



Rayat Shikshan Sanstha's

**Sadguru Gadage Maharaj College, Karad
(An Autonomous College)
Department of Computer Science**

B. Sc. – III Computer Science (Entire)

Syllabus

Choice based credit system syllabus

(Implemented from academic year 2021)

BCSE-501: Core Java

Course objectives:

- I. To learn basic concepts of Java Language
- II. To study the concepts of classes and objects.
- III. To study the concepts of Inheritance, packages and interfaces.
- IV. To understand Exception handling and multithreading

Unit-1: Java Language Basics

History and features of Java, Java Virtual Machine (JVM), JDK tool(Folder structure-for practical purpose only), Structure of java program, compilation and execution of java program, Java keywords, Data types. Java variables- declaration and assigning values to variables(using assignment statement and Scanner class object), scope of variables, Type casting- Implicit and Explicit casting, Operators of java, Control structures of java –1-Branching statements- If, ifelse, if ...else if and switch statement, 2- Iterative statements- for loop, do... while, while loop, jumping statements-break and continue statement.

Unit-2: Introducing classes and objects

Introduction : Classes, Objects and methods, Defining a class, field declaration, method declaration, Accessing class members, access specifier in java, Static variables and methods, Method overloading, Constructor- types of constructor, constructor overloading, Use of this keyword, Garbage collection- finalize(), wrapper classes, Array, types of array, array of object Collection-Iterator interface, List interface, Array List class, Linked List class, Vector class and Stack class.

Unit-3: Inheritance, packages and interfaces

Inheritance- definition, syntax, types of inheritance, Method overriding, use of super keyword, difference between method overloading and overriding, Dynamic method dispatch, Abstract class and method, use of final keyword, Interface- defining and implementing interface, implementation of multiple inheritance using interface, difference between abstract class and interface. Packages- Java API package, Defining and accessing user defined package

Unit-4: Exception Handling and Multithreading

Concept of exception, difference between error and exception, Types of exceptions-checked and unchecked, Exception handling using try and catch block, Multiple catch block, finally block, throws keyword, User defined exception, Concept of multithreading in java, Difference between process and thread, Creating thread by extending Thread class and by implementing Runnable interface, Life cycle of thread, Thread class methods- start(), run(), yield(), suspend() ,resume(), sleep(), wait(), notify(),stop(), Thread synchronization

Course outcome: After completion of this course student will be able to

1. Implement Object oriented concepts using java
2. Develop Object oriented software application
3. Develop multithreading applications
4. Handle exceptions while executing programs

Reference books-

1. Herbert Schildt, Java2: The Complete Reference, TataMcGraw-Hill
2. Object Oriented Programming with JAVA Essentilas and Applications , McGrawHill
3. Core and Advanced Java, Black Book-dreamtech
4. Programming with JAVA- E Balagurusamy

BCSE-502: C# Programming

Course objectives:

- i) To study basic concepts of Dot net Framework.
- ii) To study the basic concepts C#.
- iii) To study the C# Object oriented concepts.
- iv) To understand Exception handling and file I/O.

Unit-1: Dot Net Framework:

Overview, component Architecture of .Net frame work, Meta data and assembly, CLR, Managed and unmanaged code, MSIL, JIT Compiler, CTS,CLS, Compilation and execution process, NET base classes, namespace.

Unit-2: C# Basics:

Introduction to C#, Entry point method, command line arguments, Control statements, looping statements, Arrays, String, CSC.EXE, Different valid forms of main, Global stack and heap memory, reference type and datatype, Type casting-Implicit and Explicit, Boxing and unboxing
Pass by value and pass by reference and out parameters.

Unit-3: C# Object Oriented Concepts:

Class, static and non-static methods, Delegate- Syntax, importance, example, Inheritance, Polymorphism, Interface, Abstract Class, Partial Class, DLL, Difference between DLL and EXE.

Unit-4: Exception Handling and File I/O:

Introduction to exception, Importance in C#, try, Catch, Finally blocks, Exception classes, Handling Exceptions, User define exceptions and System define exceptions. Concept of File Handling, Importance, C# I/O Classes, File Stream Class, File operations using C#.

Course outcome: After completion of this course student will be able to

1. Understand working of .Net Framework
2. Demonstrate concept of object oriented programming using C#
3. Study importance and applications of exception handling
4. Understand working of file handling in C#.

