

PROGRAMME NAME: BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

Students are expected to achieve the following objectives by the end of the program.

PSO1: To think analytically, creatively and critically in developing robust, extensive and highly technological solutions to simple and complex problems.

PSO2: To be capable of managing complex IT projects with consideration of the human, financial and environmental factors.

PSO3: To work effectively as a part of a team to achieve a common stated goal.

PSO4: To adhere to the highest standards of ethics, including relevant industry and organizational codes of conduct.

PSO5: To communicate effectively with a range of audiences both technical and non-technical.

PSO6: To develop an aptitude to engage in continuing professional development.

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) SEM I

PROGRAMME CODE: S00251

COURSE NAME: IMPERATIVE PROGRAMMING

COURSE OUTCOME:

CO1: Students understand the basics structure of Programming Language (C language)

CO2: Students learn to draw flowcharts and write Algorithms.

CO3: Students understand the fundamentals of Programming languages and their syntax.

CO4: Students develop the skills in use of operators

CO5: Students learn how to use Loops and Conditional Statements

CO6: Students develop functions in C language

CO7: Students learn to implement Arrays

CO8: Students learn to implement Pointers

CO9: Students learn to create Structures and Unions

COURSE NAME: DIGITAL ELECTRONICS

COURSE OUTCOME:

CO1: Students get knowledge of study of different types of number systems, their conversions and their use in electronics world.

CO2: Students get knowledge of study of logic gates, their ICs and universal gates.

CO3: Verifying De-Morgan's law and implementing Boolean expression using minimum number gates and ICs

CO4: Students get knowledge of study of design and implement combinational circuit based on problem given and minimizing it using K-Map.

CO5: Students learn to implement and design different code converter. (Binary to Gray, Gray to Binary, Binary to BCD etc.)

CO6: Students learn to implement 2bit by 2bit multiplier and 2bit comparator.

CO7: Students learn to implement encoder, decoder, multiplexer, demultiplexer.

CO8: Students get knowledge of study of Flip-Flops, counters.

CO9: Students get knowledge of study of counter ICs and designing MOD-N counter.

CO10: Students learn to design of shift registers and shift registers counters.

COURSE NAME: OPERATING SYSTEMS

COURSE OUTCOME:

CO1: Students learn to enhance study of operating system

CO2: Students gain knowledge regarding hardware use in computer

CO3: Students understand the role of input and output device

CO4: Students get knowledge of details of virtualization and cloud concept

CO5: Students get proper knowledge about android and Linux and window

COURSE NAME: DISCRETE MATHEMATICS

COURSE OUTCOME:

CO1: Students learn to think analytically, creatively and critically in developing robust, extensible and highly maintainable technological solutions to simple and complex problems.

CO2: Students formulate the problems in language of sets and apply fundamental principle of counting

CO3: Students learn to write a proof.

CO4: Students learn to prove the statements true for all natural numbers, using mathematical induction.

CO5: Students read and interpret the information given, graphically.

CO6: Students are able to identify relations between 2 variables.

CO7: Students are able to identify transportation networks and road segments between intersections.

CO8: Students learn to do map coloring.

CO9: Students build and use decision trees to solve problems.

CO10: Students use binary trees to represent and manipulate prefix codes.

CO11: Students are able to predict the number of possibilities to do a particular task in daily life

COURSE NAME: COMMUNICATION SKILLS

COURSE OUTCOME:

CO1: Students communicate with the help of Seven C's of Communication

CO2: Students develop the skill to write formal letters

CO3: Students develop the skill to write reports, memos and emails

CO4: Students are able to manage conflict and prepare advertisement strategies with the help of communication

CO5: Students develop the skill to prepare presentations, impress the audience with the help of presentation

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) SEM II

PROGRAMME CODE: S00252

COURSE NAME: OBJECT ORIENTED PROGRAMMING

COURSE OUTCOME:

CO1: Students understand the basic concepts of object oriented programming

CO2: Students understand the difference between object oriented and procedure oriented programming

CO3: Students understand the use of inheritance

CO4: Students understand why functions are declared as virtual and friend

CO5: Students understand the process of designing programs with the help of templates

CO6: Students understand the use of exceptions in a program

CO7: Students understand the process of designing programs with the help of string functions

CO8: Students understand the types of files and use of files

COURSE NAME: MICROPROCESSOR ARCHITECTURE

COURSE OUTCOME:

CO1: Students understand the concept of Assembly language.

CO2: Students learn the different types of instructions with respect to 8085 microprocessor.

CO3: Students understand 8085 microprocessor kit and execute assembly language program.

CO4: Students learn execution of program based on concept of BCD arithmetic.

