

**B.Sc. (Computer Science) Second Year
(With effects from 2012-13)**

Third Semester:

Paper Code	Subject	Lectures/ Week		Max. Marks (A)	Term Work (B)	Total Marks (A+B)	Exam Duration	
		Theory	Practical					
B.Sc.(CS).S3.1	System Programming & Operating System –I	4		80	20	100	03 Hrs	
B.Sc.(CS).S3.2	Software Engineering	4		80	20	100	03 Hrs	
B.Sc.(CS).S3.3	Visual Basic.Net	4		80	20	100	03 Hrs	
B.Sc.(CS).S3.4	Object Oriented Concepts using C++	4		80	20	100	03 Hrs	
B.Sc.(CS).S3.5	Computer Graphics	4		80	20	100	03 Hrs	
B.Sc.(CS).S3.PR1	Software Engineering (Mini Project)		3	50		50	03 Hrs	
B.Sc.(CS).S3.PR2	Visual Basic.Net		3	50		50	03 Hrs	
B.Sc.(CS).S3.PR3	C++		3	50		50	03 Hrs	
B.Sc.(CS).S3.PR4	Computer Graphics		3	50		50	03 Hrs	
	Total						700	

Fourth Semester

B.Sc.(CS).S4.1	System Programming & Operating System – II	4		80	20	100	03 Hrs	
B.Sc.(CS).S4.2	C#.Net	4		80	20	100	03 Hrs	
B.Sc.(CS).S4.3	Computer System Security	4		80	20	100	03 Hrs	
B.Sc.(CS).S4.4	Web Development using PHP & MYSQL	4		80	20	100	03 Hrs	
B.Sc.(CS).S4.5	Multimedia	4		80	20	100	03 Hrs	
B.Sc.(CS).S4.PR1	C#.Net		3	50		50	03 Hrs	
B.Sc.(CS).S4.PR2	System Programming & Operating System –II		3	50		50	03 Hrs	
B.Sc.(CS).S4.PR3	Web Development using PHP & MYSQL		3	50		50	03 Hrs	
B.Sc.(CS).S4.PR4	Multimedia using Flash		3	50		50	03 Hrs	
	Total						700	
	3rd and 4th Semester						1400	

1. Introduction [4]

- 1.1. Types of program – System program and Application program.
- 1.2. Difference between system programming and application programming.
- 1.3. Elements of Programming environment - Editor, Preprocessor, Assembler, Compiler, Interpreter, Linker and Loader, Debugger, Device drivers, Operating System.
- 1.4. Simulation of simple computer smac0 (hypothetical computer) -Memory, Registers, Condition Codes, Instruction format, Instruction Set, smac0 programs.

2. Editors [2]

- 2.1 Definition, need/purpose of editor.
- 2.2 Types of editor
- 2.3 Structure of editor

3. Assembler [10]

- 3.1 Definition.
- 3.2 Features of assembly language, advantages
- 3.3 Statement format, types of statements – Imperative, Declarative, Assembler Directive.
- 3.4 Constants and Literals.
- 3.5 Design of assembler – Analysis Phase and Synthesis Phase.
- 3.6 Overview of assembling process
- 3.7 Pass Structure of Assembler – One pass, Two pass assembler.
- 3.8 Problems of 1-pass assembler - forward reference, efficiency, Table of Incomplete Instructions.
- 3.9 Design of 2-pass Assembler – Pass-I and Pass-II
- 3.10 Advanced assembler directives (LTORG, ORIGIN, EQU),
- 3.11 Data structure of 2-pass assembler.
- 3.12. Intermediate Code – Need, Forms-variant I and Variant II

4. Macros and Macro Processors [10]

- 4.1 Definition
 - 4.2 Macro definition and call
 - 4.3 Macro expansion – positional and keyword parameters
 - 4.4 Nested macro calls
 - 4.5 Advanced macro facilities – alteration of flow of control during expansion, expansion time variable, conditional expansion, expansion time loops. (with examples)
 - 4.6 Design of macro preprocessor – Design overview, data structure, processing of macro definition and macro expansion (Except algorithms)
- Macro assembler – Comparison of macro preprocessor and macro assembler. Pass structure of macro assembler.

