GUJRANWALA GURU NANAK KHALSA COLLEGE, CIVIL LINES, LUDHIANA

AFFILIATED TO PANJAB UNIVERSITY, CHANDIGARH

Academic Calendar for the session 2019-20 with Under Graduate & Post Graduate Course having Semester System of examination:-

SummerVacation	**31-05-19**	**To**	**07-07-19**	**(38 days)**
	Friday		**Sunday**	

Academic Calendar

Colleges Open on and normal Admission for on-going Classes	**08-07-19 Monday**

Admission Shedule

Admission Process	**08-07-19**	**To**	**13-07-19**	**(06 days)**
	Monday		**Saturday**	
Normal Admission for New classes (except for those	**15-07-19**	**To**	**27-07-19**	**(12 days)**
	Monday		**Saturday**	

Classes in which admission is

Through PU-CET(U.G.))

	29-07-19	**To**	**13-08-19**	**(16 days)**
Monday	**Monday**		**Tuesday**	

Commencement of Teaching

Admission for classes through CET tentative	Schedule to be provided by Dean Faculty of Science				
For new admission classes (those admitted through PU-CET (P.G) tentative	As per CET				
Late admission in Panjab University,affiliated Colleges to be allowed by the Vice-Chancellor with fee of Rs. 2040/-per student	14-08-19 Wednesday	To	31-08-19 (18 days)		Saturday
Academic Term –I	**08-07-19**	**To**	**29-11-19**	**(97 teaching days)**	
Ist,3rd,Vth	**Monday**		**Friday**		

Total teaching days of Academic Term I = 97 Days

Under Graduate Course					
S.No	**Teacher**	**Class**	**Subject**	**Month**	**Syllabus**
1	**Gurdas Singh**	**BA-1st Sem**	**Computer Fundamentals**	**July**	UNIT I Introduction to computers, characteristics of computer; History of computers; Classification of computers on size: (Micro, Mini, Mainframe and super computers), Working Principles, Generations; Applications of computers; commonly used terms–Hardware, Software, Firmware.
				August	Basic Computer Organization: Block diagram of computer system, Input unit, Processing Unit and Output Unit; Description of Computer input devices: Keyboard, Mouse, Trackball, Pen, Touch screens, Scanner, Digital Camera; Output devices: Monitors, Printers, Plotters. UNIT –II Computer Memory: Representation of information: BIT, BYTE, Memory, Memory size; Units of measurement of storage; Main memory: main memory organization, RAM, ROM, PROM, EPROM; Secondary storage devices: Sequential Access Memory, Direct Access Memory Magnetic Tapes, Magnetic disks, Optical disks: CD, DVD; Memory storage devices: Flash Drive, Memory card
				September	UNIT – III Types of software: System and Application software; Programming Languages: Generation of Languages; Translators - Interpreters, Compilers, Assemblers and their comparison.
				October	Range of Applications: Scientific, Word Processing, Spread Sheets, Ecommerce, Business, Educational, Industrial, National level weather forecasting, Remote Sensing, Planning Multilingual Applications. UNIT IV Operating Systems : Components of Operating System; Functions of Operating System; Types of Operating System; Linux/Dos/Windows.

				November	Computers and Communication: Single user, multi-user, workstation, and client server systems. Computer networks, Network protocols. LAN, WAN, Services offered by Internet.
2.	**Prof.Jasleen Kaur**	**BA-1st Sem**	**PC Software**	**July**	UNIT – I Concept of files and directories; Disk Operating System: DOS, System Files, types of DOS commands: Internal and External commands: Introduction to AUTOEXEC.BAT, Directory commands: XCOPY, DEL, RENAME, ATTRIB, BACKUP, RESTORE, FIND, SYS; General commands: TYPE, DATE, TIME, PROMPT; Batch Files, Wild Cards, Line Editor.
				Aug	UNIT – II Introduction to graphical user interface, window operating system, Anatomy of windows, organizing folders and files, recycle bin, my computer, windows explorer, control panel.
				Sep	UNIT – III Word Processing : Basics of Word Processing; Opening, Creating, Saving, Printing and Quitting Documents, Using the Interface (Menu Toolbars), Editing Text (Copy, Delete, Move), Finding and Replacing Text, Spell Check, Autocorrect; Auto Text, Character formatting, Page formatting; Document Enhancement; Adding Borders and shading, Adding Headers and Footers, Setting up Multiple columns, Sorting blocks, Adjusting Margins and Hyphenating Documents, Creating Master Documents, Creating Data Source, Merging Documents, Using Mail merge feature for labels and envelops; Inserting Pictures, Tables, Working with equations.
				Oct	UNIT – IV Spread Sheet : Worksheet overview, Row, Column, Cells, Menus, Creating Worksheet, Opening, Saving, Printing Worksheets; Calculations, Auto fill, Working with Formulae, Data Formatting (number formatting, date formatting), Working with

					Ranges, Establishing Worksheet links; Creating, Sorting and Filtering Data Base;
				Nov	Creating chart, Adding Titles, Legends etc. to charts, Printing Charts, Creating Macros, Record Macros, Running Macros, Assigning Macros to Buttons, Functions (Statistical, Financial, Mathematical, String, Date and Time). MS-Power Point: Creating, Saving, Printing Presentation; Selecting Design Templates, Animations and Transitions, Auto Content Wizard.
3.	**Prof.Jasleen Kaur**	**BA-1st Sem**	**Practical Based on Paper – CS01**	**July-November**	
4.	**Prof. Gurpreet Singh**	**BA-2nd Sem**	**Operating System Concepts**	**January**	UNIT - I Operating Systems (OS): Introduction, need of operating system and functions of operating system, Types of OS: Multi-user, Multitasking, Multiprocessing and Real time Operating Systems, Parallel systems, Distributed systems; Structure of Operating System;
				February	UNIT - II Process Management: Introduction to Process, PCB, Process States, CPU Scheduling: Scheduling Criteria and Algorithms: FCFS, SJF, Priority, Round Robin, Multilevel Queue Scheduling, Multilevel Feedback Queue Scheduling.
				March	UNIT - III Deadlocks: Introduction, Necessary and sufficient conditions for Deadlocks, Resource allocation graph, Introduction to methods for handling deadlocks, deadlock prevention, deadlock avoidance: Banker Algorithm, deadlock detection and recovery.
				April	UNIT - IV Memory Management: Logical vs Physical address space, Swapping, Introduction to Paging, Segmentation, Virtual Memory-Demand paging, Introduction to Page Replacement algorithms: FIFO, Optimal Page replacement and LRU
5.	**Prof. Gurpreet Singh**	**BA-2nd Sem**	**C Programming**	**January**	UNIT – I Programming Process: Steps in developing of a program, Data Flow Diagram, Decision Table, Algorithm development, Flowchart, Pseudo Code, Testing and Debugging. Fundamentals of C Languages: History of C, Character Set, Identifiers and

					Keywords, Constants, Types of C Constants, Rules for Constructing Integer, Real and character Constants, Variables, Data Types, rules for constructing variables.
				February	UNIT – II Operators and Expressions: C Instructions, Arithmetic operators, Relational operators, Logical operators, Assignment Operators, Type Conversion in Assignments, Hierarchy of Operations, Standard and Formatted Statements, Structure of a C program , Compilation and Execution. 188 B.A./B.SC.(GENERAL) FIRST YEAR (SEMESTER SYSTEM) SYLLABUS Decision Control Structure: Decision making with IF-statement, IF-Else and Nested IF-Else, The else if Clause. Loop Control Structure: While and do-while, for loop and Nested for loop, Case Control Structure: Decision using switch, The goto statement.
				March	UNIT – III Functions: Library functions and user defined functions, Global and Local variables, Function Declaration, Calling and definition of function, Methods of parameter passing to functions, recursion, Storage Classes in C. Arrays: Introduction, Array declaration, Accessing values in an array, Initializing values in an array, Single and Two Dimensional Arrays, Initializing a 2-Dimensional Array, Memory Map of a 2-Dimensional Array, Passing array elements to a function.
				April	UNIT – IV String Manipulation in C: Declaring and Initializing string variables, Reading and writing strings, String Handling functions(strlen(), strcpy(), strcmp(), strcat()). Structures and Unions: Declaration of structures, Structure Initialization, Accessing structure members, Union, Difference between Structure and Union.
6.	**Prof. Gurpreet Singh**	**BA-2nd Sem**	**Practical Based on Paper – CS04**	**January-April**	
7.	**Prof. Gurpreet Kaur**	**BA-3rd Sem**	**Computer Organization**	**July**	UNIT - I Representation of Information : Number system: Binary, Decimal, Hexadecimal, Octal; Conversions; integer and

					floating point representation, character codes (ASCII, EBCDIC), error detection and correction codes: Parity bit method, Hamming code; Boolean algebra.
				August	UNIT – II Basic Building Blocks :Combinatorial logic design : Gates, Half Adder, Full Adder, Encoder, Decoder, Multiplexer : Sequential Building Block : Flip-Flops, Registers, Counters: Synchronous and Asynchronous Counters, Bus. Microinstructions : Register Transfer, Arithmetic, Logical and Shift Operations; Instruction : Instruction Format, Instruction Cycle; Interrrupt: Interrupt types, Interrupt Cycle.
				September	UNIT – III Micrprocessor : Architecture of 8086/8088 Processor Model; Instruction Set; Addressing Modes: Registgers used in Mircoprocessor. Assembly Language : Features of Assembly Language, Machine Language vs Assembly Language, Pseudo Instruction; use of Assembly for programs: Addition, Subtraction, Multiplication using Subroutines and Basic Input/Output.
				October	UNIT – IV System Maintenance : Introduction to various physical components of a computer, Physical Inspection and Diagnostics on PC, types of displays and other peripheral devices, installing software;
				November	Functional description of various Internal and External cards; Viruses: Types of Computer Viruses, Detection of Viruses, Protection from Viruses.
8.	**Prof.Jasleen Kaur**	**BA-3rd Sem**	**Object Oriented Programming (using C++)**	**July**	UNIT – I Basic Concepts of Object Oriented Programming(OOP) : Object, Class, Encapsulation, Data Hiding, Inheritance, Polymorphism. Analysis and design of system using Object Oriented Approach, Benefit of OOPs. Structure of a C++ Program : Include files, Declaration of class, Main function, I/O streams.
				August	Classes : Class Declaration : Data Members, Member Functions, Private and Public

					members, data hiding and encapsulation, arrays within a class. Objects : Creating Objects, Accessing class data members, Accessing member functions, Methods of passing arguments to functions. UNIT – II Object Concepts: Arrays of Objects, Objects as function arguments: Pass by value, Pass by Reference, Pointers to Objects.
				September	Functions in C++ : Member function definition inside the class declaration and outside the class declaration, scope resolution operator, Private and Public member function, Nesting of member functions, Static and Friend functions. UNIT – III Constructors and Destructors: Constructors: Declaration and Definition, Default Constructors, Parameterized Constructors, Copy Constructors. Destructors: Definition and use.
				October	Inheritance – Extending Classes : Concept of inheritance, base class, derived class, defining derived classes, visibility modes, private, public, protected; single inheritance : privately derived, publicly derived; making a protected member inheritable, access control to private and protected members by member functions of a derived class, multilevel inheritance, nesting of classes.
				November	UNIT – IV Polymorphism : Definition, types, Function overloading, Operator Overloading, Virtual functions and pure virtual functions.
9	**Prof.Jasleen Kaur**	**BA-3rd Sem**	**Practical Based on Paper – CS06**	**July-November**	
10	**Prof.Jasleen Kaur**	**BA-IVth Sem**	**Data Structure**	**January**	UNIT I Introduction to Complexity, Data Structure and Data Structure operations. Applications of Data Structure, Basic data Structures; Arrays: Introduction, Types of Array, Memory representation, Applications and operations
				February	UNIT – II

