



Shri Vaishnav Vidyapeeth Vishwavidyalaya

B.Tech.(CSE-Big Data Analytics/Cloud and Mobile Computing/Artificial Intelligence-IBM)

Choice Based Credit System (CBCS) 2018-19

SEMESTER II

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*
BTMACS201	UG	Applied Mathematics-II	3	1	0	4	60	20	20	0	0

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

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

Course Objectives:

The student will have ability to:

1. To introduce the students with the Fundamentals of the Calculus of Matrices, Differential Equations, Numerical Analysis and Statistics.

Course Outcomes:

After the successful completion of this course students will be able to

1. Understand and apply the basics of the calculus of matrices.
2. Solve the fundamental problems of the ordinary differential equations.
3. Apply the advanced techniques to find the solution of the ordinary differential equations.
4. Know the techniques of the numerical analysis.
5. Find the numerical solution of the ODE.
6. Understand and apply the basics of the statistical methods.

Syllabus:

UNIT I

Calculus of Matrices: Systems of linear equations and their solutions. Matrices, determinants, rank and inverse. Linear transformations. Range space and rank, null space and nullity. Eigenvalues and eigenvectors. Similarity transformations. Diagonalization of Hermitian matrices.

UNIT II

Differential Equation: Ordinary Differential Equations: First order linear and nonlinear ordinary differential equations, exactness and integrating factors. Ordinary linear differential equations of n-th order, solutions of homogeneous and non-homogeneous equations. Operator method. Method of undetermined coefficients and variation of parameters.

UNIT III

Numerical Analysis Interpolation and Curve Fitting: Introduction to Interpolation; Calculus of Finite Differences; Finite Difference and Divided Difference Tables; Newton-Gregory Polynomial Form; Lagrange Polynomial Interpolation; Approximation by Least Square Method.

Numerical Differentiation and Integration: Discrete Approximation of Derivatives: Forward and Backward Difference Forms, Numerical Integration, Simple Newton-Cotes Rules: Trapezoidal and Simpson's (1/3) Rules; Weddle's Rule.

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UNIT IV

Numerical Solution of ODE: Euler's Method for Numerical Solution of ODE; Modified Euler's Method; Runge-Kutta Method (RK2, RK4); Multistep Method: Predictor-Corrector method.

UNIT V

Probability Theory and Random Process : Axiomatic construction of the theory of probability, independence, conditional probability, and basic formulae, random variables, binomial, Poisson and normal random variable, probability distributions, functions of random variables; mathematical expectations, Definition and classification of random processes, discrete-time Markov chains.

Text Books:

1. G. Strang, Linear Algebra And Its Applications, 4th Edition, Brooks/Cole, 2006
2. S. L. Ross, Differential Equations, 3rd Edition, Wiley, 1984.
3. E. A. Coddington, An Introduction to Ordinary Differential Equations, Prentice Hall, 1995.
4. W.E. Boyce and R.C. DiPrima, Elementary Differential Equations and Boundary Value Problems, 7th Edition, Wiley, 2001.
5. K. E. Atkinson, Numerical Analysis, John Wiley, Low Price Edition (2004).
6. S. D. Conte and C. de Boor, Elementary Numerical Analysis - An Algorithmic Approach, McGraw-Hill, 2005.
7. B. S. Grewal, Higher Engineering Mathematics, Khanna Publishers, Delhi

Reference Books:

1. E. Kreyszig, Advanced Engineering Mathematics, 9th Edition, Wiley, 2005.
2. R. G. Bartle and D. R. Sherbert, Introduction to Real Analysis, 5th Ed, Wiley, 1999.
3. J. Stewart, Calculus: Early Transcendentals, 5th Ed, Thomas Learning (Brooks/ Cole), Indian Reprint, 2003.
4. J. Stoer and R. Bulirsch, Introduction to Numerical Analysis, 2nd Edition, Texts in Applied Mathematics, Vol. 12, Springer Verlag, 2002.
5. J. D. Hoffman, Numerical Methods for Engineers and Scientists, McGraw-Hill, 2001.
6. M.K Jain, S.R.K Iyengar and R.K Jain, Numerical methods for scientific and engineering computation (Fourth Edition), New Age International (P) Limited, New Delhi, 2004.
7. S. C. Chapra, Applied Numerical Methods with MATLAB for Engineers and Scientists, McGraw-Hill 2008.