CO5: Students are able to design and execute program based on stack, subroutines, counters and time delays.

CO6: Students get acquainted with the concept of static and dynamic debugging and debug real world program.

CO7: Students learn how to restart software instructions based on concept of interrupts.

CO8: Students understand the data communication process using serial I/O device.

CO9: Students get the knowledge of computer based software development system and integrated development environment.

CO10: Students understand the information about Pentium, Pentium pro microprocessor, core 2, later microprocessor.

COURSE NAME: WEB PROGRAMMING

COURSE OUTCOME:

CO1: Students understand basic working of Internet and World Wide Web.

CO2: Students are able to design static web pages using Hyper Text Markup Language (HTML).

CO3: Students are able to design interactive webpages using client-side script (JavaScript).

CO4: Students are able to design interactive webpages using server-side script (PHP).

CO5: Students are able to store and retrieve data from a server using PHP.

COURSE NAME: NUMERICAL AND STATISTICAL METHODS

COURSE OUTCOME:

CO1: Students are able to approximate the solution of differential equations, which is clearly used in almost every field of science.

CO2: Students are able to design and analyze control systems for aircrafts.

CO3: Students learn to fit curve using tabular data.

CO4: Students are able to decode algorithms

CO5: Students are able to forecast future opportunities and risks which is the most prominent application of regression analysis in business.

CO6: Students are able to reduce tremendous amount of raw data into actionable information

CO7: Students learn to implement methods to minimize cost/loss and maximize profit

CO8: Students are able to prepare models in order to get returns from stock market

COURSE NAME: GREEN COMPUTING

COURSE OUTCOME:

CO1: Students gain knowledge objective and standard for green computing

CO2: Students understand the importance of minimize power use and cooling

CO3: Students learn how paper less concept work and its implementation in real world

CO4: Students research study in recycling, reuse, refurbished

CO5: Students understand different solution of green initiative

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) SEM III

PROGRAMME CODE: S00253

COURSE NAME: PYTHON PROGRAMMING

COURSE OUTCOME:

CO1: Students understand the basic structure of Python Programming Language.

CO2: Students have acquired the skills to develop functions in Python.

CO3: Students are able to work with complex data structures in Python.

CO4: Students learn to implement object oriented concepts in Python.

CO5: Students are able to design GUI Applications using Python widgets.

CO6: Students learn to store and retrieve data from a server using Python Programming Language.

COURSE NAME: DATA STRUCTURES

COURSE OUTCOME:

CO1: Students understand the data structure and programs related to arrays.

CO2: Students are able to work on programs related to Linked List.

CO3: Students are able to work on programs related to Stack and Queue.

CO4: Students are able to work on programs related to sorting, searching and tree.

CO5: Students are able to work on programs related to hashing techniques and graph.

COURSE NAME: COMPUTER NETWORKS

COURSE OUTCOME:

CO1: Students understand how data communication work

CO2: Students understand what kind of layer work for internet or network

CO3: Students have gained knowledge of wireless Lan and MAC system

CO4: Students learn the concept about internet protocol

CO5: Students have gained knowledge of Network programming with network concept design

COURSE NAME: DATABASE MANAGEMENT SYSTEMS

COURSE OUTCOME:

CO1: Students understand the database architecture, data Models and database Design

CO2: Students learn to analyze Normalization, Relational Algebra and Calculus

CO3: Students have gained the knowledge of Constraints and views

CO4: Students learn the concept Controlling Transaction Management

CO5: Students learn to develop PL/SQL programs

COURSE NAME: APPLIED MATHEMATICS

COURSE OUTCOME:

CO1: Students understand the complex numbers and matrices

CO2: Students are able to solve the sums using integration.

CO3: Students are able to analyze the data using Laplace and Inverse Laplace transformations

CO4: Students learn differentiation under integral sign.

CO5: Students gain knowledge of Beta and Gamma functions

COURSE NAME: MOBILE PROGRAMMING

COURSE OUTCOME:

CO1: Students are able to create buttons and event listener with functions.

CO2: Students are able to add plugins in the application like device, device orientation, contacts, camera and battery status.

CO3: Students are able to create program like simple calculator.

CO4: Students learn to write programs like factorial, Armstrong, leap year and prime of the given number.

CO5: Students are able to design the applications having length and currency converter.

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) SEM IV

PROGRAMME CODE: S00254

COURSE NAME: CORE JAVA

COURSE OUTCOME:

CO1: Students gain knowledge of Java platform and language, followed by instructions for setting up a development environment consisting of a Java Development Kit (JDK).

CO2: Students understand the fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.

CO3: Students learn about the OOP concept of inheritance and packages.