					Linked List: Operations:-traversing, searching, inserting, deleting, operations on header linked list, circular linked list, doubly linked list memory representation, Applications, polynomial manipulation; Queue: Introduction, Types, Memory Representation and Applications.
				March	UNIT – III Trees – Definition and Basic concepts, Representation in Contiguous Storage, Binary Tree, Binary Tree Traversal, Binary Search tree; Graphs: Introduction, Memory Representation, Graph Traversal (DFS and BFS)
				April	UNIT – IV Searching: Binary and Linear Search; Sorting: Bubble sort, Insertion sort, Selection sort, Merge Sort, Quick sort.
11	**Prof.Jasleen Kaur**	**BA-IVth Sem**	**Practical Based on Paper – CS08**	**January-April**	
12	**Prof. Balkar Singh**	**BA-Vth Sem**	**Project Management**	**July**	UNIT I Concepts of Project Management : Concept of a project, Characteristic features of a project, Categories of project, Project life cycle phases, Project Management Concepts, Tools and Techniques for Project Management, Introduction of Computerised project management systems, Roles and Responsibilities of a Project Manager.
				August	Establishing the Project : Feasibility Report : Raw material survey, Demand study, Technical study, Location study; Financing Arrangements, Preparation of Cost Estimates, Finalisation of Project Implementation Schedule, Evaluation of the Project Profitability, Fixing the zero date. UNIT II Organizing human resource: Delegation, Project organization: Matrix, Tax force and Totally projectized organization; Organizing the Project: Working of Systems, Design of Systems, Project Work System

					Design. Specimen Reports: technical report;
				September	Work Breakdown Structure, Project Execution Plan, Project Procedure Manual, Project Control System, Planning, Scheduling and Monitoring. UNIT III Project Directions, Coordination and Control: Project Direction, Communications in a Project, Project Coordination, Project Control, Scope/Progress Control, Performance Control, Schedule Control, and Cost Control. Project Management Performance: Performance Indicators, Performance Improvement, Project Management Environment. draft, Process of writing, Order of writing, Final draft, Check list for reports;
				October	UNIT IV Report Writing - I: Characteristics of Reports, Importance of Reports, Types of Reports, Structure and layout of Reports: front matter, main body, back matter; Preparatory Steps to Writing Reports: Evaluation of material, Note making, Organising material, Principle of organisation, Making outline
				November	Report Writing- II: Elements of Style; Use of Illustrations: types; Writing the Report: Rough
13.	**Prof. Balkar Singh**	**BA-Vth sem**	**Relation Database Management System**	**July**	UNIT I Interactive SQL : SQL commands; Data Definition Language Commands; Data Manipulation Language Commands; Data types, Insertion of data into the tables; Viewing of data from the tables; Conditional viewing of data; Deletion operations; Updating the contents of the table; Modifying the structure of the table; Renaming table; Destroying tables.
				August	Data Constraints: Types of Data Constraints; Column Level Constraints; Table Level Constraints; Null value concepts; The UNIQUE Constraint; The PRIMARY Constraint; The FOREIGN key Constraint; The

					CHECK Constraint; Viewing the User Constraint. UNIT – II SQL Operators and Functions: Arithmetic operators, Logical operators, Range searching, Pattern matching; Using DUAL, SYSDATE; SQL Functions: Group, Scalar, Aggregate, Numeric, String and Date Functions.
				September	Grouping data from tables in SQL : Group By , Having clause, Sub-queries, Collating Information: Equi- Joins, Cartesian Joins, Outer Joins, Self Joins; SET Operators: Union, Intersect, Minus; Nested Queries. UNIT III Indexes: Creation, Types, Dropping an index; Introduction to Views, Manipulating the Base table(s) through views, Rules of DML Statements on Join Views, Dropping a View, Inline Views, Materialized Views.
				October	Sequences: Creation, Reference and Alteration; Database Security and Privileges: Grant Command, Revoke Command, Application Privileges Management, COMMIT and ROLLBACK. UNIT IV PL/SQL-I: Introduction to PL/SQL, The Advantage of PL/SQL, PL/SQL block structure, PL/SQL Architecture, Fundamentals of PL/SQL, PL/SQL Data types, Variables and constants, Scope and visibility of a variable, Assignments and expressions, Operator precedence, Conditional and iterative control, SQL within PL/SQL, writing PL/SQL code.
				November	PL/SQL-II: Cursor management in PL/SQL, Cursor manipulation, Implicit and Explicit cursor attributes, Exceptional Handling, Subprograms in PL/SQL, Procedure, Functions, and Triggers.
14.	**Prof.Ramanpreet**	**BA VI sem**	**Web Programming**	**January**	**UNIT - I** **1. Basic Terminology :** Web Server; Web Browser, Understanding Communication between a Browser and Web Server, Webpage, Website, Static Website, Dynamic Website, Internet, Intranet, Extranet,

					WWW, URL. **2. HTML :** HTML Program Structure, Paragraph Breaks, Line Breaks; Emphasizing Text: Heading Styles, Drawing Lines; Text Styles :Bold, Italics, Underline; Other Text Effects: Centering of text and images etc; Lists: Unordered List, Ordered Lists, Definition lists; Adding Graphics to HTML Documents using the Border, Width, Height and Align; Tables: Caption Tag, Width, Border, Cell padding, Cell spacing, BGCOLOR, COLSPAN and ROWSPAN
				February	**UNIT - II** **3. Linking Documents :** Anchor tag, External Document References, Internal Document References and Image Maps; Frames: Introduction to Frames: The <FRAMESET> tag, The <FRAME> tag, Targeting Named Frames **4. DHTML:** Introduction to Cascading Style Sheets (CSS), Style tag, Link tag, Types of CSS: In-Line, Internal, External; Forms: Attributes of Form element: Input element, Text Element, Password, Button, Submit Button, Reset Button, Checkbox, Radio, TextArea, Select and Option.
				March	**UNIT - III** **5. JavaScript:** Introduction and Features of JavaScript, Writing JavaScript into HTML,Tokens, Data Types, Variables, Operators, Control Constructs, Strings Arrays, Functions, Document Object Model, CoreLanguage Objects, Client Side Objects, Event Handling, Applications related to client side formvalidation, Built-In Objects in JavaScript: String Object, Math Object, Date Object;
				April	**UNIT - III** **5. JavaScript:** Introduction and Features of JavaScript, Writing JavaScript into HTML,Tokens, Data Types,

					Variables, Operators, Control Constructs, Strings Arrays, Functions, Document Object Model, CoreLanguage Objects, Client Side Objects, Event Handling, Applications related to client side formvalidation, Built-In Objects in JavaScript: String Object, Math Object, Date Object;
15.	**Prof.Balkar Singh**	**B.A. VI sem**	**E-Commerce**	**January**	**UNIT I** **1. E-Commerce:** Introduction, History, Motivation for E-Commerce, Types of Ecommerce, Advantages, Limitations, E-Commerce applications : Business-to-consumer, Business-to-Business, Consumer-to-Business, Consumer-to-Consumer, Business-within-Business. **2. Internet and www:** Introduction, History, Benefits of www, Internet Service Providers, Web and Electronic commerce,Web architecture and its components, Interactive web applications, Web and database integration, Web software development tools, Search engines.
				February	**UNIT II** **3. Website designing and hosting:** Life cycle of website building, Website content andtraffic management, Working of ISPs, Choosing an ISP, Choosing and registering a domain name. **4. Implementation and Maintenance of E-Commerce:** Implementation strategies, Maintenance strategies, Legal and Ethical issues in E-commerce.
				March	**UNIT III** **5. Payment Systems :** From Barter to money, Requirements of Internet-based payments,Electronic payment media : Credit cards, Debit cards, Smart cards, e-wallets, Issues and implications of payment systems, Latest trends in payment systems. **6. Marketing on the Internet:** Internet marketing techniques and cycles, Attracting and Tracking customers,

					Pros and cons of online marketing.
				April	**7. Firewalls and Network Security:** Types of firewall, Gateways, Proxy Servers and its advantages and disadvantages; Transaction Security: Types of transaction, Requirements for transaction, Encryption: asymmetric and symmetric encryption; Digital signatures, Digital certificates, Implementation and management issues.

S.No	Teacher	Class	Subject	Month	Syllabus
1	**Prof.Devki**	**BSc-1st Sem**	**Computer Fundamentals**	**July**	UNIT I Introduction to computers, characteristics of computer; History of computers; Classification of computers on size: (Micro, Mini, Mainframe and super computers), Working Principles, Generations; Applications of computers; commonly used terms–Hardware, Software, Firmware.
				August	Basic Computer Organization: Block diagram of computer system, Input unit, Processing Unit and Output Unit; Description of Computer input devices: Keyboard, Mouse, Trackball, Pen, Touch screens, Scanner, Digital Camera; Output devices: Monitors, Printers, Plotters. UNIT –II Computer Memory: Representation of information: BIT, BYTE, Memory, Memory size; Units of measurement of storage; Main memory: main memory organization, RAM, ROM, PROM, EPROM; Secondary storage devices: Sequential Access Memory, Direct Access Memory Magnetic Tapes, Magnetic disks, Optical disks: CD,

					DVD; Memory storage devices: Flash Drive, Memory card
				September	UNIT – III Types of software: System and Application software; Programming Languages: Generation of Languages; Translators - Interpreters, Compilers, Assemblers and their comparison.
				October	Range of Applications: Scientific, Word Processing, Spread Sheets, Ecommerce, Business, Educational, Industrial, National level weather forecasting, Remote Sensing, Planning Multilingual Applications. UNIT IV Operating Systems : Components of Operating System; Functions of Operating System; Types of Operating System; Linux/Dos/Windows.
				November	Computers and Communication: Single user, multi-user, workstation, and client server systems. Computer networks, Network protocols. LAN, WAN, Services offered by Internet.
2.	**Prof Devki**	**Bsc 1st Sem**	**PC Software**	**july**	UNIT – I Concept of files and directories; Disk Operating System: DOS, System Files, types of DOS commands: Internal and External commands: Introduction to AUTOEXEC.BAT, Directory commands: XCOPY, DEL, RENAME, ATTRIB, BACKUP, RESTORE, FIND, SYS; General commands: TYPE, DATE, TIME, PROMPT; Batch Files, Wild Cards, Line Editor.
				Aug	UNIT – II Introduction to graphical user interface, window operating system, Anatomy of windows, organizing folders and files, recycle bin, my computer, windows explorer, control

					panel.
				Sep	UNIT – III Word Processing : Basics of Word Processing; Opening, Creating, Saving, Printing and Quitting Documents, Using the Interface (Menu Toolbars), Editing Text (Copy, Delete, Move), Finding and Replacing Text, Spell Check, Autocorrect; Auto Text, Character formatting, Page formatting; Document Enhancement; Adding Borders and shading, Adding Headers and Footers, Setting up Multiple columns, Sorting blocks, Adjusting Margins and Hyphenating Documents, Creating Master Documents, Creating Data Source, Merging Documents, Using Mail merge feature for labels and envelops; Inserting Pictures, Tables, Working with equations.
				Oct	UNIT – IV Spread Sheet : Worksheet overview, Row, Column, Cells, Menus, Creating Worksheet, Opening, Saving, Printing Worksheets; Calculations, Auto fill, Working with Formulae, Data Formatting (number formatting, date formatting), Working with Ranges, Establishing Worksheet links; Creating, Sorting and Filtering Data Base;
				Nov	Creating chart, Adding Titles, Legends etc. to charts, Printing Charts, Creating Macros, Record Macros, Running Macros, Assigning Macros to Buttons, Functions (Statistical, Financial, Mathematical, String, Date and Time). MS-Power Point: Creating, Saving, Printing Presentation; Selecting Design Templates, Animations and Transitions, Auto Content Wizard.

