

ST.MARY'S COLLEGE (AUTONOMOUS), THOOTHUKUDI
Bachelor of Science (Computer Science)
Course Structure (w.e.f.2015- 2016)

Semester – I

Part	Component	Subject Code	Title Of The Paper	Contact Hours/ Week	Credits	Max.Marks		
						CIA	ESE	Total
I	Tamil / French	15ULTA11 15ULFA11	Cheyyul,Elakkanam,Uraina dai, Sirukathai, Elakkia Varalaru. Paper – I French Language and Culture	6	3	50	50	100
II	English	15UGEN11 (A/B/C)	General English	6	3	50	50	100
III	Core I	15UCSC11	C Programming	6	4	50	50	100
	Core Practical I	15UCSCR1	C Programming Lab	4	4	50	50	100
	Allied I	15UCSA11	Discrete Mathematics	4	2	50	50	100
	Allied Practical I	15UCSAR1	Discrete Mathematics Lab	2	2	50	50	100
IV	Foundation Course	15UFPD11	Personality Development	2	2	50	50	100
Total				30	20	350	350	700

Semester II

Part	Component	Subject Code	Title Of The Paper	Contact Hours/ Week	Credits	Max.Marks		
						CIA	ESE	Total
I	Tamil / French	15ULTA21 15ULFA21	Cheyyul, Elakkanam, Urainadai, Valkkai Varalaru, Elakkia Varalaru. Paper – I I French Language and Culture	6	3	50	50	100
II	English	15UGEN21 (A/B/C)	General English	6	3	50	50	100
III	Core II	15UCSC21	C ++ Programming	6	4	50	50	100
	Core Practical II	15UCSCR2	C ++ Programming Lab	4	4	50	50	100
	Allied II	15UCSA21	Digital Principles	4	2	50	50	100
	Allied Practical II	15UCSAR2	Multimedia Lab1 (Corel Draw)	2	2	50	50	100
IV	Foundation Course	15UFVE21	Value Education	2	2	50	50	100
V	NCC/NSS/ SPORTS				1			
Total				30	21	350	350	700

Semester III

Part	Component	Subject Code	Title Of The Paper	Contact Hours/ Week	Credits	Max.Marks		
						CIA	ESE	Total
III	Core III	15UCSC31	JAVA Programming	6	4	50	50	100
	Core IV	15UCSC32	Computer Architecture	6	4	50	50	100
	Core Practical III	15UCSCR3	JAVA Programming Lab	6	4	50	50	100
	Allied III	15UCSA31	Resource Management Techniques	4	2	50	50	100
	Allied Practical III	15UCSAR3	HTML Lab	2	2	50	50	100
IV	SBE	15UCSS31	Multimedia Lab2 (Photoshop)	2	2	50	50	100
	NME	15UCSN31	Introduction to Computers	2	2	50	50	100
	Foundation Course	15UFES31	Environmental Studies	2	2	50	50	100
	Self Study Course	15UCSSS1	Web Designing with HTML		1			100
Total				30	23	400	400	900

Semester IV

Part	Component	Subject Code	Title Of The Paper	Contact Hours/ Week	Credits	Max.Marks		
						CIA	ESE	Total
III	Core V	15UCSC41	RDBMS	5	4	50	50	100
	Core VI	15UCSC42	Microprocessors	5	4	50	50	100
	Core Practical IV	15UCSCR4	RDBMS Lab	6	4	50	50	100
	Allied IV	15UCSA41	Data Structures	4	4	50	50	100
	Allied Practical IV	15UCSAR4	Data Structures Lab	4	2	50	50	100
IV	SBE	15UCSS41	Mini Project	2	2	50	50	100
	NME	15UCSN41	Introduction to Internet	2	2	50	50	100
	Foundation Course	15UFYM41	Yoga & Meditation	2	2	50	50	100
	Self Study Course	15UCSSS2	E-Commerce		1			100
V	Extension Activity				1			
Total				30	26	400	400	900

Semester V

Part	Component	Subject Code	Title Of The Paper	Contact Hours/ Week	Credits	Max.Marks		
						CIA	ESE	Total
III	Core VII	15UCSC51	ASP.NET	4	4	50	50	100
	Core VIII	15UCSC52	Operating Systems	4	4	50	50	100
	Core IX	15UCSC53	Programming with PHP & MYSQL	4	4	50	50	100
	Core Elective I	15UCSE51/ 15UCSE52/ 15UCSE53	Elective I	4	4	50	50	100
	Core Practical V	15UCSCR5	ASP.NET Lab	5	5	50	50	100
	Core Practical VI	15UCSCR6	PHP & MYSQL Lab	5	5	50	50	100
IV	SBE	15UCSS51	Multimedia Lab 3 (Flash & Page Maker)	4	3	50	50	100
	Self Study Course	15UCSSS3	Python Programming		1			100
Total				30	30	350	350	800

Semester VI

Part	Component	Subject Code	Title Of The Paper	Contact Hours/ Week	Credits	Max.Marks		
						CIA	ESE	Total
III	Core X	15UCSC61	Mobile Computing	5	4	50	50	100
	Core XI	15UCSC62	Object Oriented Software Engineering	5	4	50	50	100
	Core XII	15UCSC63	Computer Networks	5	4	50	50	100
	Core Elective II	15UCSE61/ 15UCSE62/ 15UCSE63	Elective II	5	4	50	50	100
	Core Practical VII	15UCSCR7	Mobile Computing Lab	5	4	50	50	100
	Project	15UCSP61	Project	5	4	50	50	100
Total				30	24	300	300	600
Grand Total				180	144			

Elective List (SEMESTER V)

Data Mining
Web Technology
Client Server Technology

Elective List (SEMESTER VI)

Cloud Computing
XML
Cryptography and Network Security

SEMESTER- I			
CORE – I - C PROGRAMMING			
Code: 15UCSC11	Hrs / week :6	Hrs / Semester: 90	Credits :4

Objectives:

- To improve the logical thinking and problem solving skills.
- To understand the fundamental concepts and in-depth coverage of C programming.
- To understand the concept of structured programming.
- To write simple application programs using C.

UNIT I:

C Fundamentals: The C Character Set - Identifiers and Keywords - Data Types – Constants–Variables and Arrays - Declarations - Expressions - Statements - Symbolic Constants.

Operators and Expressions:Arithmetic Operators - Unary Operators - Relational and Logical Operators - Assignment Operators - The Conditional Operator - Library Functions.

UNIT II:

Data Input and Output:Single Character Input-The getchar Function-Single Character Output-The putchar Function-Entering Input Data-More about the scanf function-Writing output data – The printf function- The scanf Function-More about the printf function -The gets and puts Functions.

Control Statements: Branching: The if-else Statement-Looping: The While Statement-More Looping: The do-while Statement-Still More Looping: The for Statement-Nested Control Structures-The switch Statement-The break Statement-The continue Statement-The comma Operator-The goto Statement.

UNIT III:

Functions:Defining a Function-Accessing a Function-Function Prototypes- Passing Arguments to a Function- Recursion.

Program Structure:Storage Classes- Automatic Variables- External (Global) Variables- Static Variables.

UNIT IV:

Arrays:Defining an Array-Processing an Array-Passing Arrays to Functions- Multidimensional Arrays-Arrays and Strings.

Pointers:Fundamentals-Pointer Declarations- Passing Pointers to Functions- Pointers and One-Dimensional Arrays-Dynamic Memory Allocation- Operations on Pointers- Pointers and Multidimensional Arrays-Arrays of pointers.

UNIT V:

Structures and Unions: Defining a Structure- Processing a Structure-User-Defined Data types (typedef)- Structures and Pointers- Passing Structures to Functions-Unions.

Data Files: Opening and closing a Data File- Creating a Data File- Processing a Data Files.

Text Book:

Byron Gottfried , Programming with C 3rd Edition ,Schaum's OutlinesSeries

Chapters: 2,3,4,6,7,8,9,10,11 and 12.

Books for Reference:

- Ashok N. Kamthane, Programming with ANSI and Turbo C, Pearson education, 2006.
- Gary.J.Bronson, A first Book of ANSI C 3rd Edition, Thomson learning 2001.
- Kumar Agrawal, Programming in ANSI C., Tata McGraw Hill, 2006.
- VenugopalPrasad, Programming with C, Tata McGraw Hill, 2006
- E. Balagurusamy, Programming in ANSI C Sixth Edition,, McGraw Hill Education (India) Private Limited, 2012

SEMESTER- I			
CORE –PRACTICAL I-C PROGRAMMING LAB			
Code: 15UCSCR1	Hrs / week :4	Hrs / Semester:60	Credits :4

1. Solve Quadratic Equation-Switch.
2. Sum of Digits & reverse the number.
3. Prime number Checking
4. Sine Series evaluation
5. Factorial of a given number.
6. Searching
7. Sorting an Array of numbers , names
8. Fibonacci series , GCD using Recursion.
9. Frequency of a Number , NCR using Function
10. EB Bill using Structure
11. Exchanging values using pointers
12. Matrix multiplication using pointers
13. File Operations (Display Odd & Even)

SEMESTER- I			
ALLIED – I – DISCRETE MATHEMATICS			
Code: 15UCSA11	Hrs / week :4	Hrs / Semester: 60	Credits :2

Objectives:

- To make the students to capable of mathematically formulating certain practical problems.
- To understand the concept of expression of a function.

UNIT I:

SET THEORY – Introduction – sets and elements – universal set and empty set – Subsets – Venn Diagrams – set operations – Algebra of sets and duality – finite sets, counting principle – class of sets, power sets, partitions – mathematical induction.

RELATIONS – Introduction – product sets – relations – pictorial representations of relations – composition of relations – types of relations – closure properties – equivalence relations – partial ordering relations – n-ary relations.

UNIT II:

FUNCTIONS AND ALGORITHMS – Introduction – functions – One – to – one – Onto and Inevitable functions – mathematical functions, exponential and logarithmic functions – sequences, indexed classes of sets – recursively defined functions – cardinality – algorithms and functions – complexity of algorithms.

