



SLC(University of Delhi)
Shyam Lal College



Programme Specific Outcomes and Course Outcomes
B.Sc. (Physical Sciences) with Computer Science

Programme	Programme Specific Outcomes
<p align="center">B.Sc. Physical Sciences (Discipline Computer Science)</p>	<p>PSO-1: Develop theoretical foundations in computer science.</p> <p>PSO-2: Develop expertise in programming skills using high level programming languages.</p> <p>PSO-3: Develop skills to design, implement and document the solutions for computational problems.</p> <p>PSO-4: Develop soft skills to work effectively in a team to solve a problem.</p> <p>PSO-5: Develop the ability to use state of the art technologies.</p> <p>PSO-6: Effectively utilizing their knowledge of computing principles and mathematical theory to develop sustainable solutions to current and future computing problems.</p> <p>PSO-7: Inculcating the understanding of the needs of society and the importance of societal obligations.</p> <p>PSO-8: Apply fundamental principles and methods of Computer Science to a wide range of applications</p> <p>PSO-9: Exhibiting their computing expertise within the computing community through corporate leadership, entrepreneurship, and/or advanced graduate study</p> <p>PSO-10: Developing and implementing solution based systems and/or processes that address issues and/or improve existing systems within in a computing based industry.</p>

Course Outcomes: B.Sc. Physical Sciences (Discipline Computer Science)

Semester 1:

Course Name	Learning Outcomes	Programme Specific Outcomes are Attained by
<p>Problem Solving using Computers</p>	<p>CO1: Describe the components of a computer and the notion of an algorithm.</p> <p>CO2: Apply suitable programming constructs and data structures to solve a problem.</p>	<ul style="list-style-type: none"> • Students get to know basics of programming. • Students are able to use suitable data structures in programming. • Students get to know about the basics of

	<p>CO3: Develop, document, and debug modular python programs.</p> <p>CO4: Use of classes and objects in application programs.</p> <p>CO5: Use of files for I/O operations.</p>	<p>object oriented concepts.</p> <ul style="list-style-type: none"> • Students will be able to use the files for I/O operations.
<p>Generic Elective: Programming using Python</p>	<p>CO1: Describe the components of a computer and notion of an algorithm.</p> <p>CO2: Apply suitable programming constructs and built-in data structures to solve a problem.</p> <p>CO3: Develop, document, and debug modular python programs.</p> <p>CO4: Use classes and objects in application programs and visualize data.</p>	<ul style="list-style-type: none"> • Students get to know basics of programming. • Students are able to use suitable data structures in programming. • Students get to know about the basics of object oriented concepts. • Students will be able to use the files for I/O operations.

Semester 2:

Course Name	Learning Outcomes	Programme Specific Outcomes are Attained by
<p>Database Management Systems</p>	<p>CO1: Use database management system to manage data.</p> <p>CO2: Create entity relationship diagrams for modeling real-life situations and design the database schema.</p> <p>CO3: Use the concept of functional dependencies to remove data anomalies and arrive at normalized database design.</p> <p>CO4: Write queries using relational algebra and SQL.</p>	<ul style="list-style-type: none"> • Students get to know basics data base management system. • Students are able to write SQL queries. • Students get to know about the normalization of data. • Students will be able to retrieve the data from the database efficiently.
<p>Generic Elective: Database Management system</p>	<p>CO1: Describe the features of database management systems.</p> <p>CO2: Differentiate between database systems and file systems.</p> <p>CO3: Model an application's data requirements using conceptual modelling tools like ER diagrams and</p>	<ul style="list-style-type: none"> • Students get to know basics data base management system. • Students are able to write SQL queries. • Students get to know about the normalization of data. • Students will be able to

	<p>design database schemas based on the conceptual model.</p> <p>CO4: Write queries in relational algebra / SQL.</p> <p>CO5: Normalize a given database schema</p>	<p>retrieve the data from the database efficiently.</p>
--	--	---

