

- b) For each pilot who is certified for more than three aircrafts, find the eid and the maximum cruisingrange of the aircraft for which she or he is certified.
- c) Find the names of pilots whose salary is less than the price of the cheapest route from Bengaluru to Frankfurt.
- d) For all aircraft with cruisingrange over 1000 Kms, Find the name of the aircraft and the average salary of all pilots certified for this aircraft.
- e) Find the names of pilots certified for some Boeing aircraft. vi. Find the aids of all aircraft that can be used on routes from Bengaluru to New Delhi.

12. INVENTORY DATABASE An inventory database has the following tables

ITEM (ItemCode: number, ItemName: text, Price: number (10,2))

PURCHASE (ItemCode: number, Quantity: number)

- a. Create above table with above attributes.
- b. Enter 5 – 7 tuples into the tables.
- c. List the items purchased
- d. Display the total items purchased (listing must have the columns: ItemCode ItemName Total Quantity)
- e. List the items which are not purchased by anyone.

PART – B

During practical examination the External and Internal examiners may prepare exam question paper related to theory syllabus apart from Part-A. (A minimum of 8 Programs has to be prepared).

Note:

- a) The candidate has to write two the programs One from Part-A and other from Part-B and execute one program as of External examiner choice.
- b) A minimum of 8 Programs has to be done in Part-B and has to be maintained in the Practical Record.
- c) Scheme of Evaluation is as follows:

Writing two programs - 10 Marks

Execution of one program - 10 Marks

Formatting the Output - 05 Marks

Viva - 05 Marks

Record - 05 Marks

Total - 35 Marks

BCA301T: INDIAN LANGUAGE

Syllabus as per the one prescribed for science courses of Bangalore University.

BCA302T: ENGLISH

Syllabus as per the one prescribed for science courses of Bangalore University.

BCA303T: OBJECT ORIENTED PROGRAMMING USING C++

Total Teaching Hours: 52

No of Hours / Week: 04

Unit-I

12 Hours

Introduction :Procedure Languages, definition of OOP, Basic concept of OOP, Object Class, Data Abstraction, Data Encapsulation, Data Hiding member functions , Reusability, Inheritance, Creating new Data Types, Polymorphism, Overloading , Dynamic binding and Message passing. C++ Features: The iostream class, C++ Comments, C++ Keywords, Variable declaration, The Const Qualifier. The Endl, Set Waste precision, Manipulators, The scope resolution operator, The new & delete Operations. Functions: Simple Functions, Function declaration, calling the function, function definition, Passing argument to, returning value from function, passing constants, Variables, pass by value , passing structure variables, pass by reference, Default arguments, return statements, return by reference, overloaded functions; Different number of arguments, Different Kinds of argument, inline function.

Unit-II

12 Hours

Objects & Classes: Classes & Objects, Class Declaration, Class member; Data Constructions, Destructors, Member functions, Class member visibility, private, public and protected. The scope of the class objects constructions, Default Constructor. Constructor with argument, constructor with default arguments, Dynamic constructor, copy constructor, Overloaded constructor, Objects as arguments returning objects from functions, class conversion, manipulation private Data members, Destructors classes, object & memory, arrays as class member data: Array of objects, string as class member.

Unit-III

12 Hours

Operator Overloading : Overloading unary operator: Operator Keyword, Operator arguments, Operator return value, Nameless temporary objects, limitations of increment operator, overloading binary operator, arithmetic operators, comparison operator, arithmetic assignment operator, data conversion; conversion between objects of different classes. Inheritance : Derived Class & Base Class: Specifying the Derived class accessing Base class members, the protected access specifier, Derived class constructor, Overriding member functions, public and private inheritance; Access Combinations, Classes & Structures, Access Specifiers, Level of inheritance; Multilevel inheritance, Hybrid inheritance, Multiple inheritance; member functions in multiple inheritance , constructors in multiple inheritance, Containership; Classes, within classes, Inheritance & Program development.

Unit-IV

12 Hours

Virtual functions: Normal member function accessed with pointers, Virtual member functions accessed with pointers, Dynamic binding, pure virtual functions, Friend function; Friends for functional notation, friend classes, the pointer; Accessing Member Data with this, using this for returning values. Templates & Exception Handling: Introduction, Templates, Class Templates, function templates, Member function templates, Template arguments, Exception Handling.

Unit-V**12 Hours**

Streams: The Stream class Hierarchy, Stream classes Header file, string I/O: Writing strings, reading strings, character I/O, Detecting End – of – file. Object I/O; writing an object to disk, reading an object from disk, I/O with multiple objects; the fstream class, The open function, File Pointers; Specifying the position, Specifying the offset. The tellg Function, Disk I/O with Memory Functions; Closing Files, Error Handling, Command Line Arguments.

