

Department of Information Technology (Under Graduate Course)

Program Outcome	
Semester – I	
Course name	Course Outcome
Imperative Programming (USIT101)	<ul style="list-style-type: none"> • How C provides a foundation for further study of programming languages. • Develop the ability to analyze a problem, develop an algorithm & flowchart to solve it. • To use simple input and output statements, Conditional operation, Control statements, & Looping. • To use Pointers and pointer operators. • Familiarize the basic aspects of arrays, structure and file handling.
Digital Electronics (USIT102)	<ul style="list-style-type: none"> • Understand the concepts of various components to design stable analog circuits. • Represent numbers and perform arithmetic operations. • Minimize the Boolean expression using Boolean algebra and design it using logic gates. • Analyze and design combinational circuit.
Operating Systems (USIT103)	<ul style="list-style-type: none"> • An appreciation of the role of an operating system. • Understand the theory and logic behind the design and construction of operating systems. • Examine the algorithms used for various operations on operating systems. • Differentiate between various operating systems functionalities in terms of performance. • Know the problems in the design of operating system and study the probable solutions. • Become aware of the issues in the management of resources like processor, memory and input-output. • To understand the main components of an OS & their functions. • To study the process management and scheduling. • To understand various issues in Inter Process Communication (IPC) and the role of OS in IPC. • To understand the concepts and implementation Memory management policies and virtual memory. • To understand the working of an OS as a resource manager, file system manager, process manager, memory manager and I/O manager and methods used to implement the different parts of OS • To study the need for special purpose operating system with the advent of new emerging technologies.
Discrete Mathematics (USIT104)	<ul style="list-style-type: none"> • To provide overview of theory of discrete objects, starting with relations and partially ordered sets. • Study about recurrence relations, generating function and operations on them. • Give an understanding of graphs and trees, which are widely used in software. • Provide basic knowledge about models of automata theory and the corresponding formal languages.
Communication	<ul style="list-style-type: none"> • To understand and apply knowledge of human communication and language

<p>Skills (USIT105)</p>	<p>processes as they occur across various contexts, e.g., interpersonal, intrapersonal, small group, organizational, media, gender, family, intercultural communication, technologically mediated communication, etc. from multiple perspectives.</p> <ul style="list-style-type: none"> • Discuss the importance of effective communication in business • Differentiate between different methods of communication • Discuss the importance of ethical communication and communicate ethically. • Demonstrate critical and innovative thinking. • Display competence in oral, written, and visual communication. • Show an understanding of opportunities in the field of communication. • Use current technology related to the communication field. • Respond effectively to cultural communication differences. • Demonstrate positive group communication exchanges. •
<h3 style="color: blue;">Semester – II</h3>	
<p>Object oriented Programming (USIT201)</p>	<ul style="list-style-type: none"> • Designed meticulously to help students master the Object Oriented Programming skills in C++. • It covers basic topics like input/output streams, namespaces, classes and objects, constructors, function overloading, function overriding through to advanced topics such as Inheritance, Polymorphism, Templates, Exception handling, File handling etc. • It will be a stepping stone for learning other technologies like Java, Ios, Windows phone programming etc. •
<p>Microprocessor Architecture (USIT202)</p>	<ul style="list-style-type: none"> • Apply the fundamentals of assembly level programming of microprocessors. • Build a program on a microprocessor using instruction set of 8086. • Develop the assembly level programming using 8086 loop instruction set. • Analyze abstract problems and apply a combination of hardware and software to address the problem. • Understanding different types of processors available in the market.
<p>Web Programming (USIT203)</p>	<ul style="list-style-type: none"> • Design a basic web site using HTML and CSS to demonstrate responsive web design. • Implement dynamic web pages with validation using JavaScript objects by applying different event handling mechanism. • Develop simple web application using server side PHP programing and Database Connectivity using MySQL. • Build well-formed XML Document.
<p>Numerical and Statistical Methods (USIT204)</p>	<ul style="list-style-type: none"> • Expected Learning Outcomes: • To develop the student’s ability to deal with numerical and quantitative issues in business • To enable the use of statistical, graphical and algebraic techniques wherever relevant. • To have a proper understanding of Statistical applications in Economics and Management
<p>Green Computing (USIT205)</p>	<ul style="list-style-type: none"> • Understanding of e-waste and recycling • Understanding of data center , virtualization and energy related issues • Understanding of paperless office, telecommuting, CGO