UNIT III:

LOGIC AND PROPOSITIONAL CALCULUS – Introduction – propositions and compound propositions – Basic logical operations – propositions and truth tables – tautologies and contradictions – logical equivalences – algebra of propositions – conditional and biconditional statements – arguments – logical implication – prepositional functions, Quantifiers – Negation of quantified statements.

UNIT IV:

COUNTING – Introduction, Basic counting principles – factorial Notation – Binomial coefficients – permutations – combinations – the pigeonhole principle – the inclusion – exclusion principle – ordered and unordered partitions.

UNIT V:

GRAPH THEORY – Introduction, data structures – graphs and multigraphs – subgraphs, Isomorphic and homeomorphic graphs – paths, connectivity – the bridges of konigsberg,

traversable multigraphs – labeled and weighted graphs – complete, regular, and bipartite graphs – tree graphs.

DIRECTED GRAPHS: Introduction- Directed Graphs- Basic Definitions- Rooted Trees.

Text Book:

Seymour Lipschutz, Marc Lipson Discrete Mathematics Third Edition 2010, Tata McGraw Hill.

Books for Reference:

- B.S. Vatsa, “Discrete Mathematics”, WishwaPrakashan, Third Edition.
- K.D. Joshi, “Foundation of Discrete Mathematics”, Wiley Eastern Ltd.

SEMESTER- I			
ALLIED-PRACTICAL I-DISCRETE MATHEMATICS LAB			
Code: 15UCSAR1	Hrs / week :2	Hrs / Semester: 30	Credits :2

1. Series of squares of N numbers
2. Series of odd numbers
3. Series of even numbers
4. Polynomial Evaluation using Horner's methods.
5. Greatest Common divisor using Euclidian Algorithm.
6. Evaluate the function using Ackermann function.
7. Generate Pascal's Triangle.
8. Computing Permutation $P(n,r)$ and Permutation with repetitions.
9. R- Combination of a string
10. Fibonacci series using recursive function.

SEMESTER I			
FOUNDATION COURSE: PERSONALITY DEVELOPMENT			
Code: 15UFPD11	Hrs/Week: 2	Hrs / Semester: 30	Credits: 2

Objectives:

- To set a vision for realizing humanness and its inner strength
- To understand and accept one's own personality and to grow in self formation

UNIT – I Personality

The Self – Adolescent: Need of the Adolescent – Obstacles to Adolescent – Understanding one self – Psychology of human life . What makes me? Goal in Life-Meaning of Life – Ambition - Individuality Personality Development : Healthy personality – Knowing oneself – Self – Acceptance – Self - Image

UNIT – II Interpersonal Relationships

Characteristic and Elements of personality patterns – Dynamics of Inter- Personal – relationships – analysis of relations of different ego states – analysis of strokes and life positions – Socialization – Friendship – Infatuation - Peer groups – Harmful – Friendship.

UNIT -III Motivation

Introduction – relevance and types of motivation – motivating others

UNIT – IV Stress Management

Introduction – causes and impacts of stress – managing stress – conflict management – introduction – causes and management

UNIT – V Time Management

Time as a resource – identify important time management wasters – individual time management styles – techniques for better time management

Books for Reference:

- Marie Mignon Mascarenhas, Family Life Education Value Education, All India Association for Higher Education CREST, Bangalore, 1983
- AIACHE – human Values development Programme, New Delhi
- D.John Antony Self Psychology Counselling, Anugraha Publications
- Lall and Sharma, Personal Growth Training and Development, Excel Books.
- Janakiraman, Training and Development, Biztantra
- Hurlock and Elizabeth B, Personality Development, Tata McGraw Hill, 1st Ed
- Sahu R.K, Training for Development, Excel Books, 1st Ed

SEMESTER- II			
CORE – II-C++ PROGRAMMING			
Code: 15UCSC21	Hrs / week :6	Hrs / Semester: 90	Credits :4

Objectives:

- To strengthen logical thinking.
- To understand the fundamental concepts of Object Oriented Programming.
- To write programs using operator overloading, function overloading.
- To understand the concept of inheritance and write programs using it.

UNIT I

The Big Picture: Why Do Need Object Oriented Programming- Characteristics of Object Oriented Languages -C++ and C-Laying the Groundwork.

C++ Programming Basics:Basic Program Construction-Output Using cout-Preprocessor Directives – Comments-Integer Variables-Character Variables-Input with cin-Type float-Manipulators-Variable type Summary-Type conversion-Arithmetic Operators-Library Functions.

UNIT II

Function:Simple Functions-Passing Arguments to Functions -Returning Values from Functions-Reference Arguments-Overloaded Functions-Inline Functions-Default Arguments- Variables and Storage Classes-Returning by Reference.

Objects and Classes: A Simple Class-C++ Objects as Physical Objects-C++ Objects as Data Types-Constructors-Objects as Function Arguments -Returning Objects from Function-A Card Game Example-Structures and Classes-Classes, Object, and Memory-Static Class Data-What Does It All Mean?

UNIT III

Arrays:Array Fundamentals-Array as Class Member Data-Array of Objects-String.

Operator Overloading:Overloading Unary Operators-Overloading Binary Operators-Data Conversion- Pitfalls of Operator Overloading and Conversion.

UNIT IV

InheritanceDerived Class and Base Class-Derived Class Constructors-Overriding Member Functions-Inheritance in the English Distance Class-Class Hierarchies-Public and Private Inheritance-Levels of Inheritance-Multiple Inheritance-Ambiguity inMultiple Inheritance-Containership: Classes with Classes-inheritance and Program Development.

Pointers: Addresses and Pointers - Pointer Variables - Pointers and Array - Pointers and Functions - Pointers and Strings - Memory Management: new and delete - Pointers to Objects - A Linked List Example - Pointers to Pointers - Debugging Pointers.

UNIT V:

Virtual Functions: Virtual Functions - Friend Functions - Static Functions -assignment and Copy Initialization -The *this* Pointer.

Files And Streams: Streams -String I/O -Character I/O - Object I/O -I/O with Multiple Objects -File Pointers - Disk I/O with Member Functions - Error Handling - Redirection - Command Line Arguments - Printer Output - Overloading the Extraction AndInsertion Operators.

Text Book:

Robert Lafore ,Object-Oriented Programming in C++ 4th Edition, SAMS,Pearson Education

Chapters:

Unit I -Chapter 1, Chapter 2

Unit II -Chapter 5, Chapter 6

Unit III - Chapter 7, Chapter 8

Unit IV - Chapter 9, Chapter 10

Unit V - Chapter 11, Chapter 12

Books for Reference:

- E.Balagurusamy, Object Oriented Programming C++ 5thEdition., Tata McGraw-Hill, 2011.
- D.Ravichandran, Programming with C++ 2ndEdition., Tata McGraw-Hill, 2010.
- Y.VenugopalRajkumarRavishankar, Mastering C++, Tata McGraw –Hill, 2011.
- Debasish Jana, C++ and object oriented programming paradigm 2nd Edition, PHI publications, 2005.
- Deitel&Deitel ,C++ How to Program , Fourth Edition, Prentice Hall,2004

SEMESTER- II			
CORE – PRACTICAL II-C++ PROGRAMMING LAB			
Code: 15UCSCR2	Hrs / week :4	Hrs / Semester: 60	Credits :4

1. Write a program in C++ to perform Area calculation using Function overloading (Minimum three functions).
2. Write a program to swap two values between two class objects using friend function.
3. Write a program in C++ to display the details of employees using array of objects.
4. Write a C++ program to overload Binary + operator which adds two complex numbers.
5. Write a C++ program to overload Relational operator == to compare two strings.
6. Write a C++ program using class and objects to find row and column total of a matrix.
7. Using class and objects, find the sum of two matrices using pointers.
8. Write a program using multiple inheritances to process students mark list.
9. Write a program using multi level inheritance to process telephone billing.
10. Write a program in C++ using virtual function.
11. Write a program in C++ to process mark listing using binary file.
12. Write a program to open a file in output and input mode. Accept data and write to the file. Display the contents of the file.

SEMESTER- II			
ALLIED – II – DIGITAL PRINCIPLES			
Code: 15UCSA21	Hrs / week :4	Hrs / Semester: 60	Credits :2

Objectives:

- To study various Boolean Functions
- study the logical gates
- Constructing digital circuits

UNIT I

Binary Systems : Digital Computers and Digital Systems – Binary numbers – Number base conversion – Octal and Hexadecimal numbers – Complements – Binary Codes – Binary Storage and Registers – Binary logic – Integrated Circuits – Basic definitions – Axiomatic definition of Boolean Algebra – Basic theorems and Properties of Boolean Algebra – Boolean functions – Canonical and Standard forms – Other Logic Operations – Digital Logic Gates – IC Digital Logic Families

UNIT II

Simplification of Boolean Functions : The Map method – Two and Three variable Maps – Four Variable Map – Five and Six Variable Maps – Product of Sums Simplification – NAND and NOR Implementation – Other two-level Implementations – Don't care conditions – The Tabulation method – Determination of Prime – Implicants – Selection of Prime – Implicants

UNIT III

Combinational Logic : Introduction – Design Procedure – Adders – Subtractors – Code Conversion – Analysis Procedure – Multilevel NAND Circuits – Multilevel NOR Circuits – Exclusive-or and Equivalence Functions

UNIT IV

Combinational Logic with MSI and LSI : Introduction – Binary Parallel Adder – Decimal Adder – Magnitude Comparator – Decoders – Multiplexers – Read-Only Memory – Programmable Logic Array – Sequential logic Introduction – Flip-Flops.

UNIT V

Registers and Counters: Introduction – Registers – Shift Registers – Ripple Counters – Synchronous Counters

Text Book :

M. Morris Mano, Digital Logic and Computer Design — Prentice Private Limited 1998.

Books for Reference:

- Charles H.Roth, Jr. “Fundamentals of Logic Design”, 4th Edition, Jaico PublishingHouse, Latest Edition.
- Donald D.Givone, “Digital Principles and Design”, Tata McGraw-Hill, 2007.
- Donald P.Leach and Albert Paul Malvino, Digital Principles andApplications, 5 ed., Tata McGraw Hill Publishing Company Limited, New Delhi, 2003.

