

Department of Computer
Course objectives and Outcomes

F.Y.B.Sc.

| Sem.-I | | |
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| Paper | Objectives | Outcome |
| CS-101: Essentials of Computer | <p>Develop the knowledge of fundamentals of computers. Introduction to hardware, software.</p> <p>Introduction to input output devices, programming languages.</p> <p>Introduction to concept of network, computer viruses and security, computer ethics, operating systems.</p> | <p>Students came to know the physical parts of the computers and input output devices.</p> <p>Understand computer network, Computer viruses and computer ethics.</p> <p>Know the types of operating systems and use of simple dos commands</p> |
| CS-102: C Programming Language-I | <p>Give introduction to C programming language. Program writing concept, knowledge of operators and library functions.</p> <p>Use of conditional statements and looping statement.</p> <p>Understand concept of array and use of arrays.</p> | <p>Students understand basic concepts of C language program writing.</p> <p>Students came to know various types of operators and library functions and its use.</p> <p>Students understand the use of conditional, looping statements and array in program development.</p> |
| CS-103: LAB Course on Essential of Computer and C programming | <p>Develop the skill to handle computer and devices. Introduction to basic knowledge of system and dos commands, web browser and network.</p> <p>Introduction to develop simple computer programs.</p> | <p>Students are able to develop the skill to handle devices, handle internet, handle operating system using dos commands, and familiar with operating system like windows.</p> <p>Students understood basic knowledge of program development using C</p> |

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| | | programming language and use of web browser. |
| Sem.-II | | |
| CS-201: Internet Computing | Develop knowledge of web site. Develop knowledge of web site and web page design and use of HTML programming in web page design. | Students are able to design web pages. Understand HTML Programming, web pages design techniques. |
| CS-202: C Programming Language | Introduction to use of functions with various ways and use of standard as well as user defined functions. Introduction to use of pointers, structure and union, graphics , file handling in C language program development. | Students gained the knowledge of various methods to develop programming skill and able to develop not only simple programs but also complex programs using functions, pointers, structure. Students are also able to use graphics and handle files in program development |
| CS-203: LAB Course on Internet Computing and C Programming | Develop skill to design web pages with images, audio video handling. Introduction to use functions, structures, pointers, graphics and files in program development to improve skills. | Students are able to develop web page using HTML codes with images, audio, video handling. Students are able to use additional features in program development like standard and user defined functions, structures , graphics and file |

S.Y.B.Sc.

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| Sem.-III | | |
| CS-DSC 2 C: COMP 211 : Data Structure –I | To know algorithm analysis for time and space requirement | Students understood various data structures like |

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| | and understand the concept of various data structures like stack, queue, linked list. | stack, queue, linked list and use the data structures to manage data |
| COMP-212: Programming in C++ -I | Introduction to object oriented programming. To develop programs with objects and class using C++ programs. Use of functions and operators in C++ programs | Students gained the knowledge of object oriented programs using C++ programming language. Students are also able to handle programs using function overloading and operator overloading |
| COMP 213: PRACTICAL COURSE | Develop skill to write programs using various concepts of data structures and also develop object oriented programs using C++ programs. | Students are able to write programs using various data structures and improve programming skills and also able to write object oriented programs using C++. |
| CS SEC-I (Skill Enhancement Course-I) Software & Hardware Installation Skills. | To know various operating systems and their installation and installation of other software and devices and maintenance of PC | Students are familiar with various types of operating systems and develop the skills to install various software and devices. Students are also able to use diagnostic tools, knowledge of network and PC maintenance |
| Sem.-IV | | |
| CS-DSC 2 D : Comp-221: Data Structure-II | Introduction to more data structures like tree, graph and use them to handle the data. To understand the concepts of various techniques of searching and sorting of data. | Students are able to handle data with data structures like tree , graph and improve their programming skills Students understood concepts of various data searching and sorting techniques. |
| CS-DSC 2 D : COMP-222 : Programming in C++-II | Introduction to uses, concept of constructors and destructors, inheritance , exception | Students understand concept of constructor and destructors, inheritance , |