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							THEORY		PRACTICAL		
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTCS204	UG	Computer Peripherals and Interfaces	3	1	2	5	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/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives:

1. To learn the concept of memory modules and types along with advanced memory.
2. To learn the input/output components presents on the motherboard.
3. To learn different modes of power supply to the PC and it's troubleshooting.
4. To learn different types of interfaces and ports of PC board.
5. To learn the device drivers and peripherals attached to the PC board.

Course Outcomes:

Upon completion of the course, students will be able:

1. To understand the hierarchy of the Memory used for PC and its applications.
2. To understand the use and working of I/O components.
3. To understand the principles behind the power supply and its usage.
4. To understand the onboard and external interfaces and its utility on PC board.
5. To understand the use and requirement of peripherals and their device drivers.

Syllabus:

UNIT I

Memory: Introduction to memory and its use, Memory chips and Modules: DIPP, SIPP, SIMM, DIMM, SO-DIMM, RIMM, Parity checking and ECC, ROM and its types, RAM and its types, Trouble shooting of Memory, Advanced Memory technologies: RDRAM, DDRAM, PRAM, VRAM.

UNIT II

Motherboard: Motherboard Controllers and System Resources, I/O System Bus: ISA, MCA, ELSA, VESA local bus, PCI, AGP, PCIX, Onboard I/O devices, Chipsets, ROM BIOS, ROM POST, CMOS settings, Motherboard Form factor: AT and ATX Motherboard, LPX and NLX form factor.

UNIT III

Power Supply: Power Supply Functions and Operations, Power Supply Quality and Specifications, Power Supply and Form factors, Ventilation and Cooling: Fan, Processor cooling, Temperature limits, Power Problems and procedures, Power protection devices, Back-up power system.

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UNIT IV

Interfaces and I/O Ports: Floppy Disk interface: Controller, Power cable, Control/Data cable, IDE interfaces: ATA standards, Master/Slave Configuration, Data transfer modes, SCSI interface: Bus, Standards, Hardware's, which is better SCSI or IDE, Serial ports, Parallel ports, USB, Troubleshooting.

UNIT V

Device Drives and Peripherals: Magnetic Storage: Reading/Writing, hard disk drives, Floppy disk drives, Optical Storage devices: CD-ROM drive, DVD-ROM drive, Keyboard: layouts, interfaces, Pointing devices, Mouse, Monitors, Printers, Troubleshooting of device drivers and peripherals.

Text Books:

1. Craig Zacker & John Rourke, PC Hardware- The complete reference, First Edition, TMH, 2017
2. S.K. Chauhan, PC Upgrading, maintenance and troubleshooting guide, First Edition, .
3. B. Govindarajulu, IBM PC and CLONES: Hardware, Troubleshooting and Maintenance McGraw Hill Education, 2nd Edition 2002
4. Mark Minasi, The Complete PC Upgrade and Maintenance Guide, Sixteenth edition Wiley, 2005
5. Mike Meyers, Introduction to PC Hardware and Troubleshooting, 1st edition, McGraw Hill Education, 2017

Reference Books:

1. Stephen Bigelow, Bigelow's Troubleshooting, Maintaining & Repairing PCs, 5 edition, McGraw Hill Education, 2017
2. Manahar Lotia, Pradeep Nair, Payal Lotia, Modern Computer Hardware Course, Second Revised Edition, BPB Publications, 2007
3. Vikas Gupta, Comdex Hardware and Networking Course Kit: Revised & Upgraded, Dreamtech Press, 2014
4. Dan Gookin, Troubleshooting and Maintaining Your PC All-in-One For Dummies, 3rd edition, John Wiley & Sons, 2017
5. Robert Bruce Thompson, Barbara Fritchman Thompson, Building the Perfect PC, 3 edition, O'Reilly, 2010

