Rayat Shikshan Sanstha's

Yashavantrao Chavan Institute of Science, Satara

(Autonomous)

Undergraduate Programme

B. Sc. Computer Science (Entire)

Syllabi of the course

Choice based credit system syllabus

(To be implemented from academic year 2018-21)

Department of Computer Science (Entire)

Index

Preamble:

There are bright career prospects for computer science professionals or software professionals in recent scenario. With the opening of huge software and IT companies in India, the job opportunities for trained professionals have increased considerably. India is known to be a leader in software and IT sector.

Computer science graduates pass outs find job opportunities in a variety of environments in academia, research, industry, government, private, business organizations and so on. They are involved in analyzing problems for solutions, formulating and testing, using advanced communications or multi-media equipment, or working in teams for product development.

The software and IT companies are the major employers of computer science graduates. They offer the best packages to the young graduates which are unmatched with other branches of science.

General Objectives of the Programme:

1. To nurture academicians with focus and commitment to theirsubject.
2. To shape good and informed citizens from the students entering into theProgramme.
3. To create a skilled workforce to match the requirements of thesociety.
4. To impart knowledge of Science is the basic objective of thisProgramme.
5. To develop scientific attitude is the major objective so as to make the students open minded, critical andcurious.
6. To develop skill in practical work, experiments and laboratory materials and equipments along with the collection and interpretation of scientific data to contribute toscience.

Programme Outcomes:

1. The students will graduate with proficiency in the subject of theirchoice.
2. The students will be eligible to continue higher studies in theirsubject.
3. The students will be eligible to pursue higher studiesabroad.
4. The students will be eligible to appear for the examinations for jobs in government organizations.
5. The students will be eligible to apply for jobs with a minimum requirement of B.Sc. Programme.

Program Specific Objectives of the Course:

1. The content of the syllabus have been framed as per UGC norms of CBCSPattern.
2. The students are expected to understand the fundamentals, principles, mathematical, recent IT concepts and recent developments in the subjectarea.
3. The practical course is in relevance to the theory courses to improve the understanding of the concepts.
4. It is expected to inspire and boost interest of the students towards Computer Science as the mainsubject.
5. To develop the power of appreciations, the achievements in Computer and role in nature and society.
6. To enhance student sense of enthusiasm towards IT and to involve themin an intellectually stimulating experience of learning in a supportiveenvironment.

Program Specific Outcomes:

After successful completion of B.Sc. Computer Science (Entire) Course student will be able to:

1. Understand the basics of Computer Science.
2. Learn, design and perform experiments in the labs to demonstrate the concepts, principles and theories learned in the classrooms.
3. Develop the ability to apply the knowledge acquired in the classroom and laboratories to specific problems in theoretical and experimental ComputerScience.
4. Identify their area of interest in academic, research anddevelopment.
5. Perform job in various fields' like IT, science, engineering, education, banking, business and public service, etc. or be an entrepreneur with precision, analytical mind, innovative thinking, clarity of thought , expression, and systematicapproach.

Revised B. Sc. Part-III Computer Science (Entire) Syllabus w. e. f. June 2020

B.Sc. Computer Science Entire Part-III

Year of Implementation: Revised Syllabus will be implemented from June2020
Duration : Part- III shall be of one academic year consisting of two semesters.**Pattern :**SemesterPattern.

B.Sc. Part – III Computer Science Entire (2020-21)

Code	Course	Course Title
SEMESTER – V		
BCSET-501	Computer Science Paper – IX	Core Java
BCSET-502	Computer Science Paper – X	C# Programming
BCSET-503	Computer Science Paper – XI	Software Engineering
Elective CourseI : BCSET-504 ORBCSET-505 ORBCSET-506		
BCSET-504	Computer Science Paper – XII	Machine Learning Part-I
BCSET-505	Computer Science Paper – XII	Data Communication
BCSET-506	Computer Science Paper – XIII	PHP Part-I
SEC-I	Skill Enhancement Course – I	Software Testing
AECC-E	English Paper – III	English for communication- III
LAB	Lab Course Based on BCSET-501	
LAB	Lab Course based on BCSET-502	
PW	Project Work	
SEMESTER – VI		
BCSET-601	Computer Science Paper – XIII	Advanced Java
BCSET-602	Computer Science Paper – XIV	ASP.Net
BCSET-603	Computer Science Paper – XV	Software Project Management
Elective Course II : BCSET-604 ORBCSET-605 ORBCSET-606		
BCSET-604	Computer Science Paper – XVI	Machine Learning Part-II
BCSET-605	Computer Science Paper – XVI	Computer Network
BCSET-606	Computer Science Paper – XVII	PHP Part-II
SEC-II	Skill Enhancement Course – II	Entrepreneurship in IT
AECC-F	English Paper – IV	English for communication- IV
LAB	Lab Course Based on BCSET-601	
LAB	Lab Course based on BCSET- 602	
LAB	Lab Course based on SEC- I & SEC-II	
PW	Project Work	

