Lesson Plan July 2025 to November 2025

Name of Teacher: Mr. Amit Bansal

Class: - BSc-5th Sem

Subjects:-Computer Science (OOP using C++)

Date	Topics
July- August 2025	Procedure Oriented Programming, Object-Oriented programming Paradigm, difference between Procedure Oriented Programming and Object-Oriented programming, Basic concepts of Object-Oriented programming, Benefits of OOP, Object Oriented Languages, and application of OOP. Structure of a C++ Program, Insertion operator, Extraction operator, Unformatted and Formatted I/O Operations, inline functions.
September 2025	C structure revisited, specifying a Class, Creating Objects, Defining member function, Memory allocation for objects, Scope resolution operator and its significance, Static Data Members, Static member functions, Friend Function, Friend Class.
October 2025	Dynamic Memory Management using new and delete Operator, Constructor, type of constructors, Dynamic initialization of objects, Constructor overloading, Constructor with default arguments, Destructors, function overloading, Operator Overloading, Overloading unary and binary operators.
November 2025	Inheritance, Single Inheritance, Making a private member inheritable, Multilevel Inheritance, Multiple Inheritance, Hierarchical Inheritance, Hybrid Inheritance, Virtual Base Class. Abstract Classes, Constructors in derived classes. Hierarchy of Console Stream Classes, Manipulators

Lesson Plan July 2025 to November 2025

Name of Teacher: Mr. Amit Bansal

Class: - BSc-5th Sem

Subjects:-Computer Science (Data Analytics)

Date	Topics
July- August 2025	Data Analytics: Introduction to Data Analytics, Business Intelligence (BI) for better decisions, Decision types, BI tools, BI skills, BI applications. Data warehousing: Introduction to Data warehousing (DW), Design considerations for DW, DW development approaches, DW architecture. Data Mining: Introduction to Data mining, Data cleaning and preparation, outputs of Data mining, evaluation of data mining results, Data Mining Techniques.
September 2025	Decision Trees: Introduction to Decision tree, Decision tree problem, Decision tree construction, Lessons from constructing trees, Decision tree algorithms. Regression: Introduction, Correlations and Relationships, Visual Look at Relationships, Logistic regression, Advantages and disadvantages of regression models. ArtificialNeuralNetworks:Introduction,businessapplicationsofANN,Designprinciplesofan ANN, Representation of a neural network, Architecting a neural network, Developing an ANN, Advantages and disadvantages of using ANN.
October 2025	Cluster analysis: Introduction, Applications of cluster analysis, Definition of a cluster, Representing clusters, Clustering techniques, K-means algorithm for clustering, Selecting the number of clusters. Association rule Mining: Introduction, Business applications of association rules, Representing association rules, Algorithms for association rule, Apriori algorithm, Creating association rules. Web Mining: Introduction, Web content mining, Web structure mining, Web usage mining, Web mining algorithms.
November 2025	Big data: Introduction, Defining big data, Big data landscape, Business implications of big data, Technology implications of big data, Big data technologies, Management of big data. Naïve-base analysis: Introduction, Probability, Naïve base model, Text classification example. Support vector machines: Introduction, SVM model, The kernel method,

Lesson Plan July 2025 to November 2025

Name of Teacher: Mr. Vipin Babbar

Class: - BSc-3rd Sem

Subjects:-DBMS

Date	Topics
July- August 2025	Basic Introduction: Data, Information, Records, Files and Database. Characteristics of Database Management System. DBMS over File Processing System. Advantages and Disadvantages of DBMS. Database Users and various types of DBMS users. Database Administrator (DBA) and responsibilities of DBA. Schema and Instance. Views of Database. Physical and Logical Data Independence. Database Languages. DBMS Architecture: Three Schema Database Architecture.
September 2025	Data Models: Hierarchical, Network and Relational Data Models. Entity-Relationship Model: Entity, Entity Sets, and Entity Type, Attributes: Type of Attributes, Relationships-Relationship set, Degree of Relationship, Cardinality Ratio. Participation Constraints. ER Diagram: Symbolic Notations for Designing ER Diagram,
October 2025	Relational Model: Relational model concepts (Domain, Attribute, Tuple, Relations, Characteristics of a relation), Keys: Super Key, Candidate Key, Primary Key, Foreign Key. Constraints- Key constraints, Domain constraints, Referential integrity constraints; Relational algebra : Basic operations like Select, Project, Union, Intersection, Difference, Projection, Selection, Join.
November 2025	Relational Database design: functional dependencies, Normal forms (1 NF, 2 NF, 3 NF and BCNF). Decomposition, types of decomposition, properties of decomposition. SQL: Introduction, Data Types; DDL-Create, Alter and Drop table Commands. DML- SELECT/ FROM/WHERE, INSERT INTO/ VALUES, UPDATE /SET/ WHERE/ORDER BY/HAVING, DELETE, Commands.

