- **COURSE OUTCOME(CO):**

Course Outcomes of B. Sc. Computer Science Semester-I		
Course Title	**Course Code**	**Course Outcome**
Computer Fundamentals I:	**CS101T**	• CO 1: Understand and describe the basic structure of a comput machine instruction and their execution. • CO 2: Understand, apply and carry out binary arithmetic operatic such as high speed addition, multiplier including the algorithms. • CO 3: Understand, and explain the block diagram of computer, • internal functions of processor and control unit design. • CO 4: Understand and describe the various I/O devices and Mem devices. • CO 5: Understand and describe the memory organization a hierarchical memory system. • CO 6: Understand the concept of Operating system and their types
Digital Electronics:	**CS102T**	• CO 1: To understand the different logic families. • CO 2: Understand the different Number Systems. • CO 3: Understand to Manipulate with the Boolean algebra. 1) AND 2) OR 3) NOT 4) X-OR • CO 4: Understand to Simplify the Boolean expressions with the help of Karnaugh Map. • CO 5: Understand to Analyze and design various combinational logic circuits. • HALF ADDER • FULL ADDER • MULTIPLEXER • DEMULTIPLEXER • CO 6: Understand the basic functions of Flip – flops, shift registers and counters.

Microprocessor I	**CS103T**	• **CO 1: Study the functional blocks of Microprocessor.** • **CO 2: Explain the architecture and instruction set of 8086 microprocessor.** • **CO 3 : Understand Assembly Language Programming.**
Programming in C	**CS104T**	• **CO-1: Use the fundamental of C programming in trivial problem solving.** • **CO-2: Enhance skill on problem solving by constructing algorithms.** • **CO-3: Students will be able to comprehend the general structure of C program, concepts of variable, data type, and operator and be able to create a C program to demonstrate these concepts.** • **CO-4: Demonstrate the use of Strings and string handling functions.** • **CO-5: Ability to work with textual information, characters and strings.**
Communication Skills-1	**CS105T**	• **CO 1: To Understand the communication in oral, written, and visual communication.** • **CO 2: To understand to apply communication theories.** • **CO 3: Show an understanding of opportunities in the field of communication.** • **CO 4: Use current technology related to the communication field.**
Mathematical Foundation	**CS106T**	• **CO-1: To understand the Graph Definition & Terminologies, Application of graph Operations on Graph, Directed Graph and Matrix Representation of graph.** • **CO- 2: to understand Properties of Binary Relations, Function Boolean Algebra.** • **CO- 3: To Calculate determinant with the help of different method.** • **CO- 4: Simplify and understand to Matrix addition, Subtraction, Division and Inverse of matrix.**

Course Outcomes of B. Sc. Computer Science Semester-II		
Data Structure	**CS201T**	• **CO-1: Summarize different programming methodologies and analysis of various algorithms.** • **CO-2: Illustrate the concept of Stack andQueue** • **CO-3: Students will be able to implementvarious sorting, searching, and hashing algorithms** • **CO-4: Analyze and implement linked listconcept** • **CO-5: Students will be capable to identify theappropriate data structure forgiven problem.**
Operating System-I	**CS202T**	• **CO 1: Describe and explain the fundamental of computer operating system and their types.** • **CO 2: Describe the concept of process management, memory management and information management.** • **C0 3: Define and explain the concept of scheduling, deadlocks, memory management, and synchronization and file systems** • **CO 4: Explanation of concept of virtual memory and paging, context switching**
8086: Microprocessor II	**CS203T**	• **CO1:-Demonstrate the internal architecture and its general operations of microprocessors and describe the difference between the 8086 and advanced microprocessors.** • **CO2:-Classify and articulate the addressing modes and memory access methods within the microprocessor.** • **CO3:-Apply the instruction set of Intel 8086 microprocessor and distinguish the use of different arithmetic, logical, shifting, rotating instructions to apply in assembly language programming.** • **CO4:-Design and analyze assembly programming code to use the branching structures, looping structures flags, stacks, procedures, macros, and interrupts.**
Adv. Programming in C	**CS204T**	• **CO-1: Understanding a functional hierarchical code organization.** • **CO-2: Ability to define and manage data structures based on problem subject domain.** • **CO-3: Students will be able to develop logics which will help them to create programs, applications in C.** • **CO-4: Learning the basic programming constructs they can easily switch over to any other language in future.** • **CO-5: Students will be able to design an application using the concepts of array, pointer, structure and file management to solve real world problem.**

