SHADAN DEGREE COLLEGE FOR BOYS

(Permitted by Govt of TG, Approved by AICTE, Affiliated to O.U)

2.6.1 Programme and course outcomes for all Programmes offered by the institution are stated and displayed on website and communicated to teachers and students.

Response: Mechanism to Communicate Program and Course Learning Outcomes

The College has laid out clear definitions for Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) across all academic programs. To effectively share these learning outcomes with both teachers and students, we've adopted the following approach:

Website Display: We upload soft copies of the approved syllabi and learning outcomes on the college website, ensuring that both teachers and students have easy and ongoing access.

Faculty Communication via IQAC: We highlight the importance of learning outcomes during IQAC meetings, discussions in the academic council, and staff meetings to make sure they align with our teaching and assessment strategies.

Student Awareness through Classroom Engagement: Faculty members make it a point to inform students about course and program outcomes during departmental orientations, classroom discussions, and mentoring sessions.

This comprehensive approach guarantees that learning outcomes are well understood, serving as the foundation for academic delivery, student engagement, and assessment.

PROGRAM OUTCOMES FOR BSC(COMPUTER SCIENCE)

PO1 – Disciplinary knowledge: Capable to apply the knowledge of mathematics, algorithmic principles and computing fundamentals in the modeling and design of computer based systems of varying complexity.

PO2 – Scientific reasoning/ Problem analysis: Ability to critically analyze, categorizes, formulate and solve the problems that emerges in the field of computer science.

PO3 – Problem solving: Able to provide software solutions for complex scientific and business related problems or processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural, societal and environmental considerations.

PO4 – Environment and sustainability: Understand the impact of software solutions in environmental and societal context and strive for sustainable development.

PO5 – Modern tool usage: Use contemporary techniques, skills and tools necessary for integrated solutions.

PO6 – Ethics: Function effectively with social, cultural and ethical responsibility as an individual or as a team member with positive attitude.

PO7 – Cooperation / Team Work: Function effectively as member or leader on multidisciplinary teams to accomplish a common objective.

PO8 – Communication Skills: An ability to communicate effectively with diverse types of audience and also able to prepare and present technical documents to different groups.

PO9 – Self-directed and Life-long Learning: Graduates will recognize the need for self-motivation to engage in lifelong learning to be in par with changing technology.

PO10 – Enhance the research culture and uphold the scientific integrity and objectivity.

Program Specific Outcomes-B.Sc. (Computer Science)

PSO1:
Apply the knowledge of computer science fundamentals, programming languages, data structures, and algorithms to design, develop, and analyze efficient software and hardware solutions for real-world problems.

PSO2:
Demonstrate proficiency in emerging technologies such as databases, networking, artificial intelligence, and web development, and apply analytical, ethical, and teamwork skills to contribute effectively in multidisciplinary environments and pursue lifelong learning.

B.SC COMPUTER SCIENCE-(CBCS) SEMESTER-I

Name of the Course	Programming in C
Course Code	151

Course Outcomes (COs)

CO No.	Course Outcome Statement	Bloom's Level	Level Code
CO1	Define the basic components of a computer system, including CPU, memory units, input/output, and storage devices.	Remember	L1
CO2	Implement modular programming through functions to solve basic computational problems and use arrays and strings to manage and process data collections.	Apply	L3
CO3	Compare and contrast the use of pointers vs arrays in memory management and data handling.	Evaluate	L5
CO4	Design and develop structured and modular C programs integrating arrays, pointers, structures, and file operations. Construct User-Defined data types and apply them in real-time applications(e.g., Student Record System, Inventory Management).	Analyze	L4

B.SC COMPUTER SCIENCE-(CBCS) SEMESTER-II

Name of the Course	Programming in C++
Course Code	251

Course Outcomes (COs)

CO No.	Course Outcome Statement	Bloom's Level	Level Code
CO1	Define the basic principles of object-oriented programming (OOP), including class, object, inheritance, polymorphism, encapsulation, and abstraction and recall the syntax, keywords, and operators used in C++ programming.	Remember	L1
CO2	Describe how data abstraction and encapsulation are implemented in C++ and Discuss the role of constructors, destructors, and access specifiers in a class.	Understand	L2
CO3	Implement core OOP concepts such as inheritance, function overloading, and operator overloading in problem-solving scenarios.	Apply	L3
CO4	Distinguish between compile-time and run-time polymorphism, and evaluate their suitability for different use cases. Integrate exception handling, templates, and Standard Template Library (STL) to enhance program functionality and reusability.	Analyze, Create	L4, L5