Text books:

1. Lafore Robert, “Object Oriented Programming in Turbo C++”, Galgotia Publications, 2012.

Reference:

1. Lippman, “C++ Primer”, 3rd Edition, Pearson Education, 2010.
2. E. Balaguruswamy: Object Oriented Programming with C++, Tata McGraw Hill Publications, 2011.
3. Farrell, “Object Oriented Programming Using C++”, 1st Edition 2008, Cengage Learning India

BCA304T: ACCOUNTING AND FINANCIAL MANAGEMENT**Total Teaching Hours: 52****No of Hours / Week : 04****Unit - I****12 Hours**

Introduction: History and Development of Accounting –Meaning Objectives and functions of Accounting-Book-keeping V/s Accounting –Users of accounting data – systems of book-keeping and accounting – branches of accounting –advantages and limitations of accounting. Accounting Concepts and conventions: Meaning need and classification, Accounting standards –meaning, need and classification of Indian accounting standards. Accounting principles V/s Accounting standards.

Unit - II**10 Hours**

Financial Accounting Process: Classification of accounting transaction and accounts, rules of debit and credit as per Double Entry System. Journalisation and Ledger position Preparation of different subsidiary books: Purchase Day Book Sales Day Book, Purchase Returns Day Books, Sales Returns Day Book, Cash Book. Bank Reconciliation Statement: Meaning, Need, Definition, preparation of BRS.

Unit - III**10 Hours**

Accounting for bill of exchange: Meaning, Need, Definition, Partice to Bill of Exchange, Types of Bills. Accounts Procedure: Honour of the Bill, Dishonour of the Bill, Endorsement, Discounting, Renewal, Bills for collection, Retirement of the Bill, Accommodation Bills, Bill Receivable Book and Payable Book. Preparation of Trial Balance: Rectification of errors and journal Proper.

Unit – IV**10 Hours**

Preparation of Final accounts: Meaning, need and classification, Preparation of Manufacturing, Trading, Profit and loss account and Balance-Sheet of sale –traders and partnership firms.

Unit - V**10 Hours**

Accounting Package like Tally

Text Book

1. S.Ramesh, B.S.Chandrashekar, a Text Book of Accountancy.

References

1. V.A.Patil and J.S.Korihalli, Book–Keeping and Accounting, (R. Chand and Co. Delhi).
2. R.S.Singhal, Principles of Accountancy, Nageen Prakash pvt.Ltd, Meerut.
3. B.S.Raman, Accountancy, (United Publishers, Mangalore)

BCA305T: OPERATING SYSTEMS**Total Teaching Hours: 65****No of Hours / Week : 05****Unit - I****13 Hours**

Introduction: Batch Systems, Concepts of Multiprogramming and Time Sharing, Parallel, Distributed and real time Systems, Operating System Structures, Components & Services, System calls, System programs, Virtual machines. Process Management: Process Concept, Process Scheduling, Co – Operating process, Threads, Inter process communication, CPU Scheduling Criteria, Scheduling algorithm, Multiple Processor Scheduling, Real time Scheduling, Algorithm evolution.

Unit - II**13 Hours**

Process Synchronization and deadlocks: The Critical Section Problem, Synchronization hardware, Semaphores, Classical problems of synchronization, Critical regions, monitors, Dead locks – system model, Characterization, Dead lock prevention, avoidance and detection, Recovery from dead lock, Combined approach to deadlock handling.

Unit - III**13 Hours**

Memory Management: Logical and Physical address space, Swapping, Contiguous allocation, Paging, Segmentation, Segmentation with paging in Mastics and Intel 386, Virtual memory- Demand paging and it's performance, Page replacement algorithms, Allocation of frames, thrashing, page size and other considerations. Demand Segmentation.

Unit – IV

13 Hours

File management (Systems, Secondary Storage Structure): File Concepts, Access methods, Directory Structure, Protection and consistency, File system structure, Allocation methods, Free space management, Directory Implementation, Efficiency and Performance, Recovery. Disk Management (Structure, Disk Scheduling Methods): Disk Structure & Scheduling methods, Disk management, Swap – Space management.

Unit - V

13 Hours

Protection and Security: Goals of protection, Domain Protection, Access matrix, Security Problem, Authentication, One time password, program threats, System threads.