5. Compilers [14]

- 5.1 Definition, Aspects of compilation
 - 5.2 The structure of Compiler
- Phases of Compiler – Lexical Analysis, Syntax Analysis, Semantic Analysis, Intermediate Code generation, code optimization, code generation
- 5.3 Memory allocation – static and dynamic memory allocation, memory allocation in block structure languages, Array allocation and access.
 - 5.4 Compilation of expression – Concepts of operand descriptors and register descriptors with example. Intermediate code for expressions – postfix notations, triples and quadruples, expression trees.
 - 5.5 Code Optimization – Optimizing transformations - compile time evaluation, elimination of common sub expressions, dead code elimination, frequency reduction, strength reduction

6. Compiler Design options [2]

- 6.1 Interpreter - Use of interpreter, definition, Comparison with compiler, Overview of interpretation, Pure and impure interpreter.
- 6.2 P-code compiler

7. Linker and Loader [6]

- 7.1 Introduction

7.2 Concept of bindings, static and dynamic binding, translated, linked and load time addresses.

7.3 Relocation and linking concept – program relocation, performing relocation, public and external references, linking, binary program, object module.

Relocatability - nonrelocatable, relocatable, and self relocating programs (no algorithms),

Linking for Overlays.

Reference Books:

1. Systems Programming and Operating Systems by D.M.Dhamdhere
(Second Revised Edition). [Chapters: 2, 3, 4, 5(5.1, 5.3, 5.4, 5.5), 6, 7]

2 System Software - An introduction to Systems Programming

- Leland L. Beck (Pearson Education) [Chapter: 1]

3. Compilers: Principles, Techniques and Tools – Aho, Lam, Sethi, Ullman
(Second Edition) Pearson Education [Chapter: 5 (5.2)]

Total Lectures: 48

Objective:-

- To teach concepts of Software Engineering
- To teach principles of Software Engineering
- To teach various process models used in practice
- To know about the system engineering and requirement engineering
- To build analysis model

Prerequisites: Basic knowledge of system concepts and DBMS

1. Introduction to Software Engineering [4]

- 1.1 The Evolving Role of Software
- 1.2 Software
- 1.3 The Changing Nature of Software
- 1.4 Legacy Software
 - 1.4.1 The Quality of Legacy Software
 - 1.4.2 Software Evolution
- 1.5 Software Myths

2. A Generic View of Process [6]

- 2.1 Software Engineering – A Layered Technology
- 2.2 A Process Framework
- 2.3 Personal and Team Process Models
 - 2.3.1 Personal Software Process (PSP)
 - 2.3.2 Team Software Process (TSP)
- 2.4 Process Technology
- 2.5 Product and Process

3. Process Models [6]

- 3.1 Prescriptive Models
- 3.2 The Waterfall Model
- 3.3 Incremental Process Models
 - 3.3.1 The Incremental Model
 - 3.3.2 The RAD Model
- 3.4 Evolutionary Process Models
 - 3.4.1 Prototyping
 - 3.4.2 The Spiral Model
 - 3.4.3 The Concurrent Development Model
 - 3.4.4 A Final Comment of Evolutionary Processes

4. An Agile View of Process [4]

- 4.1 What Is Agility?
- 4.2 What Is an Agile Process?
 - 4.2.1 The Politics of Agile Development
 - 4.2.2 Human Factors
- 4.3 Agile Process Models
 - 4.3.1 Extreme Programming (XP)
 - 4.3.2 Adaptive Software Development (ASD)
 - 4.3.3 Dynamic Systems Development Method (DSDM)
 - 4.3.4 Scrum
 - 4.3.5 Crystal
 - 4.3.6 Feature Driven Development (FDD)
 - 4.3.7 Agile Modeling (AM)

5. Software Engineering Practice [6]

- Software Engineering Practice
- The Essence of Practice
- Core Principles
- Communication Practices