FIFTHSEMISTER ---------- (NOOFTHEORY&PRACTICALPAPERS

Subject	Paper	ESE	InternalExam		Subject	Submission		
			ISE-I	ISE-II (Online Test)		Exam	Case study/ Educational Tour/ Seminar	Day to day Performance
BCSET-501	Core Java	40	5	5	BCSEP-506:	40	5	5
BCSET-502	C# Programming	40	5	5				
BCSET-503	Software Engineering	40	5	5	BCSEP - 507:	40	5	5
BCSET-504	A) MachineLearningPart-I B) DataCommunication C) PHPPart-I	40	5	5				
SEC-I	Software Testing	20	0	0	BCSEP - 508:	30	10	10
AECC	English	40	5	5	SECP-509:	30	0	0
Total of SEM IV	TOTAL	220	25	25	0	140	20	20
	GRAND TOTAL	**450**						

SEMESTER –V
B.Sc. Computer Science Entire Part-III
BCSET-501: CoreJava

Course objectives:

1. To learn basic concepts of JavaLanguage
2. To study the concepts of classes and objects.
3. To study the concepts of Inheritance, packages andinterfaces.
4. To understand Exception handling andmultithreading

Unit-1: JavaLanguageBasics (9)

History and features ofJava, Java Virtual Machine(JVM), JDK tool(Folder structure-for practical purposeonly), 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 ofvariables, Type casting- Implicit and Explicit casting, Operators ofjava, Control structures of java –1-Branching statements- If, if ….else, if …else if and switchstatement, 2-Iterative statements- for loop, do… while, while loop, jumping statements-break and continuestatement.

Unit-2: Introducing classesandobjects (9)

Introduction : Classes, Objects andmethods, Defining a class, field declaration, methoddeclaration, Accessing class members, access specifies injava, Static variables andmethods, Methodoverloading, Constructor- types of constructor, constructoroverloading, Use of this keyword, Garbage collection-finalize(), wrapperclasses, Array, types of array, array ofobject
Collection-Iterator interface, List interface, ArrayList class, LinkedList class, Vector class and Stackclass.

Unit-3: Inheritance, packagesandinterfaces (9)

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

Unit-4: Exception HandlingandMultithreading (9)

Concept of exception, difference between error andexception, Types of exceptions-checked andunchecked, Exception handling using try and catchblock, Multiple catch block, finally block, throwskeyword, User definedexception, 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 outcomes: After completion of this course student will be able to

1. Implement Object oriented conceptsusingjava
2. Develop Object oriented softwareapplication
3. Developmultithreadingapplications
4. Handle exceptions while executingprograms

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, BlackBook-dreamtech
4. Programming with JAVA-EBalagurusamy

BCSET-502: C# Programming

Course objectives:

1. To study basic concepts of Dot net Framework.
2. To study the basic conceptsC#.
3. To study the C# Object orientedconcepts.
4. To understand Exception handling and file I/O.

Unit-1: DotNetFramework: (8)

Overview, component Architecture of .Netframework,Meta data andassembly, CLR, Managed and unmanagedcode, MSIL, JIT Compiler, CTS,CLS, Compilation and execution process, NET base classes,namespace.

Unit-2:C#Basics: (10)

Introduction to C#, Entry point method, command linearguments, Control statements, looping statements, Arrays,String, CSC.EXE, Different valid forms ofmain, Global stack and heap memory, reference type and datatype, Type casting-Implicit and Explicit, Boxing andunboxing
Pass by value and pass by reference and outparameters.

Unit-3: C# ObjectOrientedConcepts: (9)

Class, static and non-staticmethods, Delegate- Syntax,importance, example, Inheritance, Polymorphism, Interface, AbstractClass, Partial Class, DLL, Difference between DLL andEXE.

