

SHRI GOVIND GURU UNIVERSITY, GODHARA

BCA Semester - 5

Subject Code	Subject	Exam	
		Ext.	Int.
BCA0E501	Cyber Crime	70	30
BCA0F501	Management Information System (MIS)	-	100
BCA0C501	Core Java	70	30
BCA0C502	Advanced Visual and Windows Programming	70	30
BCA0C503	Python Programming	70	30
BCA0P501	Core Java	70	30
BCA0P502	Advanced Visual and Windows Programming	70	30
BCA0P503	Software Development Project – I (SDP-I) (P)	70	30
TOTAL		490	310

Semester	Course	Instruction Hours/Week	Credit	Exam Hours	Internal	External		Total
						Theory	Practical	
5	BCA0E501	2	2	3	100	---	---	100
5	BCA0F501	2	2	3	100	---	---	100
5	BCA0C501	4	4	3	30	70	---	100
5	BCA0C502	4	4	3	30	70	---	100
5	BCA0C503	4	4	3	30	70	---	100
5	BCA0P501	4	4	3	30	70	---	100
5	BCA0P502	4	4	3	30	---	70	100
5	BCA0P503	4	4	3	30	---	70	100
TOTAL		32	28					

BCA0E501 - Cyber Crime

Unit – 1 : Introduction to Cybercrime

Introduction, Classifications of Cybercrimes: E-Mail Spoofing - Spamming - Cyber defamation - Internet Time Theft - Newsgroup Spam/Crimes from Usenet Newsgroup - Industrial Spying/Industrial Espionage – Hacking - Online Frauds - Pornographic Offenses - Software Piracy - Password Sniffing - Credit Card Frauds and Identity Theft, Categories of Cybercrime : Passive Attack - Active Attacks - Scanning / Scrutinizing gathered Information - Attack (Gaining and Maintaining the System Access) - Social Engineering – Cyberstalking - Cybercafe and Cybercrimes.

Unit – 2 : Cybercrime using Mobile and Wireless Devices

Introduction, Proliferation of Mobile and Wireless Devices, Credit Card Frauds in Mobile and Wireless Computing Era, Security Challenges Posed by Mobile Devices, Registry Settings for Mobile Devices, Authentication Service Security, Attacks on Mobile/Cell Phones, Mobile Devices: Security Implications for Organizations - Organizational Measures for Handling Mobile - Organizational Security Policies.

Unit – 3 : Techniques Used in Cybercrime

Introduction, Proxy Servers and Anonymizers, Phishing, Password Cracking, Keyloggers and Spywares, Virus and Worms, Trojan Horses and Backdoors, Steganography, DoS and DDoS Attacks, SQL Injection, Buffer Overflow, Attacks on Wireless Networks, Phishing and Identity Theft: Introduction – Phishing - Identity Theft (ID Theft) - Types of Identity Theft - Techniques of ID Theft - Identity Theft Counter measures, Protecting online identity.

Unit – 4 : Laws in Cyber crime

Introduction, Need for Cyberlaws : The Indian Context, The Indian IT Act, Challenges to Indian Law and Cybercrime Scenario in India, Consequences of Not Addressing the Weakness in Information Technology Act , Amendments to the Indian IT Act, Cybercrime and Punishment, Cyberlaw, Technology and Students : Indian Scenario.

Reference Book:

- Nina Godbole, SunitBelapur, "Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives", Wiley India Publications, April, 2011.
- James Graham, RicharHoward,Ryan Olson, "Cyber Security Essentials", CRC Press, Tailor and Francis Group, 2011
- Kenneth J. Knapp, "Cyber Security and Global Information Assurance: Threat Analysis and Response Solutions", IGI Global, 2009.

BCA0F501 - Management Information System

UNIT

**1. Management Information System, Strategic Information system and Types of MIS
Management Information system – An Introduction**

- o Management
 - Key Aspects
 - As a Control System
 - Levels of Management
- o Information
 - Property and cost of information
 - Cost of Information
 - Information economics
 - Types of Information
 - Classification
 - Characteristics
- o System
 - Characteristics
 - Element
- o Information System
 - Classification
- o Management Information System
 - Definition
 - Scope
 - Characteristics
 - Role
 - Impact
 - Applications
 - Benefits
 - Success and failure
- o Strategic Management Information System
- o Competitive Strategy Concept
- o The value Chain and Strategy
- o Using Information Technology for Strategic advantage