Planning Practices

Modeling Practices

Analysis Modeling Principles

Design Modeling Principles

6. System Engineering [4]

6.1 Computer-Based Systems

6.2 The System Engineering Hierarchy

6.2.1 System Modeling

6.2.2 System Simulation

6.3 Business Process Engineering: An Overview

7. Requirements Engineering [10]

7.1 A Bridge to Design and Construction

7.2 Requirements Engineering Tasks

7.2.1 Inception

7.2.2 Elicitation

7.2.3 Elaboration

7.2.4 Negotiation

7.2.5 Specification

7.2.6 Validation

7.2.7 Requirements Management

7.3 Initiating the Requirements Engineering Process

7.3.1 Identifying the Stakeholders

7.3.2 Recognizing Multiple Viewpoints

7.3.3 Working Toward Collaboration

7.3.4 Asking the First Questions

7.4 Eliciting Requirements

7.4.1 Collaborative Requirements Gathering

7.4.2 Quality Function Deployment

7.4.3 User Scenarios

7.4.4 Elicitation Work Products

7.5 Building the Analysis Model

7.5.1 Elements of the Analysis Model

7.5.2 Analysis Patterns

7.6 Negotiating Requirements

7.7 Validating Requirements

8. Building the Analysis Model [8]

8.1 Requirements Analysis

8.1.1 Overall objective and Philosophy

8.1.2 Analysis rule of Thumb

8.1.3 Domain Analysis

8.2 Analysis Modeling Approaches

8.3 Data Modeling Concepts

8.3.1 Data Objects

8.3.2 Data Attributes

8.3.3 Relationships

8.3.4 Cardinality and Modality

Reference Books:

1. Software Engineering – A Practitioner’s Approach 7th Edition – Roger S. Pressman [McGraw Hill International Edition]

2. Software Engineering – IAN Sommerville 7th / 8th Edition (Pearson Edition)

1. Getting Started With VB.Net

- 1.1 The integrated Development Environment
- 1.2 The Start Page
- 1.3 Project types
- 1.4 The IDE Components
- 1.4 Building Console Application

2. Visual Basic: The Language

- 2.1 Variables
- 2.2 Constants
- 2.3 Arrays
- 2.4 Flow Control Statements

3. Writing And using procedure

- 3.1 Subroutine
- 3.2 Function
- 3.3 Arguments passing Mechanisms
- 3.4 Event handler Arguments
- 3.5 Passing an unknown number of Arguments
- 3.6 Overloading function

4. Working with Forms

- 4.1 The Appearance of the Form
- 4.2 Properties of the form
- 4.3 Anchoring & Docking
- 4.4 The Form Events
- 4.5 Loading & Showing Forms
- 4.6 Controlling one Form from within another
- 4.7 Forms vs. Dialog Boxes
- 4.8 Designing Menus
 - 4.8.1 The Menu Editor
 - 4.8.2 The Menu item Object Properties
 - 4.8.3 Manipulating menus Run Times
 - 4.8.4 Iterating a menu Item
- 4.9 Building Dynamic Form at Run Time
 - 4.9.1 Creating Event handler At Run Time

5. Basic and More Windows Controls

- 5.1 The Text Box. Control
 - 5.1.1 Basic Properties
 - 5.1.2 Text manipulation properties
 - 5.1.3 Text selection properties
 - 5.1.4 Text Selection Method
 - 5.1.5 Undoing Edits
 - 5.1.6 Capturing keystrokes
- 5.2 The ListBox, CheckedListBox, & ComboBox Control
 - 5.2.1 Basic properties
 - 5.2.2 The Item Collection
 - 5.2.3 Searching
- 5.3 The Scrollbar & Trackbar Control
- 5.4 The Common Dialog Control
 - 5.4.1 Color Dialog Box
 - 5.4.2 The font Dialog Box
 - 5.4.3 The Open & save As Dialog Box
 - 5.4.4 The Prim Dialog Box
- 5.5 The Rich Text Control
 - 5.5.1 The Rich textbox Properties
 - 5.5.2 Methods
 - 5.5.3 Advanced Edition Feature

