

**B.A (COMPUTER SCIENCE)**

<b>Semester</b>	<b>Subject code</b>	<b>Subject</b>
SEM-I	BA(COMPUTER SC)-101	COMPUTER FUNDAMENTALS AND PC SOFTWARE(THEORY)
SEM-I	BA(COMPUTER SC)-102	COMPUTER FUNDAMENTALS AND PC SOFTWARE(PRACTICAL)
SEM-III	BA(COMPUTER SC)-301	COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS(THEORY)
SEM-III	BA(COMPUTER SC)-302	COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS(PRACTICAL)
SEM-V	BA(COMPUTER SC)-501	DBMS(THEORY)
SEM-V	BA(COMPUTER SC)-502	DBMS(PRACTICAL)

**LESSON PLAN B.A(COMPUTER SCIENCE) SEMESTER-I**  
**COMPUTER FUNDAMENTALS AND PC SOFTWARE**

Topic	Notes/Strategies/ Resources	Time
Introduction to Computers and its Applications	<ul style="list-style-type: none"> <li>• Students will Learn About What is Computer?</li> <li>• Characteristics of Computer</li> <li>• Applications of Computers</li> <li>• Various Functional Units of Computer along with diagram</li> </ul> <p>✓ From Computer Fundamentals by PK Sinha</p>	1 week
Hardware and Software	<ul style="list-style-type: none"> <li>• What is hardware and Software?</li> <li>• Milestones in Hardware and Software</li> </ul> <p>✓ From Computer Fundamentals by Unimax publications</p>	2 days
Types of Applications	<ul style="list-style-type: none"> <li>• Students will gain knowledge about various types of Applications</li> <li>• Batch Applications</li> <li>• Online Applications</li> <li>• Real Time Applications</li> </ul> <p>✓ From fundamentals of Information Technology by Anshuman Sharma</p>	1 Day
Input Devices	<ul style="list-style-type: none"> <li>• Students will be Acquainted with what are input devices and different types of input devices</li> <li>• Text Input Devices</li> <li>• Graphical Input Devices</li> <li>• Cursor Control Input Devices</li> <li>• Vision Input Systems</li> </ul> <p>✓ From Windows Based Computer Courses by Gurvinder Singh and Rachpal</p>	15 days

	<p>singh</p> <ul style="list-style-type: none"> <li>✓ From Computer Fundamentals By PK Sinha</li> <li>✓ Through Powerpoint Presentation</li> </ul>	
Output Devices	<ul style="list-style-type: none"> <li>• Students will Learn about What are Output devices and various types of output devices</li> <li>• Monitors</li> <li>• Raster Scan and random Scan Systems</li> <li>• CRT Monitors</li> <li>• Colour Monitors</li> <li>• Printers and various types of printers (Character, Line , page)</li> <li>• Plotters</li> <li>• Voice Response Units</li> </ul> <ul style="list-style-type: none"> <li>✓ From Windows Based Computer Courses by Gurvinder Singh and Rachpal singh</li> <li>✓ From Computer Fundamentals By PK Sinha</li> <li>✓ Through Powerpoint Presentation</li> </ul>	15 Days
Data Storage Devices	<ul style="list-style-type: none"> <li>• Students will be acquainted with what is Computer Memory?</li> <li>• Primary Storage(RAM, ROM, Cache)</li> <li>• SRAM and DRAM</li> <li>• Secondary storage(Magnetic and optical)</li> </ul> <ul style="list-style-type: none"> <li>✓ From Windows Based Computer Courses by Gurvinder Singh and Rachpal singh</li> <li>✓ From Computer Fundamentals</li> </ul>	10 days

	<p>By PK Sinha</p> <ul style="list-style-type: none"> <li>✓ Through Powerpoint Presentation</li> </ul>	
Introduction to Windows based Operating System	<ul style="list-style-type: none"> <li>• Students will learn about Windows Operating System</li> <li>• Features of windows operating system</li> <li>• Anatomy of Window</li> <li>• Operations on Window</li> <li>• Desktop</li> <li>• Icons</li> <li>• Taskbar</li> <li>• Recycle Bin</li> <li>• Network places</li> <li>• My Computer Icon</li> <li>• Folder</li> <li>• Shortcut</li> <li>• Control panel</li> </ul> <p>✓ From Windows Based Computer Courses by Gurvinder Singh and Rachpal singh</p>	10 days
MS- Word	<ul style="list-style-type: none"> <li>• Students will be acquainted with what is word processing?</li> <li>• Features of a Good Word processor</li> <li>• Anatomy of MS- Word Window</li> <li>• Creating, Saving and opening File</li> <li>• Importing and Exporting Files</li> <li>• Formatting Pages, paragraphs and sections</li> <li>• Indents and Outdents</li> <li>• Creating Lists and Numbering</li> <li>• Changing Styles, Font and Font Size</li> <li>• Editing Text</li> <li>• Finding and replacing text</li> <li>• Page Break and Section Break</li> <li>• Book Marks</li> <li>• Inserting Symbols and dates</li> </ul>	1 Month

