple Inheritance-Packages: Putting classes together - Multithreaded Programming.

UNIT-III **(16 Hrs)**

Managing Errors & Exceptions- Applet Programming:

Introduction,How Applets differ from application-Writing Applets-Building applet code-lifecycle-Executable Applet-Designing Web page-Applet tag-Adding & Running Applet using HTML File-Passing Parameters to Applets-Graphics Programming.

UNIT-IV **(16 Hrs)**

AWT – Text Fields, Buttons, Checkboxes, Radio Buttons and Layouts. AWT – Lists, Choices, Text Areas, Scrollbars and Scroll Panes – AWT – Windows, Menus and Dialog Boxes.

UNIT-V **(16 Hrs)**

Managing Input/Output in files in Java:

Introduction-Concept of Streams-Stream Classes-Byte Stream classes-Character String Classes-Using Streams-Using I/O Classes,File Classes-I/O Exceptions-Creation of Files-Reading/Writng Characters & Bytes-Handling primitive Datatypes-Random Access Files-Interactive I/O-Other System Classes-Event Handling.

TEXT BOOKS

1. E.Balagurusamy,"*Programming with Java – A Primer*", Tata McGraw Hill Publishing Company Limited, New Delhi, 3rd Edition,2007.

2. Kogent Solutions Inc., *"JAVA 6 Programming Black Book"*, Dream Tech Press , New Delhi,
2009 (for Unit IV)

REFERENCE BOOKS

1. Herbert Schildt,"*The complete reference-Java2*", Fourth Edition, Tata McGraw Hill Publishing Company Limited, New Delhi, 2001.(for Unit V)

2. K.Somasundram, "*Programming in Java2*", Jaico Publishing House, Chennai, 2005.

3. ISRD Group," *Introduction to Object Oriented Programming through Java*", Tata McGraw
Hill Publishing Company, New Delhi, 2007.

ACCOUNTANCY FOR DECISION MAKING

Sub Code: 13UCE18
(Credits: 5)

Objective: To enable the students to understand the concepts and principles for Accounting including company accounting, cost accounting, Management Accounting and Forecasting.

UNIT-I (12 Hrs)

Basic principles – Concepts – Conventions – Methods in Book Keeping – Accounting Cycle- Accounting process leading to preparation of final accounts – Adjusting and closing entries in final accounts.

UNIT-II (13 Hrs)

Company Accounts – Issue of shares – Shares premium a Discount – Forfeiture of shares -The issue of forfeited shares.

UNIT –III (14 Hrs)

Cost accounting – Elements of cost - Cost sheet preparation – Stock valuation – LIFO, FIFO, Simple average method, Weighted Average methods of costing.

UNIT- IV (13 Hrs)

Management Accounting for Business decisions – Nature and Scope – Functional FlowStatement and Cash Flow Statement.

UNIT-V (13 Hrs)

Forecasting-decision making- Budgetary Control - Cash budget flexible, budget, sales budget and production budget. Standard costing - material, labour and Sales variance only.

REFERENCE BOOKS

1. R.L.Gupta,"*Advanced Accounting*" , Sulthan chand and sons, Ninth Edition ,1999.

2. S.N.Maheswari,"*Advanced Accounting* ",Vikas publications, Sixth Edition,1995.

3. S.M.Sukhla ,"*Advanced Accounting*",Sulthan chand and sons, Fourteenth Edition,1999.

NOTE:
Theory = 40%
Problem = 60%

Programming in JAVA

Sub Code: 13UCE19 **(Credits: 2)**

Objective: To enable the students to write program in JAVA for solving specified Problems.

