



**SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS**  
 Moga Road, NH-95, Ferozpur -152004  
 (Established by the Punjab Government)  
 (Formerly Shaheed Bhagat Singh College of Engineering & Technology)

**Department of Computer Applications**

<b>COURSE OUTCOMES</b> <b>BCA 1<sup>ST</sup> SEM</b>		
BSBC101	Communication-I	-
HVPE101	Human Values and Professional Ethics	<ol style="list-style-type: none"> <li>1. Understanding the need, basic guidelines, content and process for value education.</li> <li>2. Understanding happiness and prosperity correctly</li> <li>3. Methods to fulfil the above human aspirations</li> <li>4. Understanding the needs of self and body</li> <li>5. Understanding the harmony the harmony in nature.</li> <li>6. Ability to utilize the professional competence for augmenting universal human order.</li> </ol>
BSBC102	Programming in C	<ol style="list-style-type: none"> <li>1. Identify and understand the working of key components of a computer system (hardware, software, firmware etc.).</li> <li>2. Understand computing environment, how computers work and the strengths and limitations of computers.</li> <li>3. Identify and understand the various kinds of input-output devices and different types of storage media commonly associated with a computer</li> <li>4. Identify and understand the representation of numbers, alphabets and other characters in computer system</li> <li>5. Understand, analyze and implement software development tools like algorithm, pseudo codes and programming structure</li> <li>6. Study, analyze and understand logical structure of a computer program, and different construct to develop a program in 'C' language</li> <li>7. Write small programs related to simple/ moderate mathematical, and logical problems</li> </ol>
BSBC103	Mathematics- I	<ol style="list-style-type: none"> <li>1. Learn fundamental concepts of set theory, operation on sets, venn diagrams, statement problems, laws, duality, partitioning of a set.</li> <li>2. Understand the concept of graph theory and how to make various types of graphs.</li> <li>3. Understand the concept of relation and types of relations, graph of relations, properties of relations and matrix representation.</li> <li>4. Understand logic operations, truth tables, arguments and laws of logic, mathematical system and propositions over universe.</li> <li>5. Principle of mathematical induction, recursion, recurrence relations, binomial theorem.</li> </ol>



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BSBC104	Information Technology	<ol style="list-style-type: none"> <li>1. Identify system components and utilize computer hardware and software.</li> <li>2. To provide basic Knowledge of Number System</li> <li>3. Basic Knowledge of input/output devices &amp; various types of memories.</li> <li>4. Become proficient in using the features of word processing in Microsoft Word.</li> <li>5. Become proficient in using spreadsheet software and be able to create technical and complex spreadsheets for data analyses using Microsoft Excel.</li> <li>6. Use a database such as Microsoft Access.</li> <li>7. Understand computer networks and security within the context of information technology.</li> <li>8. Develop effective and professional business presentations using Microsoft Power Point</li> </ol>
BSBC105	Software Lab-I (Programming in C)	<ol style="list-style-type: none"> <li>1. Be able to implement, test, debug, and document programs in C .</li> <li>2. Understand low-level input and output routines</li> <li>3. Program with pointers and arrays, perform pointer arithmetic, and use the pre-processor</li> <li>4. Be able to write programs that perform explicit memory management</li> <li>5. Understand and use the common data structures typically found in C programs — namely arrays, strings</li> </ol>
BSBC106	Software Lab-II (Information Technology)	<ol style="list-style-type: none"> <li>1. Familiarize with PC and WINDOWS commands, File creation, Editing , Directory creation.</li> <li>2. Become proficient in using the features of word processing in Microsoft Word.</li> <li>3. Become proficient in using spreadsheet software and be able to create technical and complex spreadsheets for data analyses using Microsoft Excel.</li> <li>4. Use a database such as Microsoft Access.</li> <li>5. Implementation of MS DOS.</li> <li>6. Develop effective and professional business presentations using Microsoft Power Point.</li> </ol>
<b>SEMESTER-II</b>		
EVSC 101	Environmental Science	<ol style="list-style-type: none"> <li>1. Measure environmental variables and interpret results</li> <li>2. Evaluate local, regional and global environmental topics related to resource use and management</li> <li>3. Propose solutions to environmental problems related to</li> </ol>