Types of MIS

- o Transaction Processing System
- o Management Information System
- o Decision Support System
- o Executive Support System for Senior Management
- o System That Span the Organizational Management

- Enterprise System
- Supply chain management system
- Customer Relationship Management System
- Knowledge Management System

2. MIS in Functional Areas and Data warehouse & Data Mining

MIS in Functional Areas

- o Accounting Information system
- o Geographical Information System
- o Human resource Information System
- o Inventory Information System
- o Manufacturing Information System
- o Marketing Information System
- o Quality Information System
- o R&D Information System

Data Warehousing and Data Mining

- o Characteristics of data warehouse
- o Benefits of data warehouse
- o Criteria of data warehouse
- o The Data warehouse Model
- o Data Mining Model
- o Discovery, Relationship, Pattern and Data Mining
- o Element of Data Mining
- o Benefits of Data Mining
- o Problem and Issues of data mining

3. ERP system and Customer Relationship Management

ERP system

- o Introduction
- o Sales and Distribution
- o Finance
- o Materials Management
- o Manufacturing
- o Human Resource
- o Quality Management

Customer Relationship Management

- o Electronic customer Relationship Management system
 - e-CRM versus CRM
 - Key e-CRM features
 - Evolving to e-CRM
 - Technological and business issues involved in e-CRM

- E-CRM business drivers
- E-CRM assessment
- Issues on Implementing e-CRM system
- E-CRM Architecture
- eCRM components
- The five Engines of e-CRM
- Implementing of E-CRM
- Challenges in delivering true E-CRM

4. Knowledge Management System and Decision support system

Knowledge Management System

- o Knowledge Management
- o Knowledge Management system
- o Types of Knowledge Management System
 - Knowledge Network System
 - Knowledge work system
 - Artificial intelligence Management System
 - Expert system

Decision support system

- o Introduction
- o Decision making and MIS
- o Decision support system
- o Group decision Support System

Reference Books:

- Management Information System: An Insight By Hitesh Gupta, International Book House Pvt. Ltd.
- Management Information Systems(4th Edition) By Waman S Jawadekar Mc Graw Hill
- Management Information System By Indrajit Chatterjee, PHI

BCA0C501- Core Java

UNIT

1. Java Introduction

- **Java Introduction**
 - Creating first java classes
 - Introduction to Object Oriented Programming Concept
 - Learning about Java
 - Features of Java
 - Analyzing a java application that uses console output
 - Saving, compiling and running a java application
- **Using data within java programs**
 - Constants
 - Literals
 - variables
 - Keywords
 - Identifiers
- **Data Types in Java**
- **Understanding numeric type conversion**
- **Operators in Java**
- **Using methods, classes and objects**
 - Creating methods with zero, one and multiple arguments
 - Class concepts and creating a class
 - Creating instance methods in a class
 - Declaring objects and using their methods
 - Static method
 - Understanding block and scope
 - Method overloading
 - Constructors
 - Sending arguments to constructors
 - Constructors overloading
 - 'this' keyword
 - Static variable
 - Working with constants
- **Flow Control Statements**
 - if and if.....else ,Nesting if... else
 - Using logical AND and OR operators
 - switch statement
 - Using the conditional AND not operators

- Looping
 - while loop
 - Using the arithmetic operators
 - for loop
 - do.... while loop
 - Nested loops
- 2. Characters, String class and String Buffered class
 - Manipulating characters class
isUpprCase(), toUpperCase(), isLowerCase(), toLowerCase()
isDigit(), isLetter(), isLetterOrDigit(), isWhitespace()
 - Manipulating String class
 - Declaring a String Object
 - Comparing String values
toUpperCase(), toLowerCase(), length(), indexOf(), charAt(),
endsWith(), startWith(), replace(), toString()
 - Manipulating StringBuffer class
setLength(), capacity(), append(), insert(), setCharAt(), charAt()
 - Arrays
 - Declaring and initializing an array
 - Using subscripts with an array
 - Passing array to methods
 - Creating arrays of strings
 - Using two-dimensional and multidimensional arrays
 - Arrays class binarySearch(), equals(), fill(), sort() methods of Array Class.
- 3. Exception Handling and Inheritance
 - Excepting Handing
 - Learning about exceptions
 - Understanding the limitations of traditional error handling
 - Trying code and catching exceptions
 - Throwing and catching multiple exceptions
 - 'finally' block
 - Understanding the advantages of exception handling
 - Checked and unchecked exception
 - Creating own exceptions (custom exception)
 - Inheritance
 - Concept of inheritance
 - Extending classes
 - Method overriding
 - Constructor calling during inheritance
 - Super class constructor that require arguments (using 'super' keyword) Accessing super class methods (using 'super'

keyword)