3.	**Prof Devki**	**Bsc-1st Sem Sem**	**Practical Based on Paper – CS01**	**July-November**	
4.	**Prof Devki**	**Bsc-2nd Sem**	**Operating System Concepts**	**January**	UNIT - I Operating Systems (OS): Introduction, need of operating system and functions of operating system, Types of OS: Multi-user, Multitasking, Multiprocessing and Real time Operating Systems, Parallel systems, Distributed systems; Structure of Operating System;
				February	UNIT – II Process Management: Introduction to Process, PCB, Process States, CPU Scheduling: Scheduling Criteria and Algorithms: FCFS, SJF, Priority, Round Robin, Multilevel Queue Scheduling, Multilevel Feedback Queue Scheduling. U
				March	UNIT - III Deadlocks: Introduction, Necessary and sufficient conditions for Deadlocks, Resource allocation graph, Introduction to methods for handling deadlocks, deadlock prevention, deadlock avoidance: Banker Algorithm, deadlock detection and recovery.
				April	UNIT – IV Memory Management: Logical vs Physical address space, Swapping, Introduction to Paging, Segmentation, Virtual Memory-Demand paging, Introduction to Page Replacement algorithms: FIFO, Optimal Page replacement and LRU
5.	**Prof Devki**	**Bsc 2nd Sem**	**Programming in C Language**	**January**	UNIT – I Programming Process: Steps in developing of a program, Data Flow Diagram, Decision Table, Algorithm development, Flowchart, Pseudo Code, Testing and Debugging. Fundamentals of C Languages: History of C, Character

					Set, Identifiers and Keywords, Constants, Types of C Constants, Rules for Constructing Integer, Real and character Constants, Variables, Data Types, rules for constructing variables.
				February	UNIT – II Operators and Expressions: C Instructions, Arithmetic operators, Relational operators, Logical operators, Assignment Operators, Type Conversion in Assignments, Hierarchy of Operations, Standard and Formatted Statements, Structure of a C program , Compilation and Execution. Decision Control Structure: Decision making with IF-statement, IF-Else and Nested IF-Else, The else if Clause. Loop Control Structure: While and do-while, for loop and Nested for loop, Case Control Structure: Decision using switch, The goto statement.
				March	UNIT – III Functions: Library functions and user defined functions, Global and Local variables, Function Declaration, Calling and definition of function, Methods of parameter passing to functions, recursion, Storage Classes in C. Arrays: Introduction, Array declaration, Accessing values in an array, Initializing values in an array, Single and Two Dimensional Arrays, Initializing a 2-Dimensional Array, Memory Map of a 2-Dimensional Array, Passing array elements to a function.
				April	UNIT – IV String Manipulation in C: Declaring and Initializing string variables, Reading and writing strings, String Handlingfunctions(strlen(), strcpy(), strcmp(), strcat()). Structures and

					Unions: Declaration of structures, Structure Initialization, Accessing structure members, Union, Difference between Structure and Union .
6.	**Prof. Devki**	**BSc-2nd Sem**	**Practical Based on Paper – CS04**	**January-April**	
7.	**Prof. Ramanpreet Kaur**	**BSc-3rd Sem**	**Computer Organization**	**July**	UNIT - I Representation of Information : Number system: Binary, Decimal, Hexadecimal, Octal; Conversions; integer and floating point representation, character codes (ASCII, EBCDIC), error detection and correction codes: Parity bit method, Hamming code; Boolean algebra.
				August	UNIT – II Basic Building Blocks :Combinatorial logic design : Gates, Half Adder, Full Adder, Encoder, Decoder, Multiplexer : Sequential Building Block : Flip-Flops, Registers, Counters: Synchronous and Asynchronous Counters, Bus. Microinstructions : Register Transfer, Arithmetic, Logical and Shift Operations; Instruction : Instruction Format, Instruction Cycle; Interrrupt: Interrupt types, Interrupt Cycle.
				September	UNIT – III Micrprocessor : Architecture of 8086/8088 Processor Model; Instruction Set; Addressing Modes: Registgers used in Mircoprocessor. Assembly Language : Features of Assembly Language, Machine Language vs Assembly Language, Pseudo Instruction; use of Assembly for programs: Addition, Subtraction, Multiplication using Subroutines and Basic Input/Output.
				October	UNIT – IV System Maintenance : Introduction to various physical components of a computer, Physical Inspection and Diagnostics on PC,

					types of displays and other peripheral devices, installing software;
				November	Functional description of various Internal and External cards; Viruses: Types of Computer Viruses, Detection of Viruses, Protection from Viruses.
8.	**Prof. Devki**	**BSC-3rd Sem**	**Object Oriented Programming (using C++)**	**July**	UNIT – I Basic Concepts of Object Oriented Programming(OOP) : Object, Class, Encapsulation, Data Hiding, Inheritance, Polymorphism. Analysis and design of system using Object Oriented Approach, Benefit of OOPs. Structure of a C++ Program : Include files, Declaration of class, Main function, I/O streams.
				August	Classes : Class Declaration : Data Members, Member Functions, Private and Public members, data hiding and encapsulation, arrays within a class. Objects : Creating Objects, Accessing class data members, Accessing member functions, Methods of passing arguments to functions. UNIT – II Object Concepts: Arrays of Objects, Objects as function arguments: Pass by value, Pass by Reference, Pointers to Objects.
				September	Functions in C++ : Member function definition inside the class declaration and outside the class declaration, scope resolution operator, Private and Public member function, Nesting of member functions, Static and Friend functions. UNIT – III Constructors and Destructors: Constructors: Declaration and Definition, Default Constructors, Parameterized Constructors, Copy Constructors. Destructors: Definition

					and use.
				October	Inheritance – Extending Classes : Concept of inheritance, base class, derived class, defining derived classes, visibility modes, private, public, protected; single inheritance : privately derived, publicly derived; making a protected member inheritable, access control to private and protected members by member functions of a derived class, multilevel inheritance, nesting of classes.
				November	UNIT – IV Polymorphism : Definition, types, Function overloading, Operator Overloading, Virtual functions and pure virtual functions.
9.	**Prof. Devki**	**BSc-3rd Sem**	**Practical Based on Paper – CS06**	**July-November**	
10.	**Prof. Ramanpreet Kaur**	**BSc-4th Sem**	**Database Concepts**	**January**	UNIT – I Basic Concepts: A Historical perspective, File Systems vs. DBMS, Characteristics of the Data Base Approach, Abstraction and Data Integration, Database users, Advantages and Disadvantages of DBMS, Implication of Database approach; Data Independence.
				February	UNIT – II Relational Data Model: Relational model concepts, Integrity constraints over Relations, Conventional Data Models : An overview of Network and Hierarchical Data Models. The 12 Rules (Codd's Rule) for an RDBMS; Entity Relationship model.
				March	UNIT – III Relational Algebra and Calculus: Storage Organization for Relations, Relational Algebra: Operations - union, intersection, difference, Cartesian product, projection, selection, division and relational algebra queries; Relational

					Calculus: Tuple oriented and domain oriented relational calculus and its operations.
				April	UNIT – IV Advance concepts: Client-Server Architecture, 3-tier Architecture of database, Distributed databases, Normalization: First, second and third Normal Form, Boyce Codd Normal Form; Database Integrity: entity and referential; Security: , Concurrency, Recovery
11.	**Prof. Devki**	**BSc-IVth Sem**	**Data Structure**	**Jan**	UNIT I Introduction to Complexity, Data Structure and Data Structure operations. Applications of Data Structure, Basic data Structures; Arrays: Introduction, Types of Array, Memory representation, Applications and operations Stacks: Introduction, memory representation, Applications and operations
				Feb	UNIT – II Linked List: Operations:-traversing, searching, inserting, deleting, operations on header linked list, circular linked list, doubly linked list memory representation, Applications, polynomial manipulation; Queue: Introduction, Types, Memory Representation and Applications.
				March	UNIT – III Trees – Definition and Basic concepts, Representation in Contiguous Storage, Binary Tree, Binary Tree Traversal, Binary Search tree; Graphs: Introduction, Memory Representation, Graph Traversal (DFS and BFS)
				April	UNIT – IV Searching: Binary and Linear Search; Sorting: Bubble sort,