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		<p>resource use and management</p> <p>4. Interpret the results of scientific studies of environmental problems</p> <p>5. Describe threats to global biodiversity, their implications and potential solutions.</p>
BSBC 201	Communication-II	<ol style="list-style-type: none"> <li>1. Basics of communication.</li> <li>2. Better Linguistic Knowledge.</li> <li>3. Presentation skills.</li> <li>4. Project report.</li> <li>5. Interview skills</li> <li>6. It develops confidence in students overall personality.</li> </ol>
BSBC 202	Mathematics-II	<ol style="list-style-type: none"> <li>1. Learn fundamental mathematical concepts of matrix and determinant and how to apply them for finding the solution of equations</li> <li>2. Understand the concepts of differential calculus and how to apply them for finding the maxima and minima.</li> <li>3. Learn the concepts of integral calculus in which they find integration by parts, By partial fraction, by substitution and learn about definite, indefinite integrals.</li> <li>4. Understand the Trapezoidal method, Simpson's 1/3 rule and Simpson's 3/8 rule using integration. Problems related to compound interest, depreciation and Annuities.</li> <li>5. Understand the concepts of Statistics in which they learn about measures of central Tendency, mean, median, mode, measures of dispersion ,range, mean deviation, Standard deviation, coefficient of variation</li> </ol>
BSBC 203	OOPS Using C ++	<ol style="list-style-type: none"> <li>1. Creating class and objects in C++</li> <li>2. Implementing inheritance, polymorphism and object relationship in C++</li> <li>3. Designing methods and procedures</li> <li>4. Constructor and destructor programs.</li> <li>5. Data manipulation through file in C++.</li> </ol>
BSBC 204	Computer System Architecture	<ol style="list-style-type: none"> <li>1. Introduction to computer and CPU, Stored Program concepts.</li> <li>2. Introduction to Registers, Micro operations, Common Bus System.</li> <li>3. Introduction to Instruction, Instruction Cycle, Interrupt and Interrupt Cycle.</li> </ol>



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		<ol style="list-style-type: none"> <li>Addressing Modes, Concept of I/O bus , DMA Controller.</li> <li>Memory Hierarchy,Cache Memory,Replacement Algorithms,Mobile Devices Architecture.</li> </ol>
BSBC 205	Workshop on Web Development	<ol style="list-style-type: none"> <li>Understand, analyse and apply the role of languages like HTML,DHTML,CSS,Javascript</li> <li>Analyse a web page and identify its elements and attributes in comparison to traditional projects.</li> <li>Create dynamic web pages using Javascript.</li> <li>Create web pages using HTML,DHTML,CSS.</li> </ol>
BSBC 206	Software Lab-III (OOPS Using C++)	
<b>SEMESTER III</b>		
BSBC301	System Analysis & Design	<ol style="list-style-type: none"> <li>Understand the principles and tools of systems analysis and design - Understand the application of computing in different context.</li> <li>Understand the professional and ethical responsibilities of practicing the computer professional including understanding the need for quality .</li> <li>Solve a wide range of problems related to the analysis, design and construction of information systems .</li> <li>Analysis and Design of systems of small sizes.</li> <li>Be able to present projects.</li> </ol>
BSBC302	Data Structures	<ol style="list-style-type: none"> <li>Understanding of data structure. its objectives ,times and space complexity</li> <li>Understanding of various linear data structure , like linked list, stack ,queue and their implementation</li> <li>Understanding of non-linear data structure , tree and its implementation</li> <li>Implementation of various searching and sorting algorithm.</li> </ol>
BSBC303	Digital Circuits & Logic Design	<ol style="list-style-type: none"> <li>An ability to define different number systems, binary addition and subtraction,2's complement representation and operations.</li> <li>To be able to apply the principles of Boolean</li> </ol>