SEMESTER- II			
ALLIED – PRACTICAL II – MULTIMEDIA LAB I			
Code: 15UCSAR2	Hrs / week :2	Hrs / Semester:30	Credits :2

COREL DRAW

- 1.Design a CD label
2. Design a Visiting card/ ID card
3. Design a Logo of a company
4. Design a Greeting card
5. Design a Book cover
6. Design a Business card
7. Design a Letter head
8. Design an Invitation
9. Design an Advertisement
- 10.Design a Home Page

SEMESTER II			
FOUNDATION COURSE: VALUE EDUCATION			
Code: 15UFVE21	Hrs/Week: 2	Hrs / Semester: 30	Credits: 2

Objectives:

- To help students to imbibe the best cherished behaviour pattern as individuals, citizens and members of the community.
- To develop high ethic standards and moral values .

UNIT I

Me-Myself-College-Life and Values-on protests and demonstration – on beliefs – ethical matters – Values –internalization of values – transformation of self.

UNIT II

Life Enrichment skills; Purpose for life – sensitization towards gender equality, physically challenged, intellectually challenged. Respect to age, experience, maturity, family members, neighbours, Co-Workers.

UNIT III

Forgiveness, Integrity, Humility, Truthfulness, Sacrifice, Sincerity, Self Control, Altruism, Scientific vision.

UNIT IV

Constitutional or national values – democracy, socialism, secularism, equality, justice, liberty, freedom, fraternity. Social values, self control universal brotherhood. Religions-Path to God, Religions – Expressions of God Experience- Religious Tolerance. Art: The Meaning of the term – Nature and Function of Art-Art Appreciation-Art for a fuller living – Modern Art – Art and Morality.

UNIT V

Control of mind through

- a. Simplified physical exercise
- b. Meditation – objectives, types, effect on body, mind & soul
- c. Activities
 - i) Moralization of desires
 - ii) Neutralization of anger
 - iii) Eradication of worries
 - iv) Benefits of blessing

Books for Reference:

- AIACHE – human Values development Programme, New Delhi
- Thomas Anchukandam, Grow Free Live Free, Krisu Jyoti Publications, Salesians, Bangalore, 1998
- D. John Antony Self Psychology Counselling, Anugraha Publications
- Prof. N. S. Raghunathan, Value Education, Margham publications, Chennai 2015
- Marie Mignon Mascarenhas, Family Life Education Value Education, All India Association for Higher Education CREST, Bangalore, 1983

SEMESTER- III			
CORE – III – JAVA PROGRAMMING			
Code: 15UCSC31	Hrs / week :6	Hrs / Semester: 90	Credits :4

Objectives:

- To understand the fundamental concepts of Java Programming.
- To understand the concept multi-threading, Applets, AWT and Networking.
- To understand the advanced concept of internet programming and also developing web based application using java programming.

UNIT I: The History and Evolution of Java: Creation of java - Operators – Control statements – Class , Methods , Inheritance

Packages and Interfaces: Packages-Access Protection – Importing Packages- Interfaces.

UNIT II:

Exception Handling: Exception-Handling Fundamentals-Exception Types-Uncaught Exceptions-Using try and catch-Multiple catch clauses-Nested try Statements-throw-throws-finally-Java's Built-in Exceptions.

Multithreaded Programming: Java Thread Model-Main Thread-Creating a Thread-Creating Multiple Threads- Using isAlive() and join ()-Thread Priorities-Synchronization - Interthread Communication-Suspending, Resuming, and Stopping Threads-Using Multithreading.

UNIT III:

The Applet Class: Applet Basics - Applet Architecture - Applet Skeleton - Simple Applet Display Methods - Requesting Repainting - HTML APPLET tag - Passing Parameters toApplet.

Event Handling:Event Handling Mechanisms - Delegation Event Model - Event Classes(The Action Event, Item Event, Key Event , Mouse Event) - Sources of Events - Event Listener Interfaces(Action Listener ,Item Listener, Key Listener, Mouse Listener) - Adapter Classes

Introducing the AWT: AWT Classes-Window fundamentals -working with
FrameWindows - Working with Graphics.

UNIT IV:

Using AWT Controls: Controls Fundamentals-Labels-Using Buttons-Applying Check
Boxes-Check Box Group-Choice Controls-Using a Text Field-Using a Text Area-
Understanding Layout Managers-[Flow Layout Only]-Menu Bars and Menus.

RMI: Remote Method Invocation – Text Formatting

UNIT V:

JDBC Package :JDBC – JDBC versus ODBC – Types of JDBC drivers – Connection –
Statement – PreparedStatement.

ResultSet :Fields of ResultSet – Methods of ResultSet – Executing a query -
ResultSetMetaData – DatabaseMetaData.

Database in JDBC :Basic datatypes in JDBC – Advanced datatypes in JDBC – fields of
Statement – methods of Statement

Text Books:

1. Herbert Schildt, The Complete Reference Java™, 8th Edition, TATA McGRAW- HILL
EDITION, 2011. Chapters: 1, 9, 10, 11, 21, 22, 23, 24, 29, 30, 31 (Unit I, II, III, IV)

2. S. Horstmann and Gary Cornell, Core Java2 Volume II Advanced Features, The Sun
Microsystems press Java Series, 2002. Chapter: 4. (Unit V)

Books for Reference:

- Steven Holzner, Java 2 Programming Black Book , DreamTech Press, 2005.
- Joseph O'Neil, JavaBeans Programming from the GroundUp, TMGH, New
Delhi, 1998
- Kathy Walrath, The J2EE Tutorial, Pearson Education Asia, 2003.

SEMESTER- III			
CORE – IV– COMPUTER ARCHITECTURE			
Code: 15UCSC32	Hrs / week :6	Hrs / Semester: 90	Credits :4

Objectives:

- To study the basic computer organization.
- To understand the basic Arithmetic operations algorithms.
- To understand the memory organization.

UNIT I

Basic computer organization and design : Instruction codes –computer registers –computer instructions –timing and control –instruction cycle-memory reference instructions-input/output and interrupt

UNIT II

Central processing unit :General register organization –stack organization-instruction formats –addressing modes- data transfer and manipulation-program control-Reduced Instruction Set Computer.

Pipe and Vector Processing : Parallel Processing – Pipelining.

UNIT III

Computer Arithmetic : Addition and subtraction – multiplication algorithms-division algorithms-floating point arithmetic operations- Decimal Arithmetic unit- Decimal Arithmetic operations

UNIT IV

Input output organization: Peripheral Devices –Input output interface – Asynchronous Data Transfer – modes of transfer – Priority Interrupt – direct memory access.

UNIT V

Memory organization : Memory hierarchy –main memory –auxiliary memory-associative memory – cache memory – virtual memory

Text Book :

Computer System Architecture – by Morris Mano , Third Edition PHI Private Limited .

Unit I: Chapter 5.1-5.7

Unit II: Chapter 8.1-8.8, 9.1,9.2

Unit III : Chapter 10,1-10.7

Unit IV : Chapter 11.1 -11.6

Unit V : Chapter 12.1 -12.6

Books for Reference:

- Computer system Architecture P.V.S. Rao PHI
- Computer Organization and Architecture: Designing for Performance ,William Stallings, Pearson
- Computer Organization and Architecture ,JhonP.Hayes ,Third Edition , Tata McGRAW HILL.
- Computer Organization and Architecture,P.Chakraborty, Jaico Publishing House.

SEMESTER- III			
CORE – PRACTICAL III – JAVA PROGRAMMING LAB			
Code: 15UCSCR3	Hrs / week :4	Hrs / Semester: 60	Credits :4

1. Write a Java program to find the area of a square, rectangle by

i. Overloading Constructor

ii. Overloading Method

Define a class called Student with data members name, roll number and age.

2. Write a suitable constructor and a method output () to display the details. Derive another class Student from Student1 from Student with data members height and weight. Write a constructor and a method output () to display the details which overwrites the super class method Output () (Apply method Overriding concept).

3. Write a java program to create a package “Employee” which contains the classes Emp and Emppay. The data members of Emp are name, emp_id, category and Bpay. Write suitable constructors and methods to compute net pay of the employee. The class Emppay contains the main method.

4. Write a java program to create and implement an interface.

5. Write a java program to create a thread

i. Using Thread class ii. Using runnable interface

6. Write a java program to design a calculator to perform arithmetic operations.

7. Create an applet with four Checkboxes with labels and a Text area object. The program must display the details while clicking a particular Checkbox.

8. Write a java program, which creates a window with a checkbox group with boxes for the colors, Violet, Indigo, Yellow, Orange, Red, Blue and Green. When the button is selected the background color must change accordingly.

9. Write a java program to demonstrate the use of choice box.

10. Write a java program to throw the following exception,

i. Negative Array Size ii. Array Index out of Bounds

11. Write a java program to illustrate mouse event handling.

12. Write a java program to create a File menu with options new, save, and close, edit menu with options cut, copy and paste.

13. Write a program to display your marksheet using JDBC.

SEMESTER- III			
ALLIED – III – RESOURCE MANAGEMENT TECHNIQUES			
Code: 15UCSA31	Hrs / week :4	Hrs / Semester: 60	Credits :2

Objectives :

- To enable the students utilize the resources and optimize the result or output.
- To provide knowledge about project scheduling ,inventory models and sequencing.

UNIT – I

Operation Research : Definition of operations research – Features of operations research – Phases of operations research – Models in operations research – Methods for solving operations Research models– Methodology of operations research – Advantages , Features and Applications of Operation Research

Linear Programming : General structure of an LP problem – General Mathematical model of LP Problem – Guidelines of LP model formulation – Graphical solution methods of LP problem – canonical and standard form of LP problem – simplex algorithm (Maximization case)

UNIT – II

Game Theory : Definition – Two person zero sum games – Pure strategies (Minimax and Maxmin Principles) : Games with saddle point – Mixed Strategies : Game without saddle point – Rules of dominance –Solution methods games without saddle point (Algebraic method , Arithmetic method , Matrix method , Graphical method)

Replacement Problem : Replacement of items that deteriorates with time : Model I Model II – Replacement of items that completely fail

UNIT– III

Inventory models : Meaning of Inventory control – Reasons for carrying inventory – Factors involved in inventory problem analysis – Inventory cost components – classification of EOQ models – Single item inventory control models without shortages : EOQ model with constant rate of demand - Single item inventory control models with shortages : EOQ model with constant demand and variable order cycle time , EOQ model with constant demand and fixed reorder cycle time – Probabilistic Models: Single period EOQ model for uncertain demand(Newsboy problem)

UNIT – IV

Project scheduling: What is PERT and CPM ? – Phases of project management – Network components and precedence relationships – Activity on node network – Rules for AOA network construction – Critical path analysis - Forward pass method – Backward pass method – Float(Slack) of an activity and event – Critical path – PERT calculations – Estimation of project completion time.