- 5.5.4 Cutting & Pasting
- 5.5.5 Searching in Rich Textbox
- 5.5.6 Formatting URL
- 5.6 Print Documents, PrintDialog, PageSetupDialog, PrintPreviewDialog
- Controls printer & Page Properties
- 5.7 ImageList Control
- 5.8 The TreeView Control
 - 5.8.1 Adding new Items at Design Time
 - 5.8.2 Adding New Item at Run time
 - 5.8.3 Assigning images to Node
 - 5.8.4 Scanning the Tree View Control
- 5.9 The ListView Control
 - 5.9.1 The Column Collection
 - 5.9.2 The ListItem Objects
 - 5.9.3 The Item Collection
 - 5.9.4 The Sub Item Collection
- 6. Building Custom Class & Windows Control**
 - 6.1 Building & using Custom class
 - 6.2 Properties in custom class
 - 6.3 Inheritance
 - 6.4 Polymorphism
 - 6.5 MyBase & MyClass Keywords
 - 6.6 Building & using Custom Control
 - 6.7 designing Irregular Shaped Control
 - 6.8 Designing Owner Drawn Menus
- 7. Handling Strings, Charters& Dates**
 - 7.1 The Char & String Class
 - 7.2 The DateTime Class
- 8. Working with Files & Folders**
 - 5.1 Directory, File, DirectoryInfo, FileInfo & Path Classes
 - 5.2 FileStream, StreamReader, StreamWriter Objects
 - S.J Sending Data to a File
 - 8.4 The File System watcher Components
- 9 Drawing & Painting with Visual Basic**
 - 9.1 Displaying lineage
 - 9.2 Exchanging Images through the clipboard
 - 9.3 Drawing with GDI+
 - 9.4 The Basic Drawing Objects
 - 9.5 Drawing Shapes
 - 9.6 Drawing Methods
- 10. Error Handling & Debugging**
 - 10.1 Types of Error
 - 10.2 Exception & Structured Exception handling
 - 10.3 Debugging
- 11. Tilt Multiple Documents Interface**
 - 11.1 MDI Application
 - 11.1.1 Building MDI Application
 - 1 1. 2 Built In capabilities of MDI Application
 - 1 1.3 Accessing Child Forms
- 12. Building Database Application with ADO.NET**
 - 12.1 The ARCHITECTURE of ADO.NET
 - 12.2 Creating Dataset
 - 12.2.1 DataGridView Control.
 - 12.5 Data binding
 - 12.4 DataAdapter Object
 - 12.5 The Command & DataReader Objects 12.0
 - The Structure of Dataset
 - 12.7 The DataForm Wizard

Reference Books

1. Mastering Visual Basic.Net

By Evangelos Patroutsos (BPB Publication)

2. Visual Basic. Net Programming

By Billy Hollis, Rockford Thotlog (Wrox Publication)

3. Visual Basic.Net Programming Black Book

By Steven Holzner

4. Beginning VB.Net (2nd Edition)

B.Sc.(CS).S3.4 Object Oriented Concepts and Programming in C++

Total Lectures: 48

Objective:-

_ Acquire an understanding of basic object oriented concepts and the issues involved in effective class design

_ In order to write C++ programs that use object oriented concepts such as information hiding, constructors, destructors, inheritance etc.

Prerequisites: Knowledge of C Programming Language

1. Object oriented concepts [2]

1.1 Object oriented methodology

1.2 Features, advantages and Applications of OOPS

2. Introduction to C++ [8]

2.1 Data types, new operators and keywords, type conversion in C++

2.2 Introduction to reference variables

2.3 Classes & Objects

2.4 Classes & Object specifiers

2.5 Defining data members and member functions

2.6 Array of objects

2.7 Managing consol I/O

2.8 C++ stream classes

2.9 Formatted and unformatted console I/O

2.10 Usage of manipulators

3. Function in C++ [6]

3.1 Call by reference, Return by reference

3.2 Function overloading and default arguments

3.3 Inline function

3.4 Static class members

3.5 Friend functions

4. Constructors and destructor [4]

4.1 types of constructors

4.2 memory allocation (new and delete)

4.3 usage of destructor

5. Operator overloading [4]

5.1 overloading unary and binary operators

5.2 overloading using friend function

5.3 usage of this pointer

5.4 overloading insertion and extraction operator

6. Inheritance [10]

6.1 types of inheritance with examples

6.2 virtual base classes and abstract base classes

6.3 constructor and destructor in derived class

6.4 virtual functions and pure virtual function

7. Working with files [6]

7.1 File operations

7.2 File pointer and their manipulation

7.3 File updation with random access

8. Templates [4]

8.1 Introduction to templates,

8.2 Class templates, function templates and overloading of function templates

8.3 With multiple parameters

8.4 CASE study on STL (with reference to container classes, operational utilities)

9. Exception Handling in C++ [4]

9.1 try, catch and throw primitives

Reference Books: -

1. Object Oriented Programming with C++ by Robert Lafore
2. Object Oriented Programming with C++ by E. Balagurusamy
3. Object Oriented Modeling and Design by James Rambaugh
4. The Complete Reference C++ by Herbert Schildt
5. Let us C++ by – Yashwant Kanitkar

