SRI KALISWARI COLLEGE, SIVAKASI

(An Autonomous Institution, Affliated to Madurai Kamaraj University,

Reaccredited with 'A' Grade by NAAC with CGPA 3.30)

DEPARTMENT OF COMPUTER SCIENCE

Programme Scheme of Examinations and Syllabi

(with effect from June 2015)

PG Programmme – M.Sc., (Computer Science)

Programme Outcome (PO) for Postgraduate Programmes
Knowledge

PO 1: Acquisition of advanced knowledge for higher studies and research.

PO 2: Synthesis of knowledge and critical thinking

Skills

PO 1: Life Skills and Skills for contribution to nation building.

PO 2: Acquisition of specialized skills for entrepreneurship/employability.

Attitude

PO 1: Acquisition of professional ethics and human values.

PO 2: National Integration and Social Commitment to Society.

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Programme Specific Outcome

- Ability to apply knowledge of computing, mathematics, science, and computer science fundamentals.
- Ability to identify, formulate, and solve complex computer science problems.
- Ability to use the techniques, skills, and modern computational tools necessary for computer science practices.
- Ability to function effectively as an individual, as a member or leader in diverse & multidisciplinary teams.
- An understanding of computer science & management principles to manage projects.

Sri Kaliswari College (Autonomous)-Sivakasi
Department of Computer Science
Choice Based Credit System-Curriculum Pattern
PG Programme - M.Sc [Computer Science]
2016-2018

Sem	Course Code	Title	Hours	Credits
I	16PCSC11	**Core-I:** Discrete Mathematics	5	4
	16PCSC12	**Core –II:** Data Structures and Algorithms	5	4
	16PCSC13	**Core-III:** Advanced C and C++	5	4
	16PCSC14	**Core-IV:** Operating System	5	4
	16PCSC1P	**Core-V:** Data Structures and Algorithm Lab	5	4
	16PCSC1Q	**Core-VI:** Advanced C & C++ Lab	5	4
		TOTAL	**30**	**24**
II	16PCSC21	**Core-VII:** Advanced Java Programming	5	4
	16PCSC22	**Core-VIII:** Data Communication and Networks	5	4
	16PCSC23	**Core-IX:** Relational Database Management System	5	4
		Major Elective Course-I	5	4
	16PCSO21	1. Mobile Application		
	16PCSO22	2. Compiler Design		
	16PCSO23	3.Data Mining		
	16PCSC2P	**Core-X:** Advanced Java Programming Lab	5	4
	16PCSC2Q	**Core-XI:** RDBMS Lab	5	4
		TOTAL	**30**	**24**
III	16PCSC31	**Core-XII:** Web Technology	5	4
	16PCSC32	**Core-XIII:** Software Project Management	5	4
		Major Elective Course-II	4	4
	16PCSO31	1. Network Security and Cryptography		
	16PCSO32	2. Neural Networks		
	16PCSO33	3. Object Oriented Analysis and Design		
	16PCSN31	**Non Major Elective Course-I:** Internet Technologies	6	4
	16PCSC3P	**Core-XIV:** Open Source Tools Lab	5	4
	16PCSC3Q	**Core-XV:** Dot Net Programming Lab	5	4
		TOTAL	**30**	**24**
IV	16PCSC41	**Core – XVI:** Advanced Computing	5	4
	16PCSC42	**Core XVII:** Employability Skills	5	4
	16PCSJ41	**Core XVII:** Project & Viva –Voce	-	10
		TOTAL	**10**	**18**

Semester	I	II	III	IV	Total
Credits	24	24	24	18	90

Core – I: Discrete Mathematics - 16PCSC11   **Duration: 75 Hrs**
                                                        Credits : 4

Aim and Objective:
- To gain deep knowledge in calculus.
- To gain the computer knowledge through the mathematics
- To apply mathematics in Graph Theory.

Course Outcome:
- Familiarity with construction proofs
- Learn the strategies for comparing graphs and trees
- Solve problems in Computer Science using logical notations
- Understand Boolean Algebra and Truth tables
- Apply the rules of inference, predicate calculus & mathematical induction
- Learn to express logical sentences in terms of connectives

UNIT I   **(15 Hrs)**

Mathematical Logic: Statements and Notation – Connectives – Normal Forms.

UNIT II   **(15 Hrs)**

The Theory of inference for the statement calculus – The predicate calculus – Inference theory and predicate calculus.

UNIT III   **(15 Hrs)**

Grammars and Languages – Polish Expressions and their compilation Lattices and Boolean algebra: Lattice as partially ordered sets.

UNIT IV   **(15 Hrs)**

Boolean algebra – Boolean Functions – Representation and minimization of Boolean functions.

UNIT V   **(15 Hrs)**

Finite – State Machines
Graph Theory: Basic concepts of Graph Theory.

Text Book:
1. Discrete Mathematical Structures with applications to computer science – J.P.Tremblay and R.Manohar, McGraw Hill, 2004

Chapters: 1, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 4.6, 5.1

Reference Books:
1. "Discrete Mathematics", M.K.Venkatraman, N.Sridharan, Chandrasekaran, The National Publishing Company, 2000.
2. "Discrete Mathematics",T.Veerarajan, TMH 2007.

Webliography:

1. http://shyam.nitk.ac.in/Books/GT%20Books/DiscMaths4CompSc.pdf(notation)
2. http://www.tutorialspoint.com/discrete_mathematics/discrete_mathematics_sets.htm(Universal Quantifier)
3. http://cs-www.cs.yale.edu/homes/aspnes/classes/202/notes.pdf(predicate logic)

Core - II: Data Structures and Algorithms - 16PCSC12   **Duration: 75 Hrs**
                                                                   Credits: 4

Aim and Objective:
- To master the design and applications of linear, tree, and graph structures.
- To understand various algorithm design and analysis techniques
- To understand Backtracking and Branch & Bound Techniques

Course Outcome:
- Learn to choose appropriate data structure as applied to specified problem definition.
- Acquire skills to use operations like searching, insertion, deletion,
- Traversing mechanism etc. on various data structures.
- Students will be able to apply concepts learned in various do mains like DBMS, compiler construction etc.
- Use linear and non -linear data structures like stacks, queues , linked list etc
- Describe stack, Queue and linked list operations.

UNIT I   **(15 Hrs)**

Linear Structures: Introduction-Space complexity-time complexity-Asymptotic Notation-Performance Measurement-Stack: ADT-Formula based Implementation-Linked Representation-Applications- Queue: ADT-Formula based Implementation-Linked Representation-Applications

UNIT II   **(15 Hrs)**

Non-Linear Structures & Hashing: Tree-Binary Tree-Properties of Binary Tree-Representation of Binary Tree-Binary Tree Traversal-Hash Table Representation-Application of Hashing

UNIT III   **(15 Hrs)**

Search Trees Structures: Binary Search Tree-Red Black Trees-B-Trees-AVL Trees-Applications

UNIT IV   **(15 Hrs)**

Graphs: Definitions-Representation of graph-Graph ADT-Graph Search Method-Greedy Method: Optimization Problem-Greedy Method-Applications

UNIT V   **(15 Hrs)**

Algorithm Design: Divide and conquer – Dynamic programming – backtracking – branch and bound

Text Book:
1. Sahni ,"Data Structure,Algorithm and Application in C++",Tata McGraw Hill,2000

Unit I : Chapter 2.1 – 2.4, 2.6, 5.1, 5.3-5.5
Unit II : Chapter 8.1-8.4 , 8.6, 7.4,7.5
Unit III : Chapter 11.1 – 11.5
Unit IV : Chapter 12.4, 12.5, 12.10, 13.2, 13.3
Unit V : Chapter 14, 15,16,17

Reference Books:
1. A. V. Aho, J. E. Hopcroft, and J. D. Ullman, "Data Structures and Algorithms", Pearson Education, 1983.
2. M. A. Weiss, "Data Structures and Algorithm Analysis in C", Pearson Education Asia, 2002**.**

Webliography:

1. http://www.cs.princeton.edu/courses/archive/spr11/cos217/lectures/08DsAlg.pdf(Linked List)
2. http://lib.mdp.ac.id/ebook/Karya%20Umum/Dsa.pdf(Binary Search Tree,AVL Tree)
3. http://www.e-reading.club/bookreader.php/138822/Mehta_-_Handbook_of_Data_Structures_and_Applications.pdf(Applications of Data Structure)

Core – III: Advanced C and C++ - 16PCSC13   **Duration: 75 Hrs**
                                                      Credits: 4

Aim and Objective:
- To enhance the knowledge in Pointers.
- To know more knowledge about Files.
- To Perform TSR using C
- To develop Basic concepts in C++.

Course Outcome:
- Gain knowledge to use pointers and reference parameter
- Implement features of OOP's to solve real world problems
- Solve the given problems using Arrays
- Implement file operations for given applications
- Design algorithmic solution for given problem
- Acquire master in handling TSR Routine

UNIT I   I/O & Preprocessor in C   **(15 Hrs)**

Preprocessor : Features of C Preprocessor – Macro Expansion – File Inclusion – Conditional Compilation – Miscellaneous Directories.
I/O : Console I/O Function – Formatted and Unformatted Console I/O Functions -Disk I/O Functions – Formatted Disk IO – Standard DOS devices – Text vs Binary Mode - Record I/O in Files - IO Redirection in DOS.

UNIT II Pointers in C   **(15 Hrs)**

Pointers : Introduction to pointers – Pointer Expressions – char, int, float Pointers.
Pointers and Arrays : Pointers and Array – Passing an entire Array to Function – Passing 2D, 3D array to a Function – Returning Array from a Function – Array of Pointer.
Pointers and Strings : Standard Library String Functions2D Array of Characters – Array of Pointer to String.
Pointers and Structure : An Array of Structure – Structure Pointer – Offset and Structure Element.

UNIT III TSR in C   **(15 Hrs)**

TSR : Introduction - ROM – BIOS Function of Approaches – ROM BIOS philosophy – The CPU Registers – Interrupt Vector Table – Invoking ROM BIOS Functions – int86() Function – Finding Memory Size using the declaration dos.h – Elementary TSR.