UNIT –V

Queuing theory : Characteristics of queuing models – Queue Discipline – Service Process – Performance Measures of a queuing system – Probability distribution in queuing systems – classification of queuing models – solution of queuing Model I $\{(M/M/1) (\infty / FCFS)\}$

Text Books:

1. P.K.Gupta, Operation Research S.Chand& Company, 2010
2. J.K.Sharma, “Operations Research”, fourth Edition, Macmillan Publishers India,2009

Books for Reference:

- S.D.Sharma, “Operations Research” ,Kedar Nath Ram Nath,2015
- Hamdy A. Taha , “Operations Research” , 7th Edition , Prentice Hall (2002)

SEMESTER- III			
ALLIED - PRACTICAL– III – HTML LAB			
Code: 15UCSAR3	Hrs / week :2	Hrs / Semester: 30	Credits :2

1. Develop an HTML document for a web page of your favorite National Leader. Design the page with an attractive color combination, with suitable headings and horizontal rules.
2. Develop an HTML document with an example of Ordered List and Unordered List(all types of list).
3. Create your resume using HTMLtags also experiment with colors, text, link,size and also other tags you studied.
4. Design a web page for your college containing a description of the courses, departments, faculties, library etc , use href , list tags.
5. Create a web page to display your marks in the following table format.

Reg No.	Name	SEMESTER I							
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		Int	Ext	Int	Ext	Int	Ext	Int	Ext

6. Create user feedback form (use textbox, text area, checkbox, radio button, select box etc.)
7. Create a web page using frame. Divide the page into two parts with Navigation links on left hand side of page(width=20%)and content page on right hand side of page(width=80%). On clicking the navigation Links corresponding content must be shown on the right hand side.
8. Create a frameset and open different pages in the frames.
9. Write an HTML code to display a list of five cars in a frame,Link each one to a brief description in second frame.The left frame should display the list and the right frame should display the paragraph about the frame.
10. Create a HTML document to display a list of four flowers and link each one to another document displaying brief description of the flower, Add pictures wherever possible.
11. Write HTML program to create Image Map.
12. Write HTML program to e-mail registration form.

SEMESTER- III			
SBE – MULTIMEDIA LAB II			
Code: 15UCSS31	Hrs / week :2	Hrs / Semester: 30	Credits :2

PHOTOSHOP

1. Design a brochure.
2. Design greeting card.
3. Transporting an image from one background to another.
4. Design a Textbook cover page.
5. Crop an image / rotation image.
6. Filters in Photoshop
7. Design a homepage for a website
8. Design a visiting card.
9. Design a Bio data form
10. Design a CD label.

SEMESTER –III			
FOUNDATION COURSE: ENVIRONMENTAL STUDIES			
Code: 15UFES31	Hrs/week:2	Hrs/Semester:30	Credits: 2

Objectives:

- To make the students environment conscious.
- To sensitize the students about the environmental crisis and environmental protection.
- To create an awareness among the students about sustainable utilization and conservation of natural resources.

UNIT I Environment – Natural Resources

Environment – Definition, Components, need for public Awareness, Natural Resources – Renewable and non-renewable. Forest Resources – Uses, Over exploitation, Deforestation, Water Resources – Uses and Conservation, rain water harvesting. Energy Resources – Renewable and Nonrenewable. Solar, Wind and Biomass energy. Role of Individuals in conservation of natural resources.

UNIT II Ecosystem

Ecosystem – Concepts, components – Abiotic and Biotic components (Producer, Consumer and Decomposer), Energy Flow – Food chain, food web and Ecological Pyramids, Structure and Function of Grass Land (Terrestrial) and Pond (Aquatic) Ecosystem.

UNITIII Environmental Pollution

Definition, causes, effects and control measures of Air Pollution, Water Pollution and Soil Pollution, Nuclear Hazards, Solid Waste Management. Disaster Management – Flood, Earth quake, Tsunami. Role of individuals in the prevention of pollution.

UNITIV Biodiversity and Conservation

Definition and Levels of Biodiversity (Genetical, Ecological and Species Diversity) Values of Biodiversity. Threats and Loss of Biodiversity – Causes. Hot Spots of Biodiversity (with special reference to India). Conservation of Biodiversity – *In situ* and *Ex situ* Conservation.

UNIT V Social Issues and Environment

Sustainable Development, Consumerism and Waste Products, Climate Change – Global Warming, Ozone Layer depletion. Waste Land Reclamation. Population Explosion – Family Welfare Programme, HIV / AIDS, The Environment (Protection) Act – 1986. International Union for Conservation of Nature and Natural Resources (IUCN), World Wild Life Fund (WWF), Man and Biosphere Programme (MAB).

Books for Reference:

- Kaushik, A. and Kaushik, C.P.K., Perspectives in Environmental Studies – New Age, International Pvt. Ltd., New Delhi, 2004.
- Odum, E.P., Fundamentals of Ecology, Natraj Publishers, New Delhi, 1996.
- Saha, T.K. Ecology and Environmental Biology, Arunabha Sen Books & Allied Pvt. Ltd., Kolkata, 2007
- Sharma, Environmental Biology, Rastogi Publications, Meerut, 2006.
- Miller, Tyller g., Environmental Science, Thompeson Brooke / Cole, Singapore, 2004.
- Vijayalakshmi, G.S. Murugesan A.G. and Sukumaran, N., Basic Environmental Science, Manonmaniam Sundaranar University Publications, Tirunelveli, 2006.

SEMESTER- IV			
CORE – V – RDBMS			
Code: 15UCSC41	Hrs / week :5	Hrs / Semester: 75	Credits :4

Objectives:

- To learn the fundamental data models and conceptualize and depict a database system using ER diagram
- To make a study of SQL and relational database design using Oracle

UNIT – I

Database System Application- Relational Databases-Database Architecture- Structure of Relational Databases.

UNIT – II

Overview of the Design process- The Entity Relationship Model- Entity Relationship diagrams- Extended E-R features.

UNIT– III

Decomposition using Functional Dependencies- Decomposition using Multivalued Dependencies.

UNIT– IV

Introduction to SQL, Data types , DDL, DML, and DCL statements, Retrieving information from database tables.

UNIT– V

Introduction to PL/SQL programming , Loops , Cursors , Exceptions , Procedures , Functions , Packages , Triggers.

Text Books :

1. H. F. Korth & A. Silberschatz, s. Sudarshan Database system Concepts, Fifth edition , Tata McGraw Hill, New Delhi, 2005
2. Nilesh Shah, "Database Systems Using Oracle A simplified Guide to SQL and PL/SQL", Prentice Hall of India, 2002.

Books for Reference:

- Alexis Leon and Mathews Leon, Fundamentals of Database Management Systems, Vijay Nicole Imprints, 2010
- C. J. Date, Database Systems, Pearson; 2003.
- Ivan Bayross, SQL, PL/SQL, The programming language of Oracle, BPB Publications, 2010.
- Elmasri & Navathe, Fundamentals of Database systems, Addison & Wesley, New Delhi, 2006.

SEMESTER- IV			
CORE – VI – MICROPROCESSORS			
Code: 15UCSC42	Hrs / week :5	Hrs / Semester: 75	Credits :4

Objectives:

- To understand the Internal Architecture of the Microprocessor and Memory Interfacing.
- To know the different types of processors.

UNIT I:

Microprocessor, Microcomputers and Assembly Language:

Microprocessors-Microprocessor Instruction Set and Computer Languages-From Large Computers to Single Chip Micro Controllers.

8085 Microprocessor Architecture And Memory Interfacing : The 8085 MPU- Memory Interfacing – Interfacing the 8155 memory section.

UNIT II:

Introduction to 8085 Assembly Language Programming:

The 8085 Programming Model-Instruction Classification – Instruction Format -How to Write, Assemble and Execute a Simple Program-Overview of the 8085 Instruction Set.

Introduction to 8085 Instructions:

Data transfer operations-Arithmetic Operations-Logic Operation – Branch Operations – Writing Assembly Language Programs-Debugging a Program- I/O interfacing

UNIT III:

Programming Techniques With Additional Instructions:

Programming Techniques: Looping ,Counting and Indexing- Additional Data Transfer and 16bit Arithmetic Instruction- Arithmetic Operations Related to Memory-Logic Operations: Rotate, Compare-Dynamic Debugging.

Counters And Time Delays:

Counters and Time Delays-Hexadecimal Counter-Modulo ten Counter-Generating Pulse Waveforms-Debugging Counter and Time Delay Programs.

UNIT IV:

Stacks And Subroutines:

Stack-Subroutine-Restart, Conditional Call and Return Instruction-Advanced Subroutine Concepts.

Code Conversion, BCD Arithmetic And 16bit Data Operations:

BCD to Binary Conversion-Binary to BCD Conversion-BCD Addition and Subtraction-Multiplication-Subtraction with carry.

UNIT V:

Interrupts:The 8085 Interrupts-Vectored Interrupts-Restart as Software Instruction.

Introduction to high performance processors:Intel 80386/80486, Intel Pentium , RISC.

Text Book:

Ramesh Goankar, “Microprocessor Architecture, Programming And Applications With The 8085”, 5THedition, Penram International Publishing Private Limited. (chapters 1.1-1.3, 2.1-2.5, 4.1,4.3, 4.4, 5.1 - 5.4, 6.1-6.6, 7.1-7.6, 8.1-8.5 , 9.1-9.4 ,10.1, 10.2 , 10.5, 10.6,10.8,10.9, 12.1 , 12.2, 12.3 ,18.4)

Books for Reference:

- Yu – Cheng Liu, Glenn A. Gibson , “Microcomputer Systems, The 8086/8088 family architecture , Programming and design” PHI, 2000.
- Introduction to microprocessors - Fourth edition , Aditya P Mathur Tata McGraw Hill.