Unit-4: Exception Handling andFileI/O: (9)

Introduction to exception, Importance in C#, try, Catch, Finallyblocks, Exception classes, Handling Exceptions, User define exceptions and System defineexceptions.Concept of File Handling,Importance, C# I/OClasses, File Stream Class, File operations usingC#.

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

1. Understand working of .NetFramework
2. Demonstrate concept of object oriented programming usingC#
3. Study importance and applications ofexceptionhandling
4. Understand working of file handling inC#.

Reference Books:

1. C# 4.0 The Complete ReferenceSchildtMcGrawHill
2. Inside C# - By Tom Archer, Andrew Whitechapel(MicrosoftPub)
3. Programming in C#-EBalagurusamy

BCSET-503: Software Engineering

Course objectives:

i) To study basic concepts of SoftwareEngineering.
ii) To study the Software ProjectPlanning.
iii) To study the SoftwareTesting.
iv) To understandUML.

Unit-1: Software Engineering Fundamentals: (8)

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: (10)

Software ProjectPlanning, Size Estimation, CostEstimation, Models - COCOMO, The Putnam Resource AllocationModel, Risk Identification and Projection:RMMM, Project scheduling andTracking, Software Design Process, DesignPrinciples, Design Concepts: Effective Modular Design, Design Heuristics, Design Documentation(SRS), Design Methods: Data Design, Architectural Design, Interface Design, ProceduralDesign.

Unit-3:SoftwareTesting: (8)

Software TestingFundamentals, White Box Testing, Black Box Testing, Software testing strategies, verification andValidation, System Testing, Unit testing, Integration testing andDebugging, Implementationtypes, Software Maintenance, MaintenanceTasks.

Unit-4: Unified Modeling Language(UML): (10)

Object- oriented concepts and principles, Unified Modeling Language, UMLviews, 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, Componentdiagrams, Dynamic diagrams- Use case diagrams ,State diagrams, Interaction diagrams, Sequencediagrams.

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

1. Understand the problem domain to choose processmodelscorrectly.
2. Choose software projects using appropriatedesignnotations.
3. Measure the product and process performance usingvariousmetrics.
4. Evaluate the system with various testing techniquesandstrategies
5. Able to analyze, design, verify, validate, implement, and maintainsoftwaresystems.

Reference Books:

1. Roger S Pressman, Bruce R Maxim, “Software Engineering: APractitioner’s Approach”, KindleEdition,2014.
2. Ian Sommerville,” Software engineering”, Addison WesleyLongman,2014.
3. James Rumbaugh. MichealBlaha “Object oriented Modeling and Design with UML”,2004.

BCSET-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 (9)

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 (9)

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 (9)

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

Unit-4:Basic Probabilityandterms (9)

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 fromdata.
2. Understand a wide variety of learningalgorithms.
3. Understand how to evaluate models generated from data.

Reference Books:

1. Ethem Alpayd in,Introduction toMachine Learning,SecondEdition
2. DAN.W.Patterson,IntroductiontoA.IandExpertSystems–PHI,2007.
3. Rich&Knight,ArtificialIntelligence–TataMcGrawHill,2ndedition,1991.

BCSET-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 Communicationmodes.
iv) To understand the Networking protocols and OSImodels.

Unit-1: Dataandsignals (9)

Data and Signals: Introduction, Objectives, Analog and Digital signals, Periodic Analog Signals, Digital Signals, Transmission Impairment Attenuation, Distortion, Noise, DataRateLimits, 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 toDataCommunication (9)

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 - Approachestorouting

Unit-3:Introduction to Datacommunicationmodes (9)

Data communication modes: Serial and Parallel, Simplex, Half duplex and fullduplex, Synchronous and asynchronoustransmission, Multiplexing - Types of Multiplexing - FDM versusTDM, Parallel and serial Transmission – DTE/DCE/such as EIA-449, EIA-202 and X21 interface – Interfacestandards

Unit-4:Introduction to Networking protocols andOSImodel (9)

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 innetworks.
2. Familiar with switching and routing techniques innetworking.
3. Understand different data communicationmodes.
4. Understand OSI model and networkingprotocols.

Reference books:

1) Behrouz and forouzan - Introduction to Data Communication and Networking – 2 ndEdition – TMH- 2001. 2. Jean Walrand – Communication Networks (A first Course) – Second Edition – WCB/McGraw Hill –1998.
2) ComputerNetwork 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

BCSET-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 Communicationmodes.
iv) To understand the Networking protocols and OSImodels.