- Program to illustrate Quadratic Equation.
- Program to illustrate Pascal's Triangle
- Program to display the mark list of the students by using inheritance.
- Program for method overloading.
- Program to arrange the given names in alphabetical order.
- Program to display the sum of individual digits.
- Program to display the multiplication table.
- Program for salary details using packages.
- Program for Bank processing using Interface.
- Program for extending the Thread class.
- Program to creating Thread by implementing Runnable Interface.
- Program to create a Thread using a synchronized block with in the run () method.
- Program to add the two numbers by using applet.
- Program to display the concatenation of two strings by using Applet class.
- Program to display the file manipulation.
- Program to copy one file to another file.
- Program to perform Key Events.
- Program to perform Mouse Events.
- Program for data base connectivity
- Program for the processing of random access file.
- Program to display the image using applet.
- Program using AWT Components

SKILL BASED II: VISUAL BASIC LAB

Sub Code: 13UCES2 **(Credits:2)**

Objective: To enable the students to know how to work with Visual Basic programming

- Electricity Bill
- Calculator
- Directory list box
- Popup menu
- Quiz application
- Timer control
- Animation using timer control
- Application using all controls
- Inventory control using function
- Scrollbars
- Notepad Creation
- Student database
- Library management
- Hospital management
- Railway reservation
- Employee pay slip

DOT NET PROGRAMMING

Sub Code: 13UCE19
(Credits: 4)

Objective: To train the students to understand the principles and concepts of VB.NET, ASP.NET, ADO.NET and PHP.

UNIT- I (13 Hrs)

What is .NET? Why .NET? Advantages of .NET- .NET framework: Common language run time (CLR) - Common Type System (CTS) - Intermediate Language (MSIL) - Virtual Execution System (VES) - Class libraries- Assemblies.
Introducing C#-Overview of C#-Literals, variables and data types-operators and expressions-Decision making and branching-decision making and looping-methods in C#-Arrays

UNIT- II (14 Hrs)

Classes and objects: defining a class-adding variables-adding methods-access modifiers-accessing class members-constructors-destructors-Inheritance: Visibility Control-multilevel inheritance-hierarchical inheritance-multiple inheritance-delegates and events-managing errors and exceptions-multithreading

UNIT- III (13 Hrs)

Visual Basic console Applications: data types-variables-Arrays- type conversions-looping Statements- Conditional Statements- Procedures- functions.
Visual Studio.NET IDE-VB.NET common Controls-Menu and Tool bar controls-MDI application building-debugging concepts in VB.Net

UNIT- IV (12 Hrs)

An Introduction to ADO.NET- Features of ADO.NET-ADO.NET object model-DDL and DML queries-Stored Procedures. Accessing and manipulating data: Connecting to a database-database connection-data set- data reader- data adapter.

UNIT- V (13 Hrs)

ASP .NET introduction- features of ASP .NET- webserver and web browser concepts-ASP .NET standard controls(buttons,textbox,labels,checkbox,radiobuttons,listbox,tree view)- validation control: required field validator- compared validator-range validator-calendar control- add rotator control.Session management: session- cookies- caching-state management- crystal report.

REFERENCE BOOKS

1. k- Steven Holzner "*Visual Basic .NET Programming Black Book"* 2005 Edition
2. E.Balaguruswamy "*Programming in C#"* McGraw-Hill publication,2012 Edition
3. Jeffrey R. Shapiro"*VB.NET Complete Reference"* McGraw-Hill Companies, 2002
4. Mc Downell "*ASP.NET complete reference" ,2007*

WEB TECHNOLOGY

Sub Code : 13UCE20 **(Credits: 4)**

Objectives : To enable the students to identify the various aspects of web technology. To make the students to learn features and applications of HTML, DHTML, Apache, MySQL & PHP

UNIT I: **(13 Hrs)**

***HTML*:** Introduction-SGML-DTD-DTD Elements-Attributes-Outlines of and HTMLdocument-HEADSECTION-Prologue-Link-Basis-Meta-Script-Style-BODYSECTION-Headers-paragraphs-Text Formatting-Linking-Embedding Images-Lists-Tables-Frames-Other Special Tags and Characters-HTML Forms.*Dynamic HTML (DHTML):*Introduction-Cascading Style Sheet (CSS)-Coding CSS.Properties of Tags-Property Values-Other Style Properties-Inline Style Sheets-Embedded Style Sheets-External Style Sheets-Grouping-Inheritance.

UNIT II: **(14 Hrs)**

MySQL:Introduction to MY SQL - The Show Databases and Table - The USE command - Create Database and Tables - Describe Table - Select, Insert, Update, and Delete statement - Some Administrative detail - Table Joins - Loading and Dumping a Database.