B.SC COMPUTER SCIENCE-(CBCS) SEMESTER-III

Name of the Course	Data Structure using C++
Course Code	351

Course Outcomes (COs)

CO No.	Course Outcome Statement	Bloom's Level	Level Code
CO1	Define basic data structure terminology such as nodes, pointers, stacks, queues, trees, graphs, etc. recall the syntax and usage of C++ constructs required for implementing data structures.	Remember	L1
CO2	Illustrate the internal working of operations such as insertion, deletion, traversal, and searching using diagrams and examples and interpret algorithm efficiency using time and space complexity.	Understand	L2
CO3	Compare different sorting and searching algorithms in terms of their performance and suitability and analyze the use of various data structures for specific real-time problems like expression evaluation, job scheduling, and shortest path computation.	Analyze	L4
CO4	Evaluate the correctness and efficiency of C++ implementations of data structures using test cases and performance metrics and assess the advantages of object-oriented implementation of data structures in C++ over procedural approaches. Design and develop complete C++ applications involving multiple data structures (e.g., student database, file indexing system, or traffic routing simulator).	Evaluate, Create	L5,L6

B.SC COMPUTER SCIENCE-(CBCS) SEMESTER-IV

Name of the Course	Data Base Management System
Course Code	**451**

Course Outcomes (COs)

CO No.	Course Outcome Statement	Bloom's Level	Level Code
CO1	Define key database concepts such as DBMS, RDBMS, schema, instance, data models, and normalization. Explain the architecture of a DBMS and the role of each component (DDL, DML, query processor, etc.) and describe relational algebra operations and their role in query processing.	Remember, Understand	L1, L2
CO2	Develop ER models and translate them into normalized relational schemas and implement views, indexes, and transactions in SQL.	Apply	L3
CO3	Examine concurrency issues such as deadlocks, locking protocols, and transaction conflicts and compare relational and non-relational (NoSQL) database models in terms of structure and use cases.	Analyze	L4
CO4	Develop a mini-project (e.g., student management system, hospital database, e-commerce backend) incorporating forms, transactions, and data integrity constraints and integrate front-end tools with the database using basic connectivity (e.g., using JDBC, Python-MySQL).	Create	L6

B.SC COMPUTER SCIENCE-(CBCS) SEMESTER-V

Name of the Course	Programming in Java
Course Code	551

Course Outcomes (COs)

CO No.	Course Outcome Statement	Bloom's Level	Level Code
CO1	Define basic principles of Java programing, list Java's key features like platform independence, bytecode, JVM, and memory management and recall standard Java libraries and packages.	Remember	L1
CO2	Explain the concept of Object-Oriented Programming (OOP) including encapsulation, inheritance, polymorphism, and abstraction in Java and describe exception handling, multithreading, and the Java memory model.	Understanding	L2
CO3	Apply object-oriented programming principles to develop Java applications using classes, objects, interfaces, exception handling, multithreading, file I/O, and collections.	Apply	L3
CO4	Assess the benefits and drawbacks of multithreading and exception handling approaches. Construct mini-projects (e.g., billing systems, student management systems, chat applications) that integrate Java collections, threads, and file handling and integrate Java applications with databases using JDBC for data persistence.	Evaluate, Create	L5, L6

B.SC COMPUTER SCIENCE-(CBCS) SEMESTER-VI

Name of the Course	Web Technologies
Course Code	651

Course Outcomes (COs)

CO No.	Course Outcome Statement	Bloom's Level	Level Code
CO1	Define key web concepts including HTTP/HTTPS, URL, client-server architecture, web servers, and browsers and list core technologies such as HTML, CSS, JavaScript, XML, and server-side scripting languages.	Remember	L2
CO2	Explain the structure and semantics of HTML documents and the styling capabilities of CSS and describe the functioning of client-side scripting (JavaScript) and server-side scripting (e.g., PHP, Node.js). Develop static web pages using HTML and CSS and apply JavaScript to enhance interactivity and form validation on client-side.	Understand	L1
CO3	Analyze the DOM (Document Object Model) and JavaScript events to control web page behavior and compare client-side and server-side scripting in terms of their roles and performance.	Analyze	L4
CO4	Design and develop responsive full-stack web applications using HTML, CSS, JavaScript, server-side scripting, and database integration.	Create	L6