Unit-1:PHPInstallation (9)

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:Introductionto PHP (9)

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 (9)

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

Unit-4:LoopingStructure (9)

For loop, While loop, Do……while loop, For each loop

Course outcome: After completion of this course student will be ableto

1. Identify basic PHPsyntax
2. Create basic PHPscripts
3. Know how to send data to theWebBrowser
4. Apply variables, string, and constant to a PHPascript

Reference Books:

1)Dr.PoornimaG.Naik,Dr.KavitaS.Oza,PHPConceptsUnleashedForNovice–VolI&II,EvincepubPublishing.2018
2)MattDoyle,BeginningPHP5.3,WileyIndiaEdition,2012.
3) PHP6andMySQL,SteveSuehring,TimConverseandJoycePark,WileyIndia2010,Second Edition
4) VikramVaswani,PHP:A Beginnersguide,TataMcgrawHill,2009.

5)CorePHPProgramming"byAtkinsonLeon,SuraskiZeev,PearsonPublication

6)LarryUllman,PHP6andMySQL5,PearsonEducation,2008.

SECC 1- Software Testing (Manual and Automated)

Part A) MANUAL TESTING COURSE SYLLABUS

Overview:

Testing is a critical phase of Software Development Life Cycle. Manual testing is the process in which the defects are identified, isolated, subjected for justification and ensure that the product is defect-free, in-order to produce quality product. However it requires the necessary knowledge such as about different types of manual testing, software development life cycle. In this course you will learn everything that is required from a good manual tester.

Course Objectives

1. To understand what istesting?
2. To understand Software developmentmodel.
3. To Understand Architectures of softwaredevelopment.
4. To learn the features of Software developmentmodels.
5. To learn major concepts of the testing methodologies.
6. To know different approaches toTesting.
7. To understand of the types oftesting.
8. To plan and create testplan
9. To execute the testplan.
10. To create and manage test cases and defectprofiles.
11. To build strategies to track testing processes in the bug trackingsystems.
12. To do document of the test report in the testing enclosuredocument.

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, Non functional, 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.

Part B) Manual Testing and Automated Testing

Unit 1: Manual Testing

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

Unit 2: 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.

At the end of the course participants will be able to

1. At the end of this course, students will be able to understand the complete cycle of ManualTesting.
2. Students will be seeing the live project and will be able to start the career in the Software Quality Assurancefiled.

At the end of the course participants will be able to

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

References Books:

1) The Art of Software Testing, 3rd Edition , Glenford J. Myers, Corey Sandler, Tom Badgett.
2) Software Testing, 2nd Edition, 2005, Ron Patton

Practical:

1) Case Study on Manual Testing : Web Application(Curriculum Project)
2) Case Studyon
    a) Banking DomainApplication
    b) eCommerce Application
    c) HealthCareDomain
    d) IoTApplications
    e) Automation tools(anyone)
3) **Reference Books :**
4) 1) The Art of Software Testing, 3rd Edition , Glenford J. Myers, Corey Sandler, Tom Badgett.
5) 2) Software Testing, 2nd Edition, 2005, Ron Patton

Lab Course: BCSEP 506: Lab course based on BCSET 501

Practical Program List

BCSET 501- Core Java

Course Objectives:

1. To study Basic Java Programs
2. To study Class, object and methods in Java
3. To study use of Array , collection of Java
4. To use the Inheritance, packages and interfaces.
5. To use of the Exception handling and multithreading

1. Program on typecasting
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

Course outcomes:

1. To study Basic Java Programs
2. To Implement Class, object and methods in Java
3. To study use of Array, collection of Java
4. To implement the Inheritance, packages and interfaces.
6. To use of the Exception handling and multithreading

References 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, BlackBook-dreamtech
4) Programming with JAVA-EBalagurusamy

Lab Course: Lab course based on BCSET 502

Practical Program List

BCSET 502- C# programming

Course Objectives:

1. To study the concept of parameter passing mechanism
2. To study concept of command line argument, typecasting
3. To study control structure, looping statement
4. To study array, statics, non static , DLL ,EXE concepts
5. To study concept of Inheritance, Interface

1. To study Basic Java Programs

6. Program on parameter passing mechanism.
7. Program on command line argument.
8. Program on typecasting.
9. Program on looping statements.
10. Program on control structure.
11. Program on DLL and EXE
12. Program on array.
13. Program on static and non-static methods.
14. Program on Inheritance.
15. Program on Interface.