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| | handling, templates and file handling in the C++ programming. | exception handling, templates and able to handle files in C++ programs and improve programming skills |
| CS-DSC 2 D LAB: Lab Course on COMP 223: PRACTICAL COURSE | To develop skill to handle data structures like tree and graph to improve programming skills. To develop more skills in C++ programming using constructors, destructors , exception handling , file handling etc | Students developed to handle data structures like tree, graph and also developed to use various data searching and sorting techniques. Students are also able to write C++ programs using constructor , destructor, inheritance, exception handling , file handling to improve programming skills |
| CS SEC-II (Skill Enhancement Course-II) Network Security | To understand concept of security. Various techniques of security. Problems in computer security and handle it and also know about system security. | Students are familiar with various types of operating systems and its security and also understand network security, various malicious Software. |

T.Y.B.Sc

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| Sem.-V | | |
| DSC (UG-CS-501) System Programming | To understand use and development of software tools. To understand the design structure of Assembler and macro preprocessor. To understand the design structure of compiler and understand the functions of linkers and loaders | Understand details about system software To develop basic system program like development of editor, lexical analyzer etc Students are familiar with language processing activities-functions of translators, loader and linkers |

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| <p>DSC (UG-CS-502): Database Management System</p> | <p>To understand the fundamental concepts of database. To understand user requirements and frame it in data model. To understand creations, manipulation and querying of data in databases.</p> | <p>On completion of the course, student will be able to– Solve real world problems using appropriate set, function, and relational models. Design E-R Model for given requirements and convert the same into database tables. Use SQL.</p> |
| <p>DSC (UG-CS-503)Software Engineering</p> | <p>This paper helps to understand what software is and the process in development of software. It gives detailed knowledge about various models and requirements needed in developing software. It also elaborates the concepts of designing, testing & quality about software</p> | <p>After completion of the course: Students are able to perform the E-R Diagram, DFD, Data dictionary, Decision tree about software. They can also design the software in learned language using the course content. Get the knowledge of types of testing & how testing is performed in industry.</p> |
| <p>DSC (UG-CS-504): Computer Aided Graphics</p> | <p>Understanding Graphics Concept. Study the various graphics techniques Study the various graphics algorithms</p> | <p>Differentiate between interactive and non-interactive graphics. Study line Drawing and Circle Drawing techniques and algorithms. Perform 2D and 3D transformation on different images. Know about detail working of 2D and 3D clipping and windowing. Understand raster graphics and hidden surface elimination.</p> |
| <p>DSC SEC(UG-CS-505)Python</p> | <p>The course is designed to provide Basic knowledge of</p> | <p>Explain basic principles of Python programming</p> |

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| Programming –I | <p>Python. Python programming is intended for software engineers, system analysts, program managers and user support personnel who wish to learn the Python programming language. To learn how to design and program Python applications and develop problem solving skills and their implementation through Python.</p> | <p>language. Construct and apply various filters for a specific task. Apply the best features of mathematics, engineering and natural sciences to program real life problems</p> |
| DSC (UG-CS-506B): JAVA Programming-I | <p>To learn Object Oriented Design with JAVA Ability to write computer program to solve specific program and handle abnormal termination of a program using exception handling.</p> | <p>Get knowledge of JDK environment Explore polymorphism using method overloading and method overriding Understand the different aspects of hierarchy of classes and their extensibility Understands the concept of streams and files Write programs for handling run time errors using exceptions</p> |
| DSC UG-CS-507 LAB on Python Programming –I | <p>Students should understand: The course is designed to provide Basic knowledge of Python. Python programming is intended for software engineers, system analysts, program managers and user support personnel who wish to learn the Python programming language. To learn how to design and program Python applications.</p> | <p>Explain basic principles of Python programming language Construct and apply various filters for a specific task. Apply the best features of mathematics, engineering and natural sciences to program real life problems.</p> |
| DSC UG-CS-508: LAB on Computer Aided Graphics | <p>To know how to implement Graphics Programs. To implement various graphics</p> | <p>Understand Graphics Concept Practically Hands on of using</p> |

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| | <p>techniques To implement various graphics algorithms</p> | <p>standard graphics library Hands on of implementation of DDA, Bresenham's Line, Circle Drawing Algorithm Hands on of implementation of 2D Transformation: Translation, Scaling and Rotation implementation of Cohen-Sutherland line clipping algorithm</p> |
| <p>DSC (UG-CS-509 B): Lab on JAVA Programming II</p> | <p>To learn Object Oriented Design with JAVA Ability to write computer program to solve specific program To handle abnormal termination of a program using exception handling</p> | <p>Get knowledge of JDK environment Explore polymorphism using method overloading and method overriding Understand the different aspects of hierarchy of classes and their extensibility Understands the concept of streams and files Write programs for handling run time errors using exceptions</p> |
| <p>Sem- VI</p> | | |
| <p>DSC (UG-CS-601): Operating System</p> | <p>To understand Operating system concepts and services. To understand the concept of a CPU scheduling, memory management, Disk Drum Scheduling and deadlock</p> | <p>Students should familiar with Operating System Services. Understand CPU scheduling algorithms, memory Management Techniques, Disk Drum Scheduling algorithms, Deadlock preventions and avoidance. Introduction to android operating systems –its architecture, applications and uses.</p> |

