BCA 1232 **Web Programming** **3hrs**

Objective: This course deals with web page designing by using the techniques in web programming. It contains HTML, Java Script, and Dream weaver. After completing this course a student will be able to design their web pages and place them in the web.

Unit I

Introduction to internet: Internet architecture - Basic concepts - Web server- Web client - Internet Services- Internet protocol-Remote Access and Transactions-Electronic Mail.

Unit II

Introduction to HTML: Mark-up languages - Basic tags – Formatting –images – lists – Tables – Frames – Links – Forms. Style Sheets: CSS-Introduction to Cascading Style Sheets-Features-Core Syntax-Style Sheets and HTML Style Rule Cascading and Inheritance-Text Properties

Unit III

Dynamic HTML - Introduction to Java script: Variables – Data types – Statements-Operators - Control statements - Object based programming - Java script with HTML.

Unit IV

Java script objects - DOM - JS Browser detection – JS Cookies - JS Validation - JS Animation - JS image maps - JS Timing – JS create Objects - creating menu and slideshow using

Unit V

Dream weaver Concepts – designing Web Page with Dream Weaver. Website maintenance - types of service providers - web hosting - maintenance and other commercial issues.

Reference:

1. Ivan Bayross, Web Enabled Commercial Application Development using HTML, JAVASCRIPT, DHTML and PHP, BPB Publications, 4th Edition 2010.
2. Html5 Black Book by Kogent Learning Solutions Inc. Released 2011
3. Deitel,Goldberg, "Internet & World Wide Web How to Program", 3rd Edition, Pearson Education, 2006.
4. Macromedia Dream Weaver MX 2004, Macromedia Press 2004.
5. Robert. W. Sebesta, "Programming the World Wide Web", fourth Edition, Pearson Education, 2007

BCA 1242 **Web Designing (2T+1L)** **3hrs/2cr**

Objective

The aim of this course deals with web page designing by using the techniques in web designing. It contains HTML, Java Script, and Dream weaver. Students will be able to design their web pages and place them in the web.

Learning Outcome

To clearly understand the web designing.
To design simple web pages using HTML
To use CSS style sheets in a web page.
Including Javascript in the HTML pages.
To host website using Dreamweaver.

Unit I

Introduction to internet: Internet architecture - Basic concepts - Web server- Web client - Internet Services- Internet protocol-Remote Access and Transactions-Electronic Mail.

Unit II

Introduction to HTML: Mark-up languages - Basic tags – Formatting –images – lists – Tables
– Frames – Links – Forms. Style Sheets: CSS-Introduction to Cascading Style Sheets-Features-Core Syntax-Style Sheets and HTML Style Rule Cascading and Inheritance-Text Properties

Unit III

Dynamic HTML - Introduction to Java script: Variables – Data types – Statements-Operators - Control statements - Object based programming - Java script with HTML.

Unit IV

Java script objects - DOM - JS Browser detection – JS Cookies - JS Validation - JS Animation - JS image maps - JS Timing – JS create Objects - creating menu and slideshow using

Unit V

Dream weaver Concepts – designing Web Page with Dream Weaver. Website maintenance - types of service providers - web hosting - maintenance and other commercial issues.

Text book:

Ivan Bayross, Web Enabled Commercial Application Development using HTML, JAVASCRIPT, DHTML and PHP, BPB Publications, 4th Edition 2010.

BCA 1243 **Digital marketing** **3hrs/2cr**

Objective

The aim of this course is to enable the students to learn about digital marketing world, as it available for advertising, planning for online marketing that help them to plan.

Learning Outcome

- To understand the technology behind digital marketing.
- To learn about domain name, hosting, e-mail marketing and social media.
- To gain knowledge in game advertising.
- To understand the power of digital marketing
- To introduce digital marketing in various social media.

Unit I

The evolution of digital marketing - technology behind digital marketing – the need for digital marketing strategy, business and digital marketing, defining digital marketing strategy - Understanding the digital consumer- The website – the hub of the digital marketing world - Building an effective website - the main steps of building a website - choosing the domain name.

Unit II

Hosting – the website's home on the internet -Arranging the information- writing effective web content- The online marketer - about the engines - Optimizing the site for the engines - Advertising on the search engines - Black Hat, the darker side of search - Bringing in the pros -Universal search – more opportunities to rank - Website intelligence and return on investment.

Unit III

Measuring the way to digital marketing success - How information is measured - Measuring what's important, Testing, investing, tweaking, reinvesting - Action stations -Harness the power of online data, and watch the ROI take off.

Unit IV

E-mail marketing - the new direct mail–Concept of e-mail marketing - Planning the campaign - Dos and don'ts of an e-mail marketing campaign- Measuring the success - a vital component of digital marketing.

Unit V

Social media and online consumer engagement–Introduction to social media - The different forms of social media - the rules of engagement - Adding social media to the own site - Online PR and reputation management - fostering a positive online image - promoting the business through online channels –Introduction to affiliate marketing - game advertising.

Text book:

1. Understanding Digital Marketing: Marketing Strategies for Engaging the Digital Generation, Damian Ryan, Calvin Jones,Kogan Page, 4th edition, 2016.

Reference Books:

1. Understanding Digital Marketing: Marketing Strategies for Engaging the Digital Generation, Damian Ryan, Calvin Jones,Kogan Page, 1st edition, 2008.
2. Internet Marketing for your Tourism, Susan Sweeney, CA, New age International (P) Limited Publishers, New Delhi, 2005.