UNIT IV OOP's Concepts in C++   **(15 Hrs)**

Classes & Objects : Introduction - Classes in C++ - Declaring Objects – Defining Member Function – Classes, Object and Memory.
Constructor and Destructor : Introduction – Constructor with Arguments – Dynamic Initialization using Constructor – Dynamic Operator and Constructor.
Operator Overloading: Introduction – Overloading Unary Operator – Overloading Binary Operator – Overloading with Friend Function.

UNIT V Important Concepts in C++   **(15 Hrs)**

Inheritance : Introduction to Inheritance – Types of Inheritance (Single, Multilevel, Multiple, Hierarchical and Hybrid Inheritance). Virtual Base Classes – Abstract Classes.
Polymorphism & Virtual Function: Introduction – Binding in C++ - Virtual Function – Pure Virtual Function.
String : Introduction - Declaring and Initializing String Objects – Relational Operators – Handling String Objects – String Attributes – Accessing Elements of String – Miscellaneous String Functions.

Text Books:
1. Pointers in C 4th Edition BPB Publication 2006, YashavantKanetkar, Chapters 1-4.
2. Let us C 8th Edition BPB Publication 2008, YashavantKanetkar, Chapters 11-12 & 7.
3. Writing TSR throw C 2002, YashavantKanetkar, Chapter 1,2.
4. Object Oriented Programming with ANSI & Turbo C++ 2006, Ashok N. Kanthane, Darling Kindersley Pvt Ltd, Chapters 6,7,8,9 and 12.

Unit I : Text Book 2 – Chapter 7,11,12,13 (Specific Topics only)
Unit III : Text Book 3 – Chapter 1,2 (Specific Topics only)
Unit IV : Text Book 4 –Chapter 6.1, 6.4, 6.5, 6.9, 6.14, 7.1, 7.5, 7.15, 7.16, 8.1, 8.3, 8.6, 8.7
Unit V : Text Book 4 – Chapter 9.1 , 9.4 - 9.9, 9.11, 9.14, 12.1, 12.2, 12.4, 12.7, 16.1, 16.3 – 16.7, 16.9

Reference Books:
1. The C Complete Reference 2008, Herbert Schildt, 4th Edition.
2. The C++ Complete Reference 2006, Herbert Schildt, 3rd Edition.

Webliography:
1. http://www.tutorialspoint.com/cplusplus/cpp_tutorial.pdf(functions and pointers)
2. http://www.e-reading.club/bookreader.php/138793/Advanced_C.pdf(files in c)
3. http://www.uow.edu.au/~nabg/ABC/ABC.html(looping,structure)

Core – IV: Operating System -16PCSC14   **Duration: 75 Hrs**
                                                      Credits: 4

Aim and Objective:
- Study to manage and control the system.
- Controlling and allocating memory
- Prioritizing the processing of instructions
- Facilitating networking and managing files**.**

Course Outcome:
- Gain mastery functions, structures and history of operating systems
- Understand design issues associated with operating systems
- Identify various process management concepts including scheduling, synchronization, deadlocks
- Learn multithreading
- Gain knowledge in memory management including virtual memory
- Master issues related to file system interface and implementation, disk management

UNIT I   **(15 Hrs)**

Introduction: Goals of an OS-operation of an OS-structure of an OS - classes of OS.
Process and Threads: Process and programs-programmer view of process-Os view of process-Threads.
Scheduling: Scheduling concepts-Non preemptive and preemptive scheduling-scheduling in practice-Real time scheduling.

UNIT II   **(15 Hrs)**

Memory management: Managing the memory hierarchy-static and dynamic memory allocation-memory allocation a process-contiguous and non contiguous memory allocation-paging-segmentation.
Virtual memory: Virtual memory basics-demand paging-page replacement policies-memory allocation to a process-memory mapped files-virtual memory using segmentation.

UNIT III   **(15 Hrs)**

Files and IOCS System: File system and IOCS-files and file operation-fundamental file organization-directory structure-file protection-Allocation of disk space-Implementing file access-file sharing semantics.
Security and protection: Overview of security and protection-Goals of security and protection-security attacks-Encryption-Authentication and password security-Access descriptors and Access control matrix-protection structures.

UNIT IV (15 Hrs)

Process Synchronization: Data Access and Control synchronization-initial sections-Implementing critical sections and indivisible operations-classic process synchronization problems-structure of concurrent systems-semaphores
Message passing: Overview of message passing-Implementation message passing-mailboxes.

UNIT V (15 Hrs)

Deadlock: Deadlocks: Introduction-Deadlock Detection and Recovery-Deadlock Avoidance-Deadlock Prevention.

Text Books:
1. Operating system A concept based approach – D.M.Dhamdhere- 2nd Edition- Tata McGraw-Hill publishing, New Delhi 2006.
2. Modern Operating Systems-Andrew S.Tanenbaum -second Edition,Prentice-Hall of India private Limited, New Delhi,2003;

Unit I : Text Book 1 – Chapter 1.2, 1.3, 2.3, 3.1-3.4, 4.1-4.5
Unit II : Text Book 1 – Chapter 5.1-5.3, 5.5-5.9, 6.1-6.4, 6.6, 6.10
Unit III : Text Book 1 – Chapter 7.1-7.5, 7.7-7.9, 8.1-8.3,8.5-8.8
Unit IV : Text Book 1 – Chapter 9.1,9.2, 9.4-9.6, 9.8, 10.1-10.3

Reference Books:
1. Operating System Concepts – Silberschatz, Gavin, Gagne-6th edition.
2. Operating System-H.M.Deitel-second edition, Pearson Education private Limited, Delhi..

Webliography:

1. http://www.ics.uci.edu/~ics143/lectures.html(Deadlock)
2. http://www.cs.utexas.edu/users/witchel/372/lectures/01.OSHistory.pdf(Basic concepts)
3. http://www.nptel.ac.in/downloads/106108101/pdf/Lecture_Notes/Mod%207_LN.pdf (interprocess communication)

Core – V: Data Structures and Algorithms Lab - 16PCSC1P   **Credits: 4**

Course Outcome:
- Analyze the time and space efficiency of the data structure
- Identity the appropriate data structure for given problem
- Acquire practical knowledge on the application of data structures
- Develop skills to design and analyze simple and non linear data structures.
- Identify the appropriate data structures for given problem.
- Design & implement graph data structure

1. Linked list:
    a) Implementing Singly Linked List- Creation, Insertion, Deletion.
    b) Implementing Doubly Linked List- Creation, Insertion, Deletion.
    c) Implementing Circular Linked List- Creation, Insertion, Deletion.
2. Stack:
    a) Implementing Stack Operation- Push, Pop. (using linked list,array)
3. Queue:
    a) Implementing Queue Operation.
    b) Implementing Circular Queue Operation. (using linked list,array)
4. Binary tree:
    a) Binary Search Tree – Searching, Insertion & Deletion.
    b) Binary Tree Traversal.
5. Minimum spanning tree:
    a) Prim's Algorithm.
    b) Kruskal's Algorithm.
6. Graph:
    a) All Pair Shortest Path.
7. Sort:
    a) Bubble Sorting.   b) Quick sorting c) Merge Sorting.   d) Selection Sorting
9. Expression evaluation
10. Polynomial addition
11. Infix to Postfix conversion using stack
12.Binary search trees
13. Single source shortest path algorithm
14. Hashing and collision resolution techniques
15. AVL Trees

Core – VI: Advanced C & C++ Lab - 16PCSC1Q   **Credits: 4**

Course Outcome:
- Familiarization of language environment
- Apply C features including arrays, structures and pointers
- Understand Object oriented features in real world problems
- Utilize the concept of polymorphism and inheritance
- Develop applications using Console I/O and File I/O.
- Employ good software engineering practices such as incremental development

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Advanced C Programs
1. One or Two Basic C Programs
2. Program to demonstrate Preprocessor Macro Expansion
3. Program to demonstrate Preprocessor File Inclusion
4. Program to demonstrate Formatted IO functions
5. File Handling
6. Program for passing array as pointers to function
7. String handling using pointers
8. Demonstrate Structures and Pointers
9. One to Two Simple TSR Programs

C++ Programs
1. One or Two basic C++ program with Constructor and Destructor
2. Demonstrate Unary / Binary Operator Overloading
3. Program to demonstrate any two type of Inheritance
4. Demonstrate virtual functions
5. String Handling

Core – VII: Advanced Java Programming - 16PCSC21   **Duration: 75 Hrs**
                                                           Credits : 4

Aim and Objective:
- To enrich the knowledge of students in Advanced Java
- To Introduce the concepts of Swings and Networking
- To give a knowledge on Web Apps using JSF

Course Outcome:
- Acquire Basic Knowledge in Advanced Java
- Gain knowledge in Swing and Networking, and JSF
- Handle all classes, inheritance and polymorphism
- Acquire Knowledge in handling swing components and containers
- Apply handle network sockets.
- Work with database connection and JSF framework

UNIT I   **(15 Hrs)**

Introduction to Java Applications: Introduction – First Program in Java- Modifying first program – Adding Integers – Arithmetic – Decision Making: Equality and Relational Operators.

Introduction to Classes, Objects, Methods and Strings: Introduction – Declaring a Class with Method and Instantiating – Declaring a Method with a Parameter – Instance Variables – Initializing Objects with Constructors – Floating Point Numbers and Type *double*.

Control Statements:Part-I: Introduction – *if* Single-Selection Statement – *if..else* Double Selection Statement – *while* Repetition Statement – Formulating Algorithms: Counter-Controlled Repetition – Formulating Algorithms: Sentential-controlled Repetition – Formulating Algorithms: Nested Control Statements – Compound Assignment Operators – Increment and Decrement Operators – Primitive Types.

Control Statements:Part-II: Essentials of Counter-Controlled Repetition – *for* Repetition Statement – Examples using the *for* statement – *do..while*Repetition Statement – *switch* Multiple-Selection Statement – *break* and *continue* statements – Logical Operators -

Methods : A Deeper Look: Introduction – Program Modules in Java – *static* Methods, *static* Fields and Class *Math* – Declaring Methods with Multiple parameters – Argument Promotion and Casting – Java API Packages – Scope of Declarations – Method Overloading.