Semester 3:

Course Name	Learning Outcomes	Programme Specific Outcomes are Attained by
Operating Systems	<p>CO1: Understand the rationale behind the current design and implementation decisions in modern Operating Systems by considering the historic evolution.</p> <p>CO2: Identify modules of the operating systems and learn about important functions performed by operating system as resource manager.</p> <p>CO3: Use the OS in a more efficient manner.</p>	<ul style="list-style-type: none"> • Students get the basic knowledge of computer system. • Students have the knowledge about the functions of OS in any computer system. • Students get the knowledge of shell scripting
Generic Elective : Computer Networks	<p>CO1: State the use of computer networks and different network topologies.</p> <p>CO2: Distinguish between LAN, MAN, WAN, and between Intranet, Extranet and Internet.</p> <p>CO3: Compare OSI and TCP/IP architectures</p> <p>CO4: Enumerate different transmission media and describe the use of each of them. 5. Design web pages using HTML.</p>	<ul style="list-style-type: none"> • Students get the basic knowledge computer networks. • Students have the knowledge about the topologies used in computer networks. • Students get the knowledge of OSI and TCP/IP architectures. • Students will get the familiarity about the design of web page using HTML.

Semester 4:

Course Name	Learning Outcomes	Programme Specific Outcomes are Attained by
Computer System Architecture	<p>CO1: Design combinational circuits using basic building blocks. Simplify these circuits using Boolean Algebra and Karnaugh maps.</p> <p>CO2: Differentiate between combinational circuits and sequential circuits.</p> <p>CO3: Represent data in binary form, convert numeric data between different number systems and perform arithmetic operations in binary.</p> <p>CO4: Determine various stages of instruction cycle, various instruction formats and instruction</p> <p>CO5: Describe interrupts and their handling.</p> <p>CO6: Explain how CPU communicates with memory and I/O devices.</p>	<ul style="list-style-type: none"> • Students get the knowledge about the architecture of computer system. • Students have the knowledge different types of circuits used in the architecture of the computer system. • Students get the knowledge about data conversion between different number system. • Students will get the familiarity how different units communicating in the computer system
Generic Elective :Information Security and Cyber Laws	<p>CO1: Learn, structure, mechanics and evolution of various crime threats</p> <p>CO2: Learn to protect information systems from external attacks by developing skills in enterprise security, wireless security and computer forensics.</p> <p>CO3: Analyse the risks involved while sharing their information in cyber space and numerous related solutions like sending protected and digitally signed documents</p> <p>CO4: Insights of ethical hacking and usage of password cracking tools</p> <p>CO5: Get an overview of different ciphers used for encryption and decryption.</p>	<ul style="list-style-type: none"> • Students get the knowledge about information security. • Students have the knowledge about the cyber laws. • Students learn about different types of attacks and the risk involved in data transfer. • Students will get the familiarity about ethics in transfer of information on the internet.

Semester 5:

Course Name	Learning Outcomes	Programme Specific Outcomes are Attained by
Programming in JAVA	CO1: Develop and execute Java programs using iteration and selection. CO2: Create classes and their objects. CO3: Implement OOPS concepts to solve problems using JAVA	<ul style="list-style-type: none">• Students get to know basics of programming.• Students are able to use suitable data structures in programming.• Students get to know about the basics of object oriented concepts.• Students will be able to use the files for I/O operations.

Semester 6:

Course Name	Learning Outcomes	Programme Specific Outcomes are Attained by
Internet Technologies	CO1: Develop the web page using HTML CO2: Gain insights in web designing using CSS CO3: Implement the dynamic web designing using Java script and JSP. CO4: Gain proficiency in fetching of data from database using JDBC.	<ul style="list-style-type: none">• Students get to know basics of design of web page.• Students also learn to use CSS in web designing.• Students revised the java concept and learn the advanced java.• Students will be able make the web page interactive using java script.• Students can access the data from the data base on the web page.