Reference Books:

1. C# 4.0 The Complete Reference Schildt McGrawHill
2. Inside C# - By Tom Archer, Andrew Whitechapel (Microsoft Pub)
3. Programming in C#- E Balagurusamy

BCSE-503: Software Engineering

Course objectives:

- i) To study basic concepts of Software Engineering.
- ii) To study the Software Project Planning.
- iii) To study the Software Testing.
- iv) To understand UML.

Unit-1: Software Engineering Fundamentals:

The importance of software, software myths, software engineering paradigms, Characteristics of good quality software, Software Process Models: Linear Sequential Model, Prototyping Model, RAD Model, Evolutionary Software Process Models: Incremental Model, Spiral Model , Component Assembly Model, Analysis Concepts and Principles.

Unit-2: Software Project Planning:

Software Project Planning, Size Estimation, Cost Estimation, Models - COCOMO, The Putnam Resource Allocation Model, Risk Identification and Projection: RMMM, Project scheduling and Tracking, Software Design Process, Design Principles, Design Concepts: Effective Modular Design, Design Heuristics, Design Documentation(SRS), Design Methods: Data Design, Architectural Design, Interface Design, Procedural Design.

Unit-3: Software Testing:

Software Testing Fundamentals, White Box Testing, Black Box Testing, Software testing strategies, verification and Validation, System Testing, Unit testing, Integration testing and Debugging, Implementation types, Software Maintenance, Maintenance Tasks.

Unit-4: Unified Modeling Language (UML):

Object- oriented concepts and principles, Unified Modeling Language, UML views, Basic structures and modeling classes, common modeling techniques, relationships, common mechanism, Advanced structured modeling, advanced classes and relationships, Interfaces, types and roles, Static diagrams- class diagram, object diagram, Component diagrams, Dynamic diagrams- Use case diagrams ,State diagrams, Interaction diagrams, Sequence diagrams.

Course outcome: After completion of this course student will be able to

1. Understand the problem domain to choose process models correctly.
2. Choose software projects using appropriate design notations.
3. Measure the product and process performance using various metrics.
4. Evaluate the system with various testing techniques and strategies
5. Able to analyze, design, verify, validate, implement, and maintain software systems.

Reference Books:

1. Roger S Pressman, Bruce R Maxim, "Software Engineering: Practitioner's Approach", Kindle Edition,2014.
2. Ian Sommerville," Software engineering", Addison Wesley Longman,2014.
3. James Rumbaugh. MichealBlaha "Object oriented Modeling and Design with UML",2004.

BCSE-504: Machine Learning Part- I

Course objectives:

- i) To study basic concepts of Machine Learning.
- ii) To study the Aspects of Machine Learning.
- iii) To study the Machine Learning Modeling.
- iv) To understand the Basic probability and terms.

Unit-1: Introduction to Machine Learning

Introduction, Evolution of machine learning, Difference between AI and Machine learning, Developments in machine learning, Introduction to K-nearest neighbor method, different phases of predicative modeling.

Unit-2: Aspects of Machine Learning

Definition of learning System, Goals and applications of machine learning
Aspects of developing a learning system: training data, concept representation, function approximation.

Unit-3: Machine Learning Modeling

ML Modeling flow, How to treat Data in ML, Types of machine learning, performance measures, Bias-Variance Trade-Off , Overfitting & Under fitting, Bootstrap, Sampling, Bagging Aggregation

Unit-4: Basic Probability and terms

Rules of probability, permutations and combinations, Bayers theorem, Descriptive statistics, compound probability, conditional probability

Course outcome: After completion of this course student will be able to

1. Develop an appreciation for what is involved in learning models from data.
2. Understand a wide variety of learning algorithms.
3. Understand how to evaluate models generated from data.

Reference Books:

1. Ethem Alpayd in, Introduction to Machine Learning, Second Edition
2. DAN. W. Patterson, Introduction to A. I. and Expert Systems–PHI,2007.
3. Rich & Knight, Artificial Intelligence – Tata McGraw Hill, 2nd edition,1991.

BCSE-505: Data Communication

Course objectives:

- i) To study basic concepts of Data and signals.
- ii) To study the concepts of Data Communication.
- iii) To study the Data Communication modes.
- iv) To understand the Networking protocols and OSI models.