Arrays and ArrayLists: Introduction – Arrays – Declaring and Creating Arrays – Examples Using Arrays – Enhanced *for* statement – Passing Arrays to Methods – Multidimensional

Arrays – Variable-Length Argument Lists – Using Command-Line Arguments – Class Arrays – Introduction to Collections and Class ArrayList -

UNIT II   (15 Hrs)

Classes and Objects: A Deeper Look: Controlling Access to Members – Referring using *this* Reference – Overloaded Constructors – Default and No-Argument Constructors – Set and Get Methods – Composition – Enumerations – Garbage Collection and Method *finalize* – *static* Class Members – *static* Import – *final* Instance variables – Creating Packages – Package Access.

Object-Oriented Programming: Inheritance : Introduction – Superclasses and Subclasses – *protected* Members – Relationship between Superclasses and Subclasses – Constructors in Subclasses – Software Engineering with Inheritance – Class Object.

Object-Oriented Programming: Polymorphism: Introduction – Demonstrating Polymorphic Behavior – Abstract Classes and Methods – *final* Methods and Classes.

Exception Handling: Introduction – Divide By Zero without Exception Handling – Handling ArithmeticException and InputMismatchException – When to Use Exception Handling – Java Exception Hierarchy – *finally* Block – Chained Exceptions – Declaring New Exception Types – Preconditions and Postconditions – Assertions – Multi-Catch – try-with-Resources.

UNIT III   (15 Hrs)

GUI Components: Part-I: Introduction – Simple GUI-Based Input/Output with JOptionPane – Overview of Swing Components – Displaying Text and Images in a Window – TextFields and and Introduction to Event Handling with Nested Classes – Common GUI Event Types and Listener Interfaces – How Event Handling Works – JButton – Buttons That Maintain State – JComboBox; Using and Anonymous Inner Class for Event Handling – JList – Multiple-Selection Lists – Mouse Event Handling – Adapter Classes – Key Event Handling – Introduction to Layout Managers – Using Panels to Manage More Complex Layouts – JTextArea.

Files, Streams and Object Serialization : Object Serialization – Additional java.io Classes – Opening Files with JFileChooser

Generic Collections: Introduction – Collections Overview – Type-Wrapper Classes for Primitive Types – Autoboxing and Auto-Unboxing – Lists – Collection Methods – Stack Class of Package java.util – Class PriorityQueue and Interface Queue – Sets – Maps – Properties Class

UNIT IV   (15 Hrs)

GUI Components: Part-II:JSlider – Using Menus with Frames – JPopupMenu – JDesktopPane and JInternalFrame – JTabbedPane – Layout Managers: BoxLayout and GridBagLayout.

Multithreading: Introduction – Thread States: Life Cycle of a Thread – Creating and Executing Threads with Executor Framework – Thread Synchronization – Producer / Consumer Relationship without Synchronization - Producer / Consumer Relationship with Synchronization - Producer / Consumer Relationship: the *Lock* and Condition Interfaces – Multithreading with GUI.

Networking: Introduction – Manipulating URLs – Reading a File on Web Server – Establishing a Simple Server Using Stream Sockets - Establishing a Simple Client Using Stream Sockets – Client/Server Interaction with Stream Socket Connections – Datagrams: Connectionless Client/Server Interaction.

UNIT V   **(15 Hrs)**

Accessing Database with JDBC: Introduction – Manipulating Databases with JDBC – RowSet Interface – Prepared Statements – Stored Procedures – Transaction Processing.

JavaServer Faces Web Apps: Part-I: Introduction – HTTP Transactions – Multitier Application Architecture – First JSF Web App – MVC Architecture of JSF Apps – Common JSF Components – Validation using JSF Standard Validators – Session Tracking .

JavaServer Faces Web Apps: Part –II: Accessing Databases in Web Apps – Ajax – Adding Ajax Functionality to the Validation App.

Text Book:
1. Java – How to Program Ninth Edition , Paul Deital and Harvey Deital, PHI Learning Private Limited , New Delhi, 2012.

Chapters :

Unit I
Chapter 2 – 2.1 – 2.8
Chapter 3 – 3.1-3.4, 3.6, 3.7
Chapter 4 – 4.1, 4.5-4.13
Chapter 5 – 5.2 – 5.8
Chapter 6 – 6.1-6.4, 6.7, 6.8, 6.11, 6.12
Chapter 7 – 7.1-7.4, 7.6, 7.7 , 7.9, 7.11-7.14.

Unit II
Chapter 8 – 8.3 – 8.15
Chapter 9 – 9.1- 9.7
Chapter 10 – 10.1, 10.3, 10.4, 10.6
Chapter 11 – 11.1-11.6, 11.8-11.13

Unit III
Chapter 14 – 14.1, 14.3-14.15, 14.17-14.20
Chapter 17 – 17.5 – 17.7
Chapter 20 – 20.1 – 20.4, 20.6-20.12

Unit IV
Chapter 25 – 25.2, 25.4, 25.5, 25.7-25.9

Chapter 26 – 26.1- 26.5, 26.7, 26.9,26.11
Chapter 27 – 27.1 – 27.7

Unit V
Chapter 28 – 28.1, 28.8, 28.9 28.11-28.13
Chapter 29 – 29.1 – 29.8
Chapter 30 – 30.1-30.5

Reference Books:
1. Java The Complete Reference, 8th Edition, Herbert Schildt
2. Core Java Volume I--Fundamentals (9th Edition), Cay S. Horstmann

Webliography:
1. http://uap.unnes.ac.id/ebook/electronic%20book%201/Advanced%20Programming%20for%20the%20J/Advanced%20Java%20Programming.pdf(swing)
2. http://www.tutorialspoint.com/java/java_pdf_version.htm(introduction)
3. http://portal.aauj.edu/e_books/teach_your_self_java_in_21_days.pdf(Objects,Simple Animation)

Core – VIII: Data Communication and Networks - 16PCSC22   **Duration: 75 Hrs**
                                                                Credits : 4

Aim and Objective:
- To Introduce Basic Concepts of Computer networks and its applications
- To have better understanding of the network architecture and different layers of network
- To gain insight about transitions of different languages

Course Outcome:
- Learn the fundamentals of computer science.
- Gain knowledge in the functionalities of each and every layer in network.
- Ability to realize and compare different LAN topologies.
- Implement and Compare the performance of Data Link Layer protocols.
- Analyze the services and features of the various layers in the protocol stack.
- Differentiate different routing algorithms and their usage.

UNIT I   **(15 Hrs)**

Introduction – Data Communication, Networks, Networks Types, and Internet- Standards and Administration.-Network Models: Protocol Layering, TCP/IP suite and   OSI Model.Physical Layer: Data and Signals,-Periodic analog signals- Digital signals - Transmission impairment-Performance-Digital to Digital Conversion: Line Coding- Line coding scheme-Block coding-Scrambling-Analog to Digital Conversion: PCM,DM.-Transmission Modes .Bandwidth Utilization - Multiplexing: FDM,TDM - Spread Spectrum: FHSS, DSSS- Transmission media :Guided and Un Guided Media-Switching: Circuit Switching, PacketSwitching, Message Switching.

UNIT II   **(15 Hrs)**

Data Link Layer: Introduction: Link layer Addressing- Error Detection and Correction-Types of errors. Detection VS Correction-Block Coding, Hamming Distance, Linear Block codes (single parity check, hamming codes)- Cyclic codes-CRC Encoder & Decoder- DRC Polynomial and its degree-Checksum.- Data Link Control & Protocol – Framing, Flow & Error Control, Simplest. Stop-N- Wait, Stop-N-Wait ARQ, Go Back N ARQ, Selective Repeat ARQ, Piggybacking. HDLC & PPP –MAC:Random Access-Controlled Access-Channelization. Wired LAN-Ethernet-Telephone Networks-Wireless LAN's-Blue Tooth-WiMAX - Connecting Devices- Hub, Routers-Virtual LAN's

UNIT III   **(15 Hrs)**

Network Layer : Network Layer Services-Internet Protocol-ICMPv4-Mobile IP- Unicast Routing Protocols-RIP,OSPF-BGP4- Multicast Routing: MOSPF-IGMP- Next Generation IP-IPv6 Addressing and Protocol-Transition from IPv4 to IPv6.

UNIT IV (15 Hrs)

Transport Layer : Transport Layer Services-Connectionless and Connection - Oriented Protocols-Transport Layer Protocols: Simple, Stop and Wait, GBN, Selective and Repeat Protocol- User Datagram Protocol-TCP:TCP Features-Connection-Windows and Flow control.

UNIT V (15 Hrs)

Application Layer : Introduction-Services – Client-Server Programming - Iterative Programming Using c and Java-Standard Client-Server Protocols: WWW and Http-FTP-Electronic mail-TelNet - Secure Shell

Text Book:
1. "Data Communication and Networking" – Behrouz A. Forouzan – McGraw Hill Education(India) Pvt Ltd.(Edition 5)

Reference Books:
1. AchyutS.GodBole(2005)-"Data Communications and Networks"-Tata McGraw Hill.
2. William Stallings(20017)-"Data and Computer Communications"-PHI

Webliography

1. http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-263j-data-communication-networks-fall-2002/lecture-notes(Flow Control)
2. http://www.slideshare.net/yayavaram/data-communications-class-notes(Topology)
3. http://www.docsity.com/en/study-notes/computer-science/data-communication-and-computer-networks/(Multipexing)

Core – IX: Relational Database Management System - 16PCSC23   **Duration: 75 Hrs**
Credits : 4

Aim and Objective:
- To gain knowledge about database.
- Gained knowledge over various database models, schemas and SQL statements
- To gain insight about transactions and recovery system into database.