	<ul style="list-style-type: none"> <li>• Using tabs</li> <li>• Creating tables and various operations on Tables</li> <li>• Header and Footer</li> <li>• Printing</li> </ul> <p>✓ From fundamentals of Information Technology by Anshuman Sharma</p>	
MS- Powerpoint	<ul style="list-style-type: none"> <li>• Students will learn about Features of powerpoint</li> <li>• Anatomy of Ms-powerpoint window</li> <li>• Creating Presentation</li> <li>• Saving Presentation</li> <li>• Opening presentation</li> <li>• Inserting Audio and Video</li> </ul> <p>✓ From fundamentals of Information Technology by Anshuman Sharma</p>	20 Days

## LESSON PLAN B.A(COMPUTER SCIENCE) SEMESTER-III

### COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS

Topic	Notes/Strategies/ Resources	Time
Introduction	<ul style="list-style-type: none"><li>• Students will learn about what is Numerical methods?</li><li>• Numerical methods versus Numerical Analysis</li><li>• Errors and types of Errors</li><li>• Measures of Errors</li><li>• Significant Digits</li><li>• Machine Epsilon</li><li>• Error Propagation</li></ul> <p>✓ Numerical methods and Statistical techniques By Anshuman Sharma</p> <p>✓ Numerical Methods by BS Grewal</p>	5 Days
Non Linear Equations	<ul style="list-style-type: none"><li>• Students will gain knowledge about what are non linear Equations</li><li>• Methods of finding solution of non-linear equations</li><li>• Various Iterative Methods</li><li>• Order of convergence of iterative methods</li><li>• Terminating Criteria for iterative methods</li><li>• Bisection Method</li><li>• False position Method</li><li>• Newton Raphson method</li></ul> <p>✓ Numerical Methods by BS Grewal</p> <p>✓ Numerical methods and Statistical techniques By Anshuman Sharma</p>	10 Days
Linear Equations	<ul style="list-style-type: none"><li>• Students will learn about what are linear equations</li></ul>	10 Days

	<ul style="list-style-type: none"> <li>• Methods of solving simultaneous equations</li> <li>• Guass Elimination Method</li> <li>• Guass Jordan method</li> <li>• Guass seidel Method</li> <li>• Matrix Inversion Method</li> </ul> <ul style="list-style-type: none"> <li>✓ Numerical Methods by BS Grewal</li> <li>✓ Numerical methods and Statistical techniques By Anshuman Sharma</li> </ul>	
Interpolation	<ul style="list-style-type: none"> <li>• Students will study about what is interpolation and its need?</li> <li>• Types of finite differences</li> <li>• Interpolation with equal intervals</li> <li>• Newton's forward difference Method</li> <li>• Newton's backward difference method</li> <li>• Interpolation with unequal intervals</li> <li>• Newton's divided difference method</li> </ul> <ul style="list-style-type: none"> <li>✓ Numerical Methods by BS Grewal</li> <li>✓ Numerical methods and Statistical techniques By Anshuman Sharma</li> </ul>	10 Days
Numerical Integration	<ul style="list-style-type: none"> <li>• Students will gain knowledge about various numerical integration formulas</li> <li>• Trapezoidal Rule</li> <li>• Simpson's 1/3 Rule</li> <li>• Simpson's 3/8 Rule</li> <li>• Comparison between different methods of integration</li> </ul> <ul style="list-style-type: none"> <li>✓ Numerical Methods by BS Grewal</li> <li>✓ Numerical methods and</li> </ul>	8 days

	Statistical techniques By Anshuman Sharma	
Measures of Central Tendency	<ul style="list-style-type: none"> <li>• Students will be acquainted with different kinds of measures of central tendency</li> <li>• Preparing Frequency distribution table</li> <li>• Arithmetic Mean</li> <li>• Geometric Mean</li> <li>• Harmonic Mean</li> <li>• Median</li> <li>• Mode</li> <li>• Difference between mean, median , mode</li> </ul> <p>✓ Numerical methods and Statistical techniques By Anshuman Sharma</p>	15 Days
Measures of Dispersion	<ul style="list-style-type: none"> <li>• Students will gain knowledge on various measures of dispersion</li> <li>• Range</li> <li>• Mean Deviation</li> <li>• Standard Deviation</li> <li>• Co-efficient of variation</li> </ul> <p>✓ Numerical methods and Statistical techniques By Anshuman Sharma</p>	10 Days
Skewness, moments and Kurtosis	<ul style="list-style-type: none"> <li>• Students will learn about what is skewness, Moments and Kurtosis and their types</li> <li>• Measures of Skewness</li> <li>• Measures of moments</li> <li>• Measures of Kurtosis</li> </ul> <p>✓ Numerical methods and Statistical techniques By Anshuman Sharma</p>	10 Days