UNIT III: **(12 Hrs)**

PHP: Introduction-PHP Syntax-Variables-Data Types- String Functions-Constants- PHP Operators-Arithmetic Operators, Assignment Operators, String Operators, Incremetn/Decrement Operator- Comparison Operator- Logical Operator – Array Operators- if-else-elseif- Switch- While loop-for loop.

UNIT IV: **(13 Hrs)**

PHP Arrays-Sorting Arrays-PHP Global Variables-PHP Forms-Form handling-Form Validation-Form required field- PHP Functions-PHP Files: Opening and Closing files-Reading and Writing a file.

UNIT V: **(13 Hrs)**

APACHE:Introduction - Apache Explained - Starting, Stopping, and Restarting Apache - Modifying the Default Configuration - Securing Apache - Set User and Group - Consider Allowing Access to Local Documentation - Don't Allow public_html Web sites - Apache control with .htaccess

TEXT BOOKS

1. J.Akilandeswari&N.P.Gopalan,"*Web-Technology–A Developer's Perspective*",Prentice-Hall of India pvt ltd-2012.

2. James Lee and Brent Ware,"*Open Source Web Development with LAMP using Linux, Apache, MySQL, Perl and PHP*",
Dorling Kindersley(India) Pvt. Ltd, 2011.

REFERENCE BOOKS

1. Thomas A. Powell," *The Complete Reference-HTML & XHTML"*, Tata McGraw-Hill Publications, fourth edition, 2011.
2.E.BalaGurusamy, "Introduction to C#",Tata McGraw-Hill Publications, Third edition
3.Young, "*The Complete Reference-INTERNET*", Tata McGraw-Hill Publications, second edition, 2011.
4.EricRosebrock, Eric Filson,"*Setting up LAMP: Getting Linux, Apache, MySQL, and PHP and working Together*", , Published by John Wiley and Sons, 2010.

SOFTWARE TESTING

Sub Code: 13UCE21 **(Credits: 4)**

Objective: This syllabus focuses on principles of Software Testing, Test Automation. It covers some of recognized Methodologies for Testing, Software Test Automation and Test Metrics. It also covers Software Test Tool WinRunner

UNIT- I (10 Hrs)

Software development life cycle: Phases of Software Project-Quality, Quality Assurance, and Quality Control-Testing, Verification, and Validation. White Box Testing: Static Testing-Structural Testing-Challenges. Black Box Testing: What is Black Box Testing, Why Black Box Testing-When to do Black Box Testing-How to do Black Box Testing

UNIT -II (10 Hrs)

Integration Testing: Integration Testing as a type of Testing- Integration Testing as a phase of Testing- Scenario Testing-Defect Bash. System and Acceptance Testing: Functional System Testing- Non Functional Testing- Acceptance Testing.

UNIT- III (11 Hrs)

Performance Testing: Methodology-Tools-Process-Challenges. Regression Testing: Types-When to do Regression Testing- How to do Regression Testing. Internationalization Testing.

UNIT- IV (11 Hrs)

Software Test Automation: Skills needed for Automation-What to Automate-Scope of Automation-Design and Architecture for Automation-Generic requirements for Test Tools Framework-Selecting a Test Tool-Challenges. Test Metrics and Measurements: Metrics and Measurements-Metrics in Testing-Types of Metrics

UNIT -V (10 Hrs)

WinRunner-Overview of WinRunner-Testing an Application Using WinRunner-Test Script Language-Synchronization of Test Cases-Data Driven Testing-Rapid Test Script Wizard-Mapping Custom Object to Standard Class-Checking GUI Objects

TEXT BOOKS:

1. Srinivasan Desikan, Gopalaswamy Ramesh, "Software Testing Principles and Practices" Pearson Education-7th impression 2009

2. Dr K.V.K.K Prasad, "Software Testing Tools", Dreamtech press, New Delhi, 2007(for V unit)

ELECTIVE I - CYBER SECURITY
Sub Code : 13UCEE1A **(Credits : 5)**

Objectives: To make the students to learn the concepts of cyber security.