Course Outcomes:

1. To implement the concept of parameter passing mechanism
2. To use of command line argument, typecasting in C#
3. To implement the use of control structure, looping statement
4. To use the concept of array, statics, non static , DLL ,EXE concepts
5. To implement the concept of Inheritance, Interface
6. Program onabstractclass.
7. Program onpartialclass.
8. Program on exception handling- Arithmetic exception, Array exception, File Exception, Null ReferenceException.
9. Program on userdefineexception.
10. Program on File I/Ofunctions

Reference Books:

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

Lab Course BCSEP 507: Lab course based on BCSET 501 and BCSET 502

Practical Program List

BCSET 503- Software Engineering

Course Objectives:

1) To discuss different case studies on Software Testing

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

Course Outcomes:

1) To implement and use of different case studies on Software Testing In Project/Applications

BCSET 504- PHP Part I

Course Objectives:

1) To study concept of PHP with HTML
2) To study type casting, constant in PHP
3) To study the concept of If, Switch ,For, While in PHP

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…elseif…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

Course Outcomes:

1) To implement the use of PHP with HTML
2) To use type casting, constant in PHP
3) To implement the concept of If, Switch ,For, While in PHP

Reference Books:

1)Dr.PoornimaG.Naik,Dr.KavitaS.Oza,PHPConceptsUnleashedForNovice– Vol I&II,EvincepubPublishing.2018
2)MattDoyle,BeginningPHP5.3,WileyIndiaEdition,2012.
3) PHP6andMySQL,SteveSuehring,TimConverseandJoycePark,WileyIndia2010,Second Edition
VikramVaswani,PHP:A Beginnersguide,TataMcgrawHill,2009.

BCSEP 508 :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 Guideline
   - Installation process
6) Outputs-
   Screens and Reports (with valid Data)
7) Conclusion and Suggestions
   • Conclusion
   • Limitations(future enhancement)
   • Suggestion
8) Bibliography:

BCSE- III- Semester VI
BCSET- 601: Advanced Java Programming

Course Objectives:

1. To study the concepts of AWT (Abstract WindowToolkit).
2. To Understand Java Database Connectivity.
3. To Understand Servlet concepts.
4. 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, JLable, JTextfields,JCheckbox, JPanel, JRadiobuttons, JTabbed Pane, JButton, JTree,JTable, JMenu, Difference between AWT and Swing

Unit-2: Java DataBase Connectivity(JDBC) (09)

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

Unit-3:Servlet (09)

Introduction of servlet: How servelet 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 ServerPage(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 aboutAWT.
2. Ability to design and implementJDBC.
3. Ability to develop serveletconcepts.
4. Ability to design and develop and implementJSP.

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, BlackBook-dreamtech
4) Programming with JAVA-EBalagurusamy

Lab Course V

(Lab course based on paper- XX-Advanced Java Programming)

Practical Program List

1.Program on Swing
2. Program onAWT
3. Program on Database Connection
4.Program on cookie and Session
5.Program on ServletJDBC
6. Simple application usingJSP.

BCSET-602: ASP.Net

Course Objectives:

1. To study the basic concepts of Asp.net andC#.
2. To Understand Object orientedconcepts.
3. To study Database connectivity.
4. To Study Crystalreports.

UNIT-1: ASP .NETwithC#.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 C# Code in web pages.

UNIT-2: OOPs conceptswithC#.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 connectivityinC#.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: UsingCrystal 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 crystalreports.

Reference Books:

1. VB.NET Complete Reference-Tata MacGraw Hill
2. Visual Basic.NET Black Book – SteveHolzner
3. **Text Book :**Visual Basic.NET console and windows application: APracticalApproach by Rajendra Salokhe
4. Visual Basic.NET Programming Bible – Bill Evje
5. VB.NET in 21 days –FtevenHolzner
6. Pro ADO.NET with VB.NET – Sahil Mailk and Paul Dickinson 6. Mastering Crystal Report – BPB Publication 7. Crystal Report – The Complete Reference: - Tata McGrawHill

BCSET-603: Software Project Management

Course Objectives:

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1. Software Metrics and Project Management covers skills that are required to ensure successful medium and large scale softwareprojects.
2. It examines Requirements Elicitation, Project Management, Verification &Validation and Management of Large Software EngineeringProjects.
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 testcases.