List of Practical:

1. To study and demonstrate the motherboard.
2. To study microprocessor and its types.
3. To study Back Power Supply: SMPS and UPS.
4. To study the Optical Drives: CD-ROM and DVD-ROM.
5. To study the working principle of keyboard and mouse.
6. To study different types ports and slots on board.
7. To study various types of Cables and their Connectors.
8. To study the working principle of monitor.
9. To study different types of printers.
10. To study the process of assembling a Motherboard.
11. To study working of Floppy Disk Drive.

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							THEORY		PRACTICAL		
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTCS403	UG	Data Structure and Algorithms	3	1	2	5	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/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives:

1. To understand efficient storage mechanisms of data for an easy access.
2. To design and implementation of various basic and advanced data structures.
3. To introduce various techniques for representation of the data in the real world.
4. To develop application using data structures.
5. To understand the concept of protection and management of data.

Course Outcomes:

Upon the completion of the course, students will be able to:

1. Get a good understanding of applications of Data Structures.
2. Develop application using data structures.
3. Handle operations like searching, insertion, deletion, traversing mechanism etc. on various data structures.
4. Decide the appropriate data type and data structure for a given problem.
5. Select the best algorithm to solve a problem by considering various problem characteristics, such as the data size, the type of operations, etc.

Syllabus:

UNIT I

Introduction: Overview of Data structures, Types of data structures, Primitive and Non Primitive data structures and Operations, Introduction to Algorithms & complexity notations. Characteristic of Array, One Dimensional Array, Operation with Array, Two Dimensional Arrays, Three or Multi-Dimensional Arrays, Sparse matrix, Drawbacks of linear arrays. Strings, Array of Structures, Pointer and one dimensional Arrays, Pointers and Two Dimensional Arrays, Pointers and Strings, Pointer and Structure.

UNIT II

Linked List: Linked List as an ADT, Linked List Vs. Arrays, Dynamic Memory Allocation & De-allocation for a Linked List, Types of Linked List: Circular & Doubly Linked List. Linked List operations: All possible insertions and deletion operations on all types of Linked list Reverse a Single Linked List; Divide a singly linked list into two equal halves, Application of Linked List.

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UNIT III

Stack: The Stack as an ADT, Stack operation, Array Representation of Stack, Link Representation of Stack, Application of stack – Recursion, Polish Notation . Types of Recursion, problem based on Recursion: Tower of Hanoi. **The Queue :**The Queue as an ADT, Queue operation, Array Representation of Queue, Linked Representation of Queue, Types of Queue :Circular Queue & Dequeue, Introduction of Priority Queue, Application of Queues.

UNIT IV

Tree: Definitions and Concepts of Binary trees, Types of Binary Tree, Representation of Binary tree: Array & Linked List. General tree, forest, Expression Tree. Forest and general tree to binary tree conversion. Binary Search Tree Creation, Operations on Binary Search Trees: insertion, deletion & Search an element, Traversals on Binary SEARCH TREE and algorithms. Height balanced Tree: AVL, B-Tree, 2-3 Tree, B+Tree: Creation, Insertion & Deletion.**Graph:** Definitions and Concepts Graph Representations: Adjacency MATRIX, Incidence matrix, Graph TRAVERSAL (DFS & BFS), Spanning Tree and Minimum Cost Spanning Tree: Prim's & Kruskal's Algorithm.

UNIT V

Sortings: Sorting Concept and types of Sorting, Stable & Unstable sorting. Concept of Insertion Sort, Selection sort, Bubble sort, Quick Sort, Merge Sort, Heap & Heap Sort, Shell Sort & Radix sort. Algorithms and performance of Insertion, selection, bubble, Quick sort & Merge sort.