UNIT I : **(10 Hrs)**

Introduction– What is cyber security?– What is cyber security policy? - Domain of Cyber Security Policy – Laws and Regulations – Enterprise Policy – Technology Operations – Technology Configuration - Strategy VersusPolicy – Cyber Security Evolution – Productivity – Internet – E commerce – Counter MeasuresChallenges

UNIT II: **(12 Hrs)**

Cyber Security Objectives And Guidance Cyber Security Metrics – Security Management Goals – Counting Vulnerabilities – SecurityFrameworks – E Commerce Systems – Industrial Control Systems – Personal Mobile Devices – Security Policy Objectives Guidance for Decision Makers – Tone at the Top – Policy as a Project – Cyber Security Management – Arriving at Goals – Cyber Security Documentation – The CatalogApproach – Catalog Format – Cyber Security Policy Taxonomy.

UNIT III: **(10 Hrs)**

Cyber Security Policy Catalog Cyber Governance Issues – Net Neutrality – Internet Names and Numbers – Copyright andTrademarks – Email and Messaging Cyber User Issues - Malvertising - Impersonation – Appropriate Use – Cyber Crime – Geo location – Privacy - Cyber Conflict Issues – Intellectualproperty Theft – Cyber Espionage – Cyber Sabotage – Cyber Welfare.

UNIT IV: **(10 Hrs)**

Cyber Management Issues Fiduciary Responsibility – Risk Management – Professional Certification – Supply Chain – SecurityPrinciples – Research and Development – Cyber Infrastructure Issue – Banking and finance – Health care – Industrial Control systems.

UNIT V: **(8 Hrs)**

Case Study A Government's Approach to Cyber Security Policy.

TEXT BOOKS

1. Jennifer L. Bayuk, J. Healey, P. Rohmeyer, Marcus Sachs , Jeffrey Schmidt, Joseph Weiss
"*Cyber Security Policy Guidebook*" John Wiley & Sons 2012.

REFERENCE BOOKS

1. Rick Howard, "*Cyber Security Essentials*" Auerbach Publications 2011.

DOT NET PROGRAMMING LAB

Sub Code : 13UCE22
(Credits : 3)

Objectives: To develop the student's knowledge in window applications and web applications using visual studio.NET.

Program List :

Console Applications

- Create a Program to implement the concepts of Object oriented programming techniques.
    - Create a program to implement multiple inheritance using interface.
    - Create a program to validate the data members in the class using property
    - Create a program to catch the exceptions.
    - Create a program to implement multithreading.
    - Write a program to implement stack operations using array
    - Write a program to implement Queue using array
    - Write a program to perform file operations.

Windows Applications

- Create a directory list using tree view control
- Create a calculator using basic controls
- Create a notepad editor using Context menu strip and menu controls
- Create an application to illustrate the use of dialog boxes.
- Create an application for students proctorial report
- Create an application for library management system
- Create an application for Pay roll processing system
- Create a program To generate electricity Bill
- Create a web page to generate a photo gallery

Web Applications

- Create an application for encryption and decryption
- Create an Alumni registration form
- Create a website for online Quiz
- Create your own portal which describes yourself and your skills.
- Create a portal for online purchasing system.
- Create a portal and validate the web page using validation controls
- Create a web page and validate that page using client side scripting
- Create a crystal report for Alumni registration portal.

WEB TECHNOLOGY LAB

Sub Code: 13UCE23 **(Credits: 2)**

Objectives: To enable the students to write programming in Web Technology for solving specified problems.

Program List:

HTML

- HTML Tags
- Tables
- Forms
- Frames
- Web Creation
- CSS Rules
- CSS Grouping Style

MySQL

- Basic MySQL Commands
- Administrative Details
- Joins
- Loading data into database

PH

- Factorial Value
- Mail Validation
- Employee Details –Insertion
- Employee Details – Deletion
- Employee Details - Updation
-

LINUX
Sub Code: 13UCE24 **(Credits: 4)**

Objective: To enable the students to learn all the features of LINUX and make the students to apply the same for writing LINUX programming for solving problems.

UNIT-I
(10Hrs)

Introduction-Linux philosophy-file system: file-structure of file system-directory hierarchy-current directory(pwd)-changing directories(cd)-listing(ls)-display(cat)-making directory(mkdir)-removing directory(rmdir)-chmod-copy(cp)-deleting(rm)-rename(mv)-environmental variables-PS-PATH-TERM-HOME-MAIL-profile-file access permissions.