					Insertion sort, Selection sort, Merge Sort, Quick sort.
12.	**Prof. Devki**	**BSc-4th Sem**	**Practical Based on Paper – CS08**	**January-April**	
13.	**Prof. Ramanpreet**	**B.Sc. Vth sem**	**Relational Database Management System**	**July**	UNIT I Interactive SQL : SQL commands; Data Definition Language Commands; Data Manipulation Language Commands; Data types, Insertion of data into the tables; Viewing of data from the tables; Conditional viewing of data; Deletion operations; Updating the contents of the table; Modifying the structure of the table; Renaming table; Destroying tables.
				August	Data Constraints: Types of Data Constraints; Column Level Constraints; Table Level Constraints; Null value concepts; The UNIQUE Constraint; The PRIMARY Constraint; The FOREIGN key Constraint; The CHECK Constraint; Viewing the User Constraint. UNIT – II SQL Operators and Functions: Arithmetic operators, Logical operators, Range searching, Pattern matching; Using DUAL, SYSDATE; SQL Functions: Group, Scalar, Aggregate, Numeric, String and Date Functions.
				September	Grouping data from tables in SQL : Group By , Having clause, Sub-queries, Collating Information: Equi-Joins, Cartesian Joins, Outer Joins, Self Joins; SET Operators: Union, Intersect, Minus; Nested Queries. UNIT III Indexes: Creation, Types, Dropping an index; Introduction to Views, Manipulating the Base table(s) through views, Rules of DML Statements on Join Views, Dropping

					a View, Inline Views, Materialized Views.
				October	Sequences: Creation, Reference and Alteration; Database Security and Privileges: Grant Command, Revoke Command, Application Privileges Management, COMMIT and ROLLBACK. UNIT IV PL/SQL-I: Introduction to PL/SQL, The Advantage of PL/SQL, PL/SQL block structure, PL/SQL Architecture, Fundamentals of PL/SQL, PL/SQL Data types, Variables and constants, Scope and visibility of a variable, Assignments and expressions, Operator precedence, Conditional and iterative control, SQL within PL/SQL, writing PL/SQL code.
				November	PL/SQL-II: Cursor management in PL/SQL, Cursor manipulation, Implicit and Explicit cursor attributes, Exceptional Handling, Subprograms in PL/SQL, Procedure, Functions, and Triggers.
14.	**Prof.Ramanpreet**	**B.Sc. Vsem**	**Practical-C Practical Based on Paper – CS10**	**July-November**	
15.	**Prof.Ramanpreet**	**B.Sc. Vsem**	**Project Management**	**July**	UNIT I 1. Concepts of Project Management : Concept of a project, Characteristic features of a project, Categories of project, Project life cycle phases, Project Management Concepts, Tools and Techniques for Project Management, Introduction of Computerised project management systems, Roles and Responsibilities of a Project Manager. 2. Establishing the Project : Feasibility Report : Raw material survey, Demand study, Technical study, Location study; Financing Arrangements, Preparation of Cost Estimates, Finalisation of Project Implementation Schedule, Evaluation of the Project

					Profitability, Fixing the zero date.
				August	UNIT II 3. Organizing human resource: Delegation, Project organization: Matrix, Tax force and Totally projectized organization; 4. Organizing the Project: Working of Systems, Design of Systems, Project Work System Design, Work Breakdown Structure, Project Execution Plan, Project Procedure Manual, Project Control System, Planning, Scheduling and Monitoring.
				September	UNIT III 5. Project Directions, Coordination and Control: Project Direction, Communications in a Project, Project Coordination, Project Control, Scope/Progress Control, Performance Control, Schedule Control, and Cost Control. 6. Project Management Performance: Performance Indicators, Performance Improvement, Project Management Environment.
				October	UNIT IV 7. Report Writing - I: Characteristics of Reports, Importance of Reports, Types of Reports, Structure and layout of Reports: front matter, main body, back matter; Preparatory Steps to Writing Reports: Evaluation of material, Note making, Organising material, Principle of organisation, Making outline.
				November	8. Report Writing- II: Elements of Style; Use of Illustrations: types; Writing the Report: Rough draft, Process of writing, Order of writing, Final draft, Check list for reports; Specimen Reports: technical report;
16.	**Prof.Ramanpreet**	**B.Sc. VI sem**	**Web Programming**	**January**	**UNIT - I** **1. Basic Terminology :** Web Server; Web Browser, Understanding Communication between a Browser

					and Web Server, Webpage, Website, Static Website, Dynamic Website, Internet, Intranet, Extranet, WWW, URL. **2. HTML :** HTML Program Structure, Paragraph Breaks, Line Breaks; Emphasizing Text: Heading Styles, Drawing Lines; Text Styles :Bold, Italics, Underline; Other Text Effects: Centering of text and images etc; Lists: Unordered List, Ordered Lists, Definition lists; Adding Graphics to HTML Documents using the Border, Width, Height and Align; Tables: Caption Tag, Width, Border, Cell padding, Cell spacing, BGCOLOR, COLSPAN and ROWSPAN
				February	**UNIT - II** **3. Linking Documents :** Anchor tag, External Document References, Internal Document References and Image Maps; Frames: Introduction to Frames: The <FRAMESET> tag, The <FRAME> tag, Targeting Named Frames **4. DHTML:** Introduction to Cascading Style Sheets (CSS), Style tag, Link tag, Types of CSS: In-Line, Internal, External; Forms: Attributes of Form element: Input element, Text Element, Password, Button, Submit Button, Reset Button, Checkbox, Radio, TextArea, Select and Option.
				March	**UNIT - III** **5. JavaScript:** Introduction and Features of JavaScript, Writing JavaScript into HTML,Tokens, Data Types, Variables, Operators, Control

					Constructs, Strings Arrays, Functions, Document Object Model, CoreLanguage Objects, Client Side Objects, Event Handling, Applications related to client side formvalidation, Built-In Objects in JavaScript: String Object, Math Object, Date Object;
				April	**UNIT - III** **5. JavaScript:** Introduction and Features of JavaScript, Writing JavaScript into HTML,Tokens, Data Types, Variables, Operators, Control Constructs, Strings Arrays, Functions, Document Object Model, CoreLanguage Objects, Client Side Objects, Event Handling, Applications related to client side formvalidation, Built-In Objects in JavaScript: String Object, Math Object, Date Object;
17.	**Prof.Ramanpreet**	**B.Sc. VI sem**	**E-Commerce**	**January**	**UNIT I** **1. E-Commerce:** Introduction, History, Motivation for E-Commerce, Types of Ecommerce, Advantages, Limitations, E-Commerce applications : Business-to-consumer, Business-to-Business, Consumer-to-Business, Consumer-to-Consumer, Business-within-Business. **2. Internet and www:** Introduction, History, Benefits of www, Internet Service Providers, Web and Electronic commerce,Web architecture and its components, Interactive web applications, Web and database integration, Web software development tools, Search engines.

				February	**UNIT II** **3. Website designing and hosting:** Life cycle of website building, Website content andtraffic management, Working of ISPs, Choosing an ISP, Choosing and registering a domain name. **4. Implementation and Maintenance of E-Commerce:** Implementation strategies, Maintenance strategies, Legal and Ethical issues in E-commerce.
				March	**UNIT III** **5. Payment Systems :** From Barter to money, Requirements of Internet-based payments,Electronic payment media : Credit cards, Debit cards, Smart cards, e-wallets, Issues and implications of payment systems, Latest trends in payment systems. **6. Marketing on the Internet:** Internet marketing techniques and cycles, Attracting and Tracking customers, Pros and cons of online marketing.
				April	**7. Firewalls and Network Security:** Types of firewall, Gateways, Proxy Servers and its advantages and disadvantages; Transaction Security: Types of transaction, Requirements for transaction, Encryption: asymmetric and symmetric encryption; Digital signatures, Digital certificates, Implementation and management issues.

BCA					
S.No	**Teacher**	**Class**	**Subject**	**Month**	**Syllabus**
1.	**Prof.Gurda**	**BCA**		July	**UNIT - I**

	s Singh	**-Ist Sem**			**Basic Statistics:** Types of Statistics, Different Statistical Techniques, Steps in Statistical Investigation, Uses and Limitations of statistics, Collection of Data: Sources of collecting primary and Secondary Data, Limitations of Secondary Data, Criteria of evaluating secondary data, Organization of data, Graphs of Grouped Frequency Distribution, Tabulation of Data, Parts of Table
				August	**Measures of Central Tendency**: Kinds of measures of central tendency (statistical averages or averages): **Arithmetic Mean:** Simple Arithmetic Mean, Methods of calculating Simple Arithmetic Mean, Arithmetic Mean in case of Individual Series, Discrete series and continuous series, Weighted Arithmetic Mean, Combined Arithmetic Mean. **Geometric Mean:** Simple Geometric Mean , Methods of calculating Simple Geometric Mean, Geometric Mean in case of Individual Series, Discrete series and continuous series, Weighted Geometric Mean, Combined Geometric Mean. **Harmonic Mean:** Simple Harmonic Mean ,Methods of calculating Simple Harmonic Mean, Harmonic Mean in case of Individual, Discrete series and continuous series, Weighted Harmonic Mean, Combined Harmonic Mean. **UNIT - II** **Median**: Methods of Calculating Median in case of Individual, Discrete series and continuous series **Partition Value**: Quartile, Quintiles, Hexiles, Septiles, Octiles, Deciles, Percentiles **Mode**: Methods of Calculating Mode in case of Individual Series, Discrete series and continuous series
				Septembe r	**Range:** Computation of Range, Inter Quartile Range, Computation of Inter Quartile Range, Percentile Range and Computation of Percentile Range. Mean Deviation, Computation of Mean Deviation, Standard Deviation, Calculation of Standard Deviation, Variance, Calculation of Standard Deviation for individual Series, Discrete Series and Continuous Series, Coefficient of Standard Deviation and coefficient of variation, Combined Standard Deviation, Correcting incorrect Standard Deviation : **UNIT - III**

					Correlation Analysis : Correlation Analysis: Definition, Types of Correlation: Positive, Negative, Simple, Multiple, Partial, Total, Linear and Non-Linear. Need of Correlation Analysis, Correlation and Causation, Techniques for Measuring Correlation: Scatter Diagram Method, Graphic Method,
				October	Karl Pearson's Coefficient of Correlation: Correcting incorrect coefficient of correlation, calculating Karl Pearson's coefficient of correlation in case of grouped series, Probable Error, Coefficient of Determination, Spearman's coefficient of Correlation (Rank correlation): Calculation of Correct Coefficient of rank correlation, Difference between Rank Coefficient and Karl Pearson's coefficient of coefficient, Coefficient of concurrent deviation. **UNIT - IV** **Regression Analysis (Linear Regression):** Definition, Difference between Correlation and Regression, Types of Regression Analysis: Simple, Multiple, Partial, Total, Linear and Non-Linear
				Novembe r	Objectives of Regression Analysis, Methods of obtaining regression analysis: Regression Lines, Regression Equations. Methods of obtaining regression equations: Normal Equations and Regression Coefficient, Properties of Regression Coefficient, Standard Error of Estimate, Regression Coefficient in case of Grouped Data, Uses of Regression Analysis and Limitations of Regression Analysis
2.	**Prof.Jaslee n Kaur**	**BCA -IInd Sem**	**Object Oriented Programmin g using C++**	**January**	UNIT – I Principles of Object Oriented Programming (OOP): Introduction to OOP, Difference between OOP and Procedure Oriented Programming; Concepts: Object, Class, Encapsulation, Abstraction, Polymorphism and Inheritance, Applications of OOP. Special operators: scope resolution operator, Member Dereferencing operators, Memory management operators, Manipulators and Type cast operator
				February	Structure of a C++ Program and Classes and Objects : Class Declaration : Data Members, Member Functions, Private and Public members, Creating Objects, Accessing class data members, Accessing member functions; Class Function Definition: Member Function definition inside the class declaration and outside the class declaration. UNIT - II Friend function, inline function, Static members, Function Overloading, Arrays within a class. Arrays of Objects; Objects as function arguments: Pass by value, Pass by reference, Pointers to Objects.
				March	Constructors: Declaration and Definition, Types of Constructors, (Default,