CO4: Students learn to read and write data from different sources and destinations using various classes, interfaces, and methods that are available to read data from the file.

CO5: Students are able to design windows-based application using AWT (Abstract Windows Toolkit).

COURSE NAME: INTRODUCTION TO EMBEDDED SYSTEMS

COURSE OUTCOME:

CO1: Students gain knowledge about embedded system

CO2: Students are able to design program for embedded system

CO3: Students understand the process to use microprocessor and microcomputer

CO4: Students gain knowledge about life cycle of embedded system with proper model

CO5: Students understand how the real time development with embedded system

COURSE NAME: COMPUTER ORIENTED STATISTICAL TECHNIQUES

COURSE OUTCOME:

CO1: Students are able to analyze numerical data using different types of averages and measures of dispersion.

CO2: Students learn to use sampling theory to establish relationship existing between population and samples.

CO3: Students learn to estimate statistical parameters and hypothesis testing.

CO4: Students understand small sampling distributions.

CO5: Students gain knowledge of correlation and regression theory to study relationship between two or more variables.

COURSE NAME: SOFTWARE ENGINEERING

COURSE OUTCOME:

CO1: Students understand the basics of Software, SDLC Models

CO2: Students learn to analyze the critical systems, System Modelling

CO3: Students are able to design the User Interface and Quality Management

CO4: Students learn the process of Inspecting Software and Cost Estimation Techniques

CO5: Students understand the Process improvement

COURSE NAME: COMPUTER GRAPHICS AND ANIMATION

COURSE OUTCOME:

CO1: Students understand Working of a Cathode Ray Tube Monitor

CO2: Students learn to implement Line Drawing Algorithms - Digital Differential Analyzer Algorithm, Bresenham's Line Drawing Algorithm.

CO3: Students learn to implement Circle Drawing Algorithms - Midpoint Circle Drawing Algorithm, Bresenham's Circle Drawing Algorithm.

CO4: Students learn to implement Line Clipping using Cohen - Sutherland, Liang - Barsky, Cyrus – Beck Algorithms

CO5: Students learn to apply transformations on 2D and 3D objects in real world.

CO6: Students learn the process of Implementing Curve Generation Methods – Bezier Curves and B-Spline Curves

CO7: Students learn to detect visible surfaces using object space and image space methods.

CO8: Students learn to implement how animation works using graphics.

CO9: Students learn the process of Implementing Image Processing Methods (Contrast stretching, Smoothing, Median Filtering, Histogram Equalization).

CO10: Students understand how Image compression works (JPEG Image compression)

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) SEM V

PROGRAMME CODE: S00255

COURSE NAME: SOFTWARE PROJECT MANAGEMENT

COURSE OUTCOME:

CO1: Students understand project management and overview of project planning.

CO2: Select of an appropriate project approach.

CO3: Students understand the categories of risk and application of PERT.

CO4: Students understand how to overcome obstacles in project.

CO5: Students gain knowledge of the stages of development of a team.

CO6: Students understand the importance of software quality.

CO7: Students learn the process of how to close a project and reasons to close a project.

CO8: Students are able to design the project dissertation including objectives of a project, purpose and scope of a project.

CO9: Students gain knowledge of survey of technologies to demonstrate the awareness and understanding of available technologies related to the topic of the project.

CO10: Students learn to demonstrate the system design including screen layouts, process diagrams, pseudocode and other documentation.

COURSE NAME: INTERNET OF THINGS

COURSE OUTCOME:

CO1: Students understand Internet of Things

CO2: Introduction to Arduino and Raspberry Pi

CO3: Students are able to design prototypes using 3D printers.

CO4: Students learn to develop the Business Model

CO5: Students are able to design Printed Circuit Boards

COURSE NAME: ADVANCED WEB PROGRAMMING

COURSE OUTCOME:

CO1: Students learn to use the principles of object oriented programming techniques using C# and to create a Web Application with Visual Studio.NET.

CO2: Students are able to apply web controls such as validation controls to construct controls with code, templates with the repeater and data list controls, and to describe user controls, properties, and events.

CO3: Students learn to implement the Basic State Management in Web applications using cookies, hidden fields, query strings and session, application and global objects.

CO4: Students learn to configure a database and manipulate database records using Data Sets and Data Adapters.

CO5: Students learn to develop web application using Ajax.

COURSE NAME: ARTIFICIAL INTELLIGENCE

COURSE OUTCOME:

CO1: Students understand the process of implementation of BFS and DFS algorithm

CO2: Students learn the simulation of N-Queen problem, Water Jug problem.