Course Outcome:
- Understand the basic concepts & constructing queries using SQL
- Familiar with basic database storage structures & access techniques
- Analyse an information and express it in the form of E-R Diagrams
- Recognise the usage of relational algebra and schemas
- Handle recovery techniques, used to recover from crashes
- Develop sophisticated queries to extract information from large datasets

UNIT I   (15 Hrs)

Introduction Database-System Applications - Purpose of Database Systems - View of Data - Database Languages - Relational Databases - Database Design - Data Storage and Querying -   Transaction Management - Database Architecture -   Data Mining and Information Retrieval - Specialty Databases - Database Users and Administrators - History of Database Systems
RELATIONAL DATABASES : Introduction to the Relational Model - Structure of Relational Databases - Database Schema – Keys- Schema Diagrams - Relational Query Languages - Relational Operations

UNIT II   (15 Hrs)

Introduction to SQL : Overview of the SQL Query Language - SQL Data Definition -Basic Structure of SQL Queries -Additional Basic Operations -Set Operations -Null Values - Aggregate Functions -Nested Subqueries -Modification of the Database .
Intermediate SQL :Join Expressions -Views -Transactions - Integrity Constraints -SQL Data Types and Schemas -Authorization
Advanced SQL :Accessing SQL From a Programming Language -Functions and Procedures -Triggers

UNIT III   (15 Hrs)

Database Design and the E-R Model : Overview of the Design Process -The Entity-Relationship Model -Constraints -Removing Redundant Attributes in Entity Sets -Entity-Relationship Diagrams -Reduction to Relational Schemas - Entity-Relationship Design Issues -Extended E-R Features -Alternative Notations for Modeling Data -Other Aspects of Database Design .

Relational Database Design : Features of Good Relational Designs -Atomic Domains and First Normal Form -Decomposition Using Functional Dependencies -Functional-Dependency Theory -Algorithms for Decomposition -Decomposition Using Multivalued Dependencies - More Normal Forms -Database-Design Process -Modeling Temporal Data .

UNIT IV   (15 Hrs)

Storage and File Structure : Overview of Physical Storage Media -Magnetic Disk and Flash Storage -RAID -Tertiary Storage -File Organization -Organization of Records in Files –Data Dictionary Storage -Database Buffer
Indexing and Hashing Basic Concepts -Ordered Indices - B+-Tree Index Files -B+-Tree Extensions -Multiple-Key Access -Static Hashing - Dynamic Hashing -Comparison of Ordered Indexing and Hashing -Bitmap Indices -Index Definition in SQL

UNIT V   (15 Hrs)

Transactions: Transaction Concept -A Simple Transaction Model - Storage Structure - Transaction Atomicity and Durability - Transaction Isolation - Serializability - Transaction Isolation and Atomicity - Transaction Isolation Levels Implementation of Isolation Levels- Transactions as SQL Statements
Concurrency Control: Lock-Based Protocols - Deadlock Handling - Multiple Granularity - Timestamp-Based Protocols Validation-Based Protocols - Multiversion Schemes Snapshot Isolation - Insert Operations, Delete Operations, and Predicate Reads- Weak Levels of Consistency in Practice -Concurrency in Index Structures.
Recovery System: Failure Classification - Storage - Recovery and Atomicity - Recovery Algorithm - Buffer Management -Failure with Loss of Nonvolatile Storage - Early Lock Release and Logical Undo Operations-ARIES- Remote Backup Systems

Text Book:
1. Database System Concepts – Abraham Silberschatz, Henry F.Korth, S.Sudarshan, Sixth Edition The McGraw Hill

Reference Books:
1. Essentials of Database Management Systems – Alexis leon, Mathews Leon, Vijay Nichole, 2006.
2. Database Management Systems – Rajesh Narang, PHI, 2004.
3. Fundamentals of Database Systems- Elmasri, Navathe,Third Edition, Pearson
4. Education Asia
5. Database Management System –Raghu Ramakrishnan& Johannes Gehrke –MGH
6. Publications- Second Edition

Webliography:
1. http://tmv.edu.in/pdf/Distance_education/BCA%20Books/BCA%20IV%20SEM/BCA -428%20Oracle.pdf(Basic concepts)
2. http://www.tutorialspoint.com/sql/pdf/sql-rdbms-concepts.pdf(SQL Queries)
3. http://www.iasri.res.in/ebook/expertsystem/rdbms.pdf(Relational Database)

Major Elective Course –I: Mobile Application- 16PCSO21   **Duration: 75 Hrs**
                                                                Credits : 4

Aim and Objective:
- To improve the knowledge fundamentals of Android programming using the Android SDK
- To enrich the knowledge about Android programming.
- To develop the idea for effective .apk files.

Course Outcome:
- Apply general programming knowledge in the field of developing mobile applications
- Understand specific requirements, possibilities and challenges in developing for a mobile context
- Acquire skills to work on Android Development Environment
- Develop effective .apk files
- Understand interaction between user interface and underlying application infrastructure
- Plan and carry out a design work including developing prototype that can be evaluated with specified user group
- Acquire practical skills and knowledge to construct software for a mobile application

UNIT I   **(15 Hrs)**

Introduction to android and smart phones, Android Architecture, Mobile Technology terminologies, setting up the environment, Setting up Emulators, android fundamentals - Activities and Applications Activity Life Cycles Activity -Stacks, Activity States, introduction to manifest, resources & R.java , assets, Values - Strings.xml - Form widgets, views, Layouts & Drawable Resources - XML Layouts, Linear Layouts, Relative layouts, Table Layouts, android Widgets, UI XML Specifications Events, Bundles & Intents - Explicit Intents Implicit Intents Event Broadcasting with Intents Event Reception with Broadcast Receivers, Adapters and Data Binding.

UNIT II   **(15 Hrs)**

The Android Platform, Understanding Android Market, Layers of Android, Intent of Android Development, Types of Android Components, Mapping Applications to Processes, Creating an Android Application.
Android's Development Environment: Introduction to Android SDK, Exploring Android Development Environment and Building Android Application in Eclipse, Android dEmulator and User Interfaces, Working with Views, Using Resources, and Understanding and Exploring Android Manifest File.

UNIT III   (15 Hrs)

Intents and Services: Servingup Restaurant finder with Intent, Checking Weather with a Custom URI and Broadcast Receivers, Building a Background Weather Services, Communicating Weather alert service From Other Apps.
Storing and Retrieving Data: Using Preferences, Using the File System, Persisting Data to a Database, Working with Content provider Classes.
Networking and Web Services: An Overview of Networking and Web Services, Checking The Network Status, Communicating with a Server Socket, Working with HTTP and Web Services, Introducing To ast, Introducing Notifications, Introducing Alarms.

UNIT IV   (15 Hrs)

Graphics, Animation and Multimedia: Drawing Graphics in Android, Creating Animations with Android's Graphics API, Introducing Openly for Embedded Systems, Introduction to Multimedia and Open core, Playing Audio, Playing Video, Capturing Media, Recording Video, Simulating Your Location within The Emulator, Using Location manager and Location provider, Working with Maps, Converting Places and Addresses with Decoder.

UNIT V   (15 Hrs)

Platform Maturity with Android Applications: Using Android to Work in a Field Service Application, Building Android Applications in C, Bluetooth and Sensors, Integration, Android Web Development, Appwidgets, Localization, Android Native Development Kit.

Text Books:
1. Android wireless application development, second edition by shaneconder, Lauren darcey – Addison – Welsey
2. W. Frank Ableson, RobiSen, Chris King, "Android in Action", 2nd Edition, Manning Publications Co., 2011, ISBN 978-1-935182-72-6
3. Damon Oehlman, Sebastien Blanc, "Pro Android Web Apps - Develop for Android Using HTML5,CSS3 and Javascript", Apress Publications, 2011, ISBN-13: 978-1-4302-3276-6
4. Chris Haseman, "Android Essentials", Apress Pub., 2008, ISBN-13: 978-1-4302-1064-1
5. James Steele, Nelson to, "The Android Developer's Cookbook-Building Applicationswith The Android SDK", Wesley Publications, 2011, ISBN-13: 978-0-321-74123-3

Reference Books:
1. Lucas Jordan, Pieter Greyling, "Practical Android Projects", Apress Publications, 2011, ISBN-13: 978-1-4302-3243-8
2. ZigurdMednieks, Laird Dornin, G. Blake Meike and Masumi Nakamura, "Programming Android", O'reilly Publications, 2011,

Major Elective Course –I: Compiler Design - 16PCSO22　　　**Duration: 75 Hrs**
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　Credits: 4

Aim & Objective:
To enable the students to
- Know the basics of compilation process
- Be familiar with tokenizing problems
- Be clear about the Parsers and parsing process
- Have strong knowledge about the code generation

Course Outcome:
- Gain knowledge of lex tool & yacc tool to develop a scanner & parser
- Understand building symbol tables and generating intermediate code.
- Identify the code optimization techniques to improve the performance of a program in terms of speed & space
- Acquire knowledge in modern compiler & its features
- Understand the new tools and technologies used for designing a compiler
- Understand the patterns, tokens & regular expressions.

UNIT I　　　　　　　　　　　　　　　　　　　　　　　　　　　　**(15 Hrs)**

Compilers: The structure of a compiler – The evolution of programming languages – Application of Compiler Technology – Programming Language basics - Lexical Analysis: The role of the lexical analyzer - Input buffering - Specification of tokens - Recognition of tokens –The lexical analyzer generators lex - Finite automata - From a regular expression to an NFA - Design of a lexical analyzer generator - Optimization of DFA-based pattern matchers.

UNIT II   Syntax Analysis　　　　　　　　　　　　　　　　　　　**(15 Hrs)**

The role of the parser: Context-free grammars - Writing a grammar - Top-down parsing - Bottom-up parsing - Operator-precedence parsing - Introduction to LR parsing: Simple LR – More powerful LR parsers - Using ambiguous grammars - Parser generators.

UNIT III   Syntax-Directed Translation　　　　　　　　　　　　　**(15 Hrs)**

Syntax: directed definitions – Evaluation Order for SDD's – Application of Syntax-Directed Translation - Syntax-Directed Translation Schemes – Implementing L-Attributed SDD's.

UNIT IV   Intermediate Code Generation　　　　　　　　　　　　　**(15 Hrs)**

Variants of syntax trees: Three Address code – Types and Declarations – Translation of expressions – Type checking – Control flow – Backpatching – Switch Statements –

Intermediate code Procedures.