B.Sc.(CS).S3.5 Computer Graphics

1. Introduction to Computer Graphics
 - Introduction
 - Types of Graphics Devices
 - Input Devices
 - Video Basics: American Standard Video, High Definition Television
 - Video Display Devices
 - Hard Copy Output Devices: Electrostatic output device, Ink-Jet Plotter, Thermal Plotter, Pen and ink Plotter, Laser Printer
 - Graphics file format (.bmp, .tiff, .gif)
2. Raster Scan Graphics
 - Line Drawing Algorithm
 - Digital Differential Algorithm
 - Bresenham's Algorithm: Integer Algorithm, General Algorithm
3. Transformation
 - Two Dimensional Transformation
 - Matrix Representation
 - Translation
 - Rotation
 - Scaling
 - Reflection
 - Shear
4. Segmented Display files
 - Segments
 - Functions for segmenting display files
 - Posting and unposting segments
 - Segments naming schemes
 - Default error conditions
 - Appending to Segments
5. Clipping and Windowing
 - Viewing transformation
 - 2-D Clipping: Simple Visibility Algorithm, End points Code
 - Mid point subdivision algorithm
 - Polygon Clipping algorithm (Sutherland-Hodgman algorithm)
 - Windowing Transformation
6. Display file Compilation
 - Refresh current with reconstruction
 - Free Storage Allocation
 - Display File Structure
7. Geometric Models
 - Simple Modeling Example
 - Geometric Modeling
 - Symbols & Instances
 - Implementation of instance transformation
8. Simple Graphics Package
 - Ground rule for graphics s/w design
 - Functional Domains
 - Graphics Primitives
 - Windowing functions
 - Miscellaneous functions
 - Example: A graph plotting program
 - Implementation of the functions
 - The transformation processor
 - The display Code Generator

References:

1. Principle of Interactive Computer Graphics, William Newman & Robert Sproull (TMH)
2. Procedural Elements for Computer Graphics, David F. Rogers (TMH)
3. Mathematical Elements of Computer Graphics, David F Rogers (TMH)

B.Sc.(CS).S4.1 Systems Programming and Operating System-II

1. Introduction [5]

- 1.1 What Operating System Do – User View, System View, Defining OS
- 1.2 Computer System Organization
- 1.3 Computer System Architecture – Single processor system, Multiprocessor systems, Clustered Systems
- 1.4 Operating System Structure
- 1.5 Operating System Operations – Dual mode operation, Timer
- 1.6 Process Management
- 1.7 Memory Management
- 1.8 Storage Management – File system management, Mass storage management, Caching, I/O systems
- 1.9 Protection and Security
- 1.10 Distributed Systems
- 1.11 Special Purpose System – Real time embedded systems, Multimedia systems, Handheld systems,
- 1.12 Computer Environment – Traditional computing, Client server computing, Peer to peer computing
- 1.13 Open Source Operating Systems – introduction, Linux only

2. System Structure [4]

- 2.1 Operating System Services
- 2.2 User Operating-System Interface – Command interpreter, GUI
- 2.3 System Calls
- 2.4 Types of System Calls – Process control, File management, Device management, Information maintenance, Communication, Protection
- 2.5 System Programs
- 2.6 Operating System Structure – Simple structure, Layered approach, Micro kernels, Modules
- 2.7 Virtual Machines – Introduction, Benefits
- 2.8 System Boot

3. Process Management [4]

- 3.1 Process Concept – The process, Process states, Process control block.
- 3.2 Process Scheduling – Scheduling queues, Schedulers, context switch
- 3.3 Operations on Process – Process creation with program using fork(), Process termination
- 3.4 Interprocess Communication – Shared memory system, Message passing systems.

4. Multithreaded Programming [4]

- 4.1 Overview
- 4.2 Multithreading Models
- 4.3 Thread Libraries – Pthreads

5. Process Scheduling [6]

- 5.1 Basic Concept – CPU-I/O burst cycle, CPU scheduler, Preemptive scheduling, Dispatcher
- 5.2 Scheduling Criteria
- 5.3 Scheduling Algorithms – FCFS, SJF, Priority scheduling, Round-robin scheduling, Multiple queue scheduling, Multilevel feedback queue scheduling
- 5.4 Thread Scheduling

6. Process Synchronization [5]

- 6.1 Background
- 6.2 Critical Section Problem
- 6.3 Synchronization Hardware
- 6.4 Semaphores: Usage, Implementation
- 6.5 Classic Problems of Synchronization – The bounded buffer problem, The reader writer problem, The dining philosopher problem