					Parameterized, Copy Constructors). Destructors: Definition and use. Operator Overloading & Type Conversion: Conversion from basic type to user defined type, User defined to basic type and one user defined conversion to another user defined type. UNIT - III Inheritance: Extending Classes Concept of inheritance, Base class, Defining derived classes, Visibility modes : Public, Private, Protected ;Types of Inheritance: Single inheritance : Privately derived, Publicly derived; Making a protected member inheritable, multilevel : 20 inheritance, multiple Inheritance and ambiguity of multiple inheritance, Hierarchal Inheritance, Hybrid, Nesting of classes
				April	Polymorphism: Definition, Application and demonstration of Data Abstraction, Encapsulation and Polymorphism. Early Binding, Polymorphism with pointers, Virtual Functions, Late binding, pure virtual functions. UNIT - IV Exception Handling: Definition, Exception Handling Mechanism : Throwing mechanism and Catching Mechanism, Rethrowing an Exception File Processing : Opening and closing of file, Binary file operations, structures and file operations, classes and file operations, Random file processing.
3.	**Prof.Jaslee n Kaur**	**BCA -IInd Sem**	**Lab based on BCA-16-203**	**January-April**	
4.	**Prof. Sonia Sharma**	**BCA -IInd Sem**	**Computer Organization**	**Jan**	Computer Organization: Evolution of Computers, Von Neumann Architecture, Combinatorial Blocks : Gates, Half Adder, Full Adder, Multiplexers, Decoders, Encoders; Sequential Building blocks : Flip Flops, Registers, Counters
				Feb	Information representation: codes, fixed and floating point representation Arithmetic: Addition and subtraction for sign magnitude and 2's complement numbers, integer multiplication using Booth's algorithms Architecture of a Simple Processor: Architecture of 8086/8088 microprocessor, instruction set, Addressing Modes. Instruction: Microinstructions: Register Transfer, Arithmetic, Logical and Shift, Types of Instructions, Instruction Cycle. Interrupt: Types, Interrupt Cycle I/O organization: Strobe based and Handshake based communication, DMA based data transfer
				March	Memory Organisation: Memory Hierarchy, RAM (Static and Dynamic), ROM Associative memory, Cache memory organisation, Virtual memory organisation. Assembly Language : Features of Assembly Language, Machine Language vs Assembly Language, Pseudo Instruction; use of Assembly for programs: Addition, Subtraction, Multiplication using Subroutines and Basic Input/ Output.
				April	System Maintenance: Introduction to various physical components of a computer, Physical Inspection and Diagnostics on PC, Functional description of various Internal and External cards; Viruses: Types of Computer Viruses, Detection, prevention and protection from Viruses
5.	**Prof. Gurpreet Kaur**	**BCA III Sem**	**Data Structures**	**July**	Basic Concepts: Introduction to Complexity, Data Structure and Data Structure operations. Applications of Data Structure, Basic data Structures. Arrays: Introduction,

				August	Types of Array, Memory representation, Applications and operations. Stacks: Introduction, memory representation, Applications and operations
				Septembe r	Linked List: Operations:-traversing, searching, inserting, deleting, operations on header linked list, circular linked list, doubly linked list, memory representation, Applications, polynomial manipulation. Queue: Introduction, Types, Memory Representation and Applications.
				October	Trees – Definition and Basic concepts, Representation in Contiguous Storage, Binary Tree, Binary Tree Traversal, Searching, Insertion and deletion in Binary trees, Binary Search tree. Graphs: Introduction, Memory Representation, Graph Traversal (DFS and BFS)
				Novembe r	Searching: Binary and Linear Search; Sorting: Bubble sort, Insertion sort, Selection sort, Merge Sort, Quick sort. Comparison of various Searching and Sorting algorithms.
6.	**Prof.Jaslee n Kaur**	**BCA -IVth Sem**	**Operating System Concepts and Linux**	**January**	UNIT - I Operating Systems (OS): Introduction, its needs and services, Types of OS: Multi-user, Multitasking, Multiprocessing and Real time Operating Systems, Parallel systems, Distributed systems Process Management: Introduction to Process, PCB, Process States, CPU Scheduling: Scheduling Criteria and Algorithms: FCFS, SJF, Priority, Round Robin, Multilevel Queue Scheduling, Multilevel Feedback Queue Scheduling
				February	UNIT - II Deadlocks: Necessary and sufficient conditions for Deadlocks, Introduction to methods for handling deadlocks, deadlock detection and recovery Memory Management: Logical vs Physical address space, Swapping, Introduction to Paging, Segmentation, Virtual Memory-Demand paging, Introduction to Page Replacement algorithms: FIFO, Optimal Page replacement and LRU
				March	UNIT - III Introduction to Linux: Linux's shell, Kernel, Features of Linux, History, Minimum system requirements, Boot and Root disks , Starting and stopping Linux system, passwords, logging in and out, terminal Handling commands: who, Understanding wildcards, Environment variables. Understanding I/O Redirection and Piping: Introduction, cut, paste, sort, tee; Introduction to Regular Expressions and grep . : 38 Using file system: Introduction to common types of files, Filenames, Introduction to different types of directories: Parent, Subdirectory, Home directory; rules to name a directory,
				April	Important directories in Linux File System, Absolute and relative filenames, creating files and directories, listing files (ls), pwd, moving and copying files (mv, cp), moving directories, Removing files and directories, using wildcards with files and directories, File and directory permissions using relative and absolute methods, Changing group ownership, umask settings UNIT - IV Process Management: Types of processes, ps, bg, fg, nice, kill. Understanding System Administration activities: Superuser (su) command, Taking backups using tar, Managing disk space, Mounting and Un-mounting file system, Managing users, Managing printers with lpd, mknod, lpc, lpq, lprm. Vi editor: starting vi, vi modes, inserting text, quitting vi, deleting text, copying and moving text, searching and replacing text.
7.	**Prof.Jaslee n Kaur**	**BCA -IVth**	**Lab based on BCA-16-404**	**January-April**	

		Sem			
8.	**Prof. Gurpreet Kaur**	**BCA IV Sem**	**Introduction to Image Editors**	**Jan**	Basic Concepts: A Historical perspective, File Systems vs. DBMS, Characteristics of the Data Base Approach, Abstraction and Data Integration, Database users, Advantages and Disadvantages of DBMS, Implication of Database approach. Data Base Systems Concepts and Architecture: Schemas and Instances, DBMS architecture and Data Independence, Data base languages & Interfaces, DBMS functions and component modules. Entity Relationship Model: Entity Types, Entity Sets, Attributes & Keys, Relationships, Relationship Types, Roles and Structural Constraints, Design issues, weak entity types, ER Diagrams. Design of an E-R Database Schema, Reduction of an E-R Schema to Tables.
				Feb	Understanding SQL-1: Data Types, Creating Tables, Creating a Table with data from Another table, Inserting Values into a Table, Updating Column(s) of a Table, Deleting Row(s) from a Table, Dropping a Column, Querying database tables, Conditional retrieval of rows, Working with Null Values, Matching a pattern from a table, ordering the result of a : 40 Query Aggregate Functions, Grouping the Result of a Query, creation and deletion of Views, Managing privileges with Grant and Revoke Command, COMMIT and ROLLBACK, Functions: Character Functions, Date Functions, Group Functions
				March	Understanding SQL-II: Querying Multiple Tables using Equi-Joins, Cartesian Joins, Outer Joins, Self-Joins, SET Operators: Union, Intersect, Minus; Introduction to Nested Queries PL/SQL: Introduction to PL/SQL, The Advantage of PL/SQL, PL/SQL Block Structure, PL/SQL Architecture, Fundamentals of PL/SQL, PL/SQL
				April	Data Types, Variables and Constants, Scope and Visibility of a Variable, Assignments and Expressions, Operator Precedence, Conditional and Iterative Control, Cursor Management in PL/SQL, Implicit/explicit Cursor Attributes, Exception Handling in PL/SQL; Predefined Exceptions, User Defined Exceptions, Database Trigger, types of triggers, dropping triggers, storage for triggers.
9.	**Prof.Jaslee n Kaur**	**BCA -Vth Sem**	**Computer Networks**	**July**	UNIT - I Computer Network: Network Hardware and Software, Network Topologies, Uses of Computer Networks, OSI Reference Model, TCP/IP reference model, Comparison of OSI with TCP/IP model. Physical Layer: Transmission media: Twisted pair, Coaxial cable, Fiber optics, Wireless Transmission (Radio, Microwave, and Infrared)
				August	Switching: Circuit Switching, Message Switching, Packet Switching & their comparisons. ISDN and its services, Multiplexing: Frequency Division, Time Division, Wave Length Division, MODEMS. UNIT - II Data Link Layer: Design Issue, Framing, Errors
				Septembe r	Detection and Correction Code: Check sum, CRC, Hamming code, Data Link Protocols for noisy and noiseless channels, Sliding Window Protocol: Stop and Wait ARQ, Go-back-N ARQ, Selective Repeat ARQ.Medium Access Sub-Layer: Introduction to Static and Dynamic channel allocation, IEEE standards 802.3. UNIT - III Network Layer: Design Issues, network layer addressing, network layer datagram
				October	IP addressed Classes. Sub netting-Sub network, Subnet mask, Routing Algorithm: Shortest Path Routing, Flooding, Broadcast and Multicast routing Congestion

					control: Principles of Congestion Control, Congestion prevention policies, Leaky bucket and token bucket algorithms.
				November	UNIT - IV Application Layer: Domain Name system (DNS), DNS name space, DNS Servers, World Wide Web, HTTP, e-mail: Architecture and Services, Message Component, Multipurpose Internet Mail Extensions (MIME), Simple Mail Transfer Protocol (SMTP), Post Office Protocol (POP), Remote Login and File transfer protocol, Introduction to Network Security.
10.	**Prof. Balkar Singh**	**BCA -Vth Sem**	**Web Application Development Using PHP**	**July**	UNIT - I Introduction to web applications: Client Side Scripting Vs Server Side Scripting, Understanding Web Servers: Local Servers and Remote Servers, Installing WAMP and configuring PHP environment, Static website Vs Dynamic website development, Embedding PHP code in Web Pages.
				August	PHP Basics: Tokens, Variables, Variable Scope, Constants, Data Types, number handling in PHP, operands, operators, expressions, operator precedence, comments, echo and Print statement Control structures: Branching statements: if-else, ternary operator, switch; looping statements: while, do-while, for; file inclusion Statements . UNIT - II Functions: Function definition, Creating and invoking user-defined functions, Formal parameters versus actual parameters, Function and variable scope.
				September	Recursion, Library functions String Handling: interpolation with curly braces, characters and string indexes, string operators, Heredoc, string functions, Formatting Strings, Comparing and searching Strings and substrings. Arrays: PHP Arrays, Creating Arrays, Accessing Array elements, Multidimensional Arrays, Inspecting Arrays, Deleting from Arrays, Iterating with each() and foreach(), Iterative functions: current(), next(), prev(), reset(), end().
				October	UNIT - III Forms: Working with HTML Form controls and PHP, Super global variables, super global array, importing user input, Accessing user input Integrating PHP and Database: Connecting to database, Making SQL queries, Executing queries, Fetching data sets, Integrating Forms and Databases: Basic form submission to a database, editing data with an HTML form. UNIT - IV Maintaining User State: Introduction to Cookies, Setting time in a cookie with PHP, Deleting a cookie, creating session cookie,
				November	Introduction to sessions, Starting a session, Registering Session variables, working with session variables, Destroying session, passing session Ids , encoding and decoding session variables, increase session expire time, working of session without cookie. Working with File System: Understanding PHP file permissions, Opening and closing a file, File reading and writing functions, File system and directory functions.
11	**Prof. Balkar Singh**	**BCA -Vth Sem**	**Lab based on** BCA-16-504	**July-November**	
12	**Prof. Balkar**	**BCA -VIth**	**E-Commerce**	**January**	UNIT – I An Overview of E-Commerce: Definitions: E-commerce, E-business, difference