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| DSC (UG-CS-602):Relational Database | Basic Knowledge of DBMS Knowledge of SQL Queries Basics of relational design Basics of ER model | To teach fundamental concepts of RDBMS (PL/PgSQL) To teach database management operations Be familiar with the basic issues of transaction processing and concurrency control To teach data security and its importance |
| DSC (UG-CS-603):Computer Network | How network works? & types of networks & its applications. It helps to understand the various models. It helps to understand various layers & their functionality. It gets the idea of how cryptography works. | After completion of the course: Students understand the information exchange done across the network with the help of OSI & TCP/IP models. Student understands how errors are captured & handled in network. Student understands various attack & its prevention techniques |
| (UG-CS-604)Theoretical Computer Science | Understanding the use of Sets, Relations and Graphs. Understand Languages in TCS. Introduction of Regular Languages, Pumping Lemma and its applications. Explore the knowledge of Pushdown Automata. Understanding Normal Forms, Turing Machine | Students know about use of Sets, Relations and Graphs. Understand Languages in TCS, Pumping Lemma and its applications. Explore the knowledge of Pushdown Automata. Understand Normal Forms and Turing Machine, methods like TGA, DTA and DSC. |
| DSC (UG-CS-605) Python Programming – II | The course is designed to provide advance knowledge of Python. Python programming is intended for software engineers, system analysts, program managers and user | Students can implement object oriented concepts, database applications. Construct regular expressions for pattern matching and apply them to various filters for a |

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| | <p>support personnel who wish to learn the Python programming language.</p> <p>To learn how to design and program Python applications.</p> <p>To develop problem solving skills and their implementation through Python</p> | <p>specific task.</p> <p>Design and implement Database Application and Content providers.</p> <p>Apply the best features of mathematics, engineering and natural sciences to pro</p> |
| DSC (UG-CS-606B): JAVA Programming II | <p>To design User Interface using Swing and AWT Learn the advanced concept of java</p> <p>To aware about the applet programming</p> | <p>Students are able to develop Program using graphical user interface with Swing classes.</p> <p>Handle different kinds of events generated while handling GUI components.</p> <p>Create programs using menus and dialog boxes</p> <p>Program to create applets</p> <p>Understand advanced java concepts like JDBC, Java Beans</p> |
| DSC UG-CS-LAB-607 LAB on Python Programming –II | <p>The course is designed to provide advance knowledge of Python.</p> <p>Python programming is intended for software engineers, system analysts, program managers and user support personnel who wish to learn the Python programming language.</p> <p>To learn how to design and program Python applications.</p> <p>To develop problem solving skills and their implementation through Python.</p> <p>Master the fundamentals of writing Python scripts</p> | <p>Explain basic principles of Python programming language</p> <p>Implement object oriented concepts, database applications.</p> <p>Construct regular expressions for pattern matching and apply them to various filters for a specific task.</p> <p>Design and implement Database Application and Content providers.</p> <p>Apply the best features of mathematics, engineering and natural sciences.</p> |
| DSC (UG-CS-Lab 608): Lab on RDBMS | <p>To perform operations on relational database management systems.</p> <p>Understand basic database</p> | <p>To use SQL & PL/SQL.</p> <p>To perform advanced database operations.</p> <p>Create database tables in</p> |

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| | <p>management operations. Design E-R Model for given requirements and convert the same into database tables.</p> | <p>SQL. Write and execute simple, nested queries</p> |
| <p>DSC (UG-CS-609 B): Lab on JAVA Programming II</p> | <p>To design User Interface using Swing and AWT Learn the advanced concept of java To aware about the applet programming</p> | <p>Program using graphical user interface with Swing classes Handle different kinds of events generated while handling GUI components Create programs using menus and dialog boxes Program to create applets Understand advanced java concepts like JDBC, Java Beans</p> |