SEMESTER- IV			
CORE – PRACTICAL IV – RDBMS LAB			
Code: 15UCSCR4	Hrs / week :6	Hrs / Semester: 90	Credits :4

1. Creating table using Constraints
2. Altering the tables with constraints.
3. Create queries to retrieve relevant information from a table.
4. Retrieving rows with Character functions.
5. Retrieving rows with Number and Date functions
6. Retrieving rows with Group functions, Grouping clause , Order by clause and HAVING clause.
7. Joining tables.
8. Write PL/SQL program with selection structures
9. Write PL/SQL program with looping structures.
10. Write a PL/SQL program using Cursors.
11. Write a PL/SQL program to perform Exception Handling
12. Creating and Calling Procedures.
13. Creating and Calling Functions.

SEMESTER- IV			
ALLIED IV– DATA STRUCTURES			
Code: 15UCSA41	Hrs / week :4	Hrs / Semester: 60	Credits :4

Objectives:

- To understand the concepts of basic data structures such as stack, Queues and Linked list.
- To have general understanding of the network structures through graph.
- To make the students to understand the basic algorithms for searching and sorting.

UNIT I:

Introduction: Pseudo code – The Abstract Data Type – A Model for an Abstract Data Type Algorithms Efficiency.

Searching : List Searches – Hashed List Searches – Collision Resolution

UNIT II:

Linked Lists : Linear List Concepts – Linked List Concepts – Linked List Algorithms – Processing a Linked List – Complex Linked List Structures

UNIT III:

Stacks And Queues: Basic Stack operations – Stack Liked List Implementation – Stack Applications – Queue operations – Queue Linked List Design

UNIT IV:

Trees :Basic Tree Concepts – Binary Trees – Binary Tree Traversals – Expression Trees – General Trees – Binary search Trees – Heap Definition-Heap Structure – Basic Heap Algorithms. – Heap Data Structures – Heap Algorithms

UNIT V:

Sorting and Graphs : General sort concepts – Quick sort – External sorts. Graphs– Terminology – Operations –Graph storage structure- Graph Algorithms – Insertion – Deletion – Traversal – BFS and DFS – Networks – Minimum Spanning Tree – Shortest Path Algorithm.

Text Book:

Richard F.Giolberg&BehrouzA. forouzan,Data Structures - A Pseudo codeApproach with C++, 4th edition Thomson Brooks /Cole,2001

Chapters 11,2.1,2.3,2.4,3.1 – 3.4 ,3.6,4.1 -4.3 ,5.1 ,5.2,7.1 -7.5 ,8.1,9.1 -9.5,11.1,11.4(Quick sort only),11.5 , 12.1 -12.5

Books for Reference:

- Ellis Horowitz & Sartaj Sahani, Fundamentals of DATA STRUCTURES, GalGotia publications,2006.
- Adam Drozdek, Data Structures & Algorithm in Java third edition, Ingram,2008.

SEMESTER- IV			
ALLIED-PRACTICAL IV–DATA STRUCTURES LAB			
Code: 15UCSAR4	Hrs / week :4	Hrs / Semester: 60	Credits :2

1. Sequential search and Binary search
2. Implement linked list and perform the following operations
 - i. Add a node as first node
 - ii. Add a node as last node
3. Implement Linked list and perform the following operations.
 - i. Delete the first node
 - ii. Delete the last node
4. Implement a stack using Linked List and perform the push and pop operations.
5. Implement a queue using Circular list and implement add and delete operations.
6. Implement binary tree using Linked and perform the following traversal.
 - a. Inorder Traversal
 - b. Preorder Traversal
 - c. Post order Traversal
7. Implement Graph using Adjacency matrix and perform the DFS & BFS Traversal
8. Merge sort.
9. Quick sort.

SEMESTER IV			
FOUNDATION COURSE: YOGA AND MEDITATION			
Code: 15UFYM41	Hrs/Week: 2	Hrs/Semester: 30	Credits: 2

Objectives:

- To enable students to have good health
- To impart value for mental hygiene and possess emotional stability
- To integrate moral values in order to live a purpose driven life.

UNIT- I Physical Character and Functions

Yoga – Brief introduction – importance of Yoga Life – Simple methods for adopting Yoga in Daily Life Nature Cure: Brief history and principles – Health and Disease – Techniques of Healthy Living Rules & Regulations – asanas, Pranayama, mudra, bandha

UNIT - II Exploring the traditions of Yoga

The Secret of Change-The Mind: Agent of Change - The Twelve steps of Spiritual Recovery -Raja yoga- Hatha Yoga- Jnana Yoga-Karma Yoga- Bhakthi Yoga - Mantra Yoga - Tantra Yoga - Surya Namaskar .

UNIT- III Greatness of Life Force

Philosophy of kayakalpa-physical body- bio magnetism, mind-Kayakalpa practical - sex and spirituality-value of sexual vital fluid, married life-chastity- jeeva Samadhi -intensifying biomagnetism through exercise- lamp gazing-rules-benefits - mirror gazing-rules-benefits, passes for healing.

UNIT - IV Self Discipline

Self-Discipline, Diet: You are what you eat - Yogic and Naturopathic treatment for Common Ailments: Common Cold, Cough, Headache, Constipation, Gastric trouble, Menstrual Disorders – Obesity – And General Steps for being healthy.

UNIT- V Special Meditation

Pranayama - Physiological value of Pranayama- Practice of Pranayama- Nature Meditations

Books for Reference:

- Mind – Vethathiri Maharashi
- Karma Yoga - Vethathiri Maharashi
- Sound health through Yoga – Dr. K. Chandrasekar
- Yoga for Modern Age – Vethathiri Publication
- Department .of AYUSH, Yogic and Naturopathic treatment for Common Ailments
Edi IV, Ministry of Health and Family Welfare, Gove. Of India, 2010
- Georg Feuerstein & Benda Feuerstein, Yoga: A beginners Guide, Rashmi Graphics, #3, Amrutwel CHS.Ltd Mumbai, 2014

SEMESTER- V			
CORE – VII– ASP.NET			
Code: 15UCSC51	Hrs / week :4	Hrs / Semester: 60	Credits :4

Objectives:

- To highlight the features of ASP.NET and apply it to develop various applications.
- To understand the concepts of .Net framework as a whole and the technologies that constitutes the frame work.
- To make the students to get experience and be ready for the large scale projects in IT industry.

UNIT-I:

The.Net Framework- The .NET Programming Framework-VB.NET, C#, and the .NET Language- The Common Language Runtime-The .NET Class Library-ASP.NET-Visual Studio.NET.

Learning The .Net Language-Data Types-Declaring Variables-Scope and Accessibility-Variable Operations-Object-Based Manipulation-Conditional Structures-Loop structures-Functions and Subroutines

UNIT-II:

Asp.Net Applications- ASP.NET Applications-Code-Behind-The Global.asax Application File-Understanding ASP.NET Classes-ASO,BET Configuration

Web Form Fundamentals- A Simple Page Applet-Improving the Currency converter-A deeper Look at HTML Control Classes-The Page Class-Assessing HTML Server Controls.

UNIT-III:

Web Controls-Stepping Up to Web Controls-Web Control Classes-Auto Post Back and Web Control Events-A Simple Web Page Applet-Assessing Web Controls.

Using Visual Studio .Net-The promise of Visual Studio .NET-Starting a Visual Studio .NET Project-The Web Form Designer-Writing Code-visual Studio .NET Debugging-Working Without Visual Studio .NET.

UNIT-IV:

State Management-The Problem of State-Viewstate-Transferring Information-Custom cookies-Session State-Session State Configuration-Application State.

Tracing And Logging-Logging Exceptions-Error Pages-Page Tracing

UNIT-V:

Database Connectivity: Overview of ADO.NET: Introducing ADO.NET and data Management– characteristics of ADO.NET –The ADO.NET Object Model. ADO.NET Data Access SQL Basics –The SQL Select Statement – The SQL Update Statement – The SQL Insert Statement – The SQL Delete Statement–Creating a connection –Defining a Select Command – Updating Data – Accessing Disconnected Data –Updating Disconnected Data – Data Binding –Introducing Data Binding –Single Value Data Binding –Repeated Value Data Binding –Data Binding with Databases–The DataLiIst, DataGrid and Repeater.

Text Book:-

MATHEW MACDONALD, The Complete Reference ASP.NET, TMH 2002

Books for Reference:

- G. Andrew Duthie, Microsoft ASP.NET Step by step, Microsoft Press, 2003
- Kogent Learning Solutions Inc., ASP.NET 2.0 Black book, DreamTech Press, 2006.
- NitinPandey ,” Microsoft ASP.NET”, PHI,2002
- MridulaParihar, YeshSingal and NitinPandey, “Visual Studio .Net Programming”, PHI, 2002
- C. Muthu, ”ASP.NET”, 2nd Ed., Vijay Nicole Imprints Pvt.Ltd., 2008.

SEMESTER- V			
CORE – VIII– OPERATING SYSTEMS			
Code: 15UCSC52	Hrs / week :4	Hrs / Semester: 60	Credits :4

Objectives:

- To acquire the fundamental knowledge of the operating system architecture and components and to know the various operations performed by the operating system.
- Understand the basic working process of an operating system.
- Understand the importance of process and scheduling.
- Understand the issues in synchronization and memory management.
- Understand the concept of open source

UNIT I

Introduction and System Structures Operating system definition, computer system organization, and architecture, structure and operations, process, memory and storage management.

UNIT II

Process Management Process concepts, scheduling and operations on processes. Process Scheduling: Basic concepts, scheduling criteria, scheduling algorithms, Synchronization: Background, critical section problems, Peterson’s Solution, Synchronization Hardware, Classic problem of synchronization

UNIT III

Deadlock :Deadlock: System model, deadlock characterization, methods for handling deadlock, deadlock prevention, avoidance and detection, Recovery from deadlock.

Memory Management Memory Management Strategies: Background, swapping, Memory allocation, Paging, Structure of the page table.