	Singh	**Sem**			between E-commerce and E-business, Problems with Traditional business systems, Aims of E-commerce, Types of E-commerce: B2B, B2C, C2C, B2G, G2H, G2C, Operational & Strategic benefits of E-commerce, Issues & Challenges in E-commerce. Electronic Data Interchange (EDI): Definition; Traditional versus EDI enabled system for document exchange; Components of EDI: EDI Standards, EDI Software, Communication Networks; EDI Message Structure; EDI Notification Structure; EDI in India; EDI enabled procurement process; Benefits of EDI: Direct Benefits, Strategic Benefits; EDI Implementation issues; Legal Aspects.
				February	UNIT - II Web based E-Commerce: Definition; Need for web based business, Steps in setting up business on Internet: Selection & registration of domain name, Website development : Planning a website, Steps for creating a website, Elements of a webpage, web authoring tools, Hosting a website: Website hosting considerations. Online Promotion tools & techniques: Getting links to your site, banner advertisements & measuring advertisement effectiveness; Web Traffic Analysis: Hits, View pages, Visits and Other web-reporting tools, various measures, What is Search Engine optimization.
				March	UNIT - III Electronic Payment Systems: E-cash: Purchasing & using of e-cash; Electronic Purses their loading with cash and use; E-cheque payment system; Online Third Party Verified Payment System through Credit & Debit Cards; ATM based cash disbursement system; Electronic Bill Payment System; Interbank clearing system.
				April	UNIT - IV Mobile Commerce: Definition, Benefits of Mobile Commerce, Issues in Mobile Commerce, Mobile Commerce Framework Applications of E-Commerce & Case Studies: Applications of e-commerce, Case studies in Retailing, Banking and e-governance; Cyber Crimes: Types, Cyber Forensics, Cyber crimes and IT Act - 2000.
13.	**Gurdas Singh**	BCA. -6th Sem	Application Development using VB.Net	January	**Overview of the Visual Studio .NET IDE:** Introduction to .NET Framework and the Common Language Runtime, Introduction to Visual tudio.NET IDE: Menu Bar and Tool Bar, Solution Explorer, Toolbox,
				February	Using different controls of Toolbox and their commonly used properties and methods: TextBox, Label, Check Box, Radio Button, Button, Frame, List Box, Combo Box, Picture, Image, Shape, Drive, File, directory related controls, Introduction to Menus **UNIT - II** **Basics of VB.Net:** Constants, Variables, data types, assignment operator, Operators: Arithmetic, Relational and logical operators, Assignment operators, Control structures: If, if/then/else selection structures, Select case Multiple-selection structure, While, do while, do until, For/Next repetition structure **Procedures:** Introduction, sub Procedures, function procedures, event procedures,

					commonly used Form events, msgBox function, InputBox function.
				March	**Arrays and Strings:** declaring and allocating Arrays, Using Strings and String functions: len, right, left, ucase, lcase, ltrim, trim; **Control Arrays**: Introduction, creating and using Control Arrays **UNIT - III** **Writing ASP .NET applications and Deploying ASP .NET Applications**: Introduction to ASP.NET, Difference between ASP and ASP.NET, Understanding Web Forms, Using Validation Controls : RequiredFieldValidator,RangeValidator,CompareValidator,RegularExpressionValidator, CustomValidator,ValidationSummary; , Managing State in ASP.NET Web Applications using Session object, Cookie and Query String ,Creating ASP.NET application, Deploying ASP.NET Applications with Windows Installer, Introduction to Web Services.
				April	**UNIT - IV** **Accessing Data with ADO.NET:** Understanding ADO.net, ADO.NET Object model: Connected model and Disconnected model, architecture, components, Understanding Provider classes, using Data Reader to read data from database, Data Adapter and Data sets, Using DataAdapter for Data Navigation and Data Manipulation, connecting to and querying a data source, using Data Grid view control with ADO.NET data sources.
14.	**Gurdas Singh**	BCA. -6th sem	Computer Graphics and Multimedia Applications	January	**UNIT - I** **Computer Graphics:** A Survey of Computer Graphics: Computer Aided Design, Presentation Graphics, Computer art, Entertainment, Education and Training, Visualization, Image Pressing, Graphical User Interfaces. Overview of Graphics Systems: Video Display Devices, Cathode Ray Tube, CRT monitors, Flat panel displays: Plasma Panel display, Thin-film electroluminescent displays, LED, Liquid Crystal Displays (LCD), Raster Scan Systems, Random Scan Systems. Graphics Monitors and Workstations, Input Devices, Hard-copy devices, Graphics Software.
				February	**UNIT - II** Studying the Features and Developing Computer Graphics Using Standard Graphics package Auto CAD: Features and applications of AutoCAD, Interface, System Requirements, The X,

					Y coordinate system, Dimensioning, Drawing commands, Cleaning Up the drawing, Positioning Commands, Editing Commands, Construction Commands, Display Commands. Developing Computer Graphics Using 'C': Input-output primitives, setting character and text attributes, changing line styles, Using fill styles to fill images.
				March	Use these primitives to develop programs like drawing concentric circles, Ellipses, Sine curves, Histograms, Pie charts and human face **UNIT - III** **Multimedia Applications:** What is multimedia, Components of Multimedia, Need of Multimedia, Features of a Multimedia System, Benefits and problems of using Multimedia? System Components: Multimedia system and a conventional system, Basic System components, Subsystems and functions of a Multimedia computer, Multimedia Add-on Cards. Applications: Multimedia in the Real World, Training and Education, Image Processing, Multimedia in home and office. Multimedia Platforms: Personal computer as a Multimedia System, Limitations of the early Personal Computer as a Multimedia System, The evolution of MPC, Hardware Platforms, Software Platforms. Development Tools: Types of development tools, Commercial tools, Stages of Multimedia Application Development.
				April	**UNIT - IV** **Image:** Sources of image, Types of images, Basic editing operations, Introduction to Image Compression: Lossy and Lossless compression, Image file formats. **Audio:** Hardware for Audio, Digital Audio, Audio editing operations, MIDI, Audio file formats **Video:** Hardware Components of a Video System, introduction to Video compression, MPEG, Video file formats. **Storage for multimedia**: magnetic media, Optical media, Compact disk specifications. Studying features and use of Multimedia authoring tools like Photoshop and Macromedia Director. **Photoshop**- Features, Interface, Toolbox, Color models, Layers, Filters **Macromedia Director**- Features, Stage, Cast, Score, Control Panel, Sprite, Channels, Text

					Inspector, Tools for creating cast members

Post Graduate Course					
1.	**Prof. Gurpreet Singh**	**PGDCA-1st Sem**	Computer Fundamentals	**July**	UNIT - I 1. Basics of Computers: Characteristics of computer; History of computers; classification of computers based on size, architecture, and chronology; Applications of computers; Hardware, Software, and Firmware. Types of software: System and Application software; Input, Process and Output, Block diagram of a computer.
				August	Representation of information: BIT, BYTE, Memory, Memory size; RAM, ROM, PROM, EPROM, Magnetic tapes, Disks, Organization of data on disks: Tracks, sectors, cylinders, heads, access time, seek time and latency time. ASCII and EBCDIC Codes, Binary, Octal, Decimal and Hexadecimal Number Systems and their Conversion, Integer and Floating Point Representation Input/Output devices.
				September	UNIT - II 3. Disk Operating System: Booting sequence; Warm and Cold Booting;Concept of File and directory, Types of DOS commands: Internal and External; Internal Commands: DIR, MD, CD, CLS, COPY, DATE, DEL, PATH, PROMPT, REN, RD, TIME, TYPE, VER, VOL; External

					Commands: XCOPY, ATTRIB, BACKUP, RESTORE,FORMAT, DISKCOPY, Introduction to CONFIG.SYS and AUTOEXEC.BAT files. 4. Windows: GUI, Icons, Toolbar, Control panel, Files and folder management under windows , Accessories, Network Neighborhood, System Tools, Recycle Bin. LINUX: Overview of LINUX structure, Basic Linux commands such as date, echo, cal, bc, passwd, File and Directory commands such as ls, mkdir, pwd, cd, rmdir, cat, cp, mv, rm Understanding File Access Permissions using chmod, chown, chgrp. Comparison of main features of DOS, LINUX and Windows Operating Systems.
				October	UNIT - III 6. Word Processing Software: Basics of Word Processing: creating, opening, saving, and printing document, Menu Toolbars. Editing Text: Copy, Paste, Delete, Move etc., Finding and Replacing Text, Spell Check, Autocorrect feature, language setting and thesaurus Formatting: Character, Paragraph and Page formatting, working with indents, Bulleted and numbered lists, adding Headers and Footers, setting up Multiple Columns Working with tables: Inserting/creating table using toolbar and drawing, formatting table, adding/deleting rows/columns, Applying borders to tables

					Clipart: Using clip art, Creating Word Art Mail merge: Creating merged envelops, creating merged mailing labels
				November	UNIT - IV 7. Spreadsheet Software: Worksheet overview: Row, Column, Cells, Menus, creating, opening, saving, and printing worksheet; working with Range Editing information: Entering text, numbers and formulae, AutoSum, AutoFill, spell checking Working with Functions: Statistical, Mathematical and String functions, date and Time functions, Trigonometric functions Working with charts: Line graphs, Pie charts, Bar graphs, adding Titles, Legends etc. to charts, Printing Charts 8. Presentation Software: Basic features, selecting design templates, creating, saving and printing a simple presentation, various views, Adding pictures, shapes, clipart, audio and movie.
2.	**Prof.Jasleen Kaur**	**PGDCA-1st Sem**	Data Communications and Networks	**July**	UNIT - I Introduction to Computer networks and applications: Network Structure and Architecture, Network Hardware and Software (protocol hierarchies, design issues for layers, interfaces and services: connection oriented and connection less), Network structure and architecture-point to point, multicast, broadcast, Classification of networks on the basis of Geographical Span (PAN, LAN, MAN and WAN)