- Method which cannot be override
 - 'final' method
 - 'final' super class
 - Static method

4. Interfaces ,Abstract Classes ,Packages And Applets

- Interfaces and Abstract Classes
 - Defining Abstract class
 - Using Abstract class
 - Defining Interfaces
 - Implementing Interfaces
 - Multiple inheritance using Interfaces
- Packages
 - Define a Package
 - Creating a Package
 - Class and package
 - Import statement
 - Importing a Package
 - Access Protection (Access modifiers)
- Applets
 - Introduction
 - Lifecycle of an Applet
 - Comparing Applets and Application
 - Creating Applets
 - Parameters passing in applet

Reference Book:

- JAVA for Beginners by Joyce Farrell, Cengage Learning
- Object Oriented Programming in java by Dr. G.T.Thampi , Dreamtech
- JAVA Programming by Hari Mohan Pandey, Pearson

BCA0C502 - Advanced Visual and Windows Programming

1 Object Oriented Programming

- **Basic Skills for creating and using classes**
 - Add a class file to project
 - Define properties
 - Define methods
 - Create and use an object
- **Basic skills for creating and using your own shared members**
 - Create and use shared properties and methods
 - When to use shared properties and methods
- **Explore classes**
 - Use the class view window
 - Use the object browser
- **To define and use Constructors**
- **Overload methods**
- **Introduction to Inheritance**
 - Create a base class
 - Create a derived class
- **To use Structured Exception Handling**
- To code Try-Catch-Finally Statements
- To catch specific exception classes
- To use the throw statement

2 Advanced Controls in VB.NET

- **Scrollbar**
- **Trackbar**
- **Timer**
- **DateTimePicker**
- **Calendar**
- **ImageList**
- **RichTextBox**
- **TreeView**

3 Basic Framework Classes

- **Work with dates and time**
 - To get the current date and time
 - To format DateTime values
 - To get information about dates and time
 - To perform operations on dates and time
 - To work with dates and time
- **To work with strings**

- To use the stringBuilder class for working with strings
- Other ways to work with strings
- **Format numbers, dates and times**
 - To format numbers
 - To format date and time

Work with collections

- To use the collection class
- To use the ArrayList class
- **An Introduction to System.IO classes**
 - The classes for managing directories, Files
 - How Files and Streams work
 - To use the FileStream class
- **To use the System.IO classes for Binary Files**
- **To use the System.IO classes for Text Files**
- **To use XML with Files**
 - An introduction to XML
 - XML tags, declarations, comments, elements and attributes
 - To work with an XML document in Visual Studio
 - To use XML text classes

4 Developing a DataBase Application with ADO.NET

- An Introduction to ADO.NET
- To use the DataAdapter configuration wizard
- To work with a DataSet
- To use a DataGrid Control with a DataSet
- Other skills for working with ADO.NET objects

Reference Books:

- Murach's Beginning Visual Basic .NET By Anne Prince, BPB Publication
- Mastering Visual Basic .Net By Evangelos Petroutsos, BPB Publication
- Programming in Visual Basic .NET By Julia Case Bradley and Anita C. Millspaugh, McGraw Hill

BCA0C503 - Python Programming

1. Python Introduction

- Introduction
- Python overview
- Getting started with python
 - Installing on Linux OS
 - Installing on windows OS
- Comments
- Python identifiers
- Reserved keywords

2. Variables, expressions and statements:

- Variables
 - Declaring a Variable
 - Initializing a Variable
- Standard data types
- Operators
- Statement and expression
- String operations
- Boolean Expressions
- Control statements
 - for ...loop
 - While loop
 - If elif else statement
 - Alternative executions
 - Conditional Execution
- Iteration – while statement
- Input from keyboard

3. Functions

- Introduction
- Built-in functions
- User defined Functions
- Parameters and arguments
- Function calls
- return statement
- Python recursive functions

- The anonymous functions

4. **Strings and Lists**

- Strings
 - Compound Data Type
 - Len function
 - String slices
 - Strings are Immutable
 - String Traversal
 - Escape character
 - String formatting operators
 - String formatting functions
- Lists
 - Values and accessing elements
 - Lists are mutable
 - Traversing a List
 - Deleting elements from List
 - Built –in List Operators
 - Built – in List Methods.

