Shri.P.L.Shroff College of Arts and Commerce Chinchani
BSc.IT.Department

Course Code	Course Name	Objectives of Course	Outcomes of Course
SEM I			
USIT101	Imperative programming	Describe the grammar of 'C'	Understanding a functional hierarchical code organization.
		Understand basic data types.	Ability to define and manage data structures based on problem subject domain.
		Define constants, variables, keywords.	Ability to work with textual information, characters and strings.
		Use operands, Operators and Expressions.	Ability to work with arrays of complex objects.
		Describe how type conversion takes place.	Understanding a concept of object thinking within the framework of functional model.
		List the order of precedence and Associativity.	Understanding a concept of functional hierarchical code organization.
		Define classes and functions.Write simple 'C' programs.	Understanding a defensive programming concept.
		Define arrays. Use of pointers and structure.	Ability to handle possible errors during program execution
USIT102	Digital Electronics	To learn the concept of various components.	Understand the concepts of various components to design stable analog circuits.
		The concepts that underpin the disciplines of analog and digital electronic logic circuits.	Represent numbers and perform arithmetic operations.
		Various Number system and Boolean algebra.	Analyze and design combinational circuit.

		Design and implementation of combinational circuits.	Minimize the Boolean expression using Boolean algebra and design it using logic gates.
		Design and implementation of Sequential circuits.	Design and develop sequential circuits.
USIT103	Operating System	To learn the fundamentals of Operating Systems.	Students demonstrate an ability to analyze a problem and identify and define the computing requirements appropriate to its solution.
		To learn the mechanisms of OS to handle processes and threads and their communication	Students demonstrate an ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
		To learn the mechanisms involved in memory management in contemporary OS	Students demonstrate an ability to function effectively on teams to accomplish a common goal
		To gain knowledge on distributed operating system concepts that includes architecture, Mutual exclusion algorithms, deadlock detection algorithms and agreement protocols	
		To know the components and management aspects of concurrency management	
		To learn programmatically to implement simple OS mechanisms	

USIT104	Discrete Mathematics	Write an argument using logical notation and determine if the argument is or is not valid. Demonstrate the ability to write and evaluate a proof or outline the basic structure of and give examples of each proof technique described. Understand the basic principles of sets and operations in sets. Prove basic set equalities. Apply counting principles to determine probabilities. Demonstrate an understanding of relations and functions and be able to determine their properties. Determine when a function is 1-1 and "onto". Demonstrate different traversal methods for trees and graphs. Model problems in Computer Science using graphs and tre	Simplify and evaluate basic logic statements including compound statements, implications, inverses, converses, and contrapositives using truth tables and the properties of logic. Express a logic sentence in terms of predicates, quantifiers, and logical connectives. Apply the operations of sets and use Venn diagrams to solve applied problems; solve problems using the principle of inclusion-exclusion.
	Communication	To enhance effective communication and interpersonal skills.	Students understand the importance of Communication skill.
		Develop an understanding of the process of oral communication.	Obtain a general knowledge of the various contexts of human communication.
		Improve listening, note taking