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		<p>algebra to manipulate and minimize logic expressions.</p> <ol style="list-style-type: none"> <li>To be able to use K-maps to minimize and optimize two-level logic functions up to 4 variables and perform an algorithmic reduction of logic functions.</li> <li>Combinational circuits, flip-flops, counters and shift registers.</li> </ol>
BSBC304	Workshop on Visual Basic	<ol style="list-style-type: none"> <li>Interpret and evaluate requirements for program projects.</li> <li>Develop detailed design specifications and test strategies.</li> <li>Identify and articulate physical requirements for systems implementation.</li> <li>Demonstrate theoretical and working knowledge of the principles</li> <li>Programming through completion of tasks and projects.</li> <li>Use multiple operating systems and computer applications.</li> </ol>
BSBC305	Basic Accounting	<ol style="list-style-type: none"> <li>To understand the basic accounting concepts.</li> <li>To understand generally accepted accounting principles.</li> <li>To understand Journal, Ledger, trail balance &amp; Final Accounts.</li> <li>To understand the Bank Reconciliation Statement.</li> <li>To understand the sources of raising capital in corporate.</li> <li>To understand the application of computers in accounting.</li> </ol>
BSBC306	Software Lab-IV (Data Structures)	<ol style="list-style-type: none"> <li>Implementation of linked list using C/C++</li> <li>Implementation of stack queue using linked list and its operation like searching, inserting, deleting.</li> <li>Implementation of binary tree and its operations.</li> <li>Implementation of different sorting and searching techniques using C/C++.</li> </ol>
BSBC307	Hardware Lab-I (Digital Circuits & Logic)	<ol style="list-style-type: none"> <li>An ability to operate laboratory equipments.</li> <li>An ability to construct, analyse and troubleshoot simple combinational and</li> </ol>



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	Design)	<p>sequential circuits.</p> <p>3. Study of logic gates and realization of OR, AND, NOT and XOR functions using universal gates.</p> <p>4. Design &amp; implement combinational circuits, sequential circuits.</p>
<b>SEMESTER IV</b>		
BSBC401	Software Engineering	<p>1. Understand the process to be followed in SDLC.</p> <p>2. Define formulate and analyze a problem.</p> <p>3. Apply design and testing principles to software project development.</p> <p>4. Apply the project management and analysis principles to software project development.</p> <p>5. Knowledge about software development life cycle and problem articulation.</p>
BSBC402	Microprocessors & Microcontrollers	<p>1. Describe the basic architecture of Microprocessor and Microcontroller system.</p> <p>2. Describe the addressing modes of the system.</p> <p>3. To write the assembly language programming for INTEL 8085 microprocessor.</p> <p>4. To describe a typical I/O interface &amp; to discuss timing diagrams.</p> <p>5. To describe different types of memory used in Microcontroller system.</p>
BSBC403	Operating Systems	<p>1. Describe what operating systems are, including what they do, how they do it, and how their performance can be evaluated</p> <p>2. List and describe core items of operating systems including memory management, networks, processor management, system security, device management, systems management, and file management</p> <p>3. Discuss the functions of these core items.</p>
BSBC404	Database Management Systems	<p>1. Describe fundamental elements of RDBMS.</p> <p>2. Explain the basic concepts of relational data model, relational database design, relational algebra and database language SQL.</p> <p>3. Design E-R diagram to represent simple database applications scenarios.</p>



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		4. Criticize a database and improve the design by normalization.
BSBC405	Hardware Lab-II (Microprocessors & Microcontrollers)	<ol style="list-style-type: none"> <li>1. Introduction to assembly language and its fundamentals.</li> <li>2. Programming Data transfer Instructions.</li> <li>3. Programming Arithmetic Instructions, Logical Instructions, shift rotate Instruction &amp; transfer control instructions.</li> </ol>
BSBC406	Software Lab-V (Database Management Systems)	<ol style="list-style-type: none"> <li>1. Understand, appreciate and effectively explain the underlying concepts of database technologies.</li> <li>2. Design &amp; implement a database schema for given problem domain.</li> <li>3. Populate &amp; query a database using SQL DML/DDL commands.</li> <li>4. Normalize a database.</li> <li>5. Programming PL/SQL including stored procedures, stored functions, cursors, packages.</li> </ol>
BSBC501	Data Warehousing & Mining	<ol style="list-style-type: none"> <li>1. <b>Basics of data ware house and Mining, OLAP and OLTP</b></li> <li>2. <b>Data ware house Implementation / Design / Technical considerations</b></li> <li>3. <b>Concept of Artificial Intelligence, Multidimensional data models</b></li> <li>4. <b>Concept of association, correlation algorithms and Various prediction techniques and clustering algorithms</b></li> </ol>
BSBC502	Programming in Java	<ol style="list-style-type: none"> <li>1. Understand the concept of OOPs as well as the purpose and usage principles of Inheritance, polymorphism, encapsulation etc.</li> <li>2. Understand the basic concepts of classes and Objects , JVM Concept , Data types and Operators, Strings</li> <li>3. Make use of array , constructors , Inheritance, Packages and Interfaces and</li> </ol>