Unit-1: Data and signals

Data and Signals: Introduction, Objectives, Analog and Digital signals, Periodic Analog Signals, Digital Signals, Transmission Impairment Attenuation, Distortion, Noise, Data Rate Limits,

Noiseless

channel: Nyquist bit rate, Noisy channel: Shannon capacity, Performance, Bandwidth, Throughput, Latency, Bandwidth-delay product, Shannon capacity Performance – types of Error – Error Detection – Error corrections.

Unit-2: Introduction to Data Communication

Introduction to Data Communication: Definition, components, characteristics, Uses of computer networks for companies, Protocol: Protocol standards, Transmission media: Introduction, Guided media: twisted pair cable, co axial cable, fiber optic, unguided media (wireless) - radio waves, microwaves, infrared. Switching: Introduction, Objectives, Circuit switched networks, Datagram networks, Virtual circuit networks, Router and Routing – Factors affecting routing algorithms - Routing algorithm - Approaches to routing

Unit-3: Introduction to Data communication modes

Data communication modes: Serial and Parallel, Simplex, Half duplex and full duplex, Synchronous and asynchronous transmission, Multiplexing - Types of Multiplexing - FDM versus TDM, Parallel and serial Transmission – DTE/DCE/such as EIA-449, EIA-202 and X21 interface – Interface standards

Unit-4: Introduction to Networking protocols and OSI model

Introduction – Protocols in computer communications, The OSI model - OSI layer functions. Integrated services digital networking (ISDN): Introduction – Background of ISDN - ISDN architecture – ISDN interfaces - Functional grouping – Reference points ISDN protocol architecture - Broadband ISDN (B-ISDN) of ATM – Packet size – Virtual circuits in ATM – ATM cells – Switching – ATM layers – Miscellaneous Topics.

Course outcome: After completion of this course student will be able to

1. Identify key considerations in selecting various transmission media in networks.
2. Familiar with switching and routing techniques in networking.
3. Understand different data communication modes.
4. Understand OSI model and networking protocols.

Reference books:

- 1) Behrouz and forouzan - Introduction to Data Communication and Networking – 2 nd Edition – TMH- 2001. 2. Jean Walrand – Communication Networks (A first Course) – Second Edition – WCB/McGraw Hill –1998.
- 2) Computer Network Tanenbaum
- 3) Computer network –black
- 4) Data Communications and Networks, ACHYUT. S. GODBOLE, Tata McGraw-Hill Publishing Company,2007.
- 5) Understanding communications and Networks, 3rd Edition, W.A. Shay,Thomson
- 6) Computer networks, A system Approach, 5th ed, Larry L Peterson and Bruce S Davie, Elsevier

BCSE-506: PHP Part I

Course objectives:

- i) To study basic concepts of Data and signals.
- ii) To study the concepts of Data Communication.
- iii) To study the Data Communication modes.
- iv) To understand the Networking protocols and OSI models.

Unit-1: PHP Installation

Installation of PHP, Installation of Apache, Binding PHP to Apache, XAMPP Installation, XAMPP Control Panel Folder Structure, Upgrading PHP in XAMPP, Installing Multiple Version of PHP on Single machine in XAMPP, PHP and Apache Configuration Files
WAMP Installation, WAMP menu and folders structure

Unit-2: Introduction to PHP

What is PHP ?, What does PHP do?, Benefits of using PHP MYSQL, PHP Scripts Work, PHP syntax, First PHP Program, Embed PHP in HTML / HTML in PHP, Data Types ,variables, , PHP Constants type Casting ,operators

Unit-3: Control Structure

If Statement, If.....Else statement, If...if else Statement, Nested if statement, Switch statement

Unit-4: Looping Structure

For loop, While loop, Dowhile loop, For each loop

Course outcome: After completion of this course student will be able to

1. Identify basic PHP syntax
2. Create basic PHP scripts
3. Know how to send data to the Web Browser
4. Apply variables, string, and constant to a PHP a script

Reference Books: 1) Dr. Poornima G. Naik, Dr. Kavita S. Oza, PHP Concepts

Unleashed For Novice– VolI & II, Evince pub Publishing. 2018

2) Matt Doyle, Beginning PHP5.3,Wiley India Edition,2012.

