COMPUTER SCIENCE		
	Course Outcomes	
	B.Sc. Honours Programme	
SEM	**PAPER WITH CODE**	**OUTCOME**
1	CC12: Programming fundamentals using C	• Ability to implement algorithms in the „C" language. • Develop modular programs using control structures and arrays in „C". • Understand how to write, debug and execute simple programs in C.
	CC13: Computer system architecture	• Understand the theory and architecture of central processing unit. • Analyze some of the design issues in terms of speed, technology, cost, performance. • Design a simple CPU with applying the theory concepts. • Use appropriate tools to design verify and test the CPU architecture. • Learn the concepts of parallel processing, pipelining and interprocessor communication. • Understand the architecture and functionality of central processing unit. • Exemplify in a better way the I/O and memory organization. • Define different number systems, binary addition and subtraction, 2"s complement representation and operations with this representation.
2	CC22:Programming in JAVA	• Students will learn about the basic concepts of Object-Oriented Programming language like Objects, Classes, Inheritance, Polymorphism etc. • They will implement those concepts in programming using Java language. • They will get an insight of how to handle unexpected problems and conditions in programming code and mechanisms of how to recover from them. • They will understand the concepts of designing Graphical User Interface and client side program execution on browser. • They will work on how to create files and transfer data to and from files through program coded in java
	CC23: Discrete Structures	• Understanding the concepts of discrete mathematics. • Learning applications of discrete structures in Computer Science. • Express a logic sentence in terms of predicates, quantifiers, and logical connectives. • Apply the operations of sets and use Venn diagrams to solve applied problems; solve problems using the principle of inclusion-exclusion. • Demonstrate different traversal methods for trees and graphs. • Model problems in Computer Science using graphs and trees.
3	CC31:Data Structures	• Understand different methods of organizing large

		amount of data using data structure. • Able to choose appropriate data structure as applied to specified problem definition. • Understand various techniques for representation of the data in the real world. • Able to compute the complexity of various algorithms.
	CC32:Operating Systems	• Understand the role of operating system as System software. • Able to compare the various algorithms and comment about performance of various algorithms used for management of memory, CPU scheduling, File handling and I/O operations. • Understand various concept related with Deadlock to solve problems related with Resources allocation, after checking system in Safe state or not. • To understand role of Process synchronization towards increasing throughput of system.
	CC33:Computer Networks	• Understand basic computer network technology. • Understand and explain Data Communications System and its components. • Able to identify the different types of network topologies and protocols. • Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer. • Identify the different types of network devices and their functions within a network . • Understand the basic protocols of computer networks, and how they can be used to assist in network design and implementation.
	SEC35E3:Python Programming	• Define and demonstrate the use of built-in data structures “lists” and “dictionary”. • Design and implement a program to solve a real world problem. • Design and implement GUI application and how to handle exceptions and files. • Make database connectivity in python programming language.
4	CC41:Design and Analysis of Algorithm	• Analyze any algorithms and able to calculate their theoretical complexity. • Understand the problem solving methods such as recurrences, dynamic programming and greedy method. • Understand NP-Hard and NP-complete concepts.
	CC42:Software Engineering	• Able to design and conduct experiments, as well as to analyze and interpret data. • Able to identify, formulate, and solve engineering problems. • Able to analyze, design, verify, validate, implement, apply, and maintain software systems. • Able to understand different phases of SDLC.
	CC43:Database Management System	• Demonstrate an understanding of the relational data model. • Transform an information model into a relational database schema and to use a data definition language and/or utilities to implement the schema

		using a DBMS. • Formulate, using relational algebra, solutions to a broad range of query problems. • Formulate, using SQL, solutions to a broad range of query and data update problems.
	SEC45E1:Android Programming	• Understand Android OS, Gradle, Android Studio. • Debug Android Application • Develop UI based Mobile Application using Android Studio. • Design application for Mobile using various sensors. • Design and develop an application using Database. • Adapt to learn new mobile technologies.
5	CC51:Internet Technologies	• To understand client server architecture. • Implement PHP, Server Side Scripting Language. • To know how to implement socket programming. • Understand working of XML, CSS and XML parsers. • Will learn to implement PHP framework for effective design of web application. • Will use JavaScript to program the behavior of web pages. • Will use AJAX to make our application more dynamic.
	CC52:Theory of Computation	• Understand the fundamental mathematical , regular languages and finite automata • Able to describe and transform regular expressions and grammars. • Able to design different types of Finite Automata and Machine as Acceptor, verifier and translators. • Able to understand the concept and design of push-down automata. • Able to understand the design and different types of Turing machine. • Understand the relation between context free languages, PDA and TM . • Able to understand recursive enumerable languages, recursive function theory and Problems on recursive function.
	DSE53E1:Microprocessor	• Understand the basic architecture of 8085 and 8086. • Impart the knowledge about the instruction set. • Understand the basic idea about the data transfer schemes and its applications • Develop skill in simple program writing for INTEL 8085 and INTEL 8086.
	DSE54E3:Numerical Methods	• Demonstrate understanding of common numerical methods and how they are used to obtain approximate solutions to otherwise intractable mathematical problems. • Apply numerical methods to obtain approximate solutions to mathematical problems. • Derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution of linear and nonlinear equations, and the solution of differential equations. • Analyze and evaluate the accuracy of common