Lesson Plan July 2025 to November 2025

Name of Teacher: Mr. Vipin Babbar

Class: - BSc-3rd Sem

Subjects:- IT & E-Commerce (Minor)

Date	Topics
July- August 2025	Introduction to the Internet: Networking, Network Topologies, Types of Networks, Network Devices: Nodes and Hosts, TCP/IP, IP Address, Web Browsers and Web Servers, URL, Domain Names, WWW, Search Engines, Internet vs. Intranet vs. Extranet, Network Devices: Routers, Switches, Hubs, Modems, and their roles, Uses of Computer Networks.
September 2025	Introduction to E-commerce, E-commerce Models: B2B, B2C, C2C, C2B. Applications of E-commerce: Service Industry, Retail Sector, Financial Services, Travel & Tourism. Future of E-commerce, Online Shopping: Web Portals. Mobile commerce: Internet Services through Mobile, Mobile Banking, WAP & WML, Mobile Information Devices, POS.
October 2025	Online Payment Mechanism, Electronic Payment System: Legal Issues & Digital Currency - E-Cash & E-Cheque - Electronic Fund Transfer (EFT) - Advantages and Risks - Digital Token-Based E-Payment System - Smart Cards. Payment Gateways, Risk Management options for E-Payment Systems, Cryptography, Authentication, Data Encryption, Decryption, Public Key, Private Key, Digital Signature, E-check Certification, Digital Certification.
November 2025	Threats in E-commerce, Fraud Prevention, E-commerce Data Protection: PCI Compliance and Data Privacy Laws, Security of Client & Service Provider, Security Issues over the Web, Cyber Law-IT Act 2000.

Name of Teacher: Mr. Vipin Babbar

Class: - BSc-1st Sem (DSC)

Paper : Fundamentals of Computer and Programming in C

Subjects:-Date	Topics
July- August 2025	**Basics of Computers:** Definition of a Computer - Characteristics and Applications of Computers – Block Diagram of a Digital Computer – Classification of Computers based on size and working – Central Processing Unit – I/O Devices. **Storage:** Primary, Auxiliary and Cache Memory – Memory Devices. Software, Hardware, Firmware. **Operating System** – Definition and Functions of an Operating System – MS-DOS – MS Windows – Desktop, Computer, Documents, Pictures, Music, Videos, Recycle Bin, Task Bar – Control Panel.
September 2025	**C Programming Fundamentals:** Keywords, Variables and Constants, Structure of a C Program, Input/Output. **Operators & Expressions:** Arithmetic, Unary, Logical. Bit-wise, Assignment & Conditional Operators **Decision Making:** Decision making using if...else. Else If Ladder; Switch, break. Continue and Goto statements. **Loop Control Structure:** While and do-while, for loop and Nested for loop, Decision using switch; goto, break and continue statements.
October 2025	**Functions:** Introduction, using functions – Function declaration/ prototype – Function definition function call – return statement – Passing parameters , Recursive functions **Arrays**: Introduction, Declaration of Arrays , Accessing elements of the Array – Storing Values in Array, Passing array element to a function: Call by Value and Call by Reference, One dimensional array -declaration, initialization, Accessing one dimensional array, Two dimensional Arrays-declaration, initialization, Accessing two dimensional arrays.
November 2025	**Strings:** Introduction , String and Character functions**,** String Operations using String functions- strcat() , strcmp() , strcpy() , strlen(). **Pointers:** Declaring Pointer Variable, Pointer Expressions and Pointer Arithmetic , Passing Arguments to Functions using Pointers. Dynamic Memory Allocation: malloc(), calloc(), realloc(), free() functions **Structures and Unions:** Declaration of structures, Structure Initialization, Accessing structure members, Arrays of structure, Nested structures, Structure with pointers, Union

Name of Teacher: Mr. Amit Bansal

Class: - BSc-1st Sem (Minor)

Subjects:-Computer Programming Fundamentals

Date	Topics
July- August 2025	Overview of programming concepts, **Computer Languages**: Machine Language, Assembly Language, High Level Language; Source code, Compiler, Interpreter, Object Code;
September 2025	Algorithm, Flow Chart and pseudocode, Basics of problem-solving in programming, Debugging, **Error**: Types of Error.
October 2025	**Data types:** integers, floating-point numbers, strings, and Booleans, Variables and constants, Input/output operations, Operators and expressions,
November 2025	**Conditional statements**: if, else if, else, **Loops:** while loops, for loops; Control structures: break, continue;

Lesson Plan July 2025 to November 2025

Name of Teacher: Mr. Amit Bansal/ Mr. Vipin Babbar

Class: - BA/BSc in Life Sciences/BA with Major in Geography -1ˢᵗ Sem (SEC)
Subjects:-Office Tools

Date	Topics
July- August 2025	Operating System - Definition, Functions, Types of Operating System, Basics of Popular Operating Systems, The User Interface, Exploring Computer, Icons, taskbar, desktop, Using Menu and Menu-selection, managing files and folders, Control panel – display properties, add/remove software and hardware, Common utilities.
September 2025	Word Processing - Introduction to Word Processing, Menus, Creating, Editing & Formatting Document, Spell Checking, Printing, Views, Tables, modifying page setup, applying document themes, applying document style sets, Inserting headers and footers
October 2025	Spread Sheet: Elements of Electronics Spread Sheet, Applications, Creating and Opening of Spread Sheet, Menus, Manipulation of cells: Enter texts numbers and dates, Cell Height and Widths, copying of cells, Mathematical, Statistical and Financial function, Drawing different types of charts, Sort and Filter Data
November 2025	Creating Presentation, Type of presentation views. Using sound, Animation, Working with Objects, and Printing.