3) PHP6 and MySQL, Steve Suehring, Tim Converse and Joyce Park, Wiley India 2010, Second Edition

4) Vikram Vaswani, PHP: A Beginners guide, Tata McgrawHill, 2009.

5) Core PHP Programming” by At kinson Leon, Suraski Zeev, Pearson

Publication 6) Larry Ullman, PHP6 and MySQL5, Pearson Education,2008.

SEC-I: Software Testing

Course objectives:

1. To learn major concepts of the testing methodologies.
2. To know different approaches to Testing.
3. To understand of the types of testing.
4. To plan and create test plan

Unit 1: Software Testing Introduction

What is testing, Importance of testing , Roles and Responsibilities, Principles of software testing , Differences between Manual and Automation Testing. Benefits of Software Testing, Types of Software Testing(Introduction): Functional, Nonfunctional, Maintenance,

Unit 2: Software Testing Life Cycle

STLC Introduction, STLC Phases, Entry and Exit Criteria in STLC, Requirement Analysis, Test Planning: Approach, Roles and responsibilities, Test Case Development Phase, Test Environment Setup, Test Execution Phase, Test Cycle Closure.

Unit 3: Manual Testing

Introduction, Goal of Manual Testing, Types of Manual Testing, How to Perform Manual testing, Testing Different Domains: Web Application Testing, Banking Domain Application Testing, eCommerce Testing, HealthCare Domain Testing, IoT Testing Tutorial.

Unit 4: Automation Testing

Introduction , Difference between Manual and Automated Testing, Advantages and Disadvantages of Automation testing , Automation Tools, History of Selenium , Why Selenium tool , Differences between Selenium and other Tools , Different components in Selenium.

Course outcome: After completion of this course student will be able to

1. Understand about automation testing
2. When and why to use automation testing
3. About selenium components and how to use them on web applications

Reference Books:

- 1) **The Art of Software Testing 3rd Edition-** Glenford J. Myers, Corey Sandler, Tom Badgett
- 2) **Software Testing, 2nd Edition, 2005-** Ron Patton
- 3) **Software Testing: A Craftsman's Approach, Fourth Edition-** Paul C. Jorgensen

BCSEP-507: Lab course based on BCSE-501 and BSE-502

Practical Program Lis – Java Programming

Based on BCSE-501

1. Program on type casting
2. Program on branching and looping statements
3. Program on class, objects, field and method
4. program on method overloading
5. program on Constructor and constructor overloading
6. Program on Array
7. Program on Collection
8. Program on Inheritance
9. program on Packages
10. program on abstract class
11. program on interface
12. Program on Exception Handling and user defined exception
13. Program on multithreading

Based on BCSE-502 - C# programming

1. Program on parameter passing mechanism.
2. Program on command line argument.
3. Program on typecasting.
4. Program on looping statements.
5. Program on control structure.
6. Program on DLL and EXE
7. Program on array.
8. Program on static and non-static methods.
9. Program on Inheritance.
10. Program on Interface.
11. Program on abstract class.
12. Program on partial class.
13. Program on exception handling- Arithmetic exception, Array exception, File Exception, Null Reference Exception.
14. Program on user define exception.
15. Program on File I/O functions

BCSE-508: Lab course based on BCSE-503 and BCSE-504

Practical Program List

Based on BCSE 503- Software Engineering

1. Case Study on Online Banking System
2. Case Study on Railway reservation System
3. Case Study on library management System
4. Case Study on Super Mart System

Based on BCSE-506 PHP Part I

1. Program on operators
2. Program on Embedding PHP within HTML
3. Program on Type casting
4. Program on Constants
5. Program on if and if...else statement
6. Program on if... else if ...else statement
7. Program on Switch...case statement
8. Program on for loop and for ... each loop
9. Program in while and do ... while loop

BCSE-509: Lab course based on Project Work

Standard Project Report Documentation Format

- a) Cover Page
- b) Institute/College Recommendation
- c) Guide Certificate
- d) Declaration
- e) Acknowledgement
- f) Index
- g) Chapter Scheme
 - 1) Introduction to Project
 - Introduction
 - Existing System
 - Need and scope of Computer System
 - Organization Profile
 - 2) Proposed System
 - Objectives
 - Requirement Engineering.
 - Requirement Gathering
 - SRS
 - 3) System Analysis
 - System Diagram
 - DFD
 - ERD
 - UML(if applicable)
 - 4) System Design
 - Database Design
 - Input Design
 - Output Design
 - 5) Implementation
 - System Requirements
 - Hardware
 - Software
 - User Guide line
 - Installation process
 - 6) Outputs-
 - Screens and Reports (with valid Data)
 - 7) Conclusion and Suggestions
 - Conclusion
 - Limitations (future enhancement)
 - Suggestion
 - 8) Bibliography:

Semester-VI

BCSE-601: Advanced Java Programming

Course Objectives:

5. To study the concepts of AWT (Abstract Window Toolkit).
6. To Understand Java Database Connectivity.
7. To Understand Servlet concepts.
8. To Study and Design Java Server Pages.

Unit-1: Abstract Window Toolkit (AWT) and swing (09)

Abstract Window Toolkit (AWT), Concept, Components used in AWT, AWT controls and layout managers, Swing, Concept, MVC architecture, Component of swing: JFrame, JComponent, JLabel, JTextfields, JCheckbox, JPanel, JRadiobuttons, JTabbed Pane, JButton, JTree, JTable, JMenu, Difference between AWT and Swing

Unit-2: Java Data Base Connectivity(JDBC) (09)

Introduction, Types of Drivers, JDBC program: Connection, Statements, Result Set, Simple program, Executing commands and SQL queries.

Unit-3: Servlet (09)

Introduction of servlet: How servlet work, installation, model diagram, Uses of servlet, Life cycle of servlet, Servlet API: packages- javax.servlet and javax.servlet http, Session, cookies: types, advantages and disadvantages, servlet jdbc

Unit-4: Java Server Page (JSP) (09)

Concept, Life cycle methods in JSP, JSP Vs Servlet, Components of JSP: Directives, Tags, Scripting elements, Implicit objects of JSP, Connecting to database, Simple application using JSP.

Course Outcomes:

1. Improving skill about AWT.
2. Ability to design and implement JDBC.
3. Ability to develop servlet concepts.
4. Ability to design and develop and implement JSP.

BCSE-602: ASP.Net

Course Objectives:

1. To study the basic concepts of Asp.net and C#.
2. To Understand Object oriented concepts.
3. To study Database connectivity.
4. To Study Crystal reports.

UNIT-1: ASP .NET with C#.Net

(9)

Introduction to ASP. NET , Working with web forms: Buttons, Text Boxes, Labels, Check Boxes, Radio Buttons, Tables, Panels, Images, Image Buttons, List Boxes, Drop-Down Lists, Hyperlinks and Link Buttons , Event handling and name spaces , Creating Master page with Multiform web application , Embedding VB Code in web pages.

UNIT-2: OOPs concepts with C#.Net

(9)

Class and Object , Properties, methods and events. , Constructors and Destructors , Method overloading and overriding, its difference , Inheritance , Access modifiers: Public, Private, Protected, Friend. , Interfaces. , Polymorphism.

UNIT-3: Database connectivity in C#.NET

(9)

Database: Connections, command, Data adapters, and datasets, name spaces , Connection to database using MS-Access, SQL Server , Data binding with controls like Text Boxes, List Boxes, Data grid etc. , Data form wizard , Data validation .

UNIT-4: Using Crystal Report

(9)

Connection to Database, Table, Queries , Create and Modify Report , Formatting Fields and inserting Header, Footer, Details , Working with formula fields, Parameter fields, Group , Working with Multiple Tables, Application for Crystal report

Course Outcomes:

1. Improving skill of basics ASP.Net and C#.
2. Ability to understand object oriented concepts.
3. Ability to study, design and develop database connectivity.
4. Ability to study and implement crystal reports.

Text Book: Visual Basic.NET console and windows application: A Practical Approach by Rajendra Salokhe

Reference Books:

1. VB.NET Complete Reference-Tata Mac Graw Hill
2. Visual Basic.NET Black Book – Steve Holzner
3. Visual Basic.NET Programming Bible – Bill Evje
4. VB.NET in 21 days –Fteven Holzner
5. Pro ADO.NET with VB.NET – Sahil Mailk and Paul Dickinson
6. Mastering Crystal Report – BPB Publication
7. Crystal Report – The Complete Reference: - Tata McGraw Hill

BCSE-603: Software Project Management

Course Objectives:

1. Software Metrics and Project Management covers skills that are required to ensure successful medium and large scale software projects.
2. It examines Requirements Elicitation, Project Management, Verification & Validation and Management of Large Software Engineering Projects.
3. Students learn to select and apply project management techniques for process modeling, planning, estimation, process metrics and risk management; perform software verification and validation using inspections, design and execution of system test cases.