UNIT-1: Introduction toProjectManagement (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 andTimemanagement (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 andQualityManagement (9)

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

UNIT-4: Human Resource Management, Communication Management, Risk Management and ProcurementManagement (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 Timemanagement.
3. Ability to study Cost management and Qualitymanagement.
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 - Prenticehill

BCSET-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: INSTANCEBASEDLEANING (9)

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

Unit 2: CLUSTERING &UNSUPERVISEDLEARNING (9)

Learning from unclassified data. Clustering. Hierarchical Agglomerative Clustering. K means partitional clustering. Expectation maximization (EM) for soft clustering. Semi supervised learning with EM using labeled and unlabelled data.

Unit 3: ARTIFICIALNEURAL NETWORK (9)

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

Unit 4:GENETICALGORITHMS (9)

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".

BCSET-605: Computer Network

Course Objectives:-

1. To understand the Physical and DatalinkLayer
2. To learn the Network andTransportlayer
3. To understand OSI Model Layers.

UNIT-1: Physical and DatalinkLayer (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 andTransportlayer (9)

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

UNIT – III Session andPresentation layer (9)

3.1 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 keycryptography

UNIT – IV Application layer andnetworksecurity (9)

4.1 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 Entityauthentication

Course Outcomes:

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

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 ofIndia
4. Stalling W, “computer communication Network”.(4th edition). Prentice hall of India1993

BCSET-606: PHP Programming II

Course Objectives:

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

Unit-1:PHP OOPS (9)

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

Unit-2:MySQL (9)

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 PHPusingMySQL (9)

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

Unit-4:MiniProject (9)

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

Course Outcomes:

1. Improving skill of basics PHPconcepts.
2. Ability to understand branching andlooping.
3. Ability to understand arrays.
4. Ability to design and develop Project.

Reference Books:

1. PHP and MySQL By DreamtechPublications
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, Zeremy Stolz, Michael K.Glass
5. PHP and MySQL by Rajendra Salokhe(Aruta Publications)

SECCCST607: Entrepreneurship Development

Learning objectives:

1.To study the product design and development process
2.Identification of apportunities for development
3.To learn the machanism of finance and fundraising
4.To understand the importance of marketing for better businessopportunities

UnitI: Entrepreneurship, Creativity& Opportunities **05**

Concept, Classification &Characteristics of Entrepreneur, Creativity and Risk taking, Risk Situation, Types of risk& risk takers, Business Reforms,Process of Liberalization, Reform Policies,Impact of Liberalization,Emerging high growth areas, Business Idea Methods and techniques to generate business idea, Transforming Ideas in to opportunities transformation involves, Assessment of idea&Feasibility of opportunity SWOT Analysis

UnitII:Information and SupportSystems **05**

Information needed and Their Sources: Information related to project, Information related to support system, Information related to procedures and formalities, Support Systems Small Scale Business Planning, Requirements, Govt. & Institutional Agencies, Formalities Statutory Requirements and Agencies.Market Assessment-Marketing - Concept and Importance Market Identification, Survey Key components Market Assessment

UnitIII: Business Finance & Accounts **05**

Business Finance- Cost of Project Sources of Finance Assessment of working capital Product costing Profitability Break Even Analysis Financial Ratios and Significance Business Account-Accounting Principles, Methodology Book Keeping Financial Statements Concept of Audit.Business Plan Business plan steps involved from concept to commissioning, Activity Recourses, Time, Cost Project Report Meaning and Importance, Components of project report/profile (Give list), Project Appraisal: 1) Meaning and definition 2) Technical, Economic feasibility 3) Cost benefit Analysis

UnitIV: Enterprise Management and Modern Trends **05**

Enterprise Management- Essential roles of Entrepreneur in managing enterpriseProduct Cycle: Concept and importance Probable Causes of Sickness Quality Assurance: Importance of Quality, Importance of testing E-Commerce: Concept and Process

Electronics Entrepreneur- Assess yourself-are you an entrepreneur? Prepare project report for electronics and study its feasibility.