Semester – III

<p>Python Programming (USIT301)</p>	<ul style="list-style-type: none"> • Basic of Python programming • Describe the numbers, Math functions, String, List, Tuples, & Dictionaries in Python. • Interpret Object Oriented Programming in Python. • Express different decision making statement in python. • Understand and summarize different file handling operation. • Explain how to design GUI applications in python and evaluate different database operations. • Design and develop client server network applications using python.
<p>Data Structures (USIT302)</p>	<ul style="list-style-type: none"> • Select appropriate data structures as applied to specified problem definition. • Implement operations like searching, insertion, and deletion, traversing mechanism on various data structures. • Students will be able to implement linear and Non-Linear data structures. • Implement appropriate sorting/searching technique for given problem. • Design advance data structure using nonlinear data structure. • Determine and analyze the complexity of given Algorithms
<p>Computer Networks (USIT303)</p>	<ul style="list-style-type: none"> • Familiarize with the basic protocols of computer networks, and how they can be used to assist in network design and implementation. • Understand the concept of subnetting and routing mechanisms in network configuration. • Demonstrate and measure different network scenarios and their performance behavior. • Design and setup a simple organization network using packet tracer simulator.
<p>Database Management Systems (USIT304)</p>	<ul style="list-style-type: none"> • To understand the characteristics, architecture of database approach, describe the components, major functions of a database system • Compare and contrast appropriate data models, including concepts in modeling notation and how they would be used. • Demonstrate use of the relational algebra operations from mathematical set theory (union, intersection, difference, and Cartesian product) and the relational algebra operations developed specifically for relational databases (select (restrict), project, join, and division). • Create a relational database schema in SQL, use SQL to create a non-procedural query, write a stored procedure that deals with parameters and has some control flow, to provide a given functionality. • Using SQL to implement roles, privileges, access control and authorization policies • Determine the functional dependency between two or more attributes, compute the closure of a set of attributes, evaluate a proposed decomposition, and describe properties of normalization • Explain the use of integrating OO properties with relational modeling • Give examples of the application of primary, secondary, and clustering indexes, explain the theory and application of internal and external hashing techniques. • Understand a set of query processing strategies and select the optimal

	<p>strategy.</p> <ul style="list-style-type: none"> • Understand transaction management, concurrency control techniques and data recovery methods. • Explain the techniques used for data fragmentation, replication, evaluate simple strategies for executing a distributed query and explain how the two-phase commit protocol is used to deal with committing a transaction that accesses databases stored on multiple nodes. • Familiarize with the related areas in databases and gaining familiarity with other popular databases used in the industry.
<p>Applied Mathematics (USIT305)</p>	<ul style="list-style-type: none"> • Apply the matrix techniques to reduce the quadratic forms to canonical forms, finding solutions of systems of linear equations in the different areas of Linear Algebra. • Apply various methods of the differential equation to solve first-order linear ODE and its applications to various fields. • Apply ordinary differential equations to model engineering phenomena such as electrical circuits, forced oscillation of mass spring and elementary heat transfer. • Apply Laplace transform to determine general or complete solutions to linear ODE applications • Apply multiple integrals to find area, volume, mass and moment of inertia of plane and solid region. • Apply beta and gamma to solve definite integral
<h3>Semester – IV</h3>	
<p>Core Java (USIT401)</p>	<ul style="list-style-type: none"> • To understand the importance of Classes & objects along with constructors, Arrays and Vectors. • Discuss the principles of inheritance, interface and packages and demonstrate through problem analysis assignments how they relate to the design of methods, abstract classes and interfaces and packages. • To understand importance of Multi-threading & different exception handling mechanisms. • To learn experience of designing, implementing, testing, and debugging graphical user interfaces in Java using applet and AWT that respond to different user events.
<p>Introduction to Embedded Systems (USIT402)</p>	<ul style="list-style-type: none"> • Explain the embedded system concepts and architecture of embedded systems • Understand the concepts of Microcontroller and microprocessor architecture. • Describe the architecture of 8051 microcontroller and write embedded program for 8051 microcontroller. • Design the interfacing for 8051 microcontroller. • Select elements for an embedded systems tool
<p>Computer Oriented Statistical Techniques (USIT403)</p>	<ul style="list-style-type: none"> • Enable learners to know descriptive statistical concepts • Enable study of probability concept required for computer learners •
<p>Software Engineering</p>	<ul style="list-style-type: none"> • Knowledge of basic SW engineering methods and practices, and their appropriate application.