Communication Skill-II	**CS205T**	• **CO 1: The students will develop an understanding regarding effective communication and required skills.** • **CO 2: Development of the four broad essential communication skills in i.e. – Reading, Writing, Listening and Speaking.** • **CO 3: Enhancement of vocabulary and English proficiency of the students.**
Numerical Computation Methods	**CS206T**	• **CO-1 : To understand the rules for error calculation, Propagation in error.** • **CO- 2: To understand How to calculate Matrix and determinant and use of them in Daily life.** • **Co- 3: To understand and Calculate numerical solution of simultaneous equation.** • **Co- 4: Simplify and understand to Interpolation and polynomial Interpolation.** • **CO-5: Understanding and Simplify least square curve fitting.**
Course Outcomes of B. Sc. Computer Science Semester-III		
Adv. Data Structure	**CS301T**	• **CO- 1: Understand and describe the Structured Query Language.** • **CO-2: To Understand and Explain how to Data store in access.** • **CO-3: To understand the concept of Database system architecture.** • **CO-4: To Understand the concept of Transaction Processing.** • **CO-5: To Understand the concept of Concurrency control techniques**
Unix Operating System	**CS302T**	• **CO 1:You will be able to run various UNIX commands on a standard UNIX/LINUX Operating system (We will be using Ubuntu flavor of the Linux operating system)** • **CO 2:You will be able to do shell programming on UNIX OS. 4.** • **CO 3: You will be able to understand and handle UNIX system calls.**

PC- Maintenance	**CS303T**	• **CO 1 : Understand the architecture of desktop computer and laptop.** • **CO 2 : Understand the basic different computer peripherals.** • **CO 3 : Explain the concept of motherboard and chipsets.** • **CO 4: Introduction to parts of computer and motherboard.** • **CO 5: How we can assemble the pc.** • **CO 6: Understand the installation process of operating system.** • **CO 7: Understand the concept of drivers.** • **CO 8.Understand the concept of virus and antivirus installation processes.**
Oops Using C++	**CS304T**	• **CO-1: Understand the difference between the top-down and bottom-up approach.** • **CO-2: Describe the object-oriented programming approach in connection with C++.** • **CO-3: Apply the concept of object-oriented programming.** • **CO-4: Illustrate the process of data file manipulations using C++.** • **CO-5: Design object oriented solutions for small systems involving multiple objects.**
DBMS - I	**CS305T**	• **co 1: Understand the concept of DBMS and architecture of DBMS** • **co 2: Understand the concept ER diagram & relationships .** • **co 3: Understand the concept of transaction, acid properties** • **co 4: Understand the concurrency.** • **co 5: Understand the concept of keys, types of keys.** • **co 6: Understand the concept normalization, EF Codd rules.**

Statisticat Methods	**CS306T**	• **CO-1 : To understand the Scope and Importance of Statistics** • **Primary and Secondary Data, Types of Data: Qualitative and Quantitative** • **Discrete, continuous, cross-section, time- series, failure, industrial, directional data** • **CO- 2: To understand and explain Introduction and basic Concepts of statistics** • **Co- 3: To understand and Calculate Measures of Central Tendency.** • **Co- 4: To Understand Simplify and how to calculate Measures of Dispersion.**
Course Outcomes of B. Sc. Computer Science Semester-IV		
Software Engineering I	**CS401T**	• **CO- 1: Understand and describe software terminologies, role of management in software development** • **CO-2: To understand and explain software life cycle models – build and fix model, water fall model prototyping model, ad model, spiral model.** • **CO-3: To understand the concept - Requirements Elicitation, Requirements Analysis, Requirements Documentation, Requirements Validation, Requirements Validation, Requirements Management.** • **CO-4: To Understand the Event Handling: Event Listeners & Event Handlers, Event Listeners Registration.** • **CO-5:-To Understand and how to apply Software Testing – Strategic Approach to Software Testing, Basic Terminologies, Functional Testing, Structural** • **Testing, Levels of Testing, Validation Testing, Art of Debugging, Testing Tools.**
Fedora OS	**CS402T**	• **To understand the multiuser operating system & commands to make effective use of the environment to solve problems** • **To understand GNOME Concept** • **To Under the File Permissions in Fedora OS** • **To Learn the Installation Process of Fedora OS.**

Basics of Networking	**CS403T**	• **CO 1: Understand fundamental underlying principles of computer networking.** • **CO 2: Describe and analyze the hardware, software, components of a network.** • **CO 3: Understand the data transmission and its types.** • **CO 4: Understand the concept of guided and unguided media.** • **CO 5: Analyze the requirements for a given organizational structure [Topologies] and select the most appropriate networking architecture and technologies.** • **CO 6: Have a basic knowledge of the use of cryptography and network security.** • **CO 7: Understand the generations of mobiles [1G, 2G, 3G, 4G].**
Core Java I	**CS404T**	• **CO-1: To understand the basic concepts and fundamentals of platform independent object oriented language.** • **CO-2: Develop Java program using packages, inheritance and interface.** • **CO-3: Create multithreaded programs.** • **CO-4: To learn how to design a graphical user interface (GUI) with Java Swing.** • **CO-5: To understand how to use Java APIs for program development.**
Advance DBMS	**CS405T**	• **CO- 1: Understand and describe the Structured Query Language.** • **CO-2: To Understand and Explain how to Data store in access.** • **CO-3: To understand the concept of Database system architecture.** • **CO-4: To Understand the concept of Transaction Processing.** • **CO-5: To Understand the concept of Concurrency control techniques.**
• **Course Outcomes of B. Sc. Computer Science Semester-V**		
Software Cost Estimation	**CS501**	• **CO- 1: Understand and describe Observation on Estimation, Planning process, Software Scope and Feasibility, Types of Resources, Project estimation..** • **CO-2: To Understand and Explain LOC-Based Estimation with Example Structure of Estimation Model, COCOMO Models, Software Equation,.** • **CO-3: To understand the concept - Designing Use Cases, Use Cases- Based Estimation with example, Estimate Reconciliation. Creating a Decision Tree, Outsourcing**