Case Study of Windows and Linux Operating System

BCA303P : C++ PROGRAMMING LAB

PART - A

1. Write a C++ Program to define a STUDENT class with USN, Name and Marks in 3 tests of subject. Declare an array of 10 STUDENT objects. Using appropriate functions, find the average of two better marks for each student. Print the USN, Name and average marks
2. Write a C++ Program to Deposit amount and withdraw options in bank transactions for saving and current account and display the total balance using friend functions.
3. Write a C++ Program to find the area of right angle, equilateral and scalene triangle using function overloading.
4. Write a C++ program to create a class called COMPLEX and implement the following overloading functions ADD that return a COMPLEX number.
 - i. ADD(a , s2) - where a is an integer (real part) and s2 is a complex number.
 - ii. ADD(s1, s2) - where s1 and s2 are complex numbers.
5. Write a C++ Program to compare two strings by overloading == operator.
6. Write a C++ Program to perform addition of two matrices by overloading + operator.
7. Write a C++ Program to create a class called STUDENT with data members USN, Name and Age. Using inheritance, create the class MARKS containing data members for 3 subjects, percentage and create another class called SPORTS having data members name of the sport, achievements. Enter the data for at least 5 students. Display student details, percentage and sport details for all the students separately.
8. Write a C++ Program to sort elements using bubble sort technique applying function templates.
9. Write a C++ Program to perform stack operations for Integers, Decimal, Characters using class templates.
10. Write a C++ Program to calculate area and perimeter of rectangle using concept of inheritance.
11. Write a C++ Program to calculate area and volume of various figures using function overriding.
12. Write a C++ Program to perform open, read and write operations on a file. Copy the contents of one file to other without losing the data in the destination file and count how many characters are there in the destination file.

PART – B

During practical examination the External and Internal examiners may prepare exam question paper related to theory syllabus apart from Part-A. (A minimum of 8 Programs has to be prepared).

Note:

- a) The candidate has to write two the programs One from Part-A and other from Part-B and execute one program as of External examiner choice.
- b) A minimum of 10 Programs has to be done in Part-B and has to be maintained in the Practical Record.
- c) Scheme of Evaluation is as follows:

Writing two programs - 10 Marks

Execution of one program - 10 Marks

Formatting the Output - 05 Marks

Viva - 05 Marks

Record - 05 Marks

Total - 35 Marks

BCA304P: ACCOUNTING PACKAGE LAB

Tally Lab List

Part A

10 Programs

PART – B

During practical examination the External and Internal examiners may prepare exam question paper related to theory syllabus apart from Part-A. (A minimum of 8 Programs has to be prepared).

Note:

- a) The candidate has to write two the programs One from Part-A and other from Part-B and execute one program as of External examiner choice.
- b) A minimum of 10 Programs has to be done in Part-B and has to be maintained in the Practical Record.
- c) Scheme of Evaluation is as follows:

Writing two programs - 10 Marks

Execution of one program - 10 Marks

Formatting the Output - 05 Marks

Viva - 05 Marks

Record - 05 Marks

Total - 35 Marks

SYLLABUS

IV SEMISTER

BCA401T: INDIAN LANGUAGE

Syllabus as per the one prescribed for science courses of Bangalore University.

BCA402T: ENGLISH

Syllabus as per the one prescribed for science courses of Bangalore University.

BCA403T: VISUAL PROGRAMMING.NET

Total Teaching Hours: 52

No of Hours / Week: 04

UNIT 1: Introduction to .net framework -Features, Common Language Runtime (CLR), Framework Class Library(FCL). Common Language Specification (CLS), Common Type System (CTS), Intermediate Language (IL) and Just-In-Time (JIT) Compilation, Visual Studio.Net – IDE, Languages Supported, Components.

VB.Net Features, IDE- Menu System, Toolbars, Code Designer, Solution Explorer, Object Browser, Toolbox, Class View Window, Properties Window, Server Explorer, Task List, Output Window, Command Window.

UNIT 2: VB.Net Creating Applications with Visual Basic.NET, Variables, Constants, and Calculations, Making Decisions and Working with Strings, Lists, Loops, Validation, Sub Procedures and Functions, Multiple Forms, Standard Modules, and Menus, Arrays, Timers, Form Controls, File Handling, Exception Handling, Working with Databases, Advanced Database Programming using ADO.net, Classes, Generics, Collections, Inheritance, Custom Controls, Packaging & deployment, Using Crystal Reports.

UNIT 3: Programming in Visual basic .Net Data Types, Keywords, Declaring Variables and Constants, Operators, Understanding Scope and accessibility of variables, Conditional Statements- If- Then, If-Then-Else, Nested If, Select Case, Looping Statement- Do loop, For Loop, For Each-Next Loop, While Loop, Arrays-Static and Dynamic. - Creating MDI Parent and Child, Functions and Procedures- Built-In Functions- Mathematical and String Functions, User Defined Functions and Procedures.

UNIT 4: ASP.NET Building a Web Application, Examples Using Standard Controls, Using HTML Controls, Validating Form Input Controls using Validation Controls, Understanding Applications and State, Applying Styles, Themes, and Skins, Creating a Layout Using Master Pages, Binding to Databases using Controls, Data Management with ADO.net, Creating a Site Navigation Hierarchy, Navigation Controls , Membership and Role Management, Login Controls, Securing Applications, Caching For Performance, Working with XML, Using Crystal Reports in Web Forms.