Recommended Books:

1.R. G. Kaduskar, V. B. Baru. Electronic Product Design. Second edition Wiley India
2.G. N. Pandey. A complete guide to successful Entrepreneurship, Vikas publisher,1994.
3.Entrepreneurship, Alpana Trehan, Wiley India Publishers, (1st Ed.) 2011.
4.Complete guide to successful Entrepreneurship, G.N.Pande, S.Chand (G/L) & Company Ltd ., 1994.

Learning Outcomes:

Unit I: Able to identify feasibility of product design and development.
Unit II: Able to get the idea about IP rights.
Unit III: Avail the financial and marketing skill.
Unit IV: Able to prepare the proposal for small scale industry.

Lab Course: BCSEP 606: Lab course based on BCSET 601&BCSET 602

Practical Program List

BCSET 601- Advanced Java

BCSET 601- Advanced Java

Course Objectives:

1. To study the programs on simple frame in Java
1. To study the concept of JDBC in Java
2. To study servelet, session and cookies in Java
3. To study the JSP applications
4. To study the concept of Server controls
5. To study the SqlDataSource, datacontrols, ADO.Net connected and disconnected architecture
6. To study cross page posting, client side, server side state management.

1. Program to design simple frame using swing components like JButton,JLabel,JTextField
2. Program to design simple frame using swing components like JButton, JLabel,JTextField, JComboBox, JCheckBox
3. Program on JDBC.
4. Program to design simple Login Page application using JDBC.
5. Program on servlet.
6. Program to maintain session using cookies
7. Program to create simple JSP application to check given number is prime or not.
8. Program to create simple JSP application to print Fibonacci sequence for given number.
9. Program to create simple JSP application to check given string is palindrome or not.

BCSET-602

1. Program on server controls
2. Programon SqlDataSource.
3. Program on datacontrols
4. Program on ADO.Net connected architecture.
5. Program on ADO.Net disconnected architecture
6. Programon Response.Redirect.
7. Program on cross page posting.
8. Program on client side state management.
9. Program on server side state management.
10. Program to design master page for university website.

Course outcomes:

1) To use the programs on simple frame in Java
2) To implement the concept of JDBC in Java
3) To implement the concepts of servelet, session and cookies in Java
4) To implement the JSP applications
5) To implement the concept of Server controls
6) To use the SqlDataSource, datacontrols, ADO.Net connected and disconnected architecture
7) To implement cross page posting, client side, server side state management.

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, BlackBook-dreamtech
4) Programming with JAVA-EBalagurusamy

Lab Course Based on BCSET-603

Lab Course: BCSEP 607: Lab course based on BCSET 603 &BCSET 604

Practical Program List

Course objectives:

1. To study the concept of Project and System Management
2. To study the concept of Feasibility, Project Proposal, project Planning, Activity Planning,
3. To analyze the project network diagram
4. To study cost estimation, risk management

BCSET 603- Software Project Management

In practical, a group of maximum three students should be formed. Each group is supposed to complete all lab experiments (given below) on the case study given by the subject teacher. In lab experiments, students can used the tools like MsWord to prepare document

1. Project and System's Management
2. Feasibility study
3. Project Proposal
4. Project Planning
5. Activity Planning
6. Analyzing the project network diagram
7. Cost estimation and budgeting
8. Risk management
9. Performance analysis of project
10. Project evaluation and closure

Course objectives:

1. To implement the concept of Project and System Management
2. To use and demonstrate the concept of Feasibility, Project Proposal, project Planning, Activity Planning,
3. To use the project network diagram
4. To implement cost estimation, risk management

Reference Books :

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

BCSET604-PHP Programming II

Course objectives:

1. To study the concept of user defined function
2. To study the concept of object oriented in PHP
3. To study the form validation in PHP
4. To study the Data connectivity and Database operations in PHP

To study cost estimation, risk management

1. Program on user defined function.
2. Program on Constructor and Destructors.
3. Program on Inheritance
4. Programs on Polymorphism
5. Program to create static and dynamic web page using PHP.
6. Program on form validation in PHP
7. Program on Data Connectivity.
8. Program based on Database Operations usingMySQL.

Course Outcomes:

1. To implement the concept of user defined function
2. To use the concept of object oriented in PHP
3. To implement the form validation in PHP
4. To implement the Data connectivity and Database operations in PHP

Reference Books:

1. PHP and MySQL By DreamtechPublications
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, Zeremy Stolz, Michael K.Glass

SECCCSP610: Industrial Project

Course Work: 25

Industrial Visits and report writing, Preparation of entrepreneurship Proposal and Presentation.

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