UNIT V   Code Generation   **(15 Hrs)**

Issues in the design of a code generator: The target Language - Addresses in the target code - Basic blocks and flow graphs - Optimization of Basic Blocks - A simple code generator - Peephole optimization - Register allocation and assignment – Instruction Selection by Tree Rewriting – Optimal Code Generation for Expressions – Dynamic Programming Code Generation.

Text Book:
1. Aho, V.A., Monica, S., Sethi, R., and Ullman, J.D., "Compilers: Principles, Techniques and Tools", Second Edition, Pearson Education, New Delhi, 2007.

Reference Books:
1. Muchnick, S., "Advanced Compiler Design Implementation", First Edition, Morgan Koffman, New Delhi, 1997.
2. Holub, A., "Compiler Design in C", Second Edition, Prentice Hall of India, New Delhi, 1990.
3. Fischer, N.C. and Leblanc, R.J., "Crafting a compiler with C", First Edition, Benjamin Cummings, New Delhi, 1991.

Major Elective Course –I:Data Mining-16PCSO23   **Duration: 75 Hrs**
                                                           Credits   : 4

Aim and Objective:
- To focus on the design and implementation of data marts and provide necessary knowledge of data.
- To provide an understanding of the Data Mining and Web Mining concepts and their algorithms.

Course Outcome:
- Gain knowledge in data mart designing and implementation.
- Understand principles and applications of warehouse.
- Design physical, logical and conceptual model.
- Understand various classification algorithms.
- Acquire skills measure the classified data.
- Apply mining concepts in real world issues.

UNIT I   **(15 Hrs)**

Introduction: What is Data Mining – What Kinds of Data can be Mined – What Kinds of Patterns Can Be Mined – Major Issues of Data Mining – **Data Warehousing and OLAP:** Data Warehouse: Basic Concepts – Data Warehouse Modeling: Data Cube & OLAP – Data Warehouse Design and Usage – Data Warehouse Implementation

UNIT II   **(15 Hrs)**

Data Preprocessing:An Overview: Data Quality: Why Process the Data? – Major Tasks in Data Processing – **Data Cleaning**: Missing Values – Noisy Data – Data Cleaning as a Process - – **Data Integration**: - Entity Identification Problem – Redundancy and Correlation Analysis – Tuple Duplication – Data Value Conflict Detection and Resolution - **Data Reduction:** Overview of Data Reduction Strategies – Wavelet Transforms – Principal Components Analysis – Attribute Subset Selection – Regression and Log-Linear Models: Parametric Data Reduction – Histograms – Clustering – Sampling – Data Cube Aggregation - – **Data Transformation and Data Discretization:** Data Transformation Strategies Overview – Data Transformation by Normalization – Discretization by Binning – Discretization by Binning – Discretization by Histogram Analysis – Discretization by Cluster, Decision Tree and Correlation Analyses – Concept Hierarcy Generation for Nominal Data

UNIT III   **(15 Hrs)**

Mining Frequent Patterns, Associations and Correlations:Basic Concepts - Market Basket Analysis – Frequent Itemsets, Closed Itemsets and Association Rules – **Frequent Itemset Mining Methods**: Apriori Algorithm: Finding Frequent Itemsets by confined Candidate Generation – Generating Association Rules from Frequent Itemsets – Improving the efficiency of Apriori – A Pattern-Growth Approach for Mining Frequent Itemsets –

Mining Frequent itemsets Using Vertical Data Format – Mining Closed and Max Patterns – **Advanced Pattern Mining: Pattern Mining in Multilevel, Multidimensional Space** – **Pattern Exploration and Application**: Applications of Pattern Mining

UNIT IV   **(15 Hrs)**

Classification: Basic Concepts – Basic Concepts – Decision Tree Induction – Bayes Classification Methods - **Classification: Advanced Methods** – Classification by Back propagation – Lazy Learners (or Learning from your Neighbours) – **Other Classification Methods:** Genetic Algorithms – Rough Set Approach – Fuzzy Set Approaches

UNIT V   **(15 Hrs)**

Cluster Analysis: Basic Concepts and Methods: Cluster Analysis – Partitioning Methods: k-Means, k-Medoids – Hierarchical Methods: Agglomerative Vs Divisive Hierarchical Clustering, Distance Measures in Algorithmic Methods – Evaluation of Clustering – **Outlier Detection:** Outliers and Outlier Analysis

Text Book:
1. Data Mining Concepts and Techniques – Jaiwei Han, MichelineKamber, Jian Pei - Edition – III
   Unit I : Chapter 1.2, 1.3, 1.4, 1.7, 4.2-4.4
   Unit II : Chapter 3.1-3.5
   Unit III : Chapter 6.1,6.2, 7.6.2
   Unit IV : Chapter 8.1-8.3, 9.2, 9.5, 9.6
   Unit V : Chapter 10.1, 10.2, 10.3, 10.3.1, 10.3.2, 10.6, 12.1.1, 12.1.2

Reference Books:
1. Teach Yourself UML in 24 hours – Joseph Schmuller
2. Data Mining Concepts and Techniques - Jaiwei Han, MichelineKamber – Edition – II

Core – X: Advanced Java Programming Lab - 16PCSC2P   **Credits: 4**

Course Outcome:
- Develop basic programs using control statements, Arrays, Inherited classes and Exception
- Gain knowledge in handling Net Beans Environment
- Acquire knowledge in developing basic swing programs
- Utilize Object Serialization
- Possess knowledge in handling Synchronization
- Perform Network and Database programs

1. Basic Programs
   a. Concepts Including control statement
   b. Arrays and Array List
   c. Simple Class Declaration with Constructor Utilization
   d. Inheritance
   e. Polymorphism
   f. Exception Handling

Implement the Following Program Using NetBeans / Eclipse

2. Demonstration for GUI based Programs.
3. Concepts involving Object Serialization
4. One or Two program with Generic collection classes
5. Multithreading
   a. Basic Thread Creation
   b. Synchronization
6. Client and Server Socket Networking Program
7. Two or More Programs for JDBC Demonstration
8. Web Apps
   a. Simple Web Apps with Validation
   b. Web App Connecting to Database.

Core – XI: RDBMS Lab -16PCSC2Q   **Credits:4**

Course Outcome:
- Populate and query a database using SQL DML/DDL commands.
- Apply PL/SQL including stored procedures, stored functions, cursors, packages in application development
- Design different views of tables for different users
- Design and build a GUI application using database
- Design and implement a database with data consistency
- Apply current technical concepts and practices in the core information technologies

SQL Programs:

1. Program to implement DDL and DML Commands.
2. Program to implement check constraints.
3. Program to implement table relationship(Make Primary and Foreign Key Relation)
4. Program to implement unique,Not Null and integrity constraints.
5. Program to implement string,numeric and date functions in SQL.
6. Program to implement aggregate functions.
7. Program to implement view and sequences.
8. Program to implement subquery.(Create minimum Three tables relation)

PL/SQL Programs:

9. Write a PL/SQL program for Salary Updation for employees.
10. Write a PL/SQL program to calculate the EBBill amount and store in EBBill Table.
11. Write a program to insert the records from the PL/SQL program and raise the Built-in exception (dup_val_on_index), if the register number is duplicated.
12. Write a PL/SQL program to raise the Built-in exception.(too_many-rows).
13. Write a PL/SQL program to raise the Salary & Commission by 25%., the Salary is NULL or Commission is NULL then raise the User Defined Exception.
14. Write a PL/SQL cursor program to Calculate total & average for each student.
15. Program to implement the Trigger.
16. Write a program to implement procedure
17. Write a program to implement function
18. Create the Procedure & Function into a Package.

Core XII: Web technology-16PCSC31   **Duration :75 Hrs**
                                                                Credits: 4

Aim and Objective:
- To gain knowledge about internet and HTML
- Gained knowledge about JSP & JavaScript
- Recent trends in PHP techniques

Course Outcome:
- Gain knowledge about Internet and World Wide Web
- Design webpages using XHTML tags and attributes
- Acquire knowledge about server side and client side program.
- Write Javascript programs with arrays, cookies and objects
- Gain knowledge about Creating and Validating Forms using PHP
- Connect PHP with MySql.
- Ability to handle JQuery.

UNIT I   (15 Hrs)

Introduction—History of internet-History of the world wide web-world wide web consortium-browser portability-java-Microsoft .NET- dynamic HTML-introduction to XHTML: introduction-editing XHTML-first XHTML example-w3C XHTML validation service-headers-linking-images-special characters and more line breaks-unordered lists-nested and ordered lists-web resources-XHTML: introduction-basic XHTML tables-intermediate XHTML tables and formatting basic XHTML forms-more complex XHTML forms-Internal linking-creating and using image maps-meta elements-framesets-element nested framesets.

UNIT II   (15 Hrs)

JavaScript: introduction to scripting –introduction-simple program-printing a line of text in a web page-obtaining user input with prompt dialogs-memory concepts-arithmetic-decision making-equality and relational operators.
Functions: introduction-program modules in JavaScript-programmer-defined functions-function definitions-random number generation scope rules-JavaScript global functions.

UNIT III   (15 Hrs)

JSP: arrays-declaring and allocating arrays-random image generator using arrays-reference and reference parameters-passing arrays to functions-sorting arrays-searching arrays-multidimensional arrays-JavaScript objects-math object-string object-date object-Boolean and number object-document object-window object-using cookies.

UNIT IV   **(15 Hrs)**

Programming with PHP: creating an HTML form-JHandling an HTML form-conditionals and operators-validating form data-introduction arrays-for and while loops.
Error handling and debugging: error types and basic debugging-displaying PHP errors-adjusting error reporting in PHP-creating custom error handlers-php debugging techniques. Common programming techniques: sending values to a script-using hidden form inputs-editing existing records-paginating query results-making sortable displays.

UNIT V   **(15 Hrs)**

Web application development: sending email-handling file uploads-PHP and Javascipt-understanding HTTP headers-date and Time Functions.Cookies and sessions: making a login page-making the login functions-using cookies-using sessions-improving session security. Security methods: preventing spam-validating data by type-validating files by type-preventing XSS attacks-using the filter extension-preventing SQL injection attacks. Introducting J Query: what is Jquery-incorportingjquery-isomgjquery-selecting page elements-event handling-DOM manipulation-Using Ajax.