7. Deadlocks [7]

- 7.1 System model
- 7.2 Deadlock Characterization – Necessary conditions, Resource allocation graph
- 7.3 Deadlock Prevention
- 7.4 Deadlock Avoidance - Safe state, Resource allocation graph algorithm, Banker's Algorithm

7.5 Deadlock Detection

7.6 Recovery from Deadlock – Process termination, Resource preemption

8. Memory Management [9]

8.1. Background – Basic hardware, Address binding, Logical versus physical address space, Dynamic loading, Dynamic linking and shared libraries

8.2 Swapping

8.3 Contiguous Memory Allocation – Memory mapping and protection, Memory allocation, Fragmentation

8.4 Paging – Basic Method, Hardware support, Protection, Shared Pages

8.5 Segmentation – Basic concept, Hardware

8.6 Virtual Memory Management – Background, Demand paging, Performance of demand paging, Page replacement – FIFO, OPT, LRU, Second chance page replacement

9. File System [4]

9.1 File concept

9.2 Access Methods – Sequential, Direct, Other access methods

9.3 Directory and Disk Structure – Storage structure, Directory overview, Single level directory, Two level directory, Tree structure directory, Acyclic graph directory, General graph directory

9.4 Allocation Methods – Contiguous allocation, Linked allocation, Indexed allocation

9.5 Free Space Management – Bit vector, Linked list, Grouping, Counting, Space maps

Reference books:

1) Operating System Concepts - Silberchatz, Galvin, Gagne (8th Edition).

2) Operating Systems : Principles and Design – Pabitra Pal Choudhary (PHI Learning Private Limited)

B.Sc.(CS).S4.2 Programming in C#.NET

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|-----------|--|--------------|
| 1. | Introducing C# | 03Hrs |
| 1.1. | What is c# | |
| 1.2. | Why C# & Evolution of C# | |
| 1.3. | Character tics of C# | |
| 1.4. | How C# differs from C++ & Java | |
| 1.5. | Introduction to .Net Technology & Framework | |
| 1.6. | The Common language Runtime(CLR) | |
| 1.7. | Visual Studio .Net & .Net languages | |
| 2. | Features in Visual Studio.net | 05Hrs |
| 2.1. | Integrated Development environment | |
| 2.2. | Start page | |
| 2.3. | Solution explorer window | |
| 2.4. | Class view window | |
| 2.5. | Object browser | |
| 2.6. | Code window | |
| 2.7. | Intellisense | |
| 2.8. | Heap facility | |
| 2.9. | Code Debugging | |
| 2.10. | Project types | |
| 3. | Arrays, String & Operators | 05Hrs |
| 3.1. | Jagged Arrays | |
| 3.2. | Array & ArayList class | |
| 3.3. | string class | |
| 3.4. | Boxing & Unboxing variable | |
| 3.5. | Short circuiting operators | |
| 4. | Properties, Indexers, Delegates & Events | 06Hrs |
| 4.1. | Properties | |
| 4.2. | Indexers | |
| 4.3. | Delegates | |
| 4.4. | Multicast Delegates | |
| 4.5. | Events | |
| 5. | Namespace, interface & Exception handling | 04Hrs |
| 5.1. | Creating & using Namespace(DLL library) | |
| 5.2. | Creating & using interface | |
| 5.3. | Exception | |
| 6. | Multithreading | 06Hrs |
| 6.1. | Understanding System. Threading Namespace | |
| 6.2. | Creating & starting Thread | |
| 6.3. | Threading synchronization & Pooling | |
| 7. | Windows Application | 10Hrs |
| 7.1. | Event Driven Programming Model | |
| 7.2. | Important classes used in windows application | |
| 7.3. | TextBox & Label Control | |
| 7.4. | Button, CheckBox, RadioButton & GroupBox Control | |
| 7.5. | ListBox & ComboBox control | |

- 7.6. Month Calendar Control
- 7.7. Docking Control
- 7.8. Tree View Control
- 7.9. Menu & Toolbar control
- 7.10. Dialog Boxes

8. Database Connectivity

08Hrs

- 8.1. Advantages of ADO.NET
- 8.2. Managed Data providers
- 8.3. Developing a Simple ADO.NET Based Application
- 8.4. Retrieving & Updating Data From Tables.
- 8.5. Disconnected Data Access Through Dataset Objects