Text books:

1. Ashok N. Kamthane, "Introduction to Data structures", 2nd Edition, Pearson Education India,2011.
2. Tremblay & Sorenson, "Introduction to Data- Structure with applications", 8th Edition, Tata McGrawHill,2011.
3. Bhagat Singh & Thomas Naps, "Introduction to Data structure", 2nd Edition, Tata McGrawHill 2009.
4. Robert Kruse, "Data Structures and Program Design",2nd Edition,PHI,1997.
5. Lipschutz Seymour,"Data structures with C" ,1st Edition ,Mc- GrawHill,2017.

Reference Books:

1. Rajesh K. Shukla ,Data Structures Using C & C++, Wiley-India 2016.
2. ISRD Group ,Data Structures Using C, TataMcGraw-Hill 2015.
3. E. Balagurusamy ,"Data Structure Using C" ,Tata McGraw-Hill 2017.
4. Prof. P.S. Deshpande, Prof. O.G. Kakde, C & Data Structures, Charles River Media 2015 .
5. Gav Pai, Data Structures, Tata McGraw-Hill, 2015.

List of Practical:

1. To develop a program to find an average of an array using AVG function.
2. To implement a program that can insert, delete and edit an element in array.
3. To implement an algorithm for insert and delete operations of circular queue and implement the same using array.

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4. Write a menu driven program to implement the push, pop and display option of the stack with the help of static memory allocation.
5. Write a menu driven program to implement the push, pop and display option of the stack with the help of dynamic memory allocation.
6. Write a menu driven program to implementing the various operations on a linear queue with the help of static memory allocation.
7. Write a menu driven program to implementing the various operations on a linear queue with the help of dynamic memory allocation.
8. Write a menu driven program to implement various operations on a linear linked list.
9. Write a menu driven program to implement various operations on a circular linked list
10. Program for implementation of Bubble sort
11. Program for Insertion sort
12. Program for Merge Sort
13. Program to implement Heap sort
14. Program to implement Quick sort
15. Program to Construct a Binary Search Tree and perform deletion, inorder traversal on it
16. To develop an algorithm for binary tree operations and implement the same.
17. To design an algorithm for sequential search, implement and test it.
18. To develop an algorithm for binary search and perform the same.

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							THEORY		PRACTICAL		
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTCS404	UG	Computer System Organization	3	1	0	4	60	20	20	0	0

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

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

Course Objective:

1. Understand the architecture of a modern computer with its various processing units.
2. To impart knowledge on processor speed and processing of programs.
3. The performance measurement of the computer system.
4. To introduce hardware utilization methodology.
5. To impart knowledge in inter process communication.

Course Outcomes:

After the course completion student will be able to

1. Understand the architecture of modern computer.
2. Analyze the Performance of a computer using performance equation.
3. Understanding of different instruction types.
4. Understand how computer stores positive and negative numbers.

Syllabus:

UNIT 1

Introduction for basic model of computer: Brief History of computers, Von Newman architecture, Computer components, CPU, Memory, I/O, System Bus, registers, Program Counter, Accumulator, Register Transfer Language, Instruction Cycle, Instruction formats and addressing modes of basic computer. Basic arithmetic operations: addition, subtraction, multiplication, division, floating point arithmetic.

UNIT II

Control Unit Organization: Control unit operations - Address Sequencing & Micro operations, Hardwired control unit, Micro and Nano programmed control unit, Control Memory, Micro Instruction formats, Micro program sequencer, Microprogramming.

UNIT III

Input Output Organization: I/O Systems, Modes of data transfer – program controlled, interrupt driven and direct memory access, Interrupt structures, I/O Interface, I/O processor, Introduction to 8085, 8085 I/O structure, 8085 instruction set and basic programming.

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UNIT IV

Memory organization: Characteristics of Memory systems, Internal and External memories, Memory Hierarchy, High speed Memories: Cache Memory - Organization and mappings, Associative memory, Virtual memory: Segmentation, Paging, Address Translation Virtual to Physical. Secondary Storage: Magnetic Disk, Tape, DAT, RAID, Optical memory, CDROM, DVD.