UNIT-II
(11Hrs)

X-windows-objectives-GUI-features- fvwm - rc.file- Caldera desktop-directory windows-managing the desktop
Utility commands:
Halted outputs-file types-line word-Comparing files-Files differences-Printing-login details-terminal-setting terminal characters (file-wc-cmp-diff-lp-who-tty-stty commands)VI-editors:
Three Modes-input mode-saving text-command mode-multiple file handling-splitting file.

UNIT-III
(10Hrs)

Pipes and Filters:
pipes(I)paginating files(pr)-beginning of a file(head)-end of file(tail)-cut-paste-sort-unique commands-searching(grep)(fgrep)-translating process(time)

UNIT-IV
(11Hrs)

Programming with shell:
Introduction to shell script-creation and execution-system variables-profile-read statement-command line arguments-logical operators && and ||-exit-if conditional-case-while statement-for set-shift-trap statement-shell variables-cd command-merging stream-expr command-eval command-shell programs.

UNIT-V (10Hrs)

System Administration: System Administrator-Booting and shutting down-super user status (su)-security-user services-disk management (fsck)-operation-file system administration-back ups utilities -cpio-afio-shutdown-mount-unmount-df-find commands-creating device files-installing and managing printers.

REFERENCE BOOK

1. Mark.G.Gobell *"RED HAT LINUX-Reference Manual*", Pearson education, first Edition, 2003

2. Sumitabha das "*UNIX SYSTEM Concepts and Applications*", Tata McGraw - Hill, 1995

ELECTIVE II - DATA MINING AND WAREHOUSING

Sub Code: 13UCEE2A
(Credits: 4)

Objective: To enable the students to understand the concepts, principle and applications of Data Mining and Data Warehousing.To enable the students to identify various tools in Data Mining.

UNIT –I (12 Hrs)

Data Mining – Definition – Information as a production factor – Data mining vs Query tools – Data mining in marketing – practical applications.
Learning – Self learning computer systems – Machine Learning and methodology of science – Concept Learning – Issues of Learning algorithm.

UNIT –II (13 Hrs)

Date Warehouse – Need – Designing Decision Support Systems – Integration with DataMining – Client/Server and DataWarehousing – Mutiprocessing Machine – Cost Justification.

UNIT –III (14 Hrs)

Knowledge Discovery Process – Data Selection – Cleaning –Enrichment – Coding – DataMining Preliminary Analysis of the dataset using Relational Query Tools – Visualization Technique – Likelihood and Distance – OLAP Tools – K-Nearest Neighbour – Decision Trees – Association Rules - Neural Networks – Genetic Algorithms – Reporting.

UNIT –IV (13 Hrs)

Different forms of Knowledge – Ten Golden Rules – Learning as compression of datasets – Noise and Redundancy – Fuzzy Databases – The traditional theory of the relational database – From relations to tables

UNIT –V (13 Hrs)

Web Mining – Web Content Mining – Web Structure Mining – Web Usage Mining - Text Mining – What is Temporal Data Mining? - Temporal Association Rules – Sequence Mining - Spatial Mining – Spatial Mining Tasks – Spatial Clustering – Spatial Trends

TEXT BOOKS

1.Pieter Adriaans, Dolf Zantinge, “Data Mining”, Addison Wesley,First Edition,1999.

2. Arun K. Pujari, “ Data Mining Techniques”, Universities Press (India) Private Limited, Hyderabad, 2008 (for Unit V)

REFERENCE BOOKS

1. Jiawei Hai and Micheline Kamber, “Data Mining Concepts and Techniques”, Morgan Kaufmann Publishers, Second Edition, 2006.

2. K.P. Soman, Shyam Diwaker and V.Ajay, “ Insight into Data Mining - Theory and Practice” Prentice-Hall of India Private Limited, New Delhi, 2006.

3. David Hand “Data Mining” ,2001. Bradford Book.

ELECTIVE III- MULTIMEDIA PACKAGES

Subject Code : 13UCEE3A (Credits : 5)

Objectives:

1.To understand Web / Internet Concepts and Techniques
2.To discuss Animation, Graphics ,TV, Print & Publishing ,Film Making Etc.
3.Toexamine the various TV Advertisement Programs.