UNIT-1: Introduction to Project Management (9)

What is a Project? What is Project management? , Project phases and project life cycle, Organizational structure , Qualities of Project Manager , WBS .

UNIT-2: Project Management Components and Time management (9)

Project Integration Management-Project plan development and execution , Change controls , CCB Configuration management.
Activity planning, Schedule development and control , GANTT Chart .

UNIT-3: Cost Management and Quality Management (9)

Cost estimation and Control , COCOMO model , BASIC COCOMO NUMERICALS .
Quality planning and assurance

UNIT-4: Human Resource Management, Communication Management, Risk Management and Procurement Management (9)

Organizational planning , Staff acquisition , Information distribution , Reporting , Risk identification Quantification and control , Solicitation management and control , Contract administration .

Course Outcomes:

1. Improving skill of Project Management
2. Ability to understand Project management components and Time management.
3. Ability to study Cost management and Quality management.
4. Ability to study HRM, Communication Management, Risk Management and Procurement management.

Reference Books:

- 1) Software Engineering -Roger Pressman -McGraw-Hill
- 2) Software Metrics for Project Management and process improvement -Robert B. Grady -Prentice hill

BCSE-604: Machine Learning II

Course Objectives:

1. To study the concepts of instance based learning.
2. To Understand clustering and unsupervised learning.
3. To study and design artificial neural network.
4. To Study the genetic algorithms.

Unit 1: INSTANCE BASED LEARNING

Introduction, Knearest neighbor learning, case based learning, radial basis functions

Unit 2: CLUSTERING & UNSUPERVISED LEARNING

Learning from unclassified data. Clustering. Hierarchical Agglomerative Clustering. Kmeans partitioned clustering. Expectation maximization (EM) for soft clustering. Semi supervised learning with EM using labeled and unlabeled data.

Unit 3: ARTIFICIAL NEURAL NETWORK

Introduction, neural network representation , problems for neural network learning, perceptrons ,multilayer network & Back propagation Algorithm.

Unit 4: GENETIC ALGORITHMS

Introduction, genetic operators, genetic programming, models of evolution & learning, parallelizing genetic algorithm

Course Outcomes:

The students should be able to:

1. Define instance based learning.
2. Understand clustering and unsupervised learning.
3. Study artificial neural network.
4. Understand generic algorithm.

References:

1. Tom M. Mitchell. "Machine Learning" McGraw-Hill, 1997.
2. P. Langley. "Elements of Machine Learning" Morgan Kaufmann Publishers, Inc. 1996.
3. Ethem Alpaydin "Introduction to machine learning ".

BCSE-605: Computer Network

UNIT-1: Physical and Data link Layer (9)

Physical layer: -Digital-to-analog conversion: concept, Amplitude Shift Keying, Frequency Shift Keying , Analog-to-digital conversion:- Pulse Code Modulation (PCM),Delta Modulation (DM), Data link layer , Design issues, Framing, error detection and correction, Protocols:- Sliding window protocol: one bit sliding window protocol, protocol using go back, protocol using selective repeat.

UNIT-2: Network and Transport layer (9)

Network layer: - Design issue, Concept of routing, Routing algorithm (shortest path, Flooding, distance vector,) , Congestion control algorithms (Leaking bucket, Token Bucket) , Transport layer: - Services: connection oriented and connection less services , Transport Layer Primitives: listen, connect, send, receive, disconnect , Protocols: TCP, UDP.

UNIT – III Session and Presentation layer (10)

Session layer: 3.1.1 Services: dialog management, synchronization, activity management, exception handling 3.1.2 Remote procedure calls 3.2 Presentation layer: 3.2.1 Services: Translation, compression, encryption 3.2.2 Cryptography: concept, symmetric key & asymmetric key cryptography

UNIT – IV Application layer and network security (10)

Application layer: 4.1.1 Function 4.1.2 Domain name system (DNS),Hypertext Transfer Protocol (HTTP),Simple Mail Transfer Protocol (SMTP) ,Telnet, File Transfer Protocol (FTP) 4.2 Network security: 4.2.1 Security concept and services 4.2.2 Message Authentication 4.2.3 Digital Signatures 4.2.4 Entity authentication

Course Outcomes:

1. Improving skill of basics communication and transmission modes.
2. Ability to understand network models , multiplexing and switching.
3. Ability to understand physical and data link layer .
4. Ability to understand network and transport layer.