				August	LAN topologies (Bus, Ring, Star, Mesh, Tree and Hybrid). Network Connecting Devices: Repeaters, Hubs, Bridges, Routers, Gateways and Switches, Network Reference models: OSI model, TCP / IP model. Comparison between OSI and TCP/IP. UNIT - II Introduction to Data Communication: Analog Signal, Digital Signal, Analog vs Digital Communication; Band Width Limitation, Data rate of a channel; Physical Layer: Transmission media: Guided (Twisted-pair, Coaxial and Optical fiber) and Unguided (Radio, Microwave and infrared)
				September	Switching: Circuit switching, Packet Switching, Message Switching, Telephone system, modems. Modulation techniques: AM, PM, FM; Multiplexing Techniques- FDM, WDM, and TDM UNIT - III 3. The Data Link Layer: Design Issues, Error Detection and Correction: Nature of errors, Parity Check, CRC, Hamming Code
				October	Switching: Circuit switching, Packet Switching, Message Switching, Telephone system, modems. Modulation techniques: AM, PM, FM; Multiplexing Techniques- FDM, WDM, and TDM UNIT - III The Data Link Layer: Design Issues, Error Detection and Correction: Nature of errors, Parity Check, CRC, Hamming Code, Elementary Data Link

					Protocols: Simplex. Stop and Wait Protocol, Sliding Windows Protocol: one Bit sliding windows protocol, go back n, selective repeat, HDLC: High Level Data Link Protocol
				November	UNIT - IV The Network Layer: Design Issues, Routing Algorithms (Shortest Path, Flooding, Flow Based, Distance Vector, Link State, Broadcast, Hierarchical Routing), Congestion Control Algorithms and their general principles (Leaky Bucket, Token Bucket); Internetworking: tunneling, Internet Routing, fragmentation.
3	**Prof Sonia Sharma**	**PGDCA-1st Sem**	**Computer Programming Using C**	**July**	Problem Solving: Problem Identification, Analysis, Flow charts, Decision Tables, Pseudo code and algorithms, Program Coding, Program Testing and Execution. C Language Fundamentals: 'C' Language: History, Structure of a C program, Data types, Constants and variables, Operators and Expressions, Type casting, Type conversion, Scope Rules:Local and Global variables, I/O functions, Control constructs(Sequencing, alteration and iteration)
				August	. Header files: stdio.h, ctype.h, string.h, math.h, stdlib.h, time.h 4. Storage classes: automatic, external, static, register 5. Preprocessor: #define, #include, #undef, #conditional compilation

					directives (#if, #else, #elif, #endif, #ifdef and #ifndef)
				September	Functions: library functions, user defined functions, scope rule of functions, Parameter passing: call by value and call by reference, Recursion 7. Arrays: One dimensional and two dimensional arrays, declaring arrays, initializing arrays, processing of arrays, passing arrays as arguments to functions
				October	Pointers: Definition, Declaring pointers, accessing values via pointers, pointer arithmetic, pointer to strings, passing arguments using pointers, array of pointers
				November	Strings: Declaring String, built-in string functions-strlen(),strcpy(), strcat(), strcmp(), array of strings, two dimensional array of characters, Array of Pointers to Strings Structure: Defining a structure type, declaring variables of structure type, initializing structures. Accessing Structure Elements, array of structures, Array in Structures, Difference between array and structure, nested structures Unions: Declaring a Union, Accessing elements of a type union
	Gurdas Singh	**PGDCA-1st Sem**	**Database Management System Using SQL**	**July**	**SECTION - A** **Data Base Concept:** Data Base Vs File Oriented Approach, Basic DBMS terminology, Data Independence, General Architecture of a Data Base Management

					Software, Components of DBMS, Advantages and Disadvantages of DBMS. Distributed Databases, Structure and Design of Distributed Databases.
				August	**Data Base Design:** Introduction to Data Models, Entity Relationship Model, Entities, Attributes, E-R Diagrams, Conceptual Design of a relational data base model. Comparison of Network, Hierarchical and Relational Model. **SECTION - B** **Relational Model:** Storage organization for Relations, Relational Algebra, Relational Calculus, Functional dependencies, Multivalued dependencies, Normalisation. **Database Security:** Database Integrity, Security, Concurrency, Recovery.
				September	**SECTION - C** **Introduction to SQL*Plus:** Introduction to SQL, Oracle Data types, Starting SQL *Plus, Querying database tables, Conditional retrieval of rows, Working with Null Values, Matching a pattern from a table, Ordering and Grouping the Result of a Query; ROLLUP Operation: Getting Sub Totals, CUBE Operation: Getting Cross Tabs, Command Summary of SQL *Plus Editor. **Querying Multiple Tables and Functions:** Collating Information: Equi Joins, Cartesian Joins, Outer Joins,

					Self Joins; SET Operators: Union, Intersect, Minus; Nested Queries. Functions: Scalar Functions (Arithmetic Functions, Character Functions, Date Functions, General Functions); Group Functions.
				October	**Data Manipulation and Control:** Data Definition Language (DDL), Creating Tables, Inserting Values into a Table, Updating Column(s) of a Table, Deleting Row(s) From a Table, Dropping a Column, Introduction to VIEWs, Manipulating the Base table(s) through VIEWs, Rules of DML Statements on Join Views, Dropping a VIEW, Inline Views, Materialized Views. **SECTION - D** **Database Security and Privileges**: GRANT Command, REVOKE Command, Application Privileges Management, Enhancing Performance, Sequences, Maintaining Database Objects, COMMIT and ROLLBACK.
				November	**PL / SQL:** Introduction to PL/SQL, The Advantage of PL/SQL, PL/SQL Block Structure, PL/SQL Data Types, Variables and Constants, Assignments and Expressions, Operator Precedence, Built-in-Functions, Conditional and Iterative Control, Cursor Management in PL/SQL, Cursor Manipulation, Implicit Cursor

					Attributes, Procedure, Functions, Trigger, Types of Triggers, Dropping Triggers.
4.	**Prof. Balkar Singh**	**PGDCA-1st Sem**	**Lab2 (Based on PGD-1103)**	**July-November**	
	Prof. Devki	**PGDCA-1st Sem**	**Lab1 (Based on PGD-1101 & PGD-1102)**	**July-November**	
5.	**Prof. Gurpreet Singh**	**PGDCA-2nd Sem**	Software Engineering	**January**	UNIT - I 1. Software Engineering Fundamentals: Characteristics, Components, Applications, principles of software engineering, skills of software engineer. 2. Software Process Models: Software Development Life Cycle, Waterfall Life Cycle Model, Boehm's Spiral Life Cycle Model, win Win Spiral Model.
				February	UNIT - II 3. Software Project Management: Software Project management Plan(SPMP), Project scheduling Techniques- Work Breakdown Structure(WBS), Project Evaluation Review Technique (PERT), Gantt Charts, Critical path method (CPM) 4. Software Project Estimation and risk Management: Problem-based estimation, Process based estimation, Cost Estimation Model- COCOMO Model, Software Risks, software Risk management, Risk Management activities- Risk Assessment and Risk Control, Benefits of Risk management, SRS.
				March	UNIT - III 5. Software Design: Software Design Process, Design Failures and Remedies 6. Structured Analysis and Design tools: Structured Analysis and Structured

					Design (SASD)-Goals and Benefits, Data Flow Diagrams (DFD), Data Dictionary(DD), Entity-Relationship diagram(ERD).
				April	UNIT - IV 7. Software Testing: Objectives of software Testing, Principles of Software Testing, Software Testing Process, Black Box Testing, White Box Testing 8. Software Quality and Maintenance: Software quality attributes, Factors affecting Software Quality, Aims of Software Maintenance, Types of Software Maintenance, Software Maintenance Costs.
6.	**Prof. Balkar Singh**	**PGDCA-2nd Sem**	Web Technologies	**January**	UNIT - I Introduction to HTML/DHTML: Brief history of HTML, Building blocks of HTML, lists, links, images, image map, tables, frames, forms Introduction to cascading style sheets (CSS): Introduction to Style Sheets, Types of style Sheets-Inline, embedded and external style sheets.
				February	UNIT - II Fundamentals of Java script: Features, tokens, data types, variables, operations, control constructs, strings, arrays, functions, Document Object Model, event handling. Applications related to client side form validation. Java script Objects: Core language objects, The String Object, The Math Object, and The Date Object; User Defined Objects: Creating a User Defined

					Object, Instances, Objects within Objects.
				March	UNIT - III Introduction to PHP: Embedding PHP code in a Web Page, Basic Syntax, Defining variable and constant, PHP Data types, Operators and Expressions. Control Structures: Making Decisions, Doing Repetitive task with looping, File inclusion statements. Functions: Defining a function, Call by value and Call by reference, recursive function, Library functions Strings: Creating and accessing String, Searching & Replacing String, Formatting String, String Related Library function.
				April	Arrays: Anatomy of an Array, Creating index based and Associative array, Accessing array Element, Looping with associative array using each() and foreach(), Some useful Library function: current(), next(), prev(), reset(), end(). Working with Forms: Super global variables, super global array, Importing and accessing user input, Combine HTML and PHP code. Working with files and Directories: Opening, closing, Coping, renaming and deleting a file, working with directories, File Uploading & Downloading.
7.	**Prof. Balkar Singh**	**PGDCA-2nd Sem**	**Practical based on PGD-2102**	**January-April**	
8.	**Prof. Sonia Sharma**	**PGDCA-2nd Sem**	**Practical Based on PGD-2101**	**January-April**	

	Prof. Devki	**PGDCA-2nd Sem**	**Lab3 (Practical based on PGD2101)**	**January-April**	

B.Voc Courses					
1.	**Prof. Sonia Sharma**	**B.Voc Sem. -I WTM**	Fundamental of Web Programming	July	Web Server; Web Client/Browser, Understanding how a Browser communicates with a Web Server, Website, Webpage, Static Website, Dynamic Website, Internet, Intranet, Extranet, WWW, URL HTML program, Paragraph Breaks, Line Breaks; Emphasizing Material in a Web Page (Heading Styles, Drawing Lines); Text Styles (Bold, Italics, Underline); Other Text Effects (Centering (Text, Images etc.)
				August	Lists: Unordered List, Ordered Lists, Definition lists Adding Graphics to HTML Documents using the Border, Width, Height, Align, ALT Attributes Tables: Caption Tag, Width, Border, Cell padding, Cell spacing, BGCOLOR, COLSPAN and ROWSPAN Attributes Linking Documents: Anchor tag, External Document References, Internal Document References and Image Maps Frames: Introduction to Frames: The tag, The tag, Targeting Named Frames DHTML: Introduction to cascading style sheets (CSS), Style tag, Link tag, Types of CSS: In-Line, Internal, External