UNIT IV

File system File system: File concept, Access methods, File system structure, allocation methods and free-space management. Disk structure, disk scheduling algorithms and management RAID structure.

UNIT V

Open Source - Introduction to Linux: What is Linux? – A Brief History of Linux – System features – Software features - The Design and Philosophy of Linux – Differences between Linux and other Operating Systems – Hardware Requirements - Sources of Linux Information - Some Basic Commands.

Text Books:

1. A. Silberschatz, P.B. Galvin and G. Gagne, Operating System Concepts, 8th Edition, Wiley India, 2011.
2. Linux complete - Grant Taylor , BPB Publications. 1998 (Chapter 1).

Books for Reference:

- Stalling William, Operating Systems: Internals and Design Principles, 7th Edition, Prentice Hall, 2011.
- Dietel, Operating Systems, 3rd Edition, Pearson Education, 2004.
- A.S. Tanenbaum, Modern Operating Systems, 3rd Edition, Prentice Hall, 2007.

SEMESTER- V			
CORE – IX – PROGRAMMING WITH PHP AND MYSQL			
Code: 15UCSC53	Hrs / week :4	Hrs / Semester: 60	Credits :4

Objectives:

- To understand the concepts of open sources.
- To learn and use open source database management system MySQL
- To create dynamic web pages and websites.
- To connect webpages with database.

UNIT-I Introduction:

Introduction- Open source PHP – PHP history- features-variables- statements operators- conditional statements-if-switch-nesting conditions-merging forms with conditional statements-loops-while-do-for – loop iteration with break and continue.

UNIT - II Arrays and Functions:

Arrays: Creating an array- modifying array-processing array-grouping form with arrays- using array functions- creating user defined functions- using files- sessions- cookies- executing external programs- Creating sample applications using PHP.

UNIT –III File Handling

Opening files using fopen - looping over a file's content with feof- reading text from a file using fgets - closing a file- reading character with fgetc- reading whole file with file_get_contents- reading a file into an array with file- checking if a file exists- fscanf- parse_ini_file- Getting file information with stat- fseek- copying files with copy- deleting files- writing to a file- reading and writing binary files –locking files

UNIT-IV MySQL:

Effectiveness of MySQL -MySQL Tools-Prerequisites for MySQL connection-Databases and tables- MySQL data types-Creating and manipulating tables-Insertion-updation and deletion of rows in tables -Retrieving data- Sorting and filtering retrieved data -Advanced data filtering-Data manipulation functions-Aggregate functions -Grouping data- Sub queries- Joining Tables- Set operators-Full text searching.

UNIT-V PHP with MySQL:

Working MySQL with PHP-database connectivity- usage of MySQL commands in PHP- processing result sets of queries- handling errors-debugging and diagnostic functions- validating user input through Database layer and Application layer- formatting query output with Character- Numeric- Date and time –sample database applications.

Text Books:

1. VIKRAM VASWANI- "PHP and MySQL"- Tata McGraw-Hill- 2005
2. BEN FORTA - "MySQL Crash course " SAMS- 2006.
3. Steven Holzner , The Complete reference PHP, Tata McGraw Hill,2008

Books for Reference:

- Tim Converse- Joyce Park and Clark Morgan- "PHP 5 and MySQL"-Wiley India reprint- 2008.
- Robert Sheldon- Geoff Moes- "Beginning MySQL"-Wrox- 2005.
- Alexis Leon and Mathews Leon- "Database Management Systems"-Vikas- 2008.

SEMESTER- V			
CORE - ELECTIVE I– DATA MINING			
Code: 15UCSE51	Hrs / week :4	Hrs / Semester: 60	Credits :4

Objectives:

- To study the basic and advanced concepts in Data Mining techniques.
- To understand the various algorithms involved in data mining and its applications.

UNIT I:

Introduction: What is Data Mining?-Why Data Mining now!-The Data Mining Process-Data Mining Applications-Data Mining Techniques.

Association Rules: Introduction-basics-The Task and a Naïve Algorithm-The Apriori Algorithm-Improve the efficiency of the Apriori Algorithm.

UNIT II:

Classification:Introduction-Decision tree-Building a Decision Tree-Overfittingand pruning-Decision Tree Rules- Naïve Bayes Method-Estimating Predictive Accuracy of Classification Methods-Improve Accuracy of classification methods-other evaluation criteria for classification methods.

UNIT III:

Cluster Analysis: What is Cluster Analysis?- Desired features of Cluster Analysis-Types of Data –Computing Distance- Types of Cluster Analysis Methods-Partition Methods-Hierarchical Methods-Density based methods- Quality and validity of cluster analysis methods.

UNIT IV:

Web Data Mining: Introduction-Web Terminology and characteristics- Locality and Hierarchy in the web-Web Content mining- Web usage mining.

Search Engine:Introduction-Search Engine Functionality- Search Engine Architecture.

UNIT V:

Data Warehousing: Introduction-Operational Data Stores-Data Warehouses-Data Warehouse Design-Guidelines for Data Warehouse Implementation-Data Warehouse Metadata.

Online Analytical Processing (OLAP): Introduction- OLAP- Characteristics of OLAP Systems-Multi Dimensional View and Data Cube-Data Cube Implementation- Data Cube Operations.

Text Book:

G.K.Gupta, Introduction to Data Mining with Case Studies, Prentice Hall of India, 2008.

Chapters: 1.1-1.5, 2.1-2.5, 3.1-3.4, 3.6-3.12, 4.1- 4.8, 4.10,5.1-5.5, 6.1, 6.3-6.4, 7.1-7.2, 7.4-7.7, 8.1-8.3, 8.5-8.8.

Booksfor Reference:

- Margaret H.Dunham; S.Sridhar, Data Mining Introductory and Advanced Topics, Pearson Education, 2007.
- Alex Berson and Stephen J. Smith, Data Warehousing, Data Mining, OLAP, TMH Publication ,1997 .

SEMESTER V			
CORE - ELECTIVE I–WEB TECHNOLOGY			
Code: 15UCSE52	Hrs / week :4	Hrs / Semester: 60	Credits :4

Objectives:

- Distinguishing characteristic of scripting languages
- Using Javascript for dynamic effects
- To learn XML fundamentals and creating XML applications
- Create conforming web pages

UNIT I

INTRODUCTION

What is Internet? History of Internet, Internet Services and Accessibility, Uses of Internet, Protocols, Web Concepts, Internet Standards

INTERNET PROTOCOLS

Introduction, Internet Protocols, Host Names, Internet Applications and Application Protocols

JAVA NETWORK PROGRAMMING

Introduction, UDP/IP and TCP/IP Communications, I/O Streams, Sockets, Multicast Sockets, Remote Method Invocation, Protocol Handler, Content Handlers

UNIT II

JAVASCRIPT

Introduction, Language Elements, Objects of Javascript, Other Objects, Arrays

VBSSCRIPT

Introduction, Embedding VBScript Code in an HTML Document, Comments, Variables, Operators, Procedures, Conditional Statements, Looping Constructs, Objects and VB Script, Cookies.

UNIT III

DYNAMIC HTML (DHTML)

Introduction, Cascading Style Sheets (CSS), DHTML Document Object Model and Collections, Event Handling, Filters and Transactions, Data Binding

EXTENSIBLE MARK-UP LANGUAGE (XML)

Introduction, HTML vs XML, Syntax of the XML Document, XML Attributes, XML Validation, XML DTD, The Building Blocks of XML Documents, DTD Elements, DTD

Attributes, DTD Entities, DTD Validation, XSL, XSL Transformation, XML Namespaces, XML Schema

UNIT IV

COMMON GATEWAY INTERFACE (CGI)

Introduction, Server – Browser Interaction, CGI Scripts Structure, The CGI.pm Module, Perl Variables, CGI Environment Variables, Processing Forms, Sending Mail, Validating the Form Data, Handling Checkboxes, Server Side Includes (SSI), CGI Server Side and Client Side Applets, CGI Security Issues

SERVLETS

Introduction, Advantages of Servlets over CGI, Installing Servlets, The Servlet Life Cycle, Servlet API, A Simple Servlet, Handling HTTP GET Requests, Handling HTTP POST Requests, Cookies, Session Tracking, Multi – tier Application Using Database Connectivity, Servlet Chaining

UNIT V

JAVA SERVER PAGES (JSP) Introduction, Advantages of JSP, Developing First JSP, Components of JSP, Reading Request Information, Retrieving the Data Posted from a HTML File to a JSP File, JSP Sessions, Cookies, Disabling Sessions

ACTIVE SERVER PAGES (ASP)

Introduction, Advantages of Using ASP, First ASP Script, Processing of ASP Scripts with Forms, Variables and Constructs, Subroutines, Include / Virtual , ASP Cookies, ASP Objects, Connecting to Data with ASP.

Text Book:

N.P Gopalan, J.Akilandeeswari, Web Technology – A Developer’s Perspective, PHI,2007

Books forReference :

- Achyut S Godbole, AtulKahate, Web Technologies - TCP / IP To Internet Application Architectures, Tata McGraw - Hill Education,2008.
- Vipin Kumar, Web Technologies, A.B. Publication publisher, 2008
- Jeffry C. Jakson , Web Technologies by Computer Science Perspective, pearson publication, 2005

SEMESTER V			
CORE –ELECTIVE I – CLIENT SERVER TECHNOLOGY			
Code: 15UCSE53	Hrs / week :4	Hrs / Semester: 60	Credits :4

Objectives:

- To introduce the power, advantages and complex issues of client-server computing.
- To know the evolution of the computing environment.
- To understand the computing environment that satisfies the organizational needs of allocating application processing between workstation(the client)and serverprocessors.
- The student will be exposed to terminology, concepts, and client/server programming techniques.

UNIT-I

Client/Server Computing – Advantages of Client / Server Computing – Technology Revolution – Connectivity – Ways to improve Performance – How to reduce network Traffic

UNIT-II

Components of Client/Server Applications – The Client: Role of a Client – Client Services – Request for Service.

Components of Client/Server Applications – The Server:The Role of a Server – Server Functionality in Detail – The Network Operating System –What are the Available Platforms – The Server Operating system.