UNIT V

Multiprocessors: Multiprocessor organization, Instruction level pipelining and Superscalar Processors , Vector processing, Instruction and arithmetic pipelines, Vector and array processors, Interconnection structure and inter-processor communication, GPU.

Text Books:

1. Morris Mano, Computer System Architecture, Fourth edition, PHI, 2015.
2. Tanenbaum, Structured Computer Organization, First Edition, Pearson Education, 2016.
3. J P Hayes, Computer Architecture and Organizations, Third edition, Mc- Graw Hills, New Delhi, 2017

Reference Books:

1. Gaonkar, Microprocessor Architecture, Programming, Applications with 8085, fifth Edition, Prentice Hall, 2015.
2. William Stallings, Computer Organization and Architecture, Seventh Edition, PHI, 2009.
3. ISRD group, Computer Organization, Second edition, TMH, 2006.
4. Carter, Computer Architecture (Schaum), Third Edition, TMH, 2012.
5. Carl Hamacher, Computer Organization, Fifth Edition, TMH, 2002.

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							THEORY		PRACTICAL		
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTIT309	UG	Introduction to Core Java	2	0	2	3	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/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives:

The student will have ability to:

1. Understand Java Environment for application development.
2. Understand Programming using Object Oriented Technology,
3. Develop computer program to solve specific problems with high performance.
4. Create debug and run java standalone applications

Course Outcomes:

Students will be able to:

1. Design new applications using object oriented methodologies.
2. Explore various system libraries
3. Analyze and improve performance of applications.
4. Design Data base connectivity program for simple problems

Syllabus:

UNIT I

The Java Environment: Basic History of Java and its Features, JVM, JRE and JDK, its Libraries and Functionalities, Why Java? Installing Java, Java Classes and Objects, Variables and Data Types Conditional and Looping Constructs, Arrays.

UNIT II

The Java Language: Constructors, Inheritance, Packages and Interfaces, Access Specifier, Enumerations, Auto boxing, and Annotations (Metadata) Garbage collection, Nested Classes, Inner Classes

UNIT III

Performance: Understanding Threads, Needs of Multi-Threaded Programming, Thread Life Cycle, Thread Priorities ,Synchronizing Threads, Inter Communication of Threads, The Idea Behind Exception , Exceptions and Errors ,Types of Exception, Control Flow in Exceptions, JVM Reaction to Exceptions, Use of Try, Catch, Finally, Throw, Throws in Exception Handling, In-Built and User Defined Exceptions, Checked and Un Checked Exceptions, Generics, Lambda Expressions.

UNIT IV

The Java Library: String Handling, Exploring Java.Lang, Java.Util – The Collection Framework, Exploring Java.IO, Exploring Java.NIO.

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UNIT V

Database Connectivity with JDBC: Introduction to JDBC, JDBC Drivers & Architecture, CRUD Operation using JDBC

Text Books:

1. Kishore Sharan, “Beginning Java 8 Language Features”, Apress, 2014
2. E. Balagurusamy, “Programming with java A Primer”, Fourth Edition, Tata McGraw Hill, 2009.
3. Sharanam Shah, “Core Java 8 for Beginners”, Shroff Publisher, 2015.

Reference Books:

1. Herbert Schildt, “The Complete Reference Java”, Ninth Edition, McGraw Hill, 2014
2. Bert Bates, Kathy Sierra, “Head First Java”, 2nd Edition, O’ Reilly, 2005
3. Cay S Horstman and Gary Cornell, “Core Java”, Vol I & II, Pearson Education, 2013

List of Practical:

1. Write a program to show concept of Class in Java?
2. Write a program showing Type Casting
3. Write a program showing Different type of inheritance
4. Write a program showing Different types of Polymorphism
5. Write a program showing Encapsulation
6. Write a program showing Abstraction
7. Write a Multithreaded program
8. Write a program showing Checked and Unchecked Exception
9. Write a program showing Database connectivity.
10. Write a program showing Simple database Operation (CRUD)

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							THEORY		PRACTICAL		
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTCS205	UG	Software Foundation and Programming 1 (with 'C++')	0	0	2	1	0	0	0	30	20

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

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

Course Objectives:

1. Understanding the concepts of C++ programming.
2. To understand how C++ improves C with object-oriented features.
3. To learn how to write inline functions for efficiency and performance.
4. To learn the syntax and semantics of the C++ programming language.
5. To learn how to design C++ classes for code reuse.