(USIT404)	<ul style="list-style-type: none"> • Describe software engineering layered technology and Process frame work. • A general understanding of software process models such as the waterfall and evolutionary models. • Understanding of software requirements and the SRS documents. • Understanding of the role of project management including planning, scheduling, risk management, etc. • Describe data models, object models, context models and behavioral models. • Understanding of different software architectural styles. • Understanding of implementation issues such as modularity and coding standards. • Understanding of approaches to verification and validation including static analysis, and reviews.
Computer Graphics and Animation (USIT405)	<ul style="list-style-type: none"> • To list the basic concepts used in computer graphics. • To implement various algorithms to scan, convert the basic geometrical primitives, transformations, Area filling, clipping. • To describe the importance of viewing and projections. • To define the fundamentals of animation, virtual reality and its related technologies. • To understand a typical graphics pipeline • To design an application with the principles of virtual reality
Semester – V	
Software Project Management (USIT501)	<ul style="list-style-type: none"> • Define various software application domains and remember different process model used in software development. • 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. • Distinguish among SCM and SQA and can classify different testing strategies and tactics and compare them. • Justify role of SDLC in Software Project Development and they can evaluate importance of Software Engineering in PLC. • Generate project schedule and can construct, design and develop network diagram for different type of Projects. They can also organize different activities of project as per Risk impact factor. •
Internet of Things (USIT502)	<ul style="list-style-type: none"> • Apply the concepts of IOT. • Identify the different technology. • Apply IOT to different applications. • Analysis and evaluate protocols used in IOT. • Design and develop smart city in IOT. • Analysis and evaluate the data received through sensors in IOT. •
Advanced Web Programming (USIT503)	<ul style="list-style-type: none"> • Learn about MS.NET framework developed by Microsoft. • Use the features of .NET Framework along with the features of C#. • Be able to understand use of C# basics, Objects and Types, Inheritance. • Create Web forms and use Web controls. • Design the web pages using Styles, Themes, and Master Pages.

	<ul style="list-style-type: none"> • Make use of ADO .Net for Application and Database Connectivity. • Use XML in C#.NET for Application Development and for Data Connectivity. • Use AJAX with C# and ASP .NET for improving performance of Web Application. • To develop, implement and creating Web Applications with C# & ASP .NET.
Artificial Intelligence (USIT504)	<ul style="list-style-type: none"> • Demonstrate knowledge of the building blocks of AI as presented in terms of intelligent agents. • Analyze and formalize the problem as a state space, graph, design heuristics and select amongst different search or game based techniques to solve them. • Develop intelligent algorithms for constraint satisfaction problems and also design intelligent systems for Game Playing. • Attain the capability to represent various real life problem domains using logic based techniques and use this to perform inference or planning. • Formulate and solve problems with uncertain information using Bayesian approaches. • Apply concept Natural Language processing to problems leading to understanding of cognitive computing.
Enterprise JAVA (USIT506)	<ul style="list-style-type: none"> • Identify advance concepts of java programming with database connectivity. • Design and develop platform independent applications using a variety of component based frameworks • Able to implement the concepts of Hibernate, XML& EJB for building enterprise applications.
Semester – VI	
Software Quality Assurance (USIT601)	<ul style="list-style-type: none"> • Understand the importance of Software Project Management. • Implement Project Evaluation and Programme Management along with Project Planning. • Estimate the cost of Software and its process. • Understand principles behind testing software and why software should be tested. • Understand testing processes and be able to identify when to begin testing during the software development lifecycle. • Understand the verification and validation processes of testing.
Security in Computing (USIT602)	<ul style="list-style-type: none"> • Describe various communications networks and their main components. • Develop a networking plan for yourself or a client. • Distinguish and explain the concepts of: authentication; authorization, and attacks. • Identify the function of a firewall, and how it keeps a computer secure and safe from viruses. • Prepare a security plan for organization.
Business Intelligence (USIT603)	<ul style="list-style-type: none"> • To make student familiarize with concepts and various mathematical model related to business intelligences and decision support systems. • To demonstrate concept of decision making process and decision support system • Demonstrate an understanding of the importance of data mining and the principles of business intelligence • Organize and prepare the data needed for data mining using pre preprocessing

	<p>techniques</p> <ul style="list-style-type: none"> • To demonstrate the concept of classification and clustering of data and to also make students familiarize with various methods for classification and clustering. • To learn data warehouses, design methods (dimension modeling), data extracting, transforming and loading processes and OLAP systems. • To demonstrate various applications of business intelligence and identification of good operating practices. • To demonstrate the use of logistics and production models. • To demonstrate the knowledge management and role of people in knowledge management. • To demonstrate the Concepts and Definitions of Artificial Intelligence and Expert system.
<p>Principles of Geographic Information Systems (USIT604)</p>	<ul style="list-style-type: none"> • Demonstrate proficiency in the use of GIS tools to create maps that are fit-for-purpose and effectively convey the information they are intended to. • Effectively communicate and present project results in oral, written, and graphic forms. • Demonstrate confidence in undertaking new (unfamiliar) analysis using GIS, troubleshoot problems in GIS, and seek help from software/website help menus and the GIS community to solve problems. • Apply mathematical concepts, including statistical methods, to data to be used in geospatial analysis. • Gather and process original data using a Global Positioning System (GPS) or other Global Navigation Satellite Systems (GNSS).
<p>IT Service Management (USIT606)</p>	<ul style="list-style-type: none"> • Describe the key principles of IT service management. • Outline the important processes of IT service management. • Demonstrate the comprehension of a framework of IT service management. • Analyze an IT service organization in terms of processes and functions. • Discuss the roles involved in IT service management. • Practice IT asset and service cataloguing. • Draft a component in an IT service management agreement.