UNIT-III

Components of Client/Server Applications – Connectivity: Open System Interconnect – Communications Interface Technology – Interprocess communication – WAN Technologies.

UNIT-IV

Components of Client/Server Applications–Software:Factors Driving demand for application software development – Rising Technology Staff costs – Need to improve Technology – Need for Common Interface across Platforms – Client/Server System Development Methodology.

Components of Client/Server Applications–Hardware : Hardware/Network Acquisition – C-Level Processing Units – Machintosh, notebooks, Pen –UNIX Workstation – x-terminals – Disk, Tape,Optical Disks, NIC and UPS.

UNIT-V

Components of Client/Server applications–Service and Support: System Administration.

The Future of Client/Server Computing: Enabling Technologies – Transformational Systems.

Text Book:

Patrick Smith, Steve Guenferich , Client/Server Computing, 2nd edition, Prentice Hall of India Private Limited, New Delhi, 2002 (Chapters 1-8 & 10)

Books for Reference:

- Devendra Kumar, Client Server Computing, Global Vision Publishing House ,2012
- Yashpal Singh Manish Varshney, An Introduction To Client Server Computing ,
Ajeet Kumar, A. B. Publication , N/A

SEMESTER V			
CORE – PRACTICAL V – ASP.NET LAB			
Code: 15UCSCR5	Hrs / week :5	Hrs / Semester: 75	Credits :5

1. Create a simple web application for currency conversion, discount calculation, interest Calculation depending on user's choice.
2. Create a Web Page to Simulate the Billing System of a Super Bazar .
3. Design a feedback form.
- 4 Create an application in which you are required to validate a form.
5. Create an Application which has Image, Image map and Image Button.
6. Create an Authentication form
7. Simulate a notepad editor using ASP.NET.
8. Create an application in which user has to display records in the Grid View Control from Table created in access data base.
9. Develop a CIA SYSTEM Using Grid Control.
10. Create a web application to insert, delete, edit and update records in a Table.

SEMESTER V			
CORE – PRACTICAL VI – PHP & MYSQL LAB			
Code: 15UCSCR6	Hrs / week :5	Hrs / Semester: 75	Credits :5

1. Creating simple webpage using PHP.
2. Write programs using conditional-looping statements in PHP.
3. Use of looping statements in PHP.
4. Creating programs using arrays.
5. Creating user defined functions.
6. File manipulation using PHP.
7. Creating simple table with constraints.
8. Insertion-Update and Deletion of rows in MYSQL tables.
9. Searching of data by different criteria.
10. Sorting of data.
11. Demonstration of joining tables.
12. Usage of subqueries.
13. Validating Input.

SEMESTER V			
SBE – MULTIMEDIA LAB III			
Code: 15UCSS51	Hrs / week :4	Hrs / Semester: 60	Credits :3

Objectives:

- To have general understanding about Movie animation and essentials.
- To make the students use Scripting technology
- To make the students to work with Text and Graphics

FLASH:

1. Create a Movie which includes Text Effects(Blur, Masking and Reflecting)
2. Create a Movie which includes
 - i. frame by frame animation

ii animation using guided path

3. Create a movie which includes an object animation using Motion Tweening (Jumping the Ball)
4. Create a movie which include Animation using Multi Layer
5. Create a movie using shape Tweening.
6. Create a movie which includes Image / Text Morphing
7. Design a Commercial advertisement banner.
8. Create scrollbars in a text.
9. i. Morphing ii. Create Buttons
10. Flash Slide Presentation

PAGE MAKER:

1. Design of ID Card (3” X 2”) /Visiting Card (3.5” X 2”)
2. Design of an attractive Invitation Card (5.5 “ X 8”) / Letter pad (7.5” X 9”)
3. Preparation of a small booklet with 6 pages (3.5” X 4.5”).
4. Design a handbill(5.5” X 8.5”) / advertisement.
5. Design your college progress card / a Receipt bill with counter foil.

SEMESTER V	
SELF STUDY - PYTHON PROGRAMMING (Compulsory)	
Code: 15UCSS3	Credits :1

Objectives:

- Learn to program in Python and understand programming paradigms brought in by Python Expressions.
- Learning about Transparent conversion or proxying of values between Python and Objective-C with Python Objects.

UNIT I

Introduction and overview

Introduction, What is Python, Origin, Comparison, Comments, Operators, Variables and Assignment, Numbers, Strings, Lists and Tuples, Dictionaries, if Statement, while Loop, for Loop and the range() Built-in Function, Files and the open() Built-in Function, Errors and Exceptions, Functions, Classes, Modules.

Syntax and Style

Statements and Syntax, Variable Assignment, Identifiers, Basic Style Guidelines, Memory Management, Python Application Examples.

UNIT II

Python Objects

Python Objects, Standard Types, Other Built-in Types, Internal Types, Standard Type Operators, Standard Type Built-in Functions, Categorizing the Standard Types, Unsupported Types.

Numbers and Strings

Introduction to Numbers, Integers, Floating Point Real Numbers, Complex Numbers, Operators, Built-in Functions. Sequences: Strings, Lists, and Tuples, Sequences, Strings, Strings and Operators, String-only Operators, Built-in Functions, String Built-in Methods, Special Features of Strings.

UNIT III

Lists

Operators, Built-in Functions, List Type Built-in Methods, Special Features of Lists, Tuples, Tuple Operators and Built-in Functions, Special Features of Tuples.

Conditionals and Loops

if statement, else Statement, else if Statement, while Statement, for Statement, break Statement, continue Statement, pass Statement, else Statement.

UNIT IV

Files and Input/output File Objects, File Built-in Function, File Built-in Methods, File Built-in Attributes, Standard Files, Command-line Arguments, File System, File Execution, Persistent Storage Modules

UNIT V

Regular Expressions

Introduction/Motivation, Special Symbols and Characters for REs, REs and Python.

Programming Exercise: Check for data error in CSV files: Numeric Check, Alphanumeric Check, Email Check, Date Check.

Text Book:

Chun, J Wesley, Core Python Programming, 2nd Edition, Pearson, 2007 Reprint 2010.

Books for Reference:

- Barry, Paul, Head First Python, 2nd Edition, O Rielly, 2010.
- Lutz, Mark, Learning Python, 4th Edition, O Rielly, 2009.

SEMESTER VI			
CORE – X– MOBILE COMPUTING			
Code: 15UCSC61	Hrs / week :5	Hrs / Semester: 75	Credits :4

Objectives:

- Learn and build Android and Windows applications.
- Understand the differences between Android, Windows and other mobile development environments.
- Learn about package and deploying Applications.

UNIT I

Overview

A little background about mobile technologies, Different mobile technologies – Android, Windows, IOS, Black Berry, series 40, Bada, Benefits and drawbacks of Smartphone programming, Overview of Android, How it all got started, Why Android different and important, Android Stack overview, Linux kernel, native libraries, App framework, Apps, SDK overview, platforms, tools, versions. Creating and setting up custom Android emulator.

UNIT II

Get Started with Android

Install the android SDK, Install base tools, install SDKs and Add-ons, Install apache Ant, Emulator, and Device. Get know Eclipse, Build , install and Run the Application in your Emulator or Device, Project Structure.

Designing User interface

Designing by declaration, creating the opening screen, using alternate resources, implementing an about box, applying a theme, adding a menu, adding settings, debugging with log messages, debugging with debugger.

UNIT III

Exploring 2D graphics and Multimedia

Learning the basics, adding Graphics to existing apps, handling input, learn to change the final improvements, Playing audio, Playing Video, Adding sound to existing app,

Storing local Data

Reading/writing local data, Accessing the Internal File system, Accessing SD card.

UNIT IV

Location and Sensing

SMS Messaging , Displaying MAPS Location Data, Monitoring and Tracking a Location,

Putting SQL to work Introducing SQLite, In and Out of SQLite, Hello Database, Data Binding, using content provider, implementing content provider.

Preparing and Publishing

Preparing app for publishing, Deploying APK files, uploading in Market.

UNIT V

Introduction to Windows Phone Programming

Windows 8 GUI development, windows 8 software Development tools, .Net 4.5 features
Windows Phone platform overview, Multitasking windows, interacting from background, local data, working with sensors, tools – phone emulator, debugging and performance, what is new in windows phone 8, app-to-app communication.

More on Windows phone

Lock screen background, Lock screen badges, Tiles, tiles templates, Tiles update, Final touch before deploying and testing in emulators, Monetizing the App, in-app purchase.

Text Books:

1. Grant Allen, Beginning Android 4, Apress, 2012.
2. Wei-Meng Lee, Beginning android 4 application Development, John Wiley & sons, Inc, 2012.
3. Charles Petzold, Programming Windows, Microsoft Press, 6th Edition, 2012.

Books for Reference:

- Ed Burnette, Hello, Android: Introducing Google's Mobile Development Platform, Pragmatic, 2009.
- Jerome (J.F) DiMarzio , Android - A programmer's Guide, TataMcgraw Hill, 2010.
- Charles Petzold, Programming Windows Phone, Microsoft Press, 2010.

SEMESTER VI			
CORE – XI– OBJECT ORIENTED SOFTWARE ENGINEERING			
Code: 15UCSC62	Hrs / week :5	Hrs / Semester: 75	Credits :4

Objectives:

- To understand the concepts of analysis, design and implementation of a software product.
- To have general understanding about object-oriented software engineering.
- To make students to get experience and be ready for the large scale projects in IT Industry.

UNIT I:

Software and Software Engineering: The nature of software – What is software engineering? Software engineering as a branch of the engineering profession – Stakeholders in software engineering – Software quality – Software engineering projects – Activities common to software projects – General Principles that can be applied in any software project - Difficulties and risk in software engineering as a whole.

UNIT II:

Developing Requirements: Domain analysis – The starting for software projects – Defining the problem and the scope – What is a requirement? – Types of requirements – Some techniques for gathering and analyzing requirements – Managing changing requirements – Difficulties and risks in domain and requirements analysis .

UNIT III:

Modeling With Classes: What is UML? – Essentials of UML class diagrams – Associations and multiplicity – Generalization – Instance diagrams – More advanced features of class diagrams .