					External Forms: Attributes of Form element, Input element, The Text Element, Password, Button, Submit Button, Reset Button, The Checkbox, Radio, TextArea, Select and Option
				September	Java Script: Introduction and Features of JavaScript, Writing JavaScript into HTML, tokens, data types, variables, operations, control constructs, strings arrays, functions, core language objects, client side objects, event handling. Applications related to client side form validation. Other Built-In Objects in JavaScript: The String Object, The Math Object, The Date Object;
				October	Introduction to Dreamweaver: Understanding Workspace Layout, Managing Websites, Creating a Website, Using Dreamweaver Templates, Adding New WebPages, Text and Page Format Inserting Tables, Lists, Images, Adding Links. Web Hosting
				November	Understanding Domain Name & Web Space, Getting a Domain Name Web Space (Purchase or Free), Uploading the Website to Remote Server, Introduction to Open Source Third party FTP Tools
2.	**Prof. Sonia Sharma**	**B.Voc Sem. -I WTM**	**Lab based on Fundamental of Wed Programming**	July –November	
	Prof. Gurpreet Kaur	**B.Voc. I Sem.**	**Introduction to Computer & Multimedia**	July	Introduction to computers Computer basics, History of

					computers, Classification of computers, Hardware and software, Data representation. Components of computer Operating system, Input and output devices, Motherboard, CPU, Memory, Storage devices
				August	Fundamental Concepts in Video: Types of Video Signals, Analog Video-NTSC, PAL, SECAM, Digital Video. Basics of Digital Audio: Digitization of Sound, MIDI, Quantization and Transmission of Audio. Multimedia Data.
				September	Compression: Lossless Compression-Run Length Encoding, Variable Length Coding, Dictionary Based Coding, Arithmetic Coding. Lossy Compression Algorithms-Distortion Measures, Rate Distortion Theory, Quantization, Transform Coding, Wavelet Coding
				October	Multimedia Communication & Retrieval: Computer and Multimedia Networks-Basics of Computer and Multimedia Networks, Multiplexing Technologies, LAN & WAN, Access Networks, Common Peripherals Interfaces..
				November	Wireless Networks: Analog Wireless Networks, Digital Wireless Networks, TDMA GSM, CDMA, 3G, Wireless LAN. Radio Propagation Models, Multimedia Over

					Wireless Networks
4.	**Prof. Sonia Sharma**	**B.Voc Sem. -II WTM**	**Fundamentals of C Languages**	Jan	Fundamentals of C Languages: I/O Standard and Formatted Statements, Constants, Variables, Data Types, rules for constructing variables.
				feb	Operators and Expressions: C Instructions, Arithmetic operators, Relational operators, Logical operators, Assignment Operators, Type Conversion in Assignments, Hierarchy of Operations, Keyword Identifiers
				March	Decision Control Structure: Decision making with IF-statement, IF-Else and Nested IFElse, The else if Clause. Loop Control Structure: While and do-while, for loop and Nested for loop, Case Control Structure: Decision using switch, The goto statement. Functions: Library functions and user defined functions, Global and Local variables, Function Declaration, Calling and definition of function
				April	Arrays: Introduction, Array declaration, Accessing values in an array, Initializing values in an array, Single and Two Dimensional Arrays, Initializing a 2-Dimensional Array, Arrays of characters, Insertion and deletion operations, Pointers: Pointer declaration, Address operator "&", Indirection operator "*", Pointer and arrays, Pointers and 2-Dimensional Arrays, Pointer to an Array, Passing 2-

					D array String Manipulation in C: Declaring and Initializing string variables, Reading and writing strings, String Handling functions(strlen(), strcpy(), strcmp(), strcat()). Structures and Unions: Declaration of structures, Structure Initialization, Accessing structure members, Arrays of structure, Nested structures, Structure with pointers, Union.
5.	**Sonia Sharma**	**B.Voc, II Sem WTM**	**Introduction to web applications:**	January	Functions: Function definition, Creating and invoking user-defined functions, Formal parameters versus actual parameters, Function and variable scope, Recursion, Library functions String Handling: interpolation with curly braces, characters and string indexes, string operators, heredoc, string functions, Formatting Strings, Comparing and searching
				Feb	Strings and substrings Arrays: PHP Arrays, Creating Arrays, Accessing Array elements, Multidimensional Arrays, Inspecting Arrays, Deleting from Arrays, Iterating with each() and foreach(), Iterative functions: current(), next(), prev(), reset(), end()
				March	Forms: Working with HTML Form controls and PHP, Super global variables, super global array, importing user input, Accessing user input Integrating PHP and Database:

					Connecting to database, Making SQL queries, Executing queries, Fetching data sets, Integrating Forms and Databases: Basic form submission to a database, editing data with an HTML form Maintaining User State: Introduction to Cookies, Setting time in a cookie with PHP, Deleting a cookie, creating session cookie, Introduction to sessions, Starting a session, Registering Session variables
				April	working with session variables, Destroying session, passing session Ids , encoding and decoding session variables, increase session expire time, working of session without cookie. Working with File System: Understanding PHP file permissions, Opening and closing a file, File reading and writing functions, File system and directory functions
6	**Sonia Sharma**	**B.Voc, II Sem WTM**	**Lab Based on web applications:**	Jan- April	
	Prof. Gurpreet Kaur	**B.Voc. II Sem.**	**Introduction to Image Editors**	**Jan**	Introduction to CorelDraw: CorelDraw Screen, Drawing Lines, Selecting Objects, Creating Artistic Text, Formatting Text, Working with Shapes, Working with Rectangles, Creating Ellipses and Circles, Drawing Polygons, Drawing Spirals, Editing and Transforming Shapes, Saving Files, Printing Files. Controlling CorelDraw Environment: Viewing and Moving Toolbars, Working

					with Docker Window, Setting up Page Layout, Defining Outlines.
				Feb	Working with Shapes and Curves: Drawing and Editing Freehand Curves, Editing Shapes, Editing Curves, Working with Bitmap Images in CorelDraw, Applying Effects to Bitmaps. PHOTO-PAINT and 3D Basics: Creating a New Bitmap Image, Setting Colors and Fills, Painting Text , Painting Shapes, General 3D Concepts.
				March	Adobe Photoshop Basics: Introducing Adobe Photoshop, Exploring the Photoshop Workspace, Touring the Workspace, Exploring the Photoshop Menu Bar. Image Basics: Exploring File Types, Understanding Image Files, Understanding Video Files, Creating and Opening Images, Resizing Files and Adjusting Resolution, Understanding Colors Basics, Adjusting with Histograms, Working in Different Color Modes.
				April	Creating Selections: Using the Selection Tools, Working with Lasso Tools and Quick Selection Tools, Refining and Adjusting Selection. Applying Sharpness and Blur Adjustment: Using Sharpening Filter, Using Blur Filter, Introducing the Blur Gallery, Using the Healing Brush Tools
BVoc (E-Commerce)					
	Prof. Balkar Singh	**B.Voc Sem. -I**	**Web Designing using HTML and DHTML**	**July-November**	

		E.Comm.			
	Prof. Sonia Sharma	**B.Voc Sem. -I E.Comm.**	**Fundamentals Of Information Technology**	**July**	Computers: Introduction to computers, characteristics of computer, organization of computers,hardware, software, data, information, Types of computer: Classification on the basis of purpose:digital computers, analog computers,
				August	hybrid computers; Classification on the basis of size:micro computers, mini computers, mainframe computers and supercomputers, desktop computers, laptops, workstations, PDA. Generations of computer, Uses and Application of computers.
				September	Computer Hardware: Input Devices: Keyboard, mouse, light pen, joystick, trackball. Voice , input device: microphone; Output Devices Printers: types of printer, Plotters, Speakers; Scanners: types of scanners, Visual display devices. Computer Storage: Representation of information, BIT, BYTE, Memory, Types of memory: primary memory RAM: static RAM, Dynamic RAM; ROM, EROM, EPROM, EEPROM; Secondary Memory: Magnetic disk, Hard ,disk, Floppy disk, Optical disk, Compact disk (CD-ROM) and Solid state storage devices.
				October	Software: Introduction, Types of Software: Application software, System software.

					Operating system, functions of operating system, types of operating system. Data processing, Data processing systems: batch processing, online processing, time sharing, real-time applications,
				November	Single-user, multi-user, and client-server systems; distributed and parallel processing systems;Translators: compilers, interpreters and assemblers. Computer Networks: Introduction, types of networks on the basis of area coverage: LAN,WAN, MAN. Internet and WWW: Evolution of Internet, Various Internet services (WWW, e-mail, telnet, ftp, IRC, news) and their uses, Access Methods, Browsers, Future of Internet, Applications of Internet, Evolution of www.
	Prof. Devki	BVoc (E-Comm)-2nd Sem	Web Designing using XML and CSS (Practical)	January-April	
	Prof. Devki	BVoc (E-Comm)-3rd Sem	Digital Marketing	July	**Unit-I** Marketing- Traditional and Modern concept; marketing channels; its objectives and KPIs. Introduction to digital Marketing and its framework. Content Strategy- Planning, Creating, Distribute and promote Content , Optimize website UX and landing pages , measure impact.
				August	**Unit-II** Social Media Marketing-Landscape; media channels; Content; implement and monitor campaigns and its measure impact.

					Social Media Advertising- Introduction; its types and platforms for Social Ads.
				September	**Unit-III** Search engine Optimization (SEO) - Introduction; How search works; On-site SEO and off-site SEO; Audit and its future. Search Engine Marketing with AdWords (SEM) – Selection of AdWords and keywords
				October	Create text Ads, CPC bidding, navigate AdWords, SEM Metrics and optimization. **Unit-IV** Display Advertising – how do display Ads work, display Ads and targeting, sales models, Video advertising.
				November	E-mail Marketing – E-mail list generation, create an effective Email Campaign, create a Email plan and measure its results.
	Prof. Balkar Singh	BVoc (E-comm 4th Sem)	Introduction to DBMS and SQL	January	UNIT – I Basic Concepts: A Historical perspective, File Systems vs. DBMS, Characteristics of the Data Base Approach, Abstraction and Data Integration, Database users, Advantages and Disadvantages of DBMS, Implication of Database approach. Data Base Systems Concepts and Architecture: Data Models, Schemas and Instances, DBMS architecture and Data Independence, Data base languages & Interfaces, DBMS functions and component modules. Entity Relationship Model: Entity Types, Entity

					Sets, Attributes & Keys, Relationships, Relationship Types, Roles and Structural Constraints, Design issues, weak entity types, ER Diagrams. Design of an E-R Database Schema, Reduction of an E-R Schema to Tables.
				February	UNIT - II Relational Data Model: Relational model concepts, Integrity constraints over Relations, Relational Algebra - Basic Operations. Conventional Data Models: An overview of Network and Hierarchical Data Models. Relational Data Base Design: Functional Dependencies, Decomposition, Desirable properties of decomposition, Normal forms based on primary keys (1 NF, 2 NF, 3 NF and BC NF). RDBMS: Terminology, The 12 Rules (Codd's Rule) for an RDBMS.
				March	UNIT - III **Understanding SQL-1**: Data Types, Creating Tables, Creating a Table with data from Another table, Inserting Values into a Table, Updating Column(s) of a Table, Deleting Row(s) from a Table, Dropping a Column, Querying database tables, Conditional retrieval of rows, Working with Null Values, Matching a pattern from a table, ordering the result of a Query Aggregate Functions, Grouping the Result of a Query, creation and deletion of Views.

				April	UNIT - IV **Understanding SQL-II**: Managing privileges with Grant and Revoke Command, COMMIT and ROLLBACK, Functions: Character Functions, Date Functions, Group Functions Querying Multiple Tables using Equi-Joins, Cartesian Joins, Outer Joins, Self-Joins, SET Operators: Union, Intersect, Minus; Introduction to Nested Queries.