CO3: Students understand the process of Implementation of A* and AO* algorithm

CO4: Students are able to design the simulation of tic-tac-toe game using min-max algorithm

CO5: Students understand the working of Missionaries and Cannibals problem

CO6: Students are able to design application for number puzzle problem

CO7: Students are able to solve travelling Salesman Problem, Block of word problem

CO9: Students understand Constraint Satisfaction Problem and its examples.

CO10: Students understand FOPL and PL

COURSE NAME: NEXT GENERATION TECHNOLOGIES

COURSE OUTCOME:

CO1: Students learn the basics of big data and its applications

CO2: Students learn to analyze mongo DB architecture and collections

CO3: Students are able to create Replication and Sharding

CO4: Students learn to implement JQuery

CO5: Students learn to implement JSON

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) SEM VI

PROGRAMME CODE: S00256

COURSE NAME: SOFTWARE QUALITY ASSURANCE

COURSE OUTCOME:

CO1: Students understand basic concepts of software quality.

CO2: Students understand the essentials of testing and skills required by a tester.

CO3: Students understand the difference between defect, error and mistake.

CO4: Students gain knowledge of different types of testing.

CO5: Students understand the two branches of software testing i.e. verification and validation.

CO6: Includes project dissertation about how the source code written for project is efficient.

CO7: After testing of a project, defining what modifications are implemented in the system and how it improved the system.

CO8: Students understand the limitations encountered during testing of the project and listing the criticisms accepted and future scope of the project.

COURSE NAME: SECURITY IN COMPUTING

COURSE OUTCOME:

CO1: Students learn the best practices for network defense.

CO2: Students understand the process of Encryption/Decryption. Securing Database.

CO3: Students learn to implement various techniques to secure network.

CO4: Students learn to use of intrusion detection systems and VOIP

CO5: Students are able to develop secure applications. Understanding Virtual Machines and Cloud Computing.

COURSE NAME: BUSINESS INTELLIGENCE

COURSE OUTCOME:

CO1: Students learn the working of Decision Support System

CO2: Students are able to demonstrate Mathematical models for decision making

CO3: Students learn the phases of Data Mining

CO4: Students understand the difference between data validation and data transformation

CO5: Students learn Classification Algorithms

CO6: Students learn Clustering Algorithms

CO7: Students are able to demonstrate the working of Logistic and production model

CO8: Students learn Artificial Intelligence and expert systems in detail

CO9: Students understand what is Regression and its types

C10: Students are able to demonstrate ETL process to construct database in Sql server

COURSE NAME: ENTERPRISE NETWORKING

COURSE OUTCOME:

CO1: Students understand the concept of General Network and Network Design Models.

CO2: Students are able to design Enterprise LAN and Data Center.

CO3: Students understand the concept of WLAN and WAN Technologies and Design and Enterprise Edge.

CO4: Students learn about Internet Protocol and its versions.

CO5: Students are able to manage Network Security and management network protocols.

COURSE NAME: CYBER LAWS

COURSE OUTCOME:

CO1: Students learn the “Information Technology Act, 2000” in detail. Sections under the Act, how they are applicable in real world, learn about its adjudication and penalties.

CO2: Students gain knowledge of Case Studies on how do various cyber-crimes happen like Hacking, Cyber Fraud.

CO3: Students learn how to create the e-contracts if they plan to start up an online business. What should be the clauses mentioned including its terms and conditions.

CO4: Students acquire the knowledge about the rights of a Consumer in India.

COURSE NAME: ADVANCED MOBILE PROGRAMMING

COURSE OUTCOME:

CO1: Students gain knowledge of Android Studio IDE and features available on android – basic app in JAVA + Kotlin both technology and Application Fundamentals: Creating a Project, Android Components, Activities, Services, Content Providers, Broadcast Receivers, Interface

overview, Creating Android Virtual device, USB debugging mode, Android Application Overview. Simple “Hello World” program.

CO2: Students learn to use Android Resources which we can use to add colors, themes, text, images etc. on mobile app.

CO3: Students learn about the Activity Life Cycle as well as communicating between multiple activities and also adding fragments which helps to display multiple options on application

CO4: Students learn to use different Layouts which helps to display different content in linear form, list of different options, showing contents in grid view

CO5: Students learn about best use of user interface to make app user friendly

CO6: Students are able to Add menus, dialogs etc.

CO7: Students gain knowledge of adding user interface like buttons add listeners, use of Intent to communicate or data exchange between different activities.

CO8: Students learn to add notification and broadcast receivers

CO9: Students are able to design dynamic app learn to connect it with database SQLite – to provide login, storage etc.

CO10: Students learn to use different API’s to enhance the working of applications and connect it with Google maps, Facebook etc.

CO11: Students learn to add security on applications as well as how to provide permissions of locations, contacts, and messages etc. to our applications.