Modeling Interactions And Behaviour: Interaction diagrams – State diagrams – Activity diagrams .

UNIT IV:

Architecting and Designing Software: The process of design – Principles leading to good design – Techniques for making good design decisions – Software architecture – Architectural patterns – Writing a good designing document.

UNIT V:

Testing And Inspecting TO Ensure High Quality: Basic definitions – Effective and efficient testing – Defects in ordinary algorithms – Defects in numerical algorithms – Defects

in timing and co-ordination: deadlock, livelocks and critical races – Defects in handling stress and unusual situations .

Managing The Software Process: What is project management? – Software process models – Cost estimation Building software engineering teams – Project scheduling and tracking.

Text Book:

Timothy C.Lethbridge and Robert Laganieri, Object Oriented Software Engineering, TMH 2004.

Chapters for syllabus :

Unit I – Chapter 1 (1.1 to 1.8 & 1.9)

Unit II – Chapter 4 (4.1 to 4.9 & 4.12)

Unit III – Chapter 5 (5.1 to 5.6) , Chapter 8 (8.1 to 8.3)

Unit IV – Chapter 9 (9.1 to 9.6)

Unit V – Chapter 10 (10.1 to 10.6) , Chapter 11 (11.1 to 11.5)

Books for Reference:

- Stephen R.Schach, Object Oriented and Classical Software Engineering, 8th Edition, TMH, 2010.
- Carlo Ghezzi,MedhiJazayeri, Dino Mandrioli,Fundamentals of Software engineering, Second Edition , PHI,2002.

SEMESTER VI			
CORE – XII– COMPUTER NETWORKS			
Code: 15UCSC63	Hrs / week :5	Hrs / Semester:75	Credits :4

Objectives:

- To understand the concepts of data communication.
- To get through understanding of different topologies.
- To study the function of different layers.
- To get familiarized with different protocols and network components.

UNIT-I

Introduction: Data communications-Networks- Network Types- Internet History- Standards and Administration.

Network Models : Protocol Layering- TCP/IP Protocol suite- The OSI Model.

Transmission Media: Guided Media- Unguided Media: Wireless

UNIT-II

Switching: Introduction- Packet switching - Structure of a switch.

Data Link control :DLC Services- Data Link Layer Protocols -HDLC.

Media Access Control : Random Access- Controlled Access.

UNIT-III

Wired LANs: Ethernet -: Ethernet Protocol – Standard Ethernet - Fast Ethernet- Gigabit Ethernet - 10Gigabit Ethernet.

Wireless LANS: Bluetooth.

Connecting Devices and Virtual LANs: Connecting Devices - Virtual LANs.

UNIT-IV

Network layer: Unicast Routing :Introduction – Routing Algorithms- Unicast Routing Protocols.

Next Generation IP : IPv6 Addressing

Introduction to Transport Layer: - Introduction – Transport-Layer Protocols.

Application Layer : Standard Client – Server Protocols: FTP- Electronic mail-TELNET Secure Shell –Domain Name System.

UNIT-V

Quality of Services : Data- flow characteristics Flow control to improve QOS-Integrated Services.

Cryptography and Network Security: Introduction – Confidentiality-Other aspects of Security .

Text Book:

Behrouz A. Forouzan , "Data Communications and Networking ", McGraw Hill Education Private Ltd., Fifth Edition 2013.

Unit I: Chapter 1.1-1.5, 2.1-2.3, 7.1, 7.3

Unit II: Chapter 8.1-8.4, 11.1-11.3, 12.1-12.2

Unit III: Chapter 13.1-13.5, 15.3, 17.1-17.2

Unit IV : Chapter 20.1-20.3, 22.1, 23.1-23.2, 26.2-26.6

Unit V : Chapter 30.1-30.3, 31.1-31.3

Books for Reference:

- Andrew S. Tanenbaum, "Computer Networks", Fourth Edition, PHI, 2002.
- R.S. Rajesh, K.S. Easwarakumar & R. Balasubramanian, Computer Networks, Vikas Publishing House, 2012
- James F. Kurose, Keith W. Ross, Computer Networking, Fifth Edition, Pearson, 2010.

SEMESTER VI			
CORE – ELECTIVE II– CLOUD COMPUTING			
Code: 15UCSE61	Hrs / week :5	Hrs / Semester: 75	Credits :4

Objectives:

- Understand core concepts of cloud computing
- Learn the fundamental concepts about data centers to understand the tradeoffs in power, efficiency and cost.
- Understand use of cloud storage in storage systems such as Amazon S3 andEBS.
- Analyze various cloud programming models and apply them to solve problems on the cloud.

UNIT I: UNDERSTANDING CLOUD COMPUTING

Cloud computing - cloud types- the cloud cube model- deployment models-service models-characteristics of cloud computing-assessing the role of open standards.

UNIT II: CLOUD ARCHITECTURE

The cloud computing stack – composability – infrastructure – platforms – virtual appliances – communication protocols – Connecting to the cloud: The Jolicloud net book OS – Chromium OS the browser as an operating system.

UNIT III: DEVELOPING CLOUD SERVICES

Infrastructure as a service (IaaS) – IaaS workloads- Platform as a service (PaaS) – Software as a service (SaaS)– Identity as a service (IDaaS) – Compliance as a service(CaaS).

UNIT IV: VIRTUALIZATION AND CLOUD APPLICATIONS

Virtualization technologies – load balancing and virtualization – advanced load balancing – the Google cloud – Google Analytics – Google translate- Google Toolkit –Google APIs-windows azure service – windows Azure App fabric.

UNIT V: CLOUD STORAGE

Cloud storage – unmanaged cloud storage – managed cloud storage – creating cloud storage systems – working with Amazon storage systems: Amazon Elastic compute cloud(EC2)- Amazon simple storage system(S3) – Amazon Elastic block store(EBS)- cloud front.

Textbook:

1.Barrie Sosinsky, **Cloud Computing Bible**, Wiley India Pvt. Ltd, 2012. New Delhi.

Chapters:1,3,4,5(pgs:94-99),8(pgs:162-173),10(pgs:201-216),15 (pgs:316-321),9(pgs:185-199)

Books for Reference:

- Michael Miller, **Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online**, Que Publishing, Second Edition, August 2008.
- Aley Beard, **Cloud Computing Best Practices for Managing and Measuring Processes for On-demand Computing, Applications and Data Centers in the Cloud with SLAs**, Emereo Pvt. Limited, July 2008.

SEMESTER VI			
CORE – ELECTIVE II– XML			
Code: 15UCSE62	Hrs / week :5	Hrs / Semester: 75	Credits :4

Objectives :

- To impart knowledge of creating XML documents
- To study the XML schema and XML as a database

UNIT I:

Introduction: About XML –The New Kinds On The Block-Displaying XML –XML in the Real World-Well Formed and Valid Documents: Well Formed Documents-DTD : The valid Document.

UNIT II:

Cascading Style Sheets: External and Internal Style Sheets – Setting Color and Background Text and font Manipulation.

UNIT III:

Valid XML Schema: XML Schema-XML as aDatabase – XML Data –The Document Content Description Proposal.

UNIT IV:

Name Spaces and XML Linking: Identifying and Declaring Namespaces – Need for Namespaces – User Agent Behavior – Namespace Application – XML Links and Pointers – Linking in HTML - Simple Links in XML – Extended Links – Uses for extended out of Line Links – X pointers – Pointer syntax.

UNIT V:

Document Object Model :Introduction – An XML Document as a tree – An XML document as an object Collection –The DOM interface

Text Book:

Boumphrey,StephenMohr,PaulHoule and others ,”XML Applications”,WroxPressLtd,Schroff Publishers &Distributors Pvt Ltd. Chapters 1 to 6.

Books for Reference:

- Elliotte Rusty Harold, ”XML Bible”, IDG Books India (P) Ltd.
- David Hunter, Beginning XML –

SEMESTER VI			
CORE – ELECTIVE II– CRYPTOGRAPHY & NETWORK SECURITY			
Code: 15UCSE63	Hrs / week :5	Hrs / Semester: 75	Credits :4

Objectives:

- Introduce the student to fundamental aspects of security in a modern networked environment.
- Be familiar with cryptography in the specific context of network / internetwork security.
- Computational issues in implementing cryptographic protocols and algorithm.

UNIT – I

Security problems in computer networks – kinds of security breaches – security services – conventional encryption model – classical encryption techniques.

UNIT – II

Block cipher – design principles – Data Encryption Standard (DES) – triple DES – International Data Encryption Algorithm (IDEA) – RC2, RC5 – Blowfish – CAST 128 – Confidentiality using conventional encryption.

UNIT – III

Principle of public key cryptosystems – RSA Algorithm – Elliptic curve cryptography – message authentication and Hash function – MD5 message digest Algorithm – Secure Hash Algorithm(SHA-1).

UNIT – IV

Digital signatures and Authentication protocols –Kerberos – X.509 directory Authentication service – E-mail security – Pretty Good privacy, S/MIME – IP Security –Web security.

UNIT – V

Intruders – Intrusion techniques – Intrusion detection – viruses and related threats – worms – Firewalls.

Text Book:

William Stallings, “Cryptography and Network Security: Principles and practice”, Pearson Education Inc, Third Edition.

Books for Reference:

- “Cryptography and Network Security”, Behrouz A Forouzan, Tata McGraw-Hill Publishing Company Limited, Special Indian Edition 2007.
- Cryptography and Network Security , Kumar ,Krishna Publication.
- Cryptography & Network Security by AtulKahate , Tata McGraw-Hill.

SEMESTER VI			
CORE – PRACTICAL VII – MOBILE COMPUTING LAB			
Code: 15UCSCR7	Hrs / week :5	Hrs / Semester: 75	Credits :4

1. Creating “Hello world” Application.
2. Creating an Application that displays message based on the screen orientation.
3. Create an application that displays custom designed Opening Screen.
4. Create menu in Application.
5. Play an audio, based on the user event.
6. Read/ write the Local data.
7. Display Map based on the Current location.
8. Create / Read / Write data with database (SQLite).
9. Hello world – windows app.
10. Create a Tiles based app.
11. Design a Lock Screen in the existing app.
12. Learn to deploy both android and windows Applications.