References

- 1. Programming in C# A Primer - Second Edition By - E Balagurusamy
- 2. Visual C#.Net By – C Muthu
- 3. C# 2005 Programming Black Book By Matt Telles & Kogenet Solution Inc.
- 4. C#.Net Programming Wrox Publication

B.Sc.(CS).S4.3 Computer System Security

1. Security polices, Standrds & Guideline **6Hrs.**
Different Types of polices standards & guidelines
Common Elements
Policy Standrds & Guide development
Policy Creation
Regulatory Considerations

2. Security Attacks, Services & Mechanisms **6Hrs.**
Attacks Services & Mechanisms
Security Attacks
Security Services
A model for internet work security

3. Conventional Encryption **5Hrs.**
Conventional Encryption Techniques
Steganography
Classical Encryption techniques

4. Intruders, Viruses & Worms **5Hrs.**
Intruders
Viruses & Related Threats

5. Firewalls **7Hrs.**
Firewalls Design Principles
Trusted Systems

References Books

1. Security Architecture Design, Deployment & Operations by Cistopher M king, Curtis E. Dalton, T.Ertem Osmanoglu
2. Cryptography & Network Security Principles & Practice (Second Edition)

B.Sc.(CS).S4.4 Web Development and PHP Programming

1. Introduction to web techniques 8

HTTP basics, Introduction to Web server and Web browser

Introduction to PHP

What does PHP do?

Lexical structure

Language basics

2. Function and String 10

Defining and calling a function

Default parameters

Variable parameters, Missing parameters

Variable function, Anonymous function

Types of strings in PHP

Printing functions

Encoding and escaping

Comparing strings

Manipulating and searching strings

Regular expressions

3. Arrays 6

Indexed Vs Associative arrays

Identifying elements of an array

Storing data in arrays

Multidimensional arrays

Extracting multiple values

Converting between arrays and variables

Traversing arrays

Sorting

Action on entire arrays

Using arrays

4. Introduction to Object Oriented Programming 8

Classes

Objects

Introspection

Serialization

Inheritance

Interfaces

Encapsulation

5. Files and directories 6

Working with files and directories

Opening and Closing, Getting information about file, Read/write to file,

Splitting name and path from file, Rename and delete files

Reading and writing characters in file

Reading entire file

Random access to file data

Getting information on file

Ownership and permissions

6. Web Techniques 10

Variables

Server information

Processing forms

Setting response headers

Maintaining state, SSL

References

1. Programming PHP Rasmus Lerdorf and Kevin Tatroe O'Reilly publication
2. Beginning PHP 5 Wrox publication
3. PHP web services Wrox publication
4. AJAX Black Book Kogent solution
5. Mastering PHP BPB Publication
6. PHP cookbook O'Reilly publication
7. Learning PHP and MYSQL O'Reilly publication
8. PHP and MYSQL O'Reilly publication
9. PHP for Beginners SPD publication
10. www.php.net.in
11. www.W3schools.com
- 12 www.wrox.com

B.Sc.(CS).S4.5 Multimedia

1. Introduction 6Hrs.

CDROM and Multimedia Highway
Applications of Multimedia
Stages of Multimedia Project

2. Macintosh and Windows Productions Platforms 7Hrs.

Macintosh Platform
Windows Platform
Connections- SCSI and IDE
Memory and Storage devices
Input and Output Devices

3. Basic Software Tools 8Hrs.

Text editing and word Processing tools
Painting and drawing tools
Image Editing Tools
Sound Editing Tools

4. Text 6Hrs.

Fonts and faces : Cases , Serif versus sanserif
Using text in multimedia
Computers and text
Font Editing and designing tools
Hypermedia nad Hypertext

5. Sound and Images 7Hrs.

MIDI Versus Digital Audio
Digital audio
Audio file formats
Making Still Images : BITMAPS , Vector Drawing
Colors
Image file formats

6. Animation and Video 8Hrs.

Principal of Animation
Making animation that work : Rolling Ball ,Bouncing ball
Using Video
Broadcast Video Standards
Recording Formats

References Books

1. Multimedia : Making it work (5th Editions) By Tay Vaughan (Tataamc)
2. Multimedia : Computing Communications and Applications By Ralf Steinmetz , Klara Nahrstedt