Reference Books:

1. Computer Networking: A Top Down Approach Featuring in Internet by James F. Kurose & K. W. Ross
2. Behrouz A. Forouzan- Data Communications And Networking - (4th edition) McGraw-Hill
3. Tanenbaum A.S. “computer Network”, 3rd Edition, Prentice Hall of India
4. Stalling W, “computer communication Network”.(4th edition). Prentice hall of India 1993

BCSE-606: PHP Programming II

Course Objectives:

1. To study the concepts of PHP basic programming.
2. To Understand branching and looping in PHP.
3. To study Arrays in PHP.
4. To Study , design and develop applications in PHP using MySql.

Unit-1: PHP OOPS

(10)

Introduction, Declaring class, objects, constructor, destructor, Inheritance, Polymorphism, Abstract method and class, Interface.

Unit-2: MySQL

(10)

Introduction to Databases, Installation, Connection with MySQL, Create MySQL database, Creating database, Creating tables, Inserting values in table, Displaying, changing, searching, deleting records from the table

Unit-3: Developing Applications in PHP using MySQL

(10)

Developing applications in PHP, Arithmetic operators through GUI, Web calculator etc.

Unit-4: Mini Project

(10)

Website application: Login application, Registration application, Stock information etc
Use cookie and Session.

Course Outcomes:

1. Improving skill of basics PHP concepts.
2. Ability to understand branching and looping.
3. Ability to understand arrays.
4. Ability to design and develop Project.

Reference Books:

1. PHP and MySQL By Dreamtech Publications
2. PHP 5.1 for Beginners – By Ivan Bayross and Sharanam Shah(Shroff Publishers & Distributors)
3. Beginning PHP 6, Apache, MySQL Web Development- By Timothy Boronczyk, Elizabeth Naramore, Jason Gerner, Yann Le Scouarnec, Jeremy Stolz, Michael K. Glass
4. PHP and MySQL by Rajendra Salokhe (Aruta Publications)

BCSEP-607: Lab course based on BCSE-601 and BCSE-602

Practical Program List

1. Program on Swing
2. Program on AWT
3. Program on Database Connection
4. Program on cookie and Session
5. Program on Servlet JDBC
7. Simple application using JSP.

BCSE-608: Lab course based on BCSE-603 and BCSE-606

Practical Program List

1. Programs on Object Oriented Programming
2. Program on Inheritance
3. Program on Polymorphism
4. Programs on database connectivity
5. Program on development of web calculator
6. Program to develop user registration and login
7. Programs on cookie and session

BCSE 609: Lab course based on SEC-I and SEC-II

Practical Program List

- 1) Case Study on Manual Testing : Web Application(Curriculum Project)
- 2) Case Study on Banking Domain Application
- 3) Case Study on eCommerce Application
- 4) Case Study on HealthCare Domain
- 5) Case Study on IoT Applications
- 6) Case Study on Automation tools(any one)

BCSE-610: Lab course based on Project Work

Standard Project Report Documentation Format

- a. Cover Page
- b. Institute/College Recommendation
- c. Guide Certificate
- d. Declaration
- e. Acknowledgement
- f. Index
- g. Chapter Scheme
 - i. Introduction to Project
 - Introduction
 - Existing System
 - Need and scope of Computer System
 - Organization Profile
 - ii. Proposed System
 - Objectives
 - Requirement Engineering.
 1. Requirement Gathering
 2. SRS
 - iii. System Analysis
 - System Diagram
 1. DFD
 2. ERD
 3. UML(if applicable)
 - iv. System Design
 1. Database Design
 2. Input Design
 3. Output Design
 - v. Implementation
 - System Requirements
 1. Hardware
 2. Software

- User Guide line
- Installation process
- vi. Outputs-
 - Screens and Reports (with valid Data)
- vii. Conclusion and Suggestions
 - 1. Conclusion
 - 2. Limitations (future enhancement)
 - 3. Suggestion
- viii. Bibliography:
