

BCA

Programme Specific Outcome (PSO)

By the successful completion of the program UG in Computer Application

- The curriculum prepares students for a career in the software industry by equipping the students with the latest revolution in technology.
- The program aims to educate students in Computer Applications and Information Technology with an emphasis on hands-on practical training in software development.
- The subject bunch guides the students to create the ability to design a computer application by considering realistic constraints such as safety, security, and applicability.
- The course prepares the students to work professionally pertaining to ethics, social, cultural, and cyber regulations.
- This helps the students to work effectively both as an individual and team leaders on multidisciplinary projects.
- It inculcates the ability to analyze, identify, formulate and develop computer applications using modern computing tools and techniques.
- The integrated syllabus focuses on improving communication skills so that they can effectively present technical information in oral and written reports.
- The course work makes the students ready to create & design innovative methodologies for solving complex/real-life problems for the betterment of society.
- This UG stream is for preparing graduates who will have a successful professional career in the software industry, government, and academia (enriching themselves by giving JECA, AIMCET, JEST, CUCET, GRE like State, National, and International level exams), research, and other areas where computer applications are deployed.
- To set the goals for the students to become software entrepreneurs as well as to promote the use of open source technology or live workbench like github.

Course Outcome (CO)

Semester- I

BCA 1101: Computer Fundamentals and Application Software

Outcomes:

On the successful completion of this course, students will be able to

- Bridge the fundamental concepts of computers with the present level of knowledge.
- Familiarize operating systems, programming languages, peripheral devices, memory, networking, multimedia, and the internet.
- Acquire knowledge of binary, hexadecimal, and octal number systems and their arithmetic.
- Understand how logic circuits and Boolean algebra forms as the basics of digital computers.
- Demonstrate the building up of Sequential and Combinational logic from basic gates.

BCA 1102: Programming in “C”

Outcomes:

On the successful completion of this course, students will be able to

- Develop their programming skills.
- Be familiar with the programming environment with the C Program structure.
- Declaration of variables and constants.
- Understand operators, expressions, preprocessors, and different types of control flow.
- Acquire knowledge array and its declaration and uses.
- Know about the basic concept of Pointer and its uses.
- Learn about the concept and declarations of Structure, Union, and Enumerated data types.
 - Understand the concept of file organization.

BCA 1103: Discrete Mathematics with Application

Outcomes:

On the successful completion of this course, students will be able to

- Understand the idea of mathematical thinking, mathematical proofs, and algorithmic thinking, and be able to apply them in problem-solving.
- Know the basics of discrete probability and number theory, and be able to apply the methods from these subjects in problem-solving.
- Be familiar with the Set theory, Relations, Functions, Permutations, and Combinations.
- Use effectively algebraic techniques to analyze basic discrete structures and algorithms.
- Understand asymptotic notation, and its significance, and be able to use it to analyze asymptotic performance for some basic algorithmic examples.
- Acquire knowledge about some basic properties of graphs, trees, and related discrete structures, and be able to relate these to practical examples.

BCA 1104: Digital Electronics

Outcomes:

On the successful completion of this course, students will be able to

- Minimize the Boolean algebra and design it using logic gates.
- Develop K-maps to minimize and optimize logic functions up to 5 variables.
- Acquire knowledge about various logic gates and logic families and analyze the basic circuits of these families.
- Analyze and design combinational circuits.
- Realize the given function using the combinational circuit.
- Design and develop sequential circuits.
- Describe and compare various memory systems, shift registers and A/D and D/A conversion circuits, and different Logic families and their operation.
- Implement digital systems using programmable logic devices.

BCA 1195: Communication Skill and Language Laboratory

Outcomes:

On the successful completion of this course, students will be able to

- Learn how to pronounce words using the rules they have been taught.
- Understand the importance of speaking English using rhythm and intonation.
- Know basic grammar and grammar of words.

- Acquire knowledge about how to write an essay on the current topic, report writing, letter writing, telegram, notice and dialogue writing, and amplification on the expansion of thoughts.
- Learn to overcome stage fear and make presentations with ease.
- Face different types of interviews with confidence.
- Learn to participate in group discussions.
- Distinguish informal speech from formal speech through role plays.

BCA-1196: C Programming Laboratory

Outcomes:

On the successful completion of this course, students will be able to

- Design, implement, test, debug, and document programs in C.
- Understand how to write and use functions, how the stack is used to implement function calls, and parameter passing options.
- Program on Numerical problems, Statistical problems, Searching and Sorting problems.
- Write a program with pointers and arrays, perform pointer arithmetic, and use the preprocessor.
- Understand and use the common data structures typically found in C programs namely arrays, strings, lists, trees, and hash tables.
- Program on low-level input and output routines in C.
- Write programs that perform explicit memory management.
- Work on files such as read and write.
- Implement any real-life work.

BCA-1197: Digital Electronics And Logic Laboratory

Outcomes:

On the successful completion of this course, students will be able to

- Have a thorough understanding of the fundamental concepts and techniques used in digital electronics.
- Study of logic gates and realization of OR, AND, NOT, AND XOR Functions using universal gates.
- Design and implement combinational circuits like Half adder/Full adder, Half Subtractor/Full Subtractor, Code converters, Comparators, MUX/DEMUX.
- Implement sequential circuits like Flip-Flops, Counters, and Shift Registers.

- Ability to identify basic requirements for a design application.
- Identify and prevent various hazards and timing problems in a digital design.
- Develop skills to build and troubleshoot digital circuits.

Semester- II

BCA-1201: Computer Organization and Architecture

Outcomes:

On the successful completion of this course, students will be able to

- Explain the organization of the basic computer, its design, and the design of the control unit.
- Learn about Boolean algebra, Combinational and Sequential circuits, and hardware.
- Acquire knowledge about Instruction format and different Addressing methods.
- Perform computer arithmetic operations on integers and real numbers.
- Demonstrate the working of the central processing unit and RISC and CISC Architecture.
- Identify and compare different methods for computer I/O mechanisms and Interrupt.
- Categorize memory organization and peripherals and explain the function of each element of a memory hierarchy.
- Demonstrate control unit operations and conceptualize instruction-level parallelism.
- Elaborate on advanced concepts of computer architecture, Parallel Processing, interprocessor communication, and synchronization.

BCA-1202: Data Structure

Outcomes:

On the successful completion of this course, students will be able to

- Select appropriate data structures as applied to the specified problem definition.
- Implement appropriate sorting/searching techniques for a given problem.
- Understand basic data structures such as arrays, linked lists, stacks, and queues.
- Solve problems involving graphs, trees, and heaps.
- Implement operations like searching, insertion, deletion, traversing mechanism, etc. on various data structures.
- Determine and analyze the Time and Space complexity of a given Algorithm.
- Describe the hash function and concepts of collision and its resolution methods.
- Design advanced data structure using Non-Linear data structure.

BCA-1203: Mathematical Foundation for Computer Science

Outcomes:

On the successful completion of this course, students will be able to

- Learn about the fundamental theorem of classical algebra and Descartes rule of sign and their application.
- Acquire knowledge about Linear algebra, Vector space, characteristic polynomial and characteristic equation, Cayley-Hamilton theorem etc.
- Understand Cramer's rule and different types of mapping and their simple example.
- Be familiar with Successive differentiation, Leibnitz's theorem, mean value theorem, Rolle's theorem, Cauchy's mean value theorem, Lagrange's mean value theorem, Taylor's and Maclaurin's theorem with Lagrange form of remainder, Taylor's Series example, Partial derivatives, Euler's theorem on homogeneous function.
- Learn about definite Integral and their elementary properties.
- Understand the basic concept of Probability, Mean, Mode, Median, Standard Deviation, Skewness, Kurtosis,
- Acquire knowledge about different Probabilities Models (Normal, Poisson and Binomial).
- Know about Correlation and Regression.

BCA-1204: Financial and Management Accounting

Outcomes:

On the successful completion of this course, students will be able to

- Understand the Nature and scope of accounting information.
- Explain the general purposes and functions of accounting.
- Identify and record accounting transactions using the traditional and accounting equations approach.
- Describe the main elements of financial accounting information - assets, liabilities, revenue, and expenses.
- Understand the concept of grouping the accounting head, schemes of assigning the codes to accounting heads, and maintaining the hierarchy of ledger accounts for preparing control accounts.

- Prepare ledger Accounts, cashbooks, Journal books, and Bank books.
- Learn about Ratio Analysis.
- Prepare trial balance, profit & loss Account, and Balance Book.
- Acquire knowledge about the concept of Budget and Budgetary control.

BCA-1205: System Analysis and Design

Outcomes:

On the successful completion of this course, students will be able to

- Understand the principles and tools of systems analysis and design and differentiate between Manual systems and Automated systems.
- Learn about System Analyst and System Development Life Cycle (SDLC).
- Solve a wide range of problems related to the analysis, design, and construction of information systems.
- Analysis and Design of small-sized systems.
- Learn about File Organization and Data Base Design and the Role of DBA.
- Acquire knowledge about the testing strategies and need for system testing and implementation.
- Gather a brief knowledge about Quality assurance.
- Plan and undertake a major individual project, prepare and deliver coherent and structured.

BCA-1296: Data Structure Laboratory

Outcomes:

On the successful completion of this course, students will be able to

- Demonstrate basic data structures such as arrays and linked lists.
- Write programs on Lists, Stacks, Queues, and trees with static and dynamic structures (Using arrays and pointers).
- Implement various searching and sorting algorithms.
- Demonstrate fundamental algorithmic problems including Tree Traversals, Graph traversals, and shortest paths.
- Implement Hash table of fixed sizes.

BCA-1297: Financial Accounting Laboratory

Outcomes:

On the successful completion of this course, students will be able to

- Learn about how to implement Accounting using Tally.
- Learn about how to implement Accounting using Fact.

Semester- III

BCA-2101: Design and analysis of Algorithm

Outcomes:

On the successful completion of this course, students will be able to

- Learn about Asymptotic Notation-Big O, Omega, Theta, etc and calculate Time and space complexity.
- Select appropriate design techniques to solve real-world problems.
- Apply the Divide and Conquer technique to solve Binary search, Quick sort and Merge sort etc.
- Implement the Dynamic Programming technique to solve Matrix-chain multiplication, All Pair shortest path, Single-source shortest path and Travelling Salesman problem etc.
- Gain knowledge about Branch and Bound method and 15-Puzzle problem.
- Learn about Backtracking method, Eight queens problem, Graph coloring problem and Hamiltonian problem.
- Apply the Greedy programming technique to solve the problems.
- Acquire knowledge about some Properties of graphs and graph traversal algorithms- BFS and DFS.
- Understand NP completeness and identify different NP complete problems. ➤ Discuss various advanced topics on algorithms.

BCA-2102: System Programming

Outcomes:

On the successful completion of this course, students will be able to

- Organize the functionalities and components of a computer system into different layers, and have a good understanding of the role of system programming and the scope of duties and tasks of a system programmer.
- Understand the basics of system programs like editors, compiler, assembler, linker, loader, interpreter and debugger.

- Gain knowledge about the concept of Assembler, various types of Macros and design of Macro Processor.
- Grasp the concept of Loader, functions of a loader, types of Loaders, databases used in Loaders, Design of Absolute Loader and DLL Loader.
- Understand the various phases of compiler and compare its working with assembler.
- Acquire knowledge about the concepts and principles, and be familiar with the approaches and methods of developing system-level software (e.g., compiler, and networking software).
- Grasp how linker and loader create an executable program from an object module created by assembler and compiler.
- Learn about Software Tools, Text editors, Interpreters, Program Generators, and Debug Monitors.
- Apply the knowledge and techniques learnt to develop solutions to real-world problems.