Correlation Analysis	<ul style="list-style-type: none"> <li>• Students will have understanding of What is Correlation and Regression and their types</li> <li>• Correlation in bivariate distribution</li> <li>• Correlation in multivariate distribution</li> <li>✓ Numerical methods and Statistical techniques By Anshuman Sharma</li> </ul>	5 days
Regression Analysis	<ul style="list-style-type: none"> <li>• Students will understand about regression and types of regression analysis</li> <li>• LinearRegression</li> <li>• Multiple Regression</li> <li>• Uses of Regression Analysis</li> <li>• Limitations of Regression Analysis</li> <li>✓ Numerical methods and Statistical techniques By Anshuman Sharma</li> </ul>	5 Days
Trend Analysis	<ul style="list-style-type: none"> <li>• Students will be acquainted with various methods of calculating curve Fitting</li> <li>• Least Square Method</li> <li>• Linear Trend</li> <li>• Non- Linear Trend</li> <li>• Polynomial Fit</li> <li>✓ Numerical methods and Statistical techniques By Anshuman Sharma</li> </ul>	5 Days

**LESSON PLAN B.A(COMPUTER SCIENCE) SEMESTER-V**  
**DBMS**

Topic	Notes/Strategies/ Resources	Time
Database	<p>Students will learn about</p> <ul style="list-style-type: none"> <li>• what is data, information</li> <li>• Database, DBMS</li> <li>• Components of database</li> <li>• Manual File system</li> <li>• Traditional File System</li> <li>• Advantage and disadvantage of database system</li> <li>• Database languages,</li> <li>• Three level architecture of database</li> <li>• DBA, Responsibilities of DBA.</li> </ul> <p>Database Concepts by Korth</p>	10 Days
Data model	<p>Students will gain knowledge about different models</p> <ul style="list-style-type: none"> <li>• Hierarchical Model</li> <li>• Network Model</li> <li>• Relational Model</li> <li>• Concept of keys</li> <li>• Integrity Constraints</li> </ul> <p>Database Concepts by CJ Date</p>	7 Days
Relational Algebra and Calculus	<p>Students will learn about what</p> <ul style="list-style-type: none"> <li>• Traditional operators</li> <li>• Special Operators</li> <li>• Domain Calculus</li> <li>• Tuple Calculus</li> </ul> <p>Database Concepts by Korth</p>	10 Days
Normalization	<p>Students will study about</p> <ul style="list-style-type: none"> <li>• what is Normalisation</li> <li>• Need for normalization</li> <li>• First Normal Form</li> <li>• Second Normal Form</li> <li>• Third Normal Form</li> </ul>	10 Days

	<ul style="list-style-type: none"> <li>• BCNF</li> <li>• Fourth Normal Form</li> <li>• Fifth Normal Form</li> </ul> <p>Database Concepts by CJ Date</p>	
Database Security	<p>Students will gain knowledge about</p> <ul style="list-style-type: none"> <li>• Security</li> <li>• Integrity</li> <li>• Protection</li> <li>• Recovery(Log based and shadow Paging)</li> </ul> <p>Database Concepts by CJ Date</p>	8 days
Concurrency Control	<p>Students will be acquainted with</p> <ul style="list-style-type: none"> <li>• Need for concurrent access</li> <li>• Locking</li> <li>• Graph based</li> <li>• Time stamp based technique</li> </ul> <p>Database Concepts by Korth</p>	10 Days
SQL	<ul style="list-style-type: none"> <li>• Introduction to Oracle 10 g</li> <li>• Features of Oracle 10 g</li> <li>• SQL – DDL, DML, DCL.</li> <li>• Join methods &amp; Sub query,</li> <li>• Union, Intersection</li> <li>• Built in Functions,</li> <li>• View</li> <li>• Security amongst users</li> <li>• Sequences,</li> <li>• indexing object</li> </ul> <p>Database Concepts by Korth</p>	15 Days
PL/SQL	<ul style="list-style-type: none"> <li>• Introduction to PL/SQL.</li> <li>• Cursors – Implicit &amp; Explicit.</li> <li>• Procedures,</li> <li>• Functions</li> <li>• Packages.</li> <li>• Database Triggers.</li> </ul> <p>Database Concepts by Korth</p>	15 Days