		• CO-4: To Understand the Estimation for Object-Oriented Projects, Estimation for Agile Development. • CO-5:-To Understand and how to Estimation for Object-Oriented Projects, Estimation for Agile Development.
Basic Android O S	**CS502T**	• CO- 1: Understand and describe how to install Environment Setup: Setup Java Development Kit (JDK), Android • CO-2: To Understand and Explain Application Component Application Components Activities, Services, • CO-3: To understand the concept UI Layout Android Layout Types, Relative Layout Attributes, Grid View Intents and Filters. • CO-4: To Understand the Event Handling: Event Listeners & Event Handlers, Event Listeners Registration. • CO-5:-To Understand How to create Android Themes, Default Styles & Themes, • Custom Components, Creating Simple Custom Components.
Core Java II	**CS503T**	• CO-1: the course covers Graphical User Interface (GUI) networking and database manipulation. • CO-2: Student will be able to use advanced technology in Java such as Internationalization, and Remote method Invocation • CO-3: Student will learn how to work with JavaBeans. • CO-4: Student will be able to develop web application using Java Servlet and Java Server Pages technology. • CO-5: learn to access database through Java programs, using Java Data Base Connectivity (JDBC)
Basics Of Computer Graphics	**CS504T**	• CO 1: understand the concept of computer graphics , applications. • CO 2: understand the classification of computer graphics. • CO 3: understand the devices [input, output & memory] used in graphics. • CO 4: understand the graphics file formats [bmp, gif, and png]. • CO 5: understand and execution the all 'C' functions for graphics • CO 6: Understand the 2d Transformation with homogeneous coordinate 1. translation 2. scaling 3. rotation • CO 7: Understand the line drawing algorythm by DDA and Bresenham's . • CO 8: understand the circle drawing algorithm by DDA

		and Bresenham's • CO 9: Understand the character generation by strokes , Starbust and bitmap method.
PHP - 1	CS505T	• CO-1: Write PHP scripts to handle HTML forms. • CO-2: Write regular expressions including modifiers, operators, and Meta characters. • CO-3: Create PHP programs that use various PHP library functions, and that manipulate files and directories. • CO-4: Analyze and solve various database tasks using the PHP language. • CO-5: Analyze and solve common Web application tasks by writing PHP programs.
Course Outcomes of B. Sc. Computer Science Semester-VI		
Software Quality & Testing	CS601T	• CO-1: Define software, explain the nature of software, software process and software engineering practice, explain and compare the various models. • CO-2: Explain the quality concepts, Software Quality Assurance tasks, discuss • CO-3: Develop various theoretical implementations of software with the knowledge of software engineering. This can help to create new software.
Android Application Development	CS0602T	• CO- 1: Understand and describe how to install the android SDK in PC. • CO-2: To Understand and Explain application and activities of android. • CO-3: To understand the concept of Finite Automata and its application in daily ○ Uses. • CO-4: To Understand the concept Data storage, retrieval and sharing. • CO-5:-To Understand How to create advance development in android.
Theory of Computation	CS0603T	• CO- 1: Understand and describe the set function, Relation and Trees. • CO-2: To Understand and Explain regular expression, application of pumping • Lemma, regular set. • CO-3: To understand the concept of Finite Automata and its application in daily ○ uses. • CO-4: To Understand the concept of Formal language, Chomsky classification of • language and their relation and automaton.

Advance Computer Graphics	**CS0604T**	• **Co 1: Understand the 3 d tranceformation translation, scaling, rotation and reflection.** • **Co 2: Understand the concept of color system rgb, cmyk, hue, and saturation.** • **Co 3: Understand the CIE model.** • **Co 4: Understand the concept of curves and fractals.** • **co 5: Understand Hilberts and Koch method for formation graphics**
Advance Programming in PHP	**CS0605T**	• **CO-1: Write PHP scripts to handle HTML forms.** • **CO-2: Write regular expressions including modifiers, operators, and Meta characters.** • **CO-3: Create PHP programs that use various PHP library functions, and that manipulate files and directories.** • **CO-4: Analyze and solve various database tasks using the PHP language.** • **CO-5: Analyze and solve common Web application tasks by writing PHP programs.**
Ehics & Cyber Law	**CS0608T**	• **Co 1: Understand the 3 d tranceformation translation, scaling, rotation and reflection.** • **Co 2: Understand the concept of color system rgb, cmyk, hue, and saturation.** • **Co 3: Understand the cie model.** • **Co 4: Understand the concept of curves and fractals.** • **co 5: Understand Hilberts and koch method for formation graphics** • **Co 6: Understand the animation and how it can works.** • **Co 7: Understand the concept of projection parallel as well as perspective projection with all their types.**