BCA 1244 Multimedia Technology and Applications (2T+1L) 3Hrs/2cr

The aim of this course is to enable the students to learn multimedia concepts, audio and video with text, image, graphics and animation.

Upon successful completion of the course the students will be able to

- Identify the multimedia concepts and applications.
- Understand digital audio and video concepts.
- Applying the working techniques using Photoshop.
- Analyze the flash tool box and drawing characters.
- Evaluate the different animation methods.

Unit I :
Introduction to Multimedia - products and evaluation -computer architecture standards-operating systems and software - Text - Graphics.

Unit II:
Introduction to Digital audio and video –characteristics of sound and digital audio and video-digital audio systems-MIDI_audio file formats-using audio in multimedia applications.

Unit III:
Introduction to Photoshop – working with Photoshop – processing the image using Photoshop techniques-layers-filter.

Unit IV:
Introduction To Animation- How flash works- Flash tool box – creating objects – drawing characters for cartooning editing objects – Colors and text- symbols and instances – bitmaps.

Unit V:
Flash And Layers- Animation in flash key frame animation,tweened animation - Motion tween, shape tween-guide layers- Masking-Publishing in flash- action Script.

Text book:

1. Introduction to Multimedia and its applications, V.K. Jain, 1st Edition , 2012

Reference books:

1. Multimedia technology and applications, Hillman, David -Galgotia publications pvt ltd-2001
2. Multimedia in action, Shuman,J.E -Thomson Asia pvt ltd-2001.
3. Multimedia communications, Halsal,fredl-Pearson education pvt ltd-2003.

BCA 1435 C Programming Lab 4hrs

Exercise:

1. Variables only

2. Ternary operator
3. Control statement(If)
4. Switch case statement
5. Number manipulation
6. Loops
7. Matrix manipulation
8. String manipulation
9. Arrays
10. Structure
11. Function
12. Recursion

BCA 1436 **C++ Lab** **4hrs**

1. Class and Object.
2. Constructor and Destructors
3. Overloading.
4. Single and Multiple inheritances.
5. Hierarchical inheritance.
6. Inline function.
7. Friend function.
8. File concept.
9. Case Study on SAD & OOAD
10. Implementation of OOAD using C++

BCA 1445 C Programming Laboratory 4hrs/4cr

Objective

To train the student learn a programming language and learn problem solving techniques.

Learning Outcome

While completing the course, the students acquire the knowledge to build the logic

and develop a solution for a problem statement.

Data types and Operators.

Control statements.

Looping statements.

Break and continue statements.

Arrays –single dimension arrays, multi-dimension array and character array.

Pointers.

String functions.

User Defined function - call by value, call by reference, recursive functions.

File Manipulation – binary file and text file.

User Defined Data Types – struct, union, enum, typedef.

Graphics in C.

BCA 1446 C++ Laboratory 4hrs/4cr

Objective

To train the student to learn OOP Concept and problem solving techniques using C++.

Learning Outcome

While completing the course, the students acquire the knowledge to build the logic and develop a solution for a problem statement.

Class and object.
Static data members.
Friend function.
Inline function.
Constructor – basic constructor, parameter constructor, dynamic constructor

Destructor.
Inheritance – single, multiple, multilevel, hierarchical, hybrid.
Function overloading.
Operator overloading.
Dynamic polymorphism.
Templates.
Manipulators.
File handling.

BCA 1533 **Structured Programming using C** **5hrs**

Objective:
The primary objective of the course is to enable the students to understand the programming concepts and enable them to write programs in c language.

Unit I

Introduction to programming –flow chart-algorithm-history of c - operators and expressions-data types-arithmetic expressions-i\o statements – enumerated data types – type def

Unit II

Control structures-looping statements-arrays-strings and string functions

Unit III

Functions-user defined functions-structures-unions

Unit IV

Introduction to pointers-pointers and arrays-passing an array element to a function-pointers and arrays-one dimensional array, two dimensional array.

Unit - V

Array of pointers-pointers and strings-pointers and structures-dynamic memory allocations

Unit-VI

Files-creation-file manipulation-command line arguments

Reference books:

1. Let us C : Y.P.Kanetkar, Bpb publication,2011
2. Programming using C,Pandiaraja,Cijay Nicholas publications,2005
3. Schaum's Outline of Programming with C,Byron S. Gottfried,, 2nd edition, McGraw Hill Professional, 2000,
4. Programming in Ansi C, E. Balaguruswamy, 5th Edition, Tata Mc Graw Hill Publishing, 2011.
5. Programming in C Ajay Mittal Pearson, First edition (2010)

BCA 1534 Object Oriented Programming using C++ 5hrs

Objective

The objective of the course is to enable the students to understand the fundamental concepts of object-oriented programming and enable them to apply the concepts into the real world problem using c++.

Unit I

Introduction to object oriented programming - Need for OOP- Characteristics of OO languages - Output using cout- Input with cin- Type bool- The setw manipulator- Type conversions- Returning values from functions. Reference arguments. Overloaded function. Inline function. Default arguments. Returning by reference. Core object concepts (Encapsulation, Abstraction, Polymorphism, Classes, Messages Association, Interfaces) Implementation of class in C++, C++ Objects as physical object, C++ object as data types constructor. Object as function arguments. The default copy constructor, returning object from function. Structures and classes. Classes objects and memory static class data. Const and classes. Arrays of object, string, the standard C++ String class.

Unit II

Overloading unary and binary operators, data conversion, pitfalls of operators overloading and conversion keywords. Concept of inheritance. Derived class and based class. Derived class constructors, member function, inheritance in the English distance class, class hierarchies, inheritance and graphics shapes, public and private inheritance, aggregation: Classes within classes, inheritance and program development.

Unit III

Address and pointers. The address of operator and pointer and arrays. Pointer and Faction pointer and C-types string. Memory management: New and Delete, pointers to objects, debugging pointers. Virtual Function, friend function, Static function, Assignment and copy initialization, this pointer, dynamic type information. Streams classes, Stream Errors, Disk File I/O with streams, file pointers, error handling in file I/O with member function, overloading the extraction and insertion operators, memory as a stream object, command line arguments, and printer output.

Unit IV

Systems – Role of System Analyst –SDLC –Feasibility Analysis –Fact Finding Techniques – SSAD – ER Diagrams – DFD – Decision Table – Decision Trees – Structured English – Case Study. System Design – Application Architecture and Modelling – Database Design – Input and Output Design – User Interface Design – System Construction and Implementation – System Operations and Support – Case Study

Unit V

OOAD – Comparison of SSAD and OOAD – Modelling as a Design Technique – Object Modelling – Dynamic Modelling – Functional Modelling – Object Design – OOD Design Process – Case Study.

Reference Books:

1. Object Oriented Programming in C++ , E. Balaguruswamy, TMH Publishing Co. Ltd.,2013 6th Edison
2. The C++ Programming Language, Bjarne Stroustrup, 2013, Addison Wesley.

BCA 4

BCA 1543 Programming in C 5hrs/5cr

Objective

The aim of this course is to enable the students to understand the programming concepts help them to write programs in c language.

Learning Outcome

To understand the logic of the problem.
To analyse the given concepts and write the algorithm.
To gain knowledge in structured C programs.
To understand the Preprocessor commands and functions.
To handle file, file modes and command line arguments

Unit I

Introduction to Problem Solving- Flow charts- Tracing flow charts, Problem solving methods- Need for computer Languages- History of c – c program syntax-C character set-Identifiers and keywords- Data types-Declarations – Expressions- statements- symbolic constants

Unit II

Input-Output Statements – formatted input and output statements – unformatted input and output statements -Operators – control statements – if –if else – nested if – switch - looping statements – while – for – do while - break statement – continue statement

Unit III

Arrays –single dimension array – multi dimension array- character arrays- structures –union-pointers – function – declaration – definition – function call - call by value – call by reference – void function – recursive function – String function – math function

Unit IV

Pre-processor commands- #include - #define - #ifdef – graphics in c – graph mode initialization -circle –line- ellipse – sector – polygon – text output – text style -color function**.**

Unit V

File Handling – file open – file mode - read and write operation –file close- text file manipulation – binary fine manipulation – command line arguments - storage classes – static - auto - extern – register.

Text book:

1. Programming using C, Pandiaraja,Cijay Nicholas publications, 2005.

Reference books:

Let us C :Y.P.Kanetkar, Bpb publication, 15th edition, 2016.

Schaum's Outline of Programming with C,Byron S. Gottfried, 3rd edition, McGraw Hill Professional, 2017.

Programming in Ansi C, E. Balaguruswamy, 7th Edition, Tata McGraw Hill Publishing, 2017.

BCA 1544 Object Oriented Programming using C++ 5hrs/5cr

Objective

The aim of this course is to enable the students to get understanding of the OOP Concepts, and to write, debug and run complete console applications and ultimately, become proficient.

Learning Outcome

Be able to understand the difference between object oriented programming and procedural oriented language and data types in C++.
To handle different types of functions , string and math library functions
Be able to program using C++ features such as composition of objects, Operator overloading, inheritance, Polymorphism etc.
Understanding Constructor, destructor, Function Overloading and operator overloading
File Handling using c++

Unit I

Introduction to Object Oriented Programming (OOP) and its basic features, namespace-Basic component of C++ program and program structure, Data types: Primitive, Derived, User Defined Data types – Operators - control and Loops.

Unit II

Function: simple functions, passing argument to functions, returning values from functions, reference arguments-recursive functions-String and String related Library function – mathematical functions.

Unit III

Objects and classes: Classes and Objects, Data Members, Member function – Object array, Object Pointer, this Pointer- Static Data Members and Static Functions – friend function – inline function.

Unit IV

Constructor - Characteristics of constructors – types of constructors - destructor – Inheritance – type of inheritance and its implementations – Polymorphism – compile time polymorphism –constructor overloading , function overloading, operator overloading – dynamic polymorphism – overriding – virtual function.

Unit V

Files and Stream: String I/O, Object I/O with multiple objects, file pointer, disk I/O with member functions – Templates – Template Methods – Template Classes – Exception Handling.

Text book:

Object Oriented Programming in C++, E. Balaguruswamy, TMH Publishing Co. Ltd., 7th Edition, 2017.

BCA 2437 **Dot Net Lab** **4hrs**

1. NET (vb.net or c#) program for Feedback form
2. Create a DOT NET for displaying the images with clear option
3. Write Web Controls to display in Web form
4. Prepare a button-click option to display a label3.
5. Write mouse move over to change button color
6. Create list box to display the selected item cost in web form2. Create another label to display the total cost3. Write a Java script program to display a calendar 4. Write a Java Script code to display advertisements as hyperlink
7. Write a DOT NET program to calculate Boiling point of water using Compare Validator
8. Create a DOT NET program for User input name validation using Required Field Validator
9. Write a DOT NET program Checking the appropriate values using Validation button
10. Create a form to validate the controls getting user inputs
11. Create an application with content buffered
12. Creating a file holding variables, hyperlinks with lock & unlock methods
13. Display a message when connection established with Database
14. Write a Program to create a table in Master Database
15. Updating the fields of a table in Database

BCA 2438 **Java Lab** **4hrs**

1. Programs using constructor and destructor.
2. Creation of classes and use of different types of functions.
3. Count the number of objects created for a class using static member function.
4. Concept of interface.
5. Concept of package,
6. Function overloading.
7. Concept of inheritance.
8. IO streams & Files.
9. Exception handling mechanism.
10. AWT
11. Swing and JDBC.
12. 3 – tier Program using RMI
13. Web Application using Servlet
14 Web Application Using JSP
15. N tier application using AJAX.
16. Mini Project **Evaluation Pattern – 40 marks**

Students must do the following during summer vacation. Either a Hardware training or a real time Application Project on site has to be developed with the guidance of the Faculty members and viva voce will be conducted in the beginning of the next semester.

BCA 2447 Dot Net Laboratory 4hrs/4cr

Objective

To train the student to learn a programming language and learn problem solving techniques.

Learning Outcome

While completing the course, the students acquire the knowledge to build the logic and develop a solution for a problem statement.

NET (vb.net or c#) program for Feedback form
Create a DOT NET for displaying the images with clear option

Write Web Controls to display in Web form

Prepare a button-click option to display a label3.
Write mouse move over to change button color

Create list box to display the selected item cost in web form2. Create another label to display the total cost3. Write a Java script program to display a calendar 4. Write a Java Script code to display advertisements as hyperlink

Write a DOT NET program to calculate Boiling point of water using Compare Validate

Create a DOT NET program for User input name validation using Required Field Validate

Write a DOT NET program Checking the appropriate values using Validation button
Create a form to validate the controls getting user inputs
Create an application with content buffered
Creating a file holding variables, hyperlinks with lock & unlock methods

Display a message when connection established with Database
Write a Program to create a table in Master Database
Updating the fields of a table in Database
Selecting the rows from a table in Database
Retrieving the Result in Dataset & Checkbox List by selecting a field
Bind the dataset to a Radio button list with different forms
Create a Table header fields in the form of drop down list

BCA 2448 Java Laboratory 4hrs/4cr

Objective

To train the student to learn a programming language and learn problem solving techniques.

Learning Outcome

While completing the course, the students acquire the knowledge to build the logic and develop a solution for a problem statement.
Programs using constructor and destructor.
Creation of classes and use of different types of functions.
Count the number of objects created for a class using static member function.

Concept of interface.
Concept of package.
Function overloading.
Concept of inheritance.
IO streams & Files.
Exception handling mechanism.
AWT
Swing.
Event handling.
JDBC.

BCA 2533 **Dot Net Programming** **5hrs**

Objective

Dot Net is a world-shattering advance in programming technology platform that greatly simplifies rich internet web application development. This course provides in depth knowledge and skills to develop Rich Internet Web applications and it provides a deep exploration of Dot Net development philosophy and practical advice.

Unit I

Introduction to Dot Net platform-advantages of Dot Net-working of Dot Net- .basic architecture of net frame work-common language run time-common language specification-unified programming classes-security in Dot Net-CLR: Meta data –assembly-MSIL-Just in Time compiler-class loader-verifier-architecture of CLR-features of CLR.

Unit II

VB.NET: Visual studio .net IDE-Programming concepts-writing procedures-OOPs in VB.net: class-object-inheritance-polymorphism-inheritance-my base class keyword-my class keyword-abstract base class-exception handling-working with forms-inheritance in forms

Unit III

Advanced window application: advanced controls-graphical application-custom window controls. Data access using ADO.NET: Overview of ODBC-UDA-ADO.NET Component model.

Unit IV

ASP.NET object model- managed provider in ADO.net –ADO.net name spaces and classes-advantages of using ADO.net-data access using ADO-using ADO.net data form wizard.

Unit V

ASP.NET: Features of ASP.net-structure of an ASP.net page-creating simple web application-using common web control-create web application using data base connectivity-web services.

References:

1. .Net Programming Black Book, Kogent Solutions Inc, Published by Dreamtech Press, New Edition, 2005.
2. Nitini pandey yesh singhal , mridula parihar " visual studio.net programming",wiley-Dream tech India (p) Ltd 2002.
3. Nikhil kothari,vandana datye " developing Microsoft ASP.NET Server Controls andComponents"Tata Mcgraw Hill publishing company limited,2002
4. Steven holzner, "Visual basic.netblack book",coriolis group book
5. David sceppa, "Microsoft ADO.net (core reference),Microsoft press,2002
6. Introducing .Net 4.0: With Visual Studio 2010 (Paperback) , by Alex Mackey , APress 2010

BCA 2534 **Computer graphics using open GL** **5hrs**

Objective

This course makes the students to learn the basic principles and techniques of the field and who also want to write substantial graphics applications themselves and also help to implement computer graphics programming and exploring various techniques to implement two dimensional and three dimensional.

Unit I

Overview of computer graphics – Display devices – Output Primitives – Points and Lines – Line drawing algorithms – Circles and ellipses generating algorithm- Other Curves – Character Generation – Attributes- Colour filling

Unit II

Introduction to Transformations- 3D affine Transformations - Two-Dimensional Transformation – Transformation – Matrix representation and homogeneous co-ordinates.

Unit III

3 D Concepts – 3 D co-ordinates systems – 3D display techniques – 3D transformations – 3D viewing – Windowing and Clipping – Projection

Unit IV

Introduction to OpenGL – Overview – line draw – filling polygons – circle -Implementing 3D concepts.

Unit V

Introduction to Ray Tracing – Ray tracing process- Ray tracer Application- Antialiasing Ray Tracing- reflections and transparency case studies.

References:

1. F.S. Hill, Jr. Stephen M. Kelley, Jr. Computer Graphics using OpenGL, PHI Learning Private Limited, New Delhi, 2009
2. Donald Hearl, Pauline Baker M., Computer Graphics, Prentice Hall of India, New Delhi, 2005
3. William Newman, Sproul F, Principles of Interactive Computer Graphics Prentice Hall of India ,2003
4. John F Koegel Buford – Multimedia Systems – Pearson Education 2001
5. Computer Graphics, Shalini Govil-Pai, Springer (India) Private Limited, 2007

BCA 2536 **Java Programming** **5hrs**

Objective

The Objective of this course is to introduce the programming techniques in Java, oops concepts, java applet, awt, multithreading, io streams, data base connectivity and swing components. It enriches the creativity of GUI applications using java.

Unit I

Java Fundamentals -Features of Java-OOPs concepts-Java virtual machine-Reflection byte codes -Byte code interpretation-Data types, variable, arrays, expressions, operators, and control structures Objects and classes

Unit II

Java Classes-Abstract classes-Static classes-Inner classes-Packages-Wrapper classes-Interfaces-This –Super-Access control - Exception handling - Exception as objects-Exception hierarchy- Try catch finally- Throw, throws

Unit III

IO package -Input streams-Output streams-Object serialization-Deserialization-Sample programs on IO files-Filter and pipe streams - Multi threading- Thread Life cycle-Multi threading advantages and issues-Simple thread program-Thread synchronization-Inter Thread Communication

Unit IV

GUI-Introduction to AWT programming -Layout and component managers-Event handling-Applet class- Applet life-cycle-Passing parameters embedding in HTML-

Unit V

Swing components – JApplet, JButton, JFrame, etc.Database Connectivity-JDBC architecture-Establishing connectivity and working with connection Interface-Working with statements-Creating and executing SQL statements-Working with Result Set

References:

1. Java - The Complete Reference (English) 9th Edition, Herbert Schildt, 2014
2. Programming with Java A Primer, E. Balaguruswamy Tata McGraw Hill, 2009
3. Java Programming John P. Flynt Thomson 2nd, 2008.
4. Java Programming Language Ken Arnold Pearson, 2005, 4th edition.
5. Beginning Programming with Java For Dummies , 2014, Burd
6. Java Programming: A Beginners Guide to Learning Java, Troy Dimes,2015, CreateSpace Independent Publishing Platform

BCA 2543 Dot Net Programming 5hrs/5cr

Objective

The aim of this course is to enable the studentsto gain depth knowledge and acquire skills to develop window based application and Rich Internet Web applications and also provides a deep exploration of Dot Net development philosophy and practical advice.

Learning Outcome

To understand the dot net framework and its features
To use vb.net and write programs including oops concepts
To handle exceptions and create menus in vb.net
Understanding the features of ADO.NET and handle sql commands for data manipulation
Create dynamic websites using ASP.NET.

Unit I

Introduction to Dot Net platform-advantages of Dot Net-working of Dot Net- .basic architecture of net frame work-common language run time-common language specification-unified programming classes-security in Dot Net-CLR: Meta data –assembly-MSIL-Just in Time compiler-class loader-verifier-architecture of CLR-features of CLR.

Unit II

VB.NET: Visual studio .net IDE-Programming concepts- operators – control and looping statements - arrays - writing procedures-sub procedure – function procedure – property procedure – operator procedure - OOPs in VB.net: class-object-inheritance-polymorphism-inheritance-my base class keyword-my class keyword-abstract base class

Unit III

Exception handling-working with forms-Advanced window application: basic controls and methods – advanced controls – menustrip - context menu strip – status bar – rich text box – web browser - graphical application-custom window controls. Data access using ADO.NET: Overview of ODBC-UDA-ADO.NET Component model.

Unit IV

SQL Commands –Data Definition Language – Data Manipulation Language – Data Control Language - ADO.NET object model- managed provider in ADO.net –ADO.net name spaces and classes-Connection –Command – dataadapter – dataset –data reader - error – datagridview - advantages of using ADO.net-data access using ADO-using ADO.net data form wizard.

Unit V

ASP.NET: Features of ASP.net-structure of an ASP.net page-creating simple web application-using common web control-ASP.net Objects – request – response – server – session – application – error – Master page – validation controls- ASP.net State Management – web configuration -create web application using data base

BCA 2546 Java Programming 5hrs/5cr

Objective

The Objective of this course is to introduce the programming techniques in Java, java applet, awt, multithreading, iostreams, database connectivity and swing components also to enrich the creativity of GUI applications using java.

Learning Outcome

To gain knowledge of the structure and model of the Java programming language.
To use the Java programming language for various programming technologies.
To understand Java IO Streams and using thread concept.

To propose the use of certain technologies by implementing them in the Java programming language to solve the given problem.

To understand awt concept, applets and java swing.

Unit I

Java Fundamentals -Features of Java-OOPs concepts-Java virtual machine-Reflection byte codes -Byte code interpretation-Data types, variable, arrays, expressions, operators, and control structures Objects and classes.

Unit II

Java Classes-Abstract classes-Static classes-Inner classes-Packages-Wrapper classes-Interfaces-This –Super-Access control - Exception handling - Exception as objects-Exception hierarchy- Try catch finally- Throw, throws.

Unit III

IO package -Input streams-Output streams-Object serialization-Deserialization-Sample programs on IO files-Filter and pipe streams - Multi threading- Thread Life cycle-Multi threading advantages and issues-Simple thread program-Thread synchronization-Inter Thread Communication.

Unit IV

GUI-Introduction to AWT programming -Layout and component managers-Event handling-Applet class- Applet life-cycle-Passing parameters embedding in HTML.

Unit V

Swing components – JApplet, JButton, JFrame, etc.Database Connectivity-JDBC architecture-Establishing connectivity and working with connection Interface-Working with statements-Creating and executing SQL statements-Working with Result Set.

Text book:

Programming with Java A Primer, E. Balaguruswamy Tata McGraw Hill,5th Edition , 2017

BCA 3244 **Advanced Excel (2T+1L)** **3hrs/2cr**

This course is designed to provide the use of advanced graphs and presentation techniques to maximize impact, use macros and VBA automate your spreadsheets and increase interactivity, Using PivotTables and Power Pivots to turn raw data into clear information that supports key decisions.

Upon successful completion of the course the students will be able to

- Identify the different windows of the spread sheet program
- Classify the sort, filter and pivot table
- Compare and contrast the data tab in worksheet
- Develop macros and understand importance of it
- Understand the various ways of customizing ribbon in excel

Unit I:
Introduction to Excel - Formulas with Multiple Operators - Inserting and Editing a Function - Auto Calculate and Manual – Calculation - Defining Names - Using and Managing Defined Names - Displaying and Tracing Formulas – Database Functions - Using Lookup Functions (VLOOKUP) - User Defined and Compatibility Functions – Financial - Date & Time - Math & Trig - Statistical.

Unit II:
Sorting by One Column, Colors or Icons - Multiple Columns - a Custom List - Filtering Data - Creating a Custom AutoFilter - Using an Advanced Filter - Creating a PivotTable - Specifying PivotTable Data Changing a PivotTable's Calculation - Filtering and Sorting a PivotTable - Working with PivotTable Layout - Updating a PivotTable - Formatting a PivotTable - Creating a PivotChart.

Unit III:
Working with Data Tables - Using Goal Seek – Text to Columns - Grouping and Outlining Data - Using Subtotals - Consolidating Data by Position or Category - Consolidating Data Using Formulas - Working with the Web and External Data - Inserting a Hyperlink - Importing Data from an Access Database or Text File - Importing Data from the Web and Other Sources.

Unit IV:
Working with Macros - Recording a Macro - Playing and Deleting a Macro - Adding a Macro to the Quick Access Toolbar - Editing a Macro's Visual Basic Code - Inserting Copied Code in a Macro - Declaring Variables and Adding Remarks to VBA Code - Prompting for User Input - Using the If…Then…Else Statement.

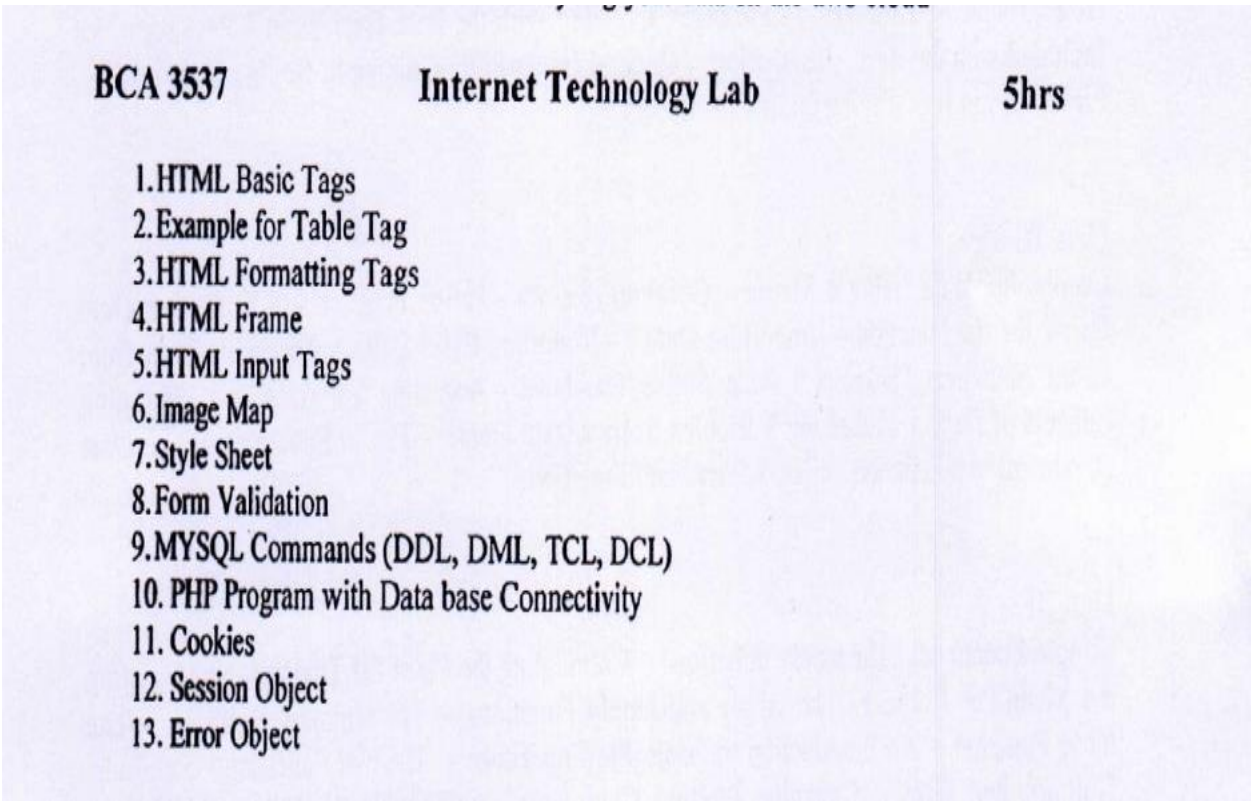
Unit V:
Customizing the Ribbon - Customizing the Quick Access Toolbar - Using and Customizing AutoCorrect - Changing Excel's Default Options - Creating a Custom AutoFill List - Creating a Custom Number Format.

Text book:

1. Excel 2013 Bible, Walkenbach, Illustrated, John Wiley & Sons, 2013

Reference Books:

1. Excel 2013 Formulas, Walkenbach, John Wiley sons, 2013
2. Business Math Using Excel, Sharon Burton, Nelda Shelton, Cengage Learning, 2011.
3. Excel Dashboards and Reports, Michael Alexander, Walkenbach, John Wiley & sons, 2013



BCA 3547 Internet Technology Laboratory 5hrs/5cr

Objective

To make the student learn a programming language and learn problem solving techniques.

Learning Outcome

While completing the course, the students acquire the knowledge to build the logic and develop a solution for a problem statement.

HTML Basic Tags.
Example for Table Tag.
HTML Formatting Tags.
HTML Frame.
HTML Input Tags.
Image Map.
Style Sheet-XSL,CSS.
Form Validation.
MYSQL Commands (DDL, DML, TCL, DCL).
PHP Program with Data base Connectivity.

Cookies.
Session Object.
Error Object.
XML

BCA 3631 **Internet Technology** **6hrs**

Objective

This course make the students to understand surfing the web and trying to figure out how specific functionality was brought to a website and moulds the student to learn and develop various php technology applications that definitely meets the current industry needs.

Unit I

HTML - The Static Web Page Creation- The Head- The Body- Lists- Tables- Forms & Form Elements- Link- Images- Tag Attributes-CSS - The Presentation Semantics- CSS Properties- Style Sheets- Styling with Classes- Styling with IDs- When to Use a Class and When to Use an ID- Linking to CSS in an External File- Using the style Attribute

Unit II

Interpreted Programming Languages- Integrating -JavaScript with HTML- Variables in JavaScript- Operators in JavaScript-- Expressions in JavaScript- Arrays in JavaScript-

Handling Loops & Decision structures - Understanding jQuery-jQuery Selectors- Event Manipulation Methods- Sliding, Easing, Fading, Toggling - jQuery and AJAX calls

Unit III

Introduction to web & internet - Introduction to server- Understanding localhost server- Starting PHP- The Core Logics and Techniques- String and Math functions in PHP- Introduction HTML Form Elements and Fields - Accessing PHP, HTTP Data- Query Strings and Hyperlinks- Describing Pre-Defined Variables - Important PHP Functions - What are the Scope of variables- Usage of Include and require statements-PHP – File Handling. The Plain Repository of Data-Handling files and directories in PHP- Fetching information from files- Uploading and downloading files

Unit IV

PHP and MySQL - The Structured Repository - PHP MySQL Connectivity - Integrating Web Forms and Database- Using PHP's MySQL Extension - Using PHP's PDO Extension-

Unit V

Working with XML and JSON- Introduction to XML -How to Integrate PHP and XML- - Introducing a CMS- Knowing how to configure the CMS - Working with the CMS- Sample Web Application Development using WordPress- Code Igniter Framework- Introduction to PHP Frameworks - Working with Code Igniter Framework -MVC architecture in Code Igniter

References

1. Jeffrey C. Jackson, "Web Technologies--A Computer Science Perspective", Pearson Education, 2006.
2. Shroff/O'Reilly; First edition (5 December 2011) - PHP & MySQL: The Missing Manual-2011
3. Robert. W. Sebesta, "Programming the World Wide Web", Fourth Edition, Pearson Education, 2007.
4. 2. Deitel, Deitel, Goldberg, "Internet & World Wide Web How to Program", Third Edition, Pearson Education, 2006.

BCA 3635 **Introduction to R Language** **6hrs**

Objective

This course is an introduction to the R programming language for the student who expects to have hands-on R programming skills. This course covers creating data, importing data, accessing subsets of data, exporting data, plotting and graphing, loops and functions. The primary objective of this course is not to teach statistics but only to provide a basic knowledge of R that would help master the statistical tools available in R. Also to have a brief outline on the concepts of Cloud Computing and Big Data Analytics.

Unit I

Introduction to R - Downloading and Installing R - Script Code - The Art of Programming - Documenting Script Code - Graphing Facilities in R - Editors - Help Files and Newsgroups - Packages - Packages Included with the Base Installation - Packages Not Included with the Base - Installation - General Issues in R Quitting R. Getting Data into R , First Steps in R - Typing in Small Datasets.

Unit II

Combining Data Using a Matrix - Combining Data - Frame Function - Combining Data Using the list Function - Importing Data - Importing Excel Data - Accessing Data from Other Statistical Packages - Accessing a Database - Accessing Variables and Managing Subsets of Data - Accessing Variables from a Data Frame - The str Function - The Data Argument in a Function - The $ Sign and Functions.

Unit III

Simple Functions , The tapply Function - Calculating the Mean Per Transect - Calculating the Mean Per Transect - The sapply and lapply Functions - The summary Function - The table Function - An Introduction to Basic Plotting Tools - The plot Function - Symbols, Colours, and Sizes - Changing Plotting Characters - Changing the Colour of Plotting Symbols - Altering the Size of Plotting - Symbols - Adding a Smoothing Line - Loops and Functions.

Unit IV

Importing and Assessing the Data - Total Abundance per Site - Richness per Site - Shannon Index per Site - Combining Code - Putting the Code into a Function – Graphing Tools - The Pie Chart - Pie Chart Showing Avian Influenza Data - The par Function - Bar Chart and Strip Chart - Boxplot.

Unit V

Introduction To cloud - Virtualization concepts - Types of Virtualization & its benefits - Introduction to Various Virtualization OS - Cloud Fundamentals - Cloud Building Blocks -

BCA 3643 **Python Programming (4T+2L)** **6hrs/6cr**

Objective

The aim of this course is to enable the students to learn program and concepts acquiring programming skills in python. Itcovers expressions, variables, functions, logic, and conditionals, which are foundational concepts, File Handling and Regular Expressions.

Learning Outcome

To understand why Python is a useful scripting language for developers.
To gain knowledge of the basics of python programming such as datatypes, variables, control statements.
To handle functions in Python Language
To learn how to use files in Python applications.
To learn how to implement oops concepts and GUI programming.

Unit I

History of Python–Features of Python – working with Python – Basic Syntax – input / output functions - Variables and data types – operators- conditional and control statements – looping statements.

Unit II

String Manipulations – Access Strings – Basic Strings – String Slices – Functions and Methods-List,Tuples, Dictionaries – Operations – working with list- functions and methods.

Unit III

User Defined function – defining function-calling function-types of functions – arguments – anonymous functions – global and local variables- modules- importing module -Math module - Random module - Packages - Composition

Unit IV

File handling - Opening and closing file -Reading and writing files – file handling functions - Exception Handling - Except clause -Try finally clause -User Defined Exceptions

Unit V

Oops concept - class and object – attributes – Inheritance – Overloading – Overriding – Data hiding - Regular expressions-Match function-Search function - Matching VS Searching – Database – GUI Programming

Text Book:

1. Introduction to Computing and Problem Solving Using Python, Balagurusamy,McGraw Hill Education India Private Limited; First edition ,2017

BCA 3645 Internet Technology 6hrs/6cr

Objective

This course will make the students to understand surfing the web and trying to figure out how specific functionality is brought to a website and molds the student to learn and develop various PHP technology applications which definitely will meet the current industry need.

Learning Outcome

To analyse a web page and identify its elements and attributes.
To select and apply mark-up languages for processing, identifying and presenting, also to use scripting languages to add interactive components to web pages.

To gain knowledge on JSON and PHP basics
To handle mysql database using PHP programs.
To understand and use XML syntax, attributes etc.,

Unit I

Introduction to HTML - Basic tags- Formatting: images, lists, Tables, Frames, Links, Form. Styling with Classes- Styling with IDs.CSS - The Presentation Semantics- CSS Properties- Types of Style Sheets

Unit II

JavaScript with HTML- Variables, Operators, Expressions, Arrays - Handling Loops & Decision structures - Understanding jQuery-Selectors- Event Manipulation Methods- Sliding, Easing, Fading, Toggling - jQuery and AJAX calls.

Unit III

Introduction to JSON- Overview of PHP –Data types –Variables –Expressions –control and Structure – functions –classes and objects –arrays –simple and multiple Dimensional arrays.

Unit IV

Using Mysql in PHP- Connection to a Data base – Listing DB –Displaying DB Tables – inserting a row of data using forms in PHP – Using Images –Mail management – File management.

Unit V

Introduction to XML – How to use XML –XML syntax –XML elements- XML attributes – Displaying XML Files – Working with XSL –Web Application Development using WordPress - Working with Code Igniter Framework.

Text book:

Web Technologies--A Computer Science Perspective, Jeffrey C. Jackson, Pearson Education, 2011.

BCA 3646 Fundamentals of mobile computing (4T+2L) 6hrs/6cr

The course facilitates to understand the theory as well as practical knowledge of mobile computing using android.

Upon successful completion of the course the students will be able to

- Remember the basic concepts of mobile communications and the devices
- Understand the architecture and the features of android OS
- Create applications using android
- Applying suitable layout and managing layouts
- Compare and contrast on the various views

Unit I:
Introduction to mobile computing – wireless transmission – signals – antennas –cellular wireless networks - Devices: Information Access Devices – Smart Identification – Smart Cards, Labels, Tokens, Smart Sensors and Actuators – Smart Appliances and Home Networking.

Unit II:
Introduction to mobile generations -Android-Android architecture -Features -Applications - Versions -Flavors-Building the project.

Unit III:
User Interface Architecture -Activity life cycle - Intents – Services – Content providers - UI Widgets – Text controls –Button controls – Toggle buttons – Menus – Options menu – Context menu – popup menu.

Unit IV:
Layout manager – Relative layout – Linear layout - Table layout – Grid layout – Adaptor – Array adaptor – ArrayList adaptor – Base adaptor – Lists.

Unit V:
View – Grid view – Web view – Scroll view – Search view – Dynamic list view – Expanded list view – Working with data storage – Shared preferences – Preferences activity – Files access – database connectivity using SQLite.

Text book:

1. Learning Android, Marko Gargenta, Masumi Nakamura, O'Reilly, 2nd edition, 2014.

Reference books:

1. Principles of Mobile Computing, UweHansmann, LotharMerk, Martin S.Nicklous and Thomas Stober , Springer Professional Computing, 2nd Edition, 2008.