



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Computer Applications

Name of the Program: BCA in Big Data Analytics in association with IBM

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

B.A. Honors English Literature

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
HU101	- SOC. SC., ARTS & HUM	Foundation English I	3	0	2	4	60	20	20	0	20

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

*Teacher's Assessment shall be based upon following components: Quiz/Assignment/Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will be able to:

- Develop the second language learners' ability to enhance and demonstrate LSRW Skills.
- To acquire English Language Skills to further their studies at advanced levels.
- To become more confident and active participants in all aspects of their undergraduate programs

Course Outcomes (COs): The students should be able to:

- Have confidence in their ability to read, comprehend, organize, and retain written information.
- Write grammatically correct sentences for various forms of written communication to express themselves.

COURSE CONTENTS:

UNIT I

Communication: Nature, Meaning, Definition, Process, Functions and importance, Characteristics of Business Communication, Verbal and Non Verbal Communication, Barriers to Communication.

UNIT II

Listening: Process, Types, Difference between Hearing and Listening, Benefits of Effective Listening, Barriers to Effective Listening, Overcoming Listening Barriers, and How to Become an Effective Listener

UNIT III

Basic Language Skills: Grammar and usage- Parts of Speech, Tenses, Subject and Verb Agreement, Prepositions, Articles, Types of Sentences, Direct - Indirect, Active - Passive voice, Phrases & Clauses.

UNIT IV

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Business Correspondence : Business Letters, Parts & Layouts of Business Letter, Job application and Resume, Application Calling/ Sending Quotations/ Orders/ Complaints. E-mail writing , Email etiquettes

UNIT V

Précis Writing and Noting: The Purpose of Notes, Methods of Note-Taking, General Principles of Good Notes. Drafting: Notices, Agenda and Minutes. Advertisement: Importance, Types, Various Media of Advertising. Slogan Writing.

Practical:

- Self Introduction
- Reading Skills and Listening Skills
- Linguistics and Phonetics
- Role plays
- Oral Presentation – Preparation & Delivery using audio – visual aids with stress on body language and voice modulations.
- Social etiquettes

Suggested Readings

- Adair, John (2003). *Effective Communication*. London: Pan Macmillan Ltd.
- A.J. Thomson and A.V. Martinet(1991). *A Practical English Grammar*(4th ed). Newyork: Oxford IBH Pub
- Ashraf Rizvi.(2005).*Effective Technical Communication*. New Delhi:Tata Mc Graw Hill
- Kratz, Abby Robinson (1995). *Effective Listening Skills*. Toronto: ON: Irwin Professional Publishing.

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BCCA102	COMPULSORY	Mathematical Foundation of Computer Science-I	3	1	0	4	60	20	20	0	0

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; Q/A – Quiz/Assignment/Attendance, MST - Mid Sem Test.

***Teacher Assessment** shall be based on following components: Quiz/Assignment/Project/Participation in class (Given that no component shall be exceed 10 Marks)

Course Educational Objectives (CEOs):

- To introduce the students with the numerical techniques used for analysis

Course Outcomes (COs): After the successful completion of this course students will be able to

- collect and represent data for numerical analysis and the role of the error in computation.
- find the numerical solution of the algebraic and transcendental equations.
- apply the techniques in the calculus of the finite difference.
- know the numerical solution of the system of linear algebraic equations.
- find the numerical solution of the ordinary differential equation.

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UNIT – I

Data Representation: Fixed point numbers, Floating point numbers, Finite data representation, Propagation of Error.

UNIT – II

Root finding: Newton's Methods, Fixed point iteration, ill behaved root finding problems

UNIT – III

Interpolation, Divided differences, Spline functions, Approximation of functions - Chebyshev polynomials, Numerical differentiation and integration- Trapezoidal and Simpson's Rules, Gaussians numerical integration

UNIT – IV

Solution of system of linear algebraic equations: Matrix equation, Method of triangular matrices, Gaussian elimination with pivoting, Jacobian and Gauss-Siedel iteration

UNIT – V

Numerical solution of the ODE: Euler's method, Runge-Kutta methods, Multi-step method, System of differential equation.

Suggested Readings:

1. Akai Terrence J: Applied Numerical Methods for engineers, John Wiley & Sons, Inc. 1994.
2. Schilling Robert J & Harried Sanddra L: Applied Numerical Methods for engineers, Thomson, 2000

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BCCA103	Compulsory	PC-Software	4	0	0	4	60	20	20	0	0

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***Teacher Assessment** shall be based on following components: Quiz/Assignment/Project/Participation in class (Given that no component shall be exceed 10 Marks)

Course Educational Objectives (CEOs):

- To provide the knowledge of using different software packages including word processor, electronic spreadsheet, presentation s/w
- To develop an understanding of database management system
- To explain how to integrate the data stored in word processor, spreadsheet etc.
- To develop presentation skills using these software.

Course Outcomes (COs) :Students will be able to

- To create word documents and to format them using various tools available
- To create tables and manipulate them
- To use mail merge, labels
- Creating spreadsheet for storing and managing data using functions
- Format, print spreadsheet
- Create power point presentation for different purposes using objects, animation
- To store and manipulate data stored in databases.
- To export and import data stored from and to, among word processor, spreadsheet, DBMS, presentation s/w

UNIT – I

Word Processor: Introduction, Word Processing, Advantages of word processing, Creating, Saving and editing a document: Selecting, Deleting, Replacing Text, Copying text to another file. Formatting Text and Paragraph: Using the Font Dialog Box, Paragraph Formatting using Bullets and Numbering in Paragraphs, Line spacing, Margins.

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UNIT – II

Creating and Formatting Tables: Changing Row height, inserting columns, Merging cells Calculations in a Table, Sorting Text, Toolbar using word art, Mail merge: Definition, a Practical Example of mail merge, creating charts.

Defining Tabs: Tabs Dialog Box, Enhancing a Document: Inserting page Breaks, Adding Border, Using Header and Footers in the Document.

UNIT – III

Spreadsheet: Introduction, Definition. Screen parts of worksheet, Entering information: Numbers, Formula, Editing Data in a cell, Using a Range with SUM, Moving and copying data, Inserting and Deleting Row and Columns in the worksheet, Using the format cells Dialog box.

UNIT – IV

Protecting a workbook with Password, Macro: Recording and Running a Macro, Linking workbook files Using Pivot table, Inserting Hyper links, Using chart wizard to create a chart, Naming ranges, classification of Functions.

UNIT – V

Presentation : Introduction, Slide show, Formatting, Creating a Presentation, Inserting clip Arts, Adding Objects, Applying Transitions, Animation effects, formatting and checking text, Modifying Visual elements, Preparing a complete presentation, Case studies.

DBMS: Introduction, Basic terms of access, objectives, What is database, Creating a new database, Creating a database through table wizard, Creating a new table, Rename columns, Saving the database.

Text Books:

1. Taxali R. K. “PC Software for Windows 98, Made Simple” TMH.
2. Saxena Sanjay, “MS Office 2000 “Vikas Publication House PVT LTD.
3. Busbby M. and Stultz R.A. “Microsoft Office 2000”, BPB.
4. Jain S., Geetha M. and Kratika, “Microsoft Office-2007”, BPB

Reference Book:

1. Microsoft Office – Complete Reference – BPB Publication.

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BCCA104	Compulsory	Fundamentals of Computers and IT	3	1	0	4	60	20	20	0	0

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***Teacher Assessment** shall be based on following components: Quiz/Assignment/Project/Participation in class (Given that no component shall be exceed 10 Marks)

Course Educational Objectives (CEOs):

- To create basic understanding of Computer System
- To provide knowledge of concepts of Operating Systems
- To familiarize the students with the need, goal, function and architecture of various operating system available
- To develop the understanding of trends of IT industry, safe and ethical use of IT

Course Outcomes (COs): students will be able to

- To understand the need, goal and function of the OS
- Understand and use Windows and Linux operating systems commands.
- Organizing and manipulating files and folders.
- Understand and Use different editors of Linux
- Manipulating data using input output redirection
- Writing shell scripts
- To exercise the safe computer practices

Unit-I

Introduction to Computer Fundamentals: Introduction to Computer, Computer System Hardware, Computer Memory, Input and Output Devices, Interaction between User and Computer, Introduction to Free and Open Source Software, Definition of Computer Virus, Types of Viruses, Use of Antivirus software.

Unit-II

Computer: Definition, Classification, Organization i.e. CPU, register, Bus architecture, Instruction set, Memory & Storage Systems, I/O Devices, and System & Application Software. Computer

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Application in e-Business, Bio-Informatics, health Care, Remote Sensing & GIS, Meteorology and Climatology, Computer Gaming, Multimedia and Animation etc.

Unit–III

Basics of Operating System, Definition of Operating System, Objectives, types, and functions of Operating Systems. Working with Windows Operating System: Introduction, The Desktop, Structure of Windows, Windows Explorer, File and Folder Operations, The Search, The Recycle Bin, Configuring the Screen, Adding or Removing New Programs using Control Panel, Applications in windows (Paint, Notepad, WordPad, Calculator).

Unit–IV

Introduction of Basic Commands of LINUX and Editors, Managing Files and Directories in LINUX, Programming Environment in LINUX, Writing and executing programs in LINUX.

Unit–V

Compilers & Interpreters: aspects of compilation, memory allocation, compilation of expression compilation of control structures, code optimization, interpreters. Software Tools: Software tools for program development, editors, debug monitors, programming environment, user interfaces

Text Books:

- 1.V. Rajaraman, “Fundamentals of Computers”, PHI.
- 2.Peter Norton’s, “Introduction to Computers”, TMH.
- 3.Operating Systems –Silberschatz and Galvin -Wiley India.
4. Andrew Tananbaum, Computer Networks:, PHI
5. PramodKoparkar “Unix for You”:, TMH.
6. MachteltGarrels, “ Introduction to Linux”.
7. Sanders, D.: Computers Today, Tata McGraw-Hill

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							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTIBM105	Compulsory	Software Foundation and Programming (1. Clean Coding; 2. Javascript; 3. NodeRed; 4. NodeJS)	0	0	2	2	0	0	0	30	20

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Course Objectives:

- Elevate your professionalism and increase your code quality
- Foundation for a professional development career
- Provide students a clear vocabulary for evaluating code quality.
- Understanding the basic ideas of programming
- Implementation of java script codes
- Implementation of node.js codes

Course Outcomes:

- Understand about the clean code.
- Explain the importance of naming conventions.
- Understand the importance of comments in the applications.
- Understand the purpose of formatting and objects.
- Describe JavaScript primitives and objects
- Explain how variables are declared and used in JavaScript
- Describe JavaScript control structures
- Describe functions in JavaScript
- Describe the document object model (DOM) hierarchy
- Describe the window and document objects
- Understand the Node.js framework
- Work with Node Projects
- Master Express.js

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- Installing NodeJS and Nodeclipse Plugin
- Understand basic routing in Node.js
- Understand file systems in Node.js
- Serving static content in Node.js
- Learn how Express.js connects with MongoDB
- Perform CRUD operations using NodeJS and MongoD
- Identify the DOM objects that are commonly used in JavaScript applications for working With HTML documents

Syllabus:

UNIT I

Introduction to Clean Coding

Understand the importance of bad and good code.

Understand the difference about marshalling and unmarshalling.

Exercise to implement JAXB.

Names and Functions

understand the importance of meaningful distinct names.

Defining meaningful context.

Usage of domain and function names

Usage of exceptions and its error code names/descriptions.

Exercise to experience in searchable names.

Comments and Formatting

Understand about clean and bad comments.

Understand the process of vertical and horizontal formatting.

Exercise on comments and formatting.

UNIT 2

Objects

Learn about data abstraction.

Understand the data and object antisymmetric.

Explain the data transfer objects.

Javascript Basics

Nature of JavaScript language

Understand JavaScript primitive types.

Javascript objects

Understand Java Script Array Objects

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Understand Java Script Date Objects
Understand Java Script Error Objects

UNIT 3

Javascript variables and Control statements

Understand how to define JavaScript Variables
Work Java Script If statements
Work Java Script switch statements Work
JavaScript for and while loop statements

Javascript Functions

Declare a JavaScript function
Creating custom objects with functions
Adding functions to prototypes
Self-executing functions

UNIT 4

Clientside Javascript

Understand Scripts in HTML documents
Describe the document object model (DOM) hierarchy
Overview of the DOM specification levels
Describe the window and document objects
Accessing document elements
Common API in web and XML scripting

Node JS Introduction

Understand NodeJS and its features
Understand Express Framework.
Understand Key features of MongoDB

UNIT 5

Installation and Configuration

Install NodeJS on command line
Hands on: Create sample NodeJS + Express project using command line
Install Node eclipse plugin

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Hands-on: Create sample NodeJS + Express project using Eclipse

File System

- Understand __dirname and filename
- Understand synchronous vs Asynchronous file read
- Understand View Templates
- How to serve static content in NodeJS
- Connecting to the database using NodeJS

Install and Setup MongoDB

- NodeJS Mongo Driver
- Perform CRUD Operation
- Understand Connection Pooling using NodeJS and Mongo Driver
- Hands on Develop Web Application using Node JS and Mongo DB

Text Book

- Mastering HTML, CSS & Javascript Web Publishing by Lemay Laura, BPB Publications, ISBN: 9788183335157, 9788183335157
- Javascript by Flanagan David, Packt publishers, ISBN: 9789350237311, 9789350237311
- Web technologies-black book by Dreamtech Press publications, ISBN-13 : 978-9351199076, ISBN-10 : 935119907X

Reference Book

- Java script by example by Dani Akash S, Kindle Edition
- Java script: the good parts by D Crockford, Kindle Edition
- IBM Study Materials

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BCCAIBM101	Compulsory	Software Foundation with C	4	1	4	7	60	20	20	30	20

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/

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Course Objectives:

- To develop the programming skills using C and increase the code quality.
- To provide students a clear vocabulary for evaluating code quality.
- To understand the basic idea of programming.
- To handle the databases using SQL queries and provide the knowledge of open standards.
- To provide the knowledge of Linux and Commands.
- To provide the concepts of PHP and its frame work.

Course Outcomes: Students will be able to

- Describe computing Art and Science of Programming
- Describe Constructs, loops and arrays
- Describe role of function, pointers and operators
- Role of SQL queries
- Describe Open standards and its role
- Describe Model of Open Standard
- Describe Linux and Commands
- Describe PHP and its framework

Unit 1: INTRODUCTION TO PROGRAMMING IN C

- Brief History of Computing Art and Science of Programming
- Introduction to C Programming
- Background of C
- Getting Started with C
- Constructs, Loops & Arrays
- Functions - Introduction to function, Types of function, Call by value and Reference, Function arguments and its implementation using if and else statements.
- Pointers – Use of pointers, Pointer to an array, Null Pointers

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- Operators - Assignment operators, Logical operators, Arithmetic operators, Bitwise operators, Relational operators
- User Defined Types
- Binary I/O With Structures
- Appendix. Reference Tables

Unit 2: DATA BASE HANDLING AND OPEN STANDARDS

- Data Types
- SQL Queries
- Variables
- Constant and Literals
- Introduction to Storage classes.
- Introduction to Operators
- Types of operators

Unit 3: OPEN STANDARDS

- Open Standards
- Open Source, and IBM
- What is an Open Standard
- Open Standards Model
- Industries needing standards
- The Impact of Standards
- Open Source Software
- Open Source
- Open Source Technology
- The OPEN Proposition

Unit 4: INTRODUCTION TO LINUX

- What is Linux
- Why is Linux so Popular
- What Can you do with Linux
- What is the IBM Linux technology center
- Plans for the future
- Installing Linux

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Unit 5: PHP

PHP

- What is PHP
- PHP – Key Driver of Lamp Stack
- PHP – Getting Started
- Unified ODBC (EXT/ ODBC)
- PHP Data objects: PDO_ODBC
- PHP deployment Platform
- What is Zend Core?
- Features and Benefits
- What is Ruby?
- What is Rails?

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