		numerical methods.
6	CC61:Artificial Intelligence	• Solve basic AI based problems. • Define the concept of Artificial Intelligence. • Apply AI techniques to real-world problems to develop intelligent systems. • Select appropriately from a range of techniques when implementing intelligent systems
	CC62:Computer Graphics	• Understand how to use graphics objects represented in computer. • Will able to correlate between user and computer through graphics. • Able to increase the productivity through graphics. • Understand programmer"s perspective of working of computer graphics.
	DSE63E1:Digital Image processing	• Discuss digital image fundamentals. • Apply image enhancement and restoration techniques. • Use image compression and segmentation Techniques.
	DSE64P: Project	• To learn to work in a team • To learn to coordinate the work among the team members • Get acquainted with new technical tools • Get to know the current research areas of the subject • Deal with real life technical challenges

B.Sc. Programme Course		
SEM	**PAPER WITH CODE**	**OUTCOME**
1	CC1-Computer System Architecture	• Understand the theory and architecture of central processing unit. • Analyze some of the design issues in terms of speed, technology, cost, performance. • Design a simple CPU with applying the theory concepts. • Use appropriate tools to design verify and test the CPU architecture. • Learn the concepts of parallel processing, pipelining and interprocessor communication. • Understand the architecture and functionality of central processing unit. • Exemplify in a better way the I/O and memory organization. • Define different number systems, binary addition and subtraction, 2"s complement representation and operations with this representation.
2	CC2: Programming Fundamentals using C	•Ability to implement algorithms in the „C" language. •Develop modular programs using control structures and arrays in „C". •Understand how to write, debug and execute simple programs in C.
3	CC3:Computer Networks	•Understand basic computer network technology. •Understand and explain Data Communications System and its components. •Able to identify the different types of network topologies and protocols. •Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer. •Identify the different types of network devices and their functions within a network . •Understand the basic protocols of computer networks, and how they can be used to assist in network design and implementation.
	SEC1:Office Automation Tools	• to perform documentation • to perform accounting operations • to perform presentation skills
4	CC4:Data Structures	•Understand different methods of organizing large amount of data using data structure. •Able to choose appropriate data structure as applied to specified problem definition. •Understand various techniques for representation of the data in the real world. •Able to compute the complexity of various algorithms
	SEC2:HTML Programming	• Describe the historical context and justification for HTML. • Create HTML5 documents. • Add content to an HTML page using HTML elements. • Use hyperlinks to connect various HTML pages together. • Capture user input using forms. • Create content using HTML5 semantic elements.

5	DSE1A2:Operating System	•Understand the role of operating system as System software. •Able to compare the various algorithms and comment about performance of various algorithms used for management of memory, CPU scheduling, File handling and I/O operations. •Understand various concept related with Deadlock to solve problems related with Resources allocation, after checking system in Safe state or not. •To understand role of Process synchronization towards increasing throughput of system.
	SEC3:Visual Basic Programming	• Students list the visual programming concepts. • Explain basic concepts and definitions. • Express constants and arithmetic operations. • Distinguish variable and data types. • Students code visual programs by using Visual Basic work environment. • Distinguish and compose events and methods.
6	DSE1B:Project	• To learn to work in a team • To learn to coordinate the work among the team members • Get acquainted with new technical tools • Get to know the current research areas of the subject • Deal with real life technical challenges
	SEC4:My SQL	• List the major elements of the PHP & MySQL work and explain why PHP is good for web development • Learn how to take a static website and turn it into a dynamic website run from a database using PHP and MySQL. • Analyse the basic structure of a PHP web application and be able to install and maintain the web server, compile, and run a simple web application. • Learn how databases work and how to design one • Learn different ways of connecting to MySQL through PHP, and how to create tables, enter data, select data, change data, and delete data. Connect to SQL Server and other data sources.

B.Sc. General Elective Course		
SEM	**PAPER WITH CODE**	**OUTCOME**
3	GE3A:Operating Systems	•Understand the role of operating system as System software. •Able to compare the various algorithms and comment about performance of various algorithms used for management of memory, CPU scheduling, File handling and I/O operations. •Understand various concept related with Deadlock to solve problems related with Resources allocation, after checking system in Safe state or not. •To understand role of Process synchronization towards increasing throughput of system.
4	GE4B:Python Programming	•Define and demonstrate the use of built-in data structures “lists” and “dictionary”. •Design and implement a program to solve a real world problem. •Design and implement GUI application and how to handle exceptions and files. •Make database connectivity in python programming language.