Course Outcomes:

1. Students will able to implement programs of C++ programming.
2. Understand the features of C++ supporting object oriented programming
3. Understand the relative merits of C++ as an object oriented programming language
4. Understand how to produce object-oriented software using C++
5. Understand advanced features of C++ specifically stream I/O, templates and operator overloading

Syllabus:

UNIT I: Introduction to programming languages

Compiler, Linker, Interpreter, Why C++, Object oriented programming, Pillars of OOPS, Basic C++ Program, Variables, Keywords, Data Types, **Conditional programming constructs** Conditions in if statement, Nested if Statement, Switch Statement , Loops, while, do-while, for, Nesting of Loops, Functions , Array, Character Array, Multidimensional Arrays, Pointers, Pointer Arithmetic , Pointers in Functions, Pointer and Arrays, Arrays and Functions, Pointers and 2D arrays, Passing 2D arrays to Functions, Command Line Arguments, Why use pointers. **Classes & Objects** Overview of Structures, Structure and Classes, Objects , Members of Class, const Keyword, Pointer to Objects, this Pointer, Constructors, Destructors, Copy Constructor, Object as Function argument and return type, Friend Function, Friend Class.

UNIT II: Polymorphism, Inheritance and Encapsulation

Polymorphism, Method Overloading, Constructor Overloading, Inheritance, Access Modifiers Types of inheritance, Types of inheritance, Constructors in Inheritance, Virtual Base Class, Scope Resolution, Dynamic Polymorphism, Pure virtual functions and abstract class **Operator Overloading** Introduction , Rules for operator overloading, Unary Operators , Overloading ,

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Unary Operators, Binary Operators, Overloading << ,>> Operators **File Handling** Introduction, Classes for file handling , Different modes of opening a file, EOF, Reading Data Character by Character, Binary I/O, Editing the file **Advanced Topics** Templates, Function Templates, Benefits of Function Template, Function Template with Different Data Types, Class Templates , Exception Handling Types of exceptions, Exceptions in C++, Exceptions in Class, Information as a Service **IBM Information Management Software** Unmatched Product Portfolio, Order Fulfilment System — Example Case, New Solution — Based on Service Oriented , Architecture, XML is Changing The Database Industry, Open Source: Derby Cloudscape, Introducing DB2 9 pure XML".' technology , Introducing — DB2 9 Announcing DB2 Express-C.

UNIT III: XML

Issues in electronic information exchange, Electronics Information Exchange, Electronic information exchange visualized, The need for agile views, Inter-application information exchange, Inter-system information exchange, B2B inter-organization information exchange Context-free communication, The basis for the solution, A future area of concern: The semantic Web, A common solution?, What is XML, Rules of XML 1-6, Comments, CDATA, HTML Vs. XML, DTD, Model- Empty, Element, Any. Attributes definition, types and examples, Entity declaration syntax and usage. DTD Subsets. Validating Vs. Non validating pre-processor. **XML Namespace** XML names can be ambiguous, possible solution, namespace scope, default namespace, examples of namespace, namespace processing, and problems of namespace, Status of namespace.

UNIT IV: XML Schema part 1 & 2

What's wrong with DTD's, DTD vs. XML schema examples. XML schema Terminology, Component, data types, facets and their example, wild cards, DTD vs. Schema syntax, anonymous type, named type, model groups. **XML Schema Part-2** references, Attributes and elements, Attribute group definitions, Attribute groups: Example, Annotations, Notations, Checkpoint: Elements and attributes, Association of schemas with XML documents, Forms and form defaults, Include and import, Checkpoint: Namespaces, Best practices, Status, XML schema tooling. **XML PATH Language** what is Path, current context, notation, axis node type. Predicates expression and core function. Xpath 2.0, XSL and XSLT part 1 & 2, variable parameter, output elements. Introduction to Eclipse, What is Eclipse?, Who is Eclipse valuable to?, Eclipse Architecture, Eclipse Platform Architecture, Eclipse Plug-in , Architecture, Case Studies, Case Study: SAS, Case Study: NASA, Eclipse Terms and Concepts.