		JAVA Applets. 4. Understand the concept of Exceptional Handling/Event Handling/JAVA I/O handling
BSBC503	Management Information System	<ol style="list-style-type: none"> <li>1. Solvetheproblemsrelatedtothe analysis,design &amp; construction of MIS.</li> <li>2. Demonstrate the knowledge &amp; ability to define the concept &amp; definition of Information</li> </ol>





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		<p>systems.</p> <ol style="list-style-type: none"> <li>Describe the system development stages.</li> <li>Describe the organizational structure &amp; business processes within these structures.</li> <li>Describe the system design &amp; implementation.</li> </ol>
BSBC504	Workshop on Advanced Web Development	<ol style="list-style-type: none"> <li>Getting started with Active Server pages, setting up internet Information server, using ASP without IIS.</li> <li>Dissecting you first ASP script, writing ASP code without using comments.</li> <li>Working with variables, constants, arrays, VB script operators.</li> <li>Understanding VBscript control structuresTypecasting variables.</li> <li>Working with Objects, Events.</li> <li>Communicating with user,creating ,designing &amp; submitting forms.</li> <li>Working with request objects,how to write cookies.</li> <li>Debugging ASP scripts,Reading database using ASP.Examining the records.</li> </ol>
BSBC505	Software Lab-VI(Programming in Java)	<ol style="list-style-type: none"> <li>Internet Programming using Applets.</li> <li>Apply basics of event programming.</li> <li>Apply String Handling Functions. Install JDK and Its Editor</li> <li>Method to write, save, compile and execute Java Programs.</li> <li>Implement the concepts of classes, loops, conditions.</li> <li>Implement the concepts of constructors, Inheritance.</li> <li>Implement the concepts of Packages and Interfaces.</li> </ol>
BSBC506	Project Work -I	<ol style="list-style-type: none"> <li>Various visual basic tools.</li> <li>Commands of VB &amp; SQL</li> <li>Software development process.</li> </ol>
<b>SEMESTER VI</b>		
BSBC601	Principles of Management	<ol style="list-style-type: none"> <li>Evaluate approaches to addressing issues of diversity.</li> <li>Integrate management principles into management practices.</li> <li>Specify how the managerial tasks of planning, organizing, and controlling can be executed in a variety of circumstances.</li> <li>Assess managerial practices and</li> </ol>



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		<p>choices relative to ethical principles and standards.</p> <p>5. Determine the most effective action to take in specific situations.</p>
BSBC602	Computer Graphics	<ol style="list-style-type: none"> <li>1. Understand the foundations of Computer graphics.</li> <li>2. Understand the concept of Geometric mathematical and algorithmic concepts necessary for programming computer graphics.</li> <li>3. Understand the comprehension of window clipping and view port object representation in relation to images displayed on screen.</li> <li>4. Understand the concepts of geometric and composite transformations on objects.</li> <li>5. Understand the concepts of shading, surface Elimination on the objects.</li> </ol>
BSBC603	Computer Networks	<ol style="list-style-type: none"> <li>1. Understanding network models.</li> <li>2. Understand different network technologies.</li> <li>3. Understand the effects of using different networking topologies.</li> <li>4. Be updated with different advanced network technologies that can be used to connect different networks.</li> <li>5. Be familiar with various hardware and software that can help protect the network.</li> </ol>
BSBC604	System Administration	<ol style="list-style-type: none"> <li>1. Install and Configure Window Server 2003</li> <li>2. Configuring and Managing Local User and Group Accounts</li> <li>3. Installing ,Configuring and Managing Devices</li> <li>4. Managing Users, Groups, and Computers</li> <li>5. Managing Remote desktop Server</li> <li>6. Performing Backup and Recovery</li> <li>7. Installing DNS</li> <li>8. Installing DHCP</li> <li>9. Installing Internet Information Services</li> <li>10. Planning Active Directory Infrastructure</li> </ol>
BSBC605	Software Lab-VII (Computer Graphics)	<ol style="list-style-type: none"> <li>1. Implement simple graphics programs using C/C++</li> <li>2. Write a program like draw a line, circle, ellipse .</li> <li>3. Implement the programs with flood fill functions.</li> </ol>



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		4. Image Editing using Clipping techniques & 2D, 3D techniques.
BSBC606	Project work II	