Text books:

1. Internet & world wide web, Third edition, Deitel&DeitelGoldberg,pearson education.
2. Beginning Javascript pagesChopra eaves,jonesLi,bell
3. PHP and MySQL for dynamic web sites, foruth edition, Larry Ullman

Reference Books:

1. Web enabled commercial application development using HTML, Javascript,DHTML and PHP, IV revised edition, Ivan Bayross
2. Web technology, A developer's perspective P.Gopalan and J.Akilandeswari

Webliography
1. https://www.w3.org/TR/xhtml1/xhtml1.pdf
2. http://users.nccs.gov/~fwang2/web/javascript.html
3. http://cglab.ca/~morin/teaching/2405/notes/javascript1.pdf
4. http://www.di.unipi.it/~f.martel/xhtml.pdf
5. https://jquery.com/

Core XIII: Software Project Management - 16PCSC32   **Duration :75 Hrs**
                                                          Credits   : 4

Aim and Objective:
- To enrich the students knowledge in the following topic :
- To give the knowledge regarding Need for software project management.
- To get to know about various process models

Course Outcome:
- Ability to manage the selection and initiation of individual projects and of portfolios of projects in the enterprise.
- Conduct project planning activities that accurately forecast project costs, timelines, and quality. Implement processes for successful resource, communication, and risk and change management
- Learn practical application of project management to formulate strategies allowing organizations to achieve strategic goals
- Develop critical-thinking and analytical decision-making capabilities to investigate complex business problems to propose project-based solutions
- Acquire skills to manage creative teams and project processes effectively and efficiently
- Develop team-building skills to managing projects, project teams, and stakeholders.

UNIT I   **(15 Hrs)**

Introduction to Software Project Management: What is Software Project Management? – What is a project? – Software projects versus other types of project – Contract Management and Technical Project Management – Plans, Methods and Methodologies – Some ways of categorizing software projects – Stakeholders – Setting Objectives – The Business Case – Project Success and Failure – What is Management? – Management Control – Traditional versus Modern Project Management Practices.
Project Evaluation and Programme Management: A Business Case - Project portfolio Management – Evaluation of Individual Projects – Programme Management – Managing the allocation of resources within the programmes – Strategic programme Management.

UNIT II   **(15 Hrs)**

An overview of Project Planning: Stepwise Project Planning – All Steps (Step 0-Step 10).
Selection of an Appropriate Project Approach: Build or Buy? – Choosing Methodologies and Technologies – Software Processes and Process Models – Choice of Process models – Structure versus speed of Delivery – The Waterfall Model – The Spiral Model – Software Prototyping.

UNIT III   (15 Hrs)

Activity Planning: Objectives of Activity planning – When to Plan – Project schedules – Sequencing and Scheduling Activities – Network Planning models – Formulating a Network Model – The Forward Pass – The Backward Pass – Identifying the Critical path – Activity Float – Shortening the Project Duration – Identifying Critical Activities.

Risk Management: Risk – Categories of Risk – Risk identification – Risk Planning – Evaluating Risks to the Schedule – Applying the PERT technique – Monte Carlo simulation – Critical Chain Concepts.

UNIT IV   (15 Hrs)

Monitoring and Control: Creating the Framework – Collecting the Data – Review – Project Termination Review - Cost monitoring – Earned Value Analysis – Prioritizing Monitoring – Change control – Software Configuration Management.

Managing Contracts: Types of Contract – Stages in Contract Placement – Typical Terms of a Contract – Contract Management – Acceptance.

UNIT V   (15 Hrs)

Managing People in Software Environments: Selecting the Right person for the Job – Instruction in the Best Methods – Motivation – The Oldham-Hackman job characteristics model – Stress – Health and Safety – Some Ethical and Professional concerns.

Working in Teams: Becoming a Team – Decision making – Organization and Team structures – Coordination Dependencies – Dispersed and Virtual teams – Communications genres – Communication plans – Leadership.

Text Book:

1. Bob Hughes, Mike Cotterell and Rajib Mall, "Software Project Management", 2012, TataMcGraw Hill, 5th Edition, New Delhi.

Unit – I   : Chapter 1 (1.1 – 1.5, 1.7 – 1.15)
             Chapter 2 (2.1 – 2.4, 2.7 – 2.9)
Unit – II   : Chapter 3
             Chapter 4 (4.1 – 4.9)
Unit – III : Chapter 6 (6.1 – 6.4, 6.6 – 6.8, 6.10 – 6.15)
             Chapter 7 (7.1 – 7.3, 7.5, 7.7, 7.9 – 7.12)
Unit – IV   : Chapter 9 (9.1 – 9.5, 9.7 – 9.9, 9.11, 9.12)
             Chapter 10
Unit – V   : Chapter 11 (11.1, 11.4 – 11.10)
             Chapter 12

Reference Books:
1. Robert K.Wysocki "Effective Software Project Management" – Wiley Publication, 2011.
2. Walker Royce, "Software Project Management", Addison-Wesley, 1998.
3. Gopalaswamy Ramesh, "Managing Global Software Projects", McGraw Hill Education (India), Fourteenth Reprint 2013.

Webliography:
e-book:
http://engineersevanigam.blogspot.in/2013/07/software-project-management-5th-edition.html

Major Elective Course-II : Network Security and Cryptography - 16PCSO31
                                                                    Duration : 60 Hrs
                                                                    Credits   : 4

Aim and Objective:
 • Understand OSI security architecture and classical encryption techniques.
 • Acquire fundamental knowledge on the concepts of finite fields and number theory.
 • Understand various block cipher and stream cipher models.
 • Describe the principles of public key cryptosystems, hash functions and digital signature.

Course Outcome:
 • Understand how the communication works in computer networks and the basic terminology of computer networks.
 • Understand the use of client/server architecture, inter process communication and to explain the basic communication protocols.
 • Understand the role of protocols in networking and to analyze the services and features of the various layers in the protocol stack.
 • Explore the design issues in network security and to understand security threads, security services and mechanisms to counter them.
 • Apply the network authentication services and mechanisms and skills obtained to study further concepts in network

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UNIT I   **(12 Hrs)**

Introduction: Security Trends - the OSI security architecture – Attacks, Services and Mechanisms - Network security model. **Classical Encryption techniques:** Symmetric cipher model - substitution techniques - transposition techniques - steganography. **Block Ciphers and Data Encryption Standard:** Block Cipher Principles – The Data Encryption Standard – Stength of DES – Differential and Linear Cryptanalysis.

UNIT II   **(12 Hrs)**

Finite Fields: Groups, Rings, Fields-Modular arithmetic-Euclid's algorithm-Finite fields-Polynomial Arithmetic **Number Theory:** Prime numbers-Fermat's and Euler's theorem-Testing for primality -The Chinese remainder theorem- Discrete logarithms.

UNIT III   **(12 Hrs)**

Public Key Cryptography: Principles of public key cryptosystems-The RSA algorithm-Key management - Diffie Hellman Key exchange-Elliptic curve arithmetic-Elliptic curve cryptography.

UNIT IV (12 Hrs)

Message Authentication and Hash Functions: Authentication requirements – Authentication functions – MAC – Hash functions – Security of hash functions and MACs – Secure Hash Algorithm. **Digital signatures and Authentication Protocols**: – Digital Signatures – Digital Signature Standard.

UNIT V (12 Hrs)

System Security: Intruders – Malicious Software – Firewalls.

Text Book:
1. William Stallings, Cryptography and Network Security, 6th Edition, Pearson Education, March 2013.

References:
1. Behrouz A. Ferouzan, "Cryptography & Network Security", Tata McGraw Hill, 2007.
2. Charles Pfleeger, "Security in Computing", 4th Edition, Prentice Hall of India, 2006.
3. Bruce Schneier and Neils Ferguson, "Practical Cryptography", First Edition, Wiley Dreamtech India Pvt Ltd, 2003.

Webliography:
1. http://www.nptelvideos.in/2012/11/cryptography-and-network-security.html
2. http://www.cs.iit.edu/~cs549/cs549s07/lectures.htm
3. http://www.cse.psu.edu/~trj1/cse497b-s07/slides/cse497b-lecture-5-cryptography.pdf
4. http://www.cse.iitk.ac.in/users/braman/cs425/slides/security-overview.pdf

Major Elective Course-II : Neural Networks- 16PCSO32   **Duration : 60Hrs**
                                                                  Credits   : 4

Aim and Objective:
- To study basics of biological Neural Network.
- To study basics of artificial Neural Network
- To study applications of ANN
- To study different pattern recognition task using ANN.

Course Outcome:
- Gain knowledge about information security, public and secret key cryptosystems.
- Understand the approaches to syntax and semantics machine learning the various types of network models.
- Analyse the elements of formal learning law theorem, and types of learning process and computational process.
- Identify the basic pattern strategies for neurons structure the pattern structure and algorithms for pattern approaches and mapping, clustering a pattern.
- Apply the fundamental algorithms and techniques in the area of neural network.
- Learn the neural network direct applications in Natural Language Processing and speech recognition techniques the various types of language processors, and the vowels and verbal communications.
- Acquire knowledge to solve problems in areas ranging from optimization problems to text analytics in neural networks.

UNIT I   **(12 Hrs)**

Introduction to ANN: Features , Structure and Working   of Biological Neural Network-Trends in Computing Comparison of BNN and ANN.**Basics of Artificial Neural Networks** - History of neural network research, Characteristics of Neural Networks terminology, Models of neuron McCulloch – Pitts model, Perceptron, Adaline model, Basic learning laws, Topology of Neural Network architecture

UNIT II   **(12 Hrs)**

Basic functional units of ANN for pattern recognition tasks: Basic feedforward, Basic feed back and Basic competitive learning Neural Network-Pattern association, Pattern classification and Pattern mapping tasks.
Activation & Synaptic Dynamics : Introduction, Activation Dynamics models, Synaptic Dynamics models, Stability and Convergence, Recall in Neural Networks.

UNIT III (12 Hrs)

FeedforwardNeural Networks –- Linear responsibility X-OR problem and solution.- Analysis of pattern mapping networks summary of basic gradient search methods.