Reference Books:

- Introduction to Computer and Problem Solving Using Python; Author: E Balagurusamy.
- Beginning programming with Python for Dummies John Paul Mueller; John Wiley & Sons.

BCA0P501 - (P) Core Java

Sr.

No.

- 1 Write a program to calculate the hypotenuse of right angled triangle when other sides of the triangle are given. (Hypotenuse = square root ($x^2 + Y^2$))
- 2 Write a program to evaluate simple interest of a given principle, rate and time.
- 3 Write a program to find maximum of two numbers without using third variable.
- 4 Write a program using the arithmetic operators to perform algebraic operations on two numbers. (Algebraic operation is +, -, *, /, %)
- 5 Write a program to calculate the area of square and rectangle by overloading the area method.
- 6 Write a java program to display powers of 2 i.e. 2,4,8,16etc up to 1024 using bitwise operators.
- 7 Write a java program to scan 3 integer values from the user and display the minimum using conditional operator.
- 8 Write a program to convert inches to centimeters.
- 9 Write a program to print even number up to 10 using while loop.
- 10 Write a program to check whether the given number is even or odd.
- 11 Write a program to create an array to store 5 integer values. Also initialize the array with 5 numbers and display the array Elements in reverse order.
- 12 Write a program to sort a list of students on the basis of the marks.
- 13 Write a java program that accepts a string from users and display each character on separate line in reverse order.
- 14 Write a java program that accepts a string from users and display each character on separate line in reverse order.
- 15 Write a program to display the sum of digits of given numbers with exception handling.
- 16 Write a Java program to input n integer numbers and display lowest and second lowest number. Also handle the different exceptions possible to be thrown during execution.
- 17 Write a java program that accepts 5 even numbers from command line. If any of the number is odd then throw custom exception OddException and count such invalid numbers.
- 18 Consider an employee class, which contains fields such as name and designation. And a subclass, which contains a field salary. Write a program for inheriting this relation.
- 19 Write a class with a method to find the area of a rectangle. Create a subclass to find the volume of a rectangular shaped box.
- 20 Write a program to calculate the area by using an interface.
- 21 Write a program to show use of the import statement.
- 22 Write an interface called Numbers, with a method intProcess(int x, int y). Write a class called Sum, in which the method Process finds the sum of two numbers and returns an int value. Write another class called Average, in which the Process method finds the average of the two numbers and returns an int.
- 23 Write a program to create interface named shape which has one method Area (). This is inherited into the class circle and rectangle.

- 24 Write a program to create abstract class shape which has one method Area (). This is inherited into the class circle and rectangle.
- 25 Write a program to create a class circle which has one method Area () to find out Area of circle and parameterized constructor to initialize value for radius inherits this class into another class called cylinder and find out volume of cylinder.
- 26 Create an employee class, which contains fields such as id, name and designation. And create a subclass increment, which contains a field salary and function to increment salary by 20%. Write a program for inheriting this relation.
- 27 Write an applet that take three numbers as parameters and displays their sum and average.
- 28 Write a java program which takes 2 arguments - a string and its length. If the length of the string is not according to given one then throw the user defined LengthMatchException and handles it appropriately.

BCA0P502 - Advanced Visual and Windows Programming (Practical)

Object Oriented Programming

- 1 Create shape class as abstract class having area function. Create rectangle, triangle, square class based on this class.
- 2 Write a program to create class Person. Make at least five properties and one method "show detail" of this class. Now inherit class Student and Faculty from class Person and override method "show detail". Create objects of Student and Faculty class and call show detail function for both objects to show details in appropriate textboxes.
- 3 Write a program to implement the class Employee. Show Constructor Overloading.
- 4 Write a program to implement the class Book. Show Method Overloading.
- 5 Create an Invoice application in which user enters the customer name, description, unit price and quantity for the item ordered, then clicks the add item button. The application calculates the order total by multiplying the unit price by the quantity. And calculates a discount based on the order total. The user can then add another item to the order by using all information.
- 6 Create the Inventory class. This class represents the collection of product object. It has following members: code, description, price and quantity on hand. Create a property to get the product with the specified code. Create a method to add the product to the collection of products.
- 7 Create one class student which stores information of student's Rollno, Name, Total marks, which cannot be used from outside the class. Student class must provide properly methods to read and write this information. Student class should provide one function called percentage. Create the other classes from student class FYBCA, SYBCA, TYBCA, which stores marks of different subjects in array marks having no. of elements equal to no. of subjects respectively. The child class must provide function for calculating the total which should be stored in Total Marks of base class. The child classes must have the correct method for calculating percentage according to no. of subjects. Demonstrate the use of these classes.