BCA-2103: Computer Oriented Numerical Method And Statistical Method

Outcomes:

On the successful completion of this course, students will be able to

- Know about Approximation in numerical computation, Truncation and rounding errors.
- Apply various interpolation methods namely Lagrange's interpolation, forward differences, backward differences, Newton forward and backward formulae for interpolation etc.
- Use numerical methods to find our solution of Algebraic Equations using different methods under different conditions, and numerical solution of system of algebraic equations.
- Work out Numerical Differentiation and Integration wherever routine methods are not applicable.
- Learn about Continuous random variable and its distributions and Concept of Sampling distribution and various types of it.
- Acquire knowledge about the Principles of Statistical inferences.
- Work numerically on the ordinary Differential Equations using different methods through the theory of finite differences.

BCA-2104: Database Management System

Outcomes:

On the successful completion of this course, students will be able to

- Describe DBMS architecture, physical and logical database designs, database modelling, relational, hierarchical and network models.
- Design Conceptual models of a database using ER modeling for real life applications and also construct queries in Relational Algebra.
- Create and populate a RDBMS for a real life application, with constraints and keys using SQL.
- Retrieve any type of information from a data base by formulating complex queries in SQL.
- Analyze the existing design of a database schema and apply concepts of normalization to design an optimal database.
- Build indexing mechanisms for efficient retrieval of information from a database.

BCA-2105: Microprocessor

Outcomes:

On the successful completion of this course, students will be able to

- Understand the taxonomy of microprocessors and knowledge of contemporary microprocessors.
- Assess and solve basic binary math operations using the microprocessor and explain the microprocessors and Microcontroller's internal architecture and its operation within the area of manufacturing and performance.
- Apply knowledge and demonstrate programming proficiency using the various addressing modes and data transfer instructions of the target microprocessor and microcontroller.
- Learn about various types of interrupts, 8085 interrupt structure and its operation, 8259A interrupt controller.
- Design electrical circuitry to the Microprocessor I/O ports in order to interface the processor to external devices.
- Implement structured, well commented, understandable assembly language programs to provide solutions to real world control problems.

BCA-2196: DBMS Laboratory

Outcomes:

On the successful completion of this course, students will be able to

- Implement Basic DDL, DML and DCL Commands.

- Understand Data selection and operators used in queries and restrict data retrieval and control the display order.
- Write sub queries and understand their purpose.
- Use Aggregate and group functions to summarize data.
- Join multiple tables using different types of joins.
- Gain knowledge about the PL/SQL architecture and write PL/SQL code for procedures, triggers, cursors, exception handling etc.

BCA-2197: Microprocessor Laboratory (8085) And System Programming Laboratory(8086)

Outcomes:

On the successful completion of this course, students will be able to

(GR-A)

- Be familiar with 8085 register level architecture and trainer kit and TASM components, including the memory map and Familiarization with the process of storing and viewing the contents of memory as well as registers.
- Apply the fundamentals of assembly level programming of microprocessors.
- Build a program on a microprocessor using arithmetic & logical instruction set of 8085.
- Develop the assembly level programming using 8085 loop instruction set.
- Write program using subroutine calls and IN/OUT instructions using 8255 PPI on the trainer kit.
- Implement programs based on string and procedure for 8085 microprocessor.
- Design programs for 'Wait Loop (busy waiting)' and ISR for vectored interrupts (eg, counting number of pulses within specified time period).
- Analyze abstract problems and apply a combination of hardware and software to address the problem.

(GR-B) Numerical Laboratory

- Solve various problems related programme with C.
- Implement Numerical problems Using C.
- Write programs on Interpolation namely Newton forward, backward and Lagrange interpolation etc.
- Demonstrate Numerical Integration namely Trapezoidal Rule and Simpson's 1 /3 Rule.
- Implement Numerical solution of a system of linear equation: Gauss elimination, Gauss Jacobi, Gauss Seidel and Matrix Inversion.
- Write programs on Algebraic Equation namely Bisection, Secant, Regula-falsi, and Newton Raphson method.

- Implement Taylor Series, Euler's method, and Runge-Kutta method.

Semester- IV

BCA-2201: Object Oriented Programming Using C++

Outcomes:

On the successful completion of this course, students will be able to

- Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.
- Understand and apply various Data types, Operators, Conversions in program design.
- Gain knowledge about dynamic memory management techniques using pointers, constructors and destructors etc.
- Design and implement various forms of inheritance, String class, calling base class constructors.
- Apply & Analyze function overloading, operator overloading, polymorphism and Virtual functions
- Classify inheritance with the understanding of early and late binding..
- Analyze and explore various Stream classes, I/O operations, file handling and exception handling.

BCA-2202: Operating System

Outcomes:

On the successful completion of this course, students will be able to

- Describe the important computer system resources and the role of operating system in their management policies and algorithms.
- Understand the process management policies and scheduling of processes by CPU.
- Evaluate the requirement for process synchronization and coordination handled by operating system.

- Acquire knowledge about Deadlock detection, prevention and avoidance policies.
- Describe and analyze the memory management and its allocation policies.
- Identify use and evaluate the storage management policies with respect to different storage management.



- Use disk management and disk scheduling algorithms for better utilization of external memory.
- Recognize file system interface, protection and security mechanisms.
- Explain the various features of distributed OS like Unix, Linux, windows etc.

BCA-2203: Operation Research

Outcomes:

On the successful completion of this course, students will be able to

- Know Characteristics of Operation Research and necessity of Operation Research in industry.
- Understand formulation and solution of assignment model and Transportation model.
- Formulate and graphical solution of canonical and standard terms of linear programming problem and other algebraic solutions by two phase simplex method, Duality etc.
- Grasp different sequencing problems and find the optimal solutions using models for different situations.
- Learn about measurement of activity network, PERT computation, CPM computation, resource scheduling, Game Theory etc.

BCA-2204: Software Engineering

Outcomes:

On the successful completion of this course, students will be able to

- Define various software application domains and remember different process model used in software development.
- Plan a software engineering process life cycle, including the specification, design, implementation, and testing of software systems that meet specification, performance, maintenance and quality requirements.
- Justify role of SDLC in software Project Development and they can evaluate importance of Software Engineering in PLC.
- Explain needs for software specifications, also they can classify different types of software requirements and their gathering techniques.
- Convert the requirements model into the design model and demonstrate use of software and user interface design principles, ER diagram, Data Flow Diagram, function of Data dictionary.
- Know how to develop the code from the design and effectively apply relevant standards.

- Distinguish among Software Configuration Management and Software Quality Assurance and concept, use and applications of CASE TOOLS.
- Know about Test plans which include test cases demonstrating both black box and glass box testing strategies.
- Classify different testing strategies and tactics and compare them and Reliability assessment.
- Prepare SRS document, design document, test cases and risk management related document.
- Use modern engineering tools necessary for software project management, time management and software reuse.

BCA-2205: Computer Network

Outcomes:

On the successful completion of this course, students will be able to

- Enumerate the layers of the OSI and TCP/IP model and explain the function(s) of each layer.
- Explain the functions of Application layer and Presentation layer paradigms and Protocols.
- Describe the Session layer design issues and Transport layer services.
- Classify the routing protocols, concept about different classes of Internet Protocol and analyze how to assign the IP addresses for the given network.
- Analyze different MAC mechanisms (Aloha, Slotted Aloha, TDMA, and FDMA) and understand their pros and cons.
- Describe the functions of data link layer and explain the protocols.
- Explain the functions of Physical layer, topologies and the types of transmission media with real time applications.
- Understand network security and define various protocols such as FTP, HTTP, Telnet, DNS.

BCA-2296: C++ Lab

Outcomes:

On the successful completion of this course, students will be able to

- Provide in-depth coverage of ObjectOriented programming principles and techniques using C++.
- Develop solutions for a range of problems using objects and classes.

- Programs to demonstrate the implementation of constructors, destructors and operator overloading.
- Apply fundamental algorithmic problems including type casting, inheritance, and polymorphism.
- Develop applications using stream I/O and File I/O.
- Implement a simple Graphical User Interface.
- Write object-oriented programs using Template and Exception handling concepts.

BCA-2297: Operating System Lab and Networking Lab

Outcomes:

On the successful completion of this course, students will be able to

(Gr-A)

- Demonstrate the installation process of various operating systems.
- Identify the basic Unix general purpose commands.
- Apply and change the ownership and file permissions using advance Unix commands.
- Use the awk, grep, perl scripts.
- Implement shell scripts and sed.
- Apply basic of administrative task.

(Gr-B)

- Identify and use various networking components and understand different transmission media.
- Write Simple Application using elementary socket system calls in client/server model in Unix/Linux using C language.
- Understand the TCP/IP configuration for Windows and Linux.
Implement device sharing on network and implement any topology using network devices.
- Learn the major software and hardware technologies used on computer networks.

Semester- V

BCA-3101: Object Oriented Programming Using Java

Outcomes:

On the successful completion of this course, students will be able to

- Demonstrate the use of good object-oriented design principles including Encapsulation and Information hiding.
- Write programs using Java collection API as well as the java standard class library.
- Exhibit the use of a variety of basic control structures including selection and repetition, classes and objects in a tiered architecture (user interface, controller, and application logic layers), primitive and reference data types including composition, basic AWT components, file-based I/O and one-dimensional arrays.
- Apply & Analyze Compile time, Runtime polymorphism and Constructor overloading.
- Acquire knowledge about how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.
- Demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development.
- Identify and describe common abstract user interface components to design GUI in Java using Applet & AWT along with response to events.
- Apply the garbage collection for saving the resources automatically.

BCA-3102: Profession Values And Ethics

Outcomes:

On the successful completion of this course, students will be able to

- Know the prime part of this leitmotif covers the ethical behavior as well as moral values which gradually seem less in our contemporary society to eradicate value crisis and to provide an idea of good life in real.
- Learn about Management that enrich the qualities that a person needs to control the people with divergent ideology, distinguish work environment, apt communication with media and know how to fulfill objectives with proper integration of training and development.
- Acquire knowledge about how the growth of technological activities gradually affects the environment and causes degradation and how to overcome it along with sustainable development to offer a better world in future.

- Understand each and every phase of how modern Marketing approaches along with its classifications, functions. Principles and objectives that acts like a mix segmented motives to consummate specific purposes.

BCA-3103: .(dot) NET Technology

Outcomes:

On the successful completion of this course, students will be able to

- Learn the most widely used framework and API to create Windows applications, Console Programming; Web-based Apps, Websites, etc. and work in an embedded environment to develop such things with an integrated languages group like mostly used C# and VB.
- Know brief introductory information about the Web services and its layers which will enrich them for fact-finding and how the concept of the internet actually works in reality.
- Understand that the concept of referential Metadata, associative link reference of FCL, COM and DOM with the syntactic XML support and converted native object code MSIL are the key because the final fascinating output are lying on these cores.
- Gain knowledge about the use of Data Provider Model in form of ADO.NET and the Web based Server-Client Model in form of ASP.NET along with their features and implications.

BCA-3104: Elective-I (Automata Theory)

Outcomes:

On the successful completion of this course, students will be able to

- Understand, design, construct, analyze and interpret Regular languages, Expression and Grammars.
- Design different types of Finite Automata and Machines as Acceptor, Verifier and Translator.
- Learn about design, analyze and interpret Context Free languages, Expression and Grammars.
- Design different types of Push down Automata as Simple Parser.
- Analyze the syntax and formal properties, parsing of various grammars such as LL(k) and LR(k).
- Design different types of Turing Machines as Acceptor, Verifier, Translator and Basic computing machine.

BCA-3195: Seminar (Individual)

Outcomes:

On the successful completion of this course, students will be able to

- Learn different current trending techniques.
- Describe the knowledge or skills acquired by the end of a particular assignment. ➤ Understand why that knowledge and skills will be useful to them.

BCA-3196: Java Lab

Outcomes:

On the successful completion of this course, students will be able to

- Implement Object Oriented programming concept using basic syntaxes of control Structures, strings and function for developing skills of logic building activity.
- Identify classes, objects, members of a class and the relationships among them needed for finding the solution to a specific problem.
- Write programs on Constructor, Overloading, Overriding and Inheritance.
- Implement Wrapper class, Vectors, and Arrays.
Write programs on developing Interfaces, extending interfaces, creating and accessing Packages.
- Implement Multithreaded programming, handling errors and Exceptions, Applet programming and Graphics programming.
- Use of CASE tools.

BCA-3197: .NET Lab

Outcomes:

On the successful completion of this course, students will be able to

- Knowledge of the structure and model of the programming language C #.
- Use the programming language C # for various programming technologies.
- Develop software in C #.
- Evaluate user requirements for software functionality required to decide whether the programming language C # can meet user requirements.
- Propose the use of certain technologies by implementing them in the C # programming language to solve the given problem.
- Choose an engineering approach for solving problems, starting from the acquired knowledge of programming and knowledge of operating systems.

Semester- VI

BCA-3201: Object Oriented Analysis And Design (Using UML)

Outcomes:

On the successful completion of this course, students will be able to

- Learn about Modeling principles, Structural classes, Interfaces and relationship architecture to implicate the different phases and objects of Software Development procedures.
- Know the idea of State diagrams, Use case, Activity and Interaction diagrams to implement distinct individual scenarios and understand different modeling techniques along with their behavioral and referential patterns.
- Understand test cases, formulate events and signals and learn about state machines, improvise process and threads. The students wouldn't get any better context than this to visualize unified applications with libraries and deploying component based diagrams to deduce the automation of diverge object oriented system.

BCA-3202: Elective-2(PHP/MY SQL)

Outcomes:

On the successful completion of this course, students will be able to

- Use MySQL to create, update and delete tables from a database.
- Create related tables and define keys and create both inner and outer joins of two or more tables.
- Use PHP to create a data driven website and use PHP to read a file and add records to the database.
- Create a form on a webpage and use PHP to check the validity of the form.
- Use the data from the form to update the MySQL database.
- Apply PHP to retrieve data from the MySQL database and display in various formats including tables.
- Create a "member only" website using ID and password in a Myself database and check the validity of the user input using PHP.
- Understand the basic program constructs such as if/else, switch, loops, arrays and functions and be able to use them in the PHP script.
- Use built-in features of PHP such as data and string manipulation.
- Test and debug PHP scripts while working with live data.

- Alter the content of a web page dynamically using the combination of data from the MySQL database and PHP methods such as the type of browser the user has, the date, and time.

BCA-3203: Computer Graphics and Multimedia

Outcomes:

On the successful completion of this course, students will be able to

- Introduce the use of the components of a graphics system and become familiar with building approach of graphics system components and Algorithms related with them.
- Discuss the application of computer graphics concepts in the development of computer games, information, visualization and business.
- Recapitulate various algorithms for scan conversion and filling of basic objects and their comparative analysis.
- Provide an understanding of mapping from a world coordinates to device coordinates and clipping.
- Understand how to scan convert the basic geometrical primitives, how to transform the shapes to fit them as per the picture definition.
- Explore projections and visible surface detection techniques for the display of 3D scene on 2D screen.
- Render projected objects to naturalize the scene in 2D view and use of illumination models for this.
- Learn the basic principles of 3- Dimensional computer graphics.
- Acquire knowledge about Multimedia System Architecture, Evolving technologies for Multimedia, Compression and Decompression.

BCA-3294 :: Graphics And Multimedia Lab

Outcomes:

On the successful completion of this course, students will be able to

- Implement Point plotting, line & regular figure algorithm using C++ programming.
- Write a program on Raster scan line & circle drawing algorithms.
- Apply clipping and filling techniques for modifying an object.
- Implement different types of geometric transformation of objects in 2D and 3D.
- Gain knowledge about the practical implementation of modeling, rendering, viewing of objects in 2D.

- Write program on Filling algorithms, Clip line segments against windows.
- Implement Simple fractals representation and demonstrate the properties of the Bezier curves.
- Create Animation using Flash.



BCA-3295: Project (Industrial)

Outcomes:

On the successful completion of this course, students will be able

- to➤Discover potential research areas in the field of IT.
- Conduct a survey of several available literatures in the preferred field of study.
- Compare and contrast the several existing solutions for research challenge.
- Demonstrate an ability to work in teams and manage the conduct of the research study.
- Formulate and propose a plan for creating a solution for the research plan identified.

Report and present the findings of the study conducted in the preferred domain.