UNIT I:
(15 Hrs)

Design Techniques : Design Elements & Principle – Illustration & Sketching – Color Theory – Print & Publish Media – Composition & Typography – Understanding User Requirements – Business Goal – Process Blue Print / Prototype Theory – Creating a Project From Start To Finish-Wireframe Design – Different Types Of Animation – Animation Software.

UNIT II: (16 Hrs)

Concepts Of Graphics: Creating Graphics, Applying Special Effects, Effects and Color Correction, Editing & Optimizing Graphics For Web/Print/Broadcasting/Bitmap & Vector Graphics - Graphical Tools**, Design Techniques**: Page Layout, Print Media – Brochure/E-Mail/News Letter Design.

UNIT III: (16 Hrs)

Digital Audio & Tools: Sound Forge – Gold Wave, Editing, Mixing, Import – Audio Capturing – Audio Mixing – Audio Effect Generation. **Digital Video & Tools:** Video Formats Adobe Premiere, Camtasia Studio, Pinnacle Studio – Video Capturing – Video Mixing –Preparing and Video For Delivery- Composing & Special Functions – Photo Graphic Techniques.

UNIT IV: (17 Hrs)

Overview of Premiere Elements workspace: The Organizer workspace,Premiere Elements Edit workspace, Tasks panel workspaces- **Import Video in Premiere:**Video file types,Capturing video, Add videos using the Video Importer- **Edit Clips:**Editing tools,Trimming clips.

UNIT V: (16 Hrs)

Adding Video Effects: About effects, Find, apply, and preview effects, Changing effect properties, Adjust effect properties- **Add Titles:** create a new title,edit a title- **Work With Audio:** Adding an audio soundtrack, Using Smart Sound- **Share Video:** Create DVD files for web, Sharing to a DVD, the web, computer, mobile phone or player.

TEXT BOOKS:

1) Fundamentals of multimedia (Second Edition) April 2014-by Ze-NianLi(Author),Drew Marks(Author),Jiangchuan Liu(Author),Publisher: Springer.
2)Adobe Premiere Pro CC class room in a book(1st Edition) July 2013-by Adobe Creative Team,Publisher:Adobe.

REFERENCE BOOKS

1. Fundamentals of multimedia (1stEdition) November 2003-by Ze-NianLi(Author),Drew Marks(Author).
2. Mastering Adobe Premiere Pro CS6 HOTSHOT(Feb 2013)-by Paul Ekert(Author),packt Publishing Limited

LINUX

Sub Code: 13UCE25 **(Credits: 2)**

Objective: To enable the students to write program in LINUX for solving specified problems.

- To manipulate File commands
- To manipulate Directory commands
- To manipulate Environmental variable commands
- To manipulate File access permissions
- To manipulate Utility commands
- To manipulate Pipes & Filter commands
- To manipulate Translating character commands
- To print the multiplication table for a given table number
- Print the employee wages details (using Case scenario).
- Check a given number is an Armstrong or not
- Swapping two numbers without using temporary Variables
- To find sum of logarithm series.
- To find sum of Sin series.
- To find sum of Cos series.
- To display the Fibonacci series of a given numbers
- To calculate different arithmetic Operations using Case scenario.
- Sorting of a given n numbers
- Prime number generation of a given number.
- Find sum of individual digits from a given number
- To print odd & even of given n numbers

Multimedia and Software Testing

Sub Code: 13UCE26 **(Credits: 2)**

Objectives: To enable the students to develop program in multimedia and software testing for solving specified problems.

- Panning Shot
- Gray Scale Effect
- Halloween Effect
- Sharpening The Image
- Lens Flare Effect
- Text Effect
- Shadow Effect For Text
- Water Paper Effect
- Liquify Effect
- Background Changing Effect
- Night Illusion Effect
- Manipulating Eye Effect
- Adding Pattern To The Image
- Silhouette Effect
- Color Manipulating Effect
- Calculator
- Mouse Tracker
- Bitmap Checkpoint To Match The Object Window Properties