Advanced Controls in VB.NET

- 1 Create a windows application as a word finder, which finds & replace the occurrence of that word with another word.
- 2 Create an application in which a user can enter a numeric value using one scroll bar between 0 to 100 and displays conversion of the value into Fahrenheit.
- 3 There are 3 Track Bars on the Form. The first Track Bar is stands for Red, second for Green and third for Blue, depends on the position of indicator the background color of label is display on Mouse Move.
- 4 Write a program to create a Treeview dynamically with buttons Add To Root, Add To Selected Node, Remove and Scan buttons. On click of Scan button all the nodes of the Treeview should be listed in the Listbox placed in side by.
- 5 Write a Program to Implement a MDI application. It should have File menu with option New, Close, Close All and Exit. It should also have window menu to arrange the child forms like Tile Horizontal, Tile Vertical, Cascade and Arrange Icons.
- 6 There are 3 Scroll Bars on the Form. The first Track Bar is stands for Red, second for Green and third for Blue, depends on the position of indicator the background color of form should be changed.
- 7 Demonstrate the DateTimePicker control.

Basic Framework Classes

- 1 Write a program to Read and Write the data in Binary Mode using Binary Reader and Binary Writer. The program will have One Textbox (Multiline) and Two Button Read and Write. Write button write the data in file and read button read the data from file and display into textbox.
- 2 Write an application which works like a Windows explorer using combo box and list box.
 - The combo box should display the list of drives.
 - The list box should display the list of files and directories.
- 3 Create a stop watch using timer control.

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BCA Semester - 5

4 Accept user id & password from user and check that user id must contain one "@" sign and one "." 5. Symbol and password should not contain any special character but contains at least one digit. Password should start with small character and length of password must be greater than 5 characters.

Create following type of arrays.

- integer
- string

Use System.ArrayList class to perform following operations on them

Copy Sort Clear Reverse

Accept input from user

6 Design a form to accept a text from user and then put two text boxes to input word to find and replace. If user clicks on find button, show index of the first occurrence of the word given in find textbox. If user clicks replace button, found word should be replaced with the word given for replace.

7 Create a file for employee information and call it Employee.txt which stores employee details. Take information from the user and write it in file. Also display records from file when user clicks on Read button.

ADO.NET

1 Write a Program to develop a Database Application with ADO.NET with Record Navigation and Add, Delete, Save and Update Facility for Books table (bid, bname, qty, priceperunit, totalprice).

2 Take two combo boxes, store roll no in one combo box and name in another combo box. If we change roll no, the corresponding name will appear in another combo box and viceversa. Use ADO.net for above application.

3 Design a following table in Access. Table name = College,
Field(col_code, col_name, Address, year, course = "B.C.A, B.Com, B.B.A, PTC")

Design Form that Display Above detail.

Provide Add, Update, Delete, Next, first, last, pervious functionalities.

4 Write a program to create a table emp with the following fields:

FieldName	Datatype
eno	Integer
ename	Varchar(20)
salary	Float
birthdate	Date
designation	Varchar(20)

Design a form which perform Select, Insert, Update and Delete operations on the table emp.

5 Create below mentioned Crystal Reports for the above application.

- List all the Employees having salary more than 25000
- List all the Employees who are above the age 35.

- List all the Employees designation wise.

6 Create table CANDIDATE with the following columns and data types.

Columnname	Datatype
Ccode	Int
Name	Char(20)
DOJ	Date

Design a form which perform Select, Insert, Update and Delete operations on the table emp.

7 Design a following table in Access. Table name = Book

Field(Bookcode, booktype, bookpublisher, bookauther, bookpage, bprice)

Design Form that Display Above detail.

Provide Add, Update, Delete, Next, first, last, pervious functionalities.

BCA0P503 - Software Development Project – I (SDP-I)

Project must be developed in the computer laboratory of concern institute under the supervision of faculties of concern institute on any subject of semester-V. (At the time of Project-Viva examination student must show all the Workouts, SDLC, Documentation, Program codes and project in running mode)

Note :

- Project must be submitted before two week of commencement of theory exam.
- Project viva examination may be arranged before or after theory exam.
- During the project viva examination project must be run.