UNIT IV (12 Hrs)

Feed Back Neural Networks Pattern storage networks, Stochastic networks and Simulated annealing, Boltzmann machine and Boltzmann learning.
Competitive learning Neural Networks : Components of CL network pattern clustering and feature mapping network, ART networks, Features of ART models, Character recognition using ART network**.**

UNIT V (12 Hrs)

Applications of ANN : Pattern classification – Recognition of Olympic games symbols, Recognition of printed Characters. Neocognitron – Recognition of handwritten characters.NET Talk: to convert English text to speech. Recognition of consonant vowel (CV) segments, texture classification and segmentation

Text Book:
   1. Yegnanarayana, "Artificial Neural Networks", Prentice Hall of India Private Limited

UNIT I   : Chapter 1
UNIT II   : Chapter 2, Chapter 3
UNIT III   : Chapter 4
UNIT IV   : Chapter 5, Chapter 6
UNIT V   : Chapter 8

Reference Books:
   1. Li Min Fu ,"Neural networks in Computer intelligence", 2003 , Tata McGraw-Hill
   2. James A Freeman David, M S Kapura ,"Neural networks", 2004, Pearson Education

Webliography:
   1. http://www.cse.unr.edu/~bebis/MathMethods/NNs/lecture.pdf(Introduction-Artificial Neural Network)
   2. http://www.eis.mdx.ac.uk/staffpages/rvb/teaching/BIS3226/hand11.pdf(Feed-Forward Network)
   3. http://www.csee.umbc.edu/~ypeng/NNCourse/NN-Ch4.PDF(competitive-learning network)

Sri Kaliswari College(Autonomous), Sivakasi
Choice Based Credit System
PG Programme- M.Sc(Computer Science) 2016-2018
Semester-III

Major Elective Course-II: Object Oriented Analysis and Design-16PCSO33
                Duration : 60Hrs
                Credits   : 4

Aim and Objective:
- To provide a brief, hands-on overview of object-oriented analysis in software process
- To discuss Case studies based project specifications to develop object-oriented models and identify implementation strategies.
- To demonstrate and apply basic object oriented techniques to create and modify object oriented analysis and design models.

Course Outcome:
- Understand the concept of object oriented development, and create a static object model and a dynamic behavioural model and a functional model of the system.
- Understand the approaches to system design and object design and the techniques of translating design to implementation.
- Understand the object oriented modelling and design patterns to provide solutions to the real world software design problems.
- Understand the implementation of various designs patterns in UML, Data flow, use case and class design techniques.
- Understand the development stages of object oriented analysis and design and estimating system performance.
- Gain knowledge to perform object oriented analysis and design for different projects.

UNIT I   **(12 Hrs)**

Complexity: The Inherent Complexity of Software-The Structure of Complex Systems-Bringing order to Chaos-On Designing Complex Systems-**The Object Model:** The Evolution of the object Model-Elements of the Object Model-Applying the Object Model.

UNIT II   **(12 Hrs)**

Classes and Objects: The Nature of an Object-Relationships Among Objects-The Nature of a class-Relationships Among Classes-The Interplay of Classes and Objects-On Building Quality Classes and Objects. **Classification**: The Importance of Proper Classsification-Identifying Classes and Objects-Key Abstractions and Mechanisms.

UNIT III   **(12 Hrs)**

The Notation: Elements of the Notation-Class Diagrams-State Transition Diagrams-Object Diagrams-Interaction Diagrams-Module Diagrams-Process Diagrams-Applying the Notation

UNIT IV (12 Hrs)

The Process: First Principles-The Micro Development Process-The Macro Development Process

UNIT V (12 Hrs)

Pragmatics: Management and Planning-Staffing-Release Management-Reuse-Quality Assurance and Metrics-Documentation-Tools-Special Topics-The Benefits and Risks of Object-Oriented Development.**Applications:** Data Acquisition Weather Monitoring Station:Analysis-Design-Evolution-Maintenance.

Text Book:
1. Grady Booch, "Object Oriented Analysis and Design with Applications**",**2003, Pearson Education,, 2ndEdition,Singapore.

   Unit I: Chapter 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.3, 3.5
   Unit II: Chapter 6.1, 6.2, 6.3, 6.4, 6.5, 7.1, 7.2, 7.3
   Unit III: Chapter 8.1, 8.2, 8.3, 8.4, 9.1, 9.2, 9.3, 9.4
   Unit IV: Chapter 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 11.1, 11.2, 11.3, 11.4, 11.5, 11.6
   Unit V: Chapter 8.1, 8.2, 8.3, 8.4, 9.1,9.2, 9.3, 9.4

Reference Books:
1. Craig Larman, "Applying UML and Patterns", 2002, Pearson Education, 2nd Edition.
2. Ali Bahrami, "Object Oriented System Development", 2008, McGraw Hill International Edition.
3. Brahma Dathan, SarnathRamnath, "Object-Oriented Analysis, Design and Implementation", 2010, Universities Press.

Webliography:
1. www.dcs.shef.ac.uk/people/A. Simons/discovery/ooadfls.html
2. www.matincor.com/documents/intro_ooad.pdf
3. www.tutorialpoints.com/Object_Oriented_analysis_design/ooad_object_oriented_analysis.htm

Non-Major Elective Course - I: Internet Technologies-16PCSN31

Duration : 90Hrs
Credits   : 4

Aim and Objective:
- To know about Internet through Networks
- To know about usage of Internet.
- To create web pages through Markup languages.

Course Outcome:
- Acquire knowledge in the concepts of HTML and JavaScript
- Gain knowledge in data transferring via internet
- Acquire knowledge in Basic HTML tags
- Design a HTML page using tables, links, frames and list
- Understand fundamentals of JavaScript
- Create forms using JavaScript

UNIT I   **(18 Hrs)**

The Internet: basics of internet-addresses and names for the internet, web objects and sites-e-mail-world wide web-file transfer. Web servers, browsers and security: the web server-the proxy server-web brosers-firewalls-data security.

UNIT II   **(18 Hrs)**

Introduction to HTML: information files creating-web server-web client/Browser-hyper text markup language-commonly used html commands-titles and footers-text formatting-emphasizing material in a web page-text styles-other text effects. Lists: types of lists. Adding graphics to html docments: using the border attribute-using the width and height attribute-using the align attribute-using the alt attribute.

UNIT III   **(18 Hrs)**

Tables: introduction-using the width and border attribute-using the cellpadding attribute-using the cellspacing attribute-using the background color property-using the colspan and rowspanattributes.Linking documents: links- images as hyperlinks. Frames: introduction to frames.

UNIT IV   **(18 Hrs)**

Javascript: introduction to javascript: javascript in web pages-javascript advantages-writing javascript into html-basic programming techniques-operators and expressions in javascriptjavascript programming constructs-conditional checking-super controlled endless loops-functions in javascript-user defined functions-placing text in a browser-dialog boxes.

The Javascript document object model:introduction-thejavascript assisted style sheets DOM-understanding objects in HTML-browser objects-the wepbage html object hierarchy.

UNIT V   **(18 Hrs)**

Forms used by a web site: The form object-the form object's methods-the text element-the password element-the button element-the submit element-the reset element-the checkbox element-the radio element-the textarea element-the select and option elements-other built in objects:the string object-the math object-the date object.user defined objects: creating a user defined object-instances-objects within objects.cookies:what are cookies-setting a cookie.

Text Books:
1. Internet and Web Technologies – Raj Kamal, Tata McGraw-Hill Publishing Company Limited, New Delhi.
2. Web enabled commercial application development using HTML,Javascript,DHTML and PHP-Ivan bayross, 4th revised edition, BPB publications, New Delhi

Reference Books:
1. The Internet A User's Guide – K.L.James, Prentice Hall of India Private Limited, New Delhi,2003.
2. The Complete Reference-Internet – Millennium Edition, by Margaret Levine Young, Doug Muder, Dave Kay, Kathy Warfel& Alison Barrows. Tata McGraw Hill Publishing Company Limited, New Delhi.

Webliography
1. http://www.internetsociety.org/internet/what-internet/history-internet/brief-history-internet
2. http://www.internetsociety.org/internet/what-internet/history-internet
3. http://www.eazynotes.com/pages/web-development/html-notes.html
4. http://www.niecdelhi.ac.in/uploads/Notes/btech/1sem/webtotal%20_1_.pdf
5. http://www.tutorialspoint.com/html/
6. http://cglab.ca/~morin/teaching/2405/notes/javascript1.pdf

Core-XIV: Open Source Tools Lab - 16PCSC3P   **Credits   : 4**

Course Outcome:
- Gain knowledge about Necessity of using Open Source Tools
- Acquire knowledge in Open Source Operating System – Linux
- Handle Linux Basic and advanced commands
- Gain knowledge about the Design Technique UML
- Design UML diagrams using an open source tool.
- Acquire knowledge in constructing SQL queries.
- Handle MySQL Environment
- Develop server side programs using PHP.
- Ability to connect PHP with MySQL

Must do one or more programs in the following sections

Linux Programs

1. Basic Commands involving working with Files and Folders
2. Commands involving sort and grep command
3. Commands involving pipes and filters

Design Tool

1. Create Use Case Diagram for one or more applications
2. Create Sequence diagram for one or more application
3. Create Class diagram for one or more application

MySQL

1. Two or more exercise involving DDL Commands
2. Two or more exercise involving DML Commands
3. One exercise with Triggers
4. One Program with Function / Procedure

PHP
1. Two or more programs designing and submitting form controls
2. Programs involving cookies
3. Programs with Sessions
4. Two or more programs with Form submission and DB connectivity using MySQL

Core XV : Dot Net Programming Lab - 16PCSC3Q   **Credits   : 4**

Course Outcome:
- Gain an understanding of the Microsoft .NET architecture
- Learn how to build object-oriented applications using VB and C-sharp
- Acquire a working knowledge of creating rich internet Web application using the .NET Framework including ASP.NET,ADO.NET ,C# and Web Services
- Real Time Configure and deploy a Microsoft DOT NET application.
- Acquire Professional ethics in design and deploying an application
- Procure employability in IT sector IT industry

VB.NET

1. Program Using Inheritance and Interface
2. Program using Track bar, Timer control and Menu Strip control
3. Program using Exception Handling
4. Develop a application using Data grid to add, edit and modify records
5. Develop a database application to store the details using ADO.NET
6. Develop a menu based application to implement a text editor with cut, copy, paste, save and close operations

C#.NET

7. Program using Abstract class and Abstract method
8. Program for Error Handling using Try, Catch and Finally
9. Program using Windows Presentation Foundation (WPF)
10. Program using AJAX

ASP.NET

11. Program using Calendar control
12. Program using Tree viewer
13. Create a Simple Website in Asp.net
14. Program using Crystal Report
15. Table Creation and Manipulation Using Grid View, Detail View, Form View Controls
16. Create an Application for Inserting, Updating, and Deleting Records

Core – XVI: Advanced Computing - 16PCSC41   **Duration: 75 Hrs**
                                                        Credits : 4

Aim and Objective:
- To improve the knowledge fundamentals of Computing Technologies
- To enrich the knowledge about IoT, Pervasive Computing and Cloud Computing

Course Outcome:
- Describe the operation of modern and high performance computers.
- Undertake performance comparisons of modern and high performance computers.
- Improve the performance of applications on modern and high performance computers.
- Understand the application areas of IOT
- Realize the revolution of Internet of mobile devices, cloud &server networks
- Understand building blocks of IOT and characteristics

UNIT I   **(15 Hrs)**

IoT: The Third ICT Wave - Rise of the Machines-The IoT Kaleidoscope-Defining Internet of Things- IoT: A Web 3.0 View - **Ubiquitous IoT Applications:** A Panoramic View of IoT Applications - Important Vertical Applications - Telematics and Intelligent Transport - Systems - Smart Grid and Electric Vehicles - Smarter Planet and Smart Buildings

UNIT II   **(15 Hrs)**

Four Pillars of IoT: The Horizontal, Verticals, and Four Pillars - M2M: The Internet of Devices - RFID: The Internet of Objects - WSN: The Internet of Transducers - SCADA: The Internet of Controllers. **The DNA of IoT:** DCM: Device, Connect, and Manage - Device: Things that Talk - Connect: Via Pervasive Networks - Wired Networks -Wireless Networks - Satellite IoT - Manage: To Create New Business Value - More Ingredients: LBS, GNSS, RTLS, and Others.

UNIT III   **(15 Hrs)**

Pervasive Computing: Ubiquitous or Pervasive Computing-What is a Context? Various Definition and Types of Contexts: Enumeration-based-Role-based. Context-Aware Computing and Applications: Core capabilities for context awareness-Types of context-aware applications-Developing context-aware applications. Middleware Support: Contextual services-Actuator service-An Example: context toolkit-Providing location context.

Introduction to Mobile Middleware: What is Mobile Middleware-Adaption-Agents- Service Discovery Middleware for Application Development: Adaption and Agents: The spectrum of adaption-Resource monitoring-Characterizing adaptation strategies-An application-aware adaptation architecture: Odyssey-A Sample Odyssey application-More

adaption middleware. **Mobile Agents:**Why mobile agents? And why not?-Agent architectures-Migration strategies-Communication strategies.

UNIT IV   (15 Hrs)

Introducing Cloud Computing: Grasping the Fundamentals: Considering perspectives-Computing on the Cloud-Defining the Cloud: Elasticity and scalability-self-service provisioning-application programming interfaces (APIs)-Billing and metering of services-performing monitoring and measuring-security. Comparing cloud providers with traditional IT services providers-addressing problems-discovering the business drivers for consuming cloud services: supporting business agility-reducing capital expenditures.**Discovering the value of the cloud for business:** Modeling services-understanding infrastructure as a service-Exploring platform as a service- seeing software as a service: software as a service modes-massively scaled software as a service-economies of scale. Management and administration. Getting inside the cloud: Feeling sensational about organization: deciding on a strategy-coping with governance issues-monitoring business process-managing IT costs. Administering cloud services: service level agreements and monitoring-support-billing and accounting. Looking at the technical interface management APIs and data transformations-data and application architecture-security in the cloud. Managing cloud resources: IT security-performance management -provisioning-service management-untangling software dependencies. **Developing your cloud strategy:** seeing the many aspects of your cloud strategy-questioning your company's strategy-assessing where you are today: how tangled is my computing environment-what's my data center environment-what data supports my strategy. Assessing your expense structure-checking up on rules and Governances-developing a road map.

UNIT V   (15 Hrs)

Understanding the Nature of the Cloud: Seeing The Advantages Of The Highly Scaled Data Center: Comparing Financial Damage: Traditional Versus Cloud-Traditional Data Center-Cloud Data Center. Scaling the Cloud-Comparing Traditional and Cloud Data Center Costs: Examining Labor Costs and Productivity-Wondering Where You Are.**Exploring the Technical Foundation for Scaling Computer Systems:** Server-ing Up Some Hardware: Tradition! Versus Clouds-Considering Cloud Hardware-Open-Source Dynamic. Economies of Scale: Benefitting Otherwise. Keeping the Bottom Line in Mind. **Checking the Cloud's Workload Strategy:** Managing Workloads in the Cloud-Thinking of Workloads As Well-Planned Services- Creating Interfaces Between Containers-Discovering How XML Fits in-Using Container Workloads: Case Study. Balancing Risk and Practical Models-Testing Workloads in the Real World.

Text Books:
1. Honbo Zhou, "The Internet of Things in the Cloud: A Middleware Perspective", 2012, CRC Press, New Delhi.
   Unit I – Chapter 1, 2
   Unit II – Chapter 3, 4.

2. Frank Adelstein, "Fundamentals of Mobile and Pervasive Computing", 2005,TMH, New Delhi.
   Unit III – Chapter 4, 5, 6

3. Judith Hurtwitz, Robin Bloor, MaricaKufman and Dr.FernHalper, "Cloud Computing for Dummies" reprint 2011,Wiley India Pvt Ltd, New Delhi.
    Unit IV– Chapter 1,2,3,4
    Unit V– Chapter 5, 6, 7

Reference Books:
1. Mobile Computing Editors: Imielinski, Tomasz, Korth, Henry F. (Eds.)
2. Mobile Computing Paperback – 14 Dec 2011 by Raj Kamal
3. Cloud Computing Explained: Implementation Handbook for Enterprises by John Rhoton

Webilography:
1. http://www.slideshare.net/PasqualePuzio/internet-of-things-and-its-applications
2. http://www.slideshare.net/PasqualePuzio/internet-of-things-and-its-applications
3. https://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwj4yvie767MAhUOv44KHSSdDHYQFggbMAA&url=http%3A%2F%2F203.250.33.57%2FIoT%2BCloud%2FCh%25203.%2520Four%2520Pillars%2520of%2520IoT.pptx&usg=AFQjCNGkP05iOU1QA2zpAyYv8iPwJCNFzw&bvm=bv.120551593,d.c2E
4. http://www.crcnetbase.com/doi/abs/10.1201/b13090-6
5. http://internetofthingsagenda.techtarget.com/definition/pervasive-computing-ubiquitous-computing
6. https://www.isoc.org/inet2000/cdproceedings/3a/3a_1.htm
7. http://www.wikinvest.com/concept/Cloud_Computing
8. http://www.rightscale.com/blog/enterprise-cloud-strategies/identifying-workloads-cloud

Core XVII:Employability Skills – 16PCSC42
(Practical Evaluation Method)

Duration: 75 Hrs
Credits   : 4

Aim and Objective:
- To improve the soft skill of the student
- To make them ready for the Interviews and Jobs

Course Outcome:
- Understand the significance of soft skills in working environment
- Learn to connect and work with others to achieve a set of task
- Handle emotions and respect for the opinions, personal space
- Develop self-motivation, raised aspirations and beliefs in one's own abilities
- Excel with focused approach in working environment
- Communicate effectively with creativity

Unit I : Personality Development and Writing Skills   (15 Hrs)

Personality Development :   Influencing Factors – Personality Development Tips.
Writing Skill : Preparing a Formal Resume – Difference between a Resume and Curriculum Vitae – composing and Sending a Formal Mail .

Unit II : Time Management and Stress Management   (15 Hrs)

Time Management What is Time Management – Time Management Tips and Skills
Stress Management Why we need Stress Management – Stress Management Tips and Techniques

Unit III: Body Language and Presentation Skills   (15 Hrs)

Body Language Facial Expression – Body Postures – Gestures – Handshakes – Dress Code – Video Samples
Presentation Skills Elements of an effective Presentation – Voice Modulation - Assertiveness

Unit IV : Group Discussion   (15 Hrs)

Group Discussion Structure of GD - Moderator – Lead in GD – Mock GD – Video Samples

Unit V :Interview Skills   **(15 Hrs)**

Interview Skills Kinds of interviews – Mock Interview – Stress Interview – Video Samples

Practical Evaluation Method

Internal Mark (40 Marks)	**External Mark (60 Marks)**
Resume Preparation : 10 Marks	Resume Preparation : 10 Marks
Mock GD : 15 Marks	Mock GD : 25 Marks
Mock Interview : 15 Marks	Mock Interview : 25 Marks

Core XVII: Project & Viva Voce - 16PCSJ41   **Credits:10**

Course Outcome:
- Understanding Social issues and find the IT solution for social problems
- Gather, organize, summarize and interpret technical literature with the purpose of formulating a project proposal.
- Apply SDLC and project Management principles in real time
- Select and apply modern tools and technologies.
- Write a technical report summarizing state-of-the-art on an identified problem.
- Present the work using graphics and multimedia techniques in technical reviews
- Understand the professional ethics and team management principles.
- Learn on their own, reflect on their learning and take appropriate actions to improve it.

Rules and Regulation

The project shall be undertaken individually in duration of 4 months.

Internal Mark (40 Marks)
Consolidated Two Review Meetings : 20 Marks
Project Documentation : 10 Marks
Overall Performance   : 10 Marks

External Mark (60 Marks)
Project Documentation   : 10 Marks
Project Demo   : 20 Marks
Power Point Presentation : 10 Marks
Viva Voce   : 20 Marks