UNIT V: Java Development Tools

JDT Perspective, The Java Perspective , The Java Editor Code Assist, Organize imports, Globalization , Additional Features, Creating and Running Code Process, Creating a Java Project, Creating a Java JUnit Package, Creating a Java Class Running the code, Re-running the Code, Automating Testing with, Running Test Cases, Using JUnit, Using Ant Using javadoc, The Eclipse Debugger, The Debug Perspective, Some popular plug-ins , The Web Tools Project (WTP), The Data Tools Project (DTP), The Ajax Tools Framework (ATF), Language tools, Other notable plug-ins, The Eclipse Visual Editor project, Two common frameworks **Eclipse Web Tools Platform (and related tools)** The Web Tools Platform, Project goals , WTP Project History Web Standard Tools (WST), Server Tools, Structured Source Editing, Relational

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Database Tools, J2EE Standard Tools (JST), J2EE Tools , Supported Standards, The Data Tools Project, Relational database tools, Connections , The Ajax Tools Framework, **Software in Real World - The IBM Canvas** The Canvas, Application Design & Development, Application Lifecycle Management Application Infrastructure ,Data Management, Business Analytics, Business Process Management, Social Collaboration **Software in Real World- About Licensing** Software Licensing, About Copyright, What is a Software License? Free Software, About Copyleft, Public Domain Software, About IBM Licensing, Software in Real World - Road Ahead, Opportunities Exists Everywhere, Services, Products, System Integrator, Competencies Required.

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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*
HUCS101	UG	Communication Skills	1	0	2	2	60	20	20	0	20

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

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

Course Objectives:

1. Develop the second language learners' ability to enhance and demonstrate LSRW Skills.
2. Enable students to acquire English Language Skills to further their studies at advanced levels.
3. Prepare students to become more confident and active participants in all aspects of their under graduate programs

Course Outcomes:

1. Enhance confidence in their ability to read, comprehend, organize, and retain written in formation.
2. Write grammatically correct sentences for various forms of written communication to express oneself.

Syllabus:

UNIT I

Communication: Nature, Meaning, Definition, Verbal and Non Verbal Communication Barriers to Communication.

UNIT II

Basic Language Skills: Grammar and usage- Parts of Speech, Tenses, S-V Agreement, Preposition, Article.

UNIT III

Basic Language Skills: Types of Sentence, Direct - Indirect, Active - Passive voice, Phrases & Clauses.

UNIT IV

Business Correspondence: Business Letter, Parts & Layouts of Business Resume and Job application, E-mail writing.

UNIT V

Report Writing: Importance of Report, Types of Report, Structure of a Report.

Text & Reference Books:

1. Ashraf Rizvi.(2005).Effective Technical Communication. New Delhi:TataMcGrawHill
2. Adair, John (2003). Effective Communication. London: Pan Macmillan Ltd.
3. A.J.Thomson and A.V.Martinet(1991).A Practical English Grammar(4thed).New York:Ox-

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fordIBH Pub.

4. Kratz, Abby Robinson (1995). Effective Listening Skills. Toronto: ON: Irwin Professional Publishing.
5. Prasad, H. M.(2001) How to Prepare for Group Discussion and Interview. New Delhi: Tata McGraw-Hill.
6. Pease, Allan. (1998).Body Language. Delhi: SudhaPublications.

List of Practical:

1. SelfIntroduction
2. Reading Skills and ListeningSkills
3. OralPresentation
4. Linguistics andPhonetics
5. JAM (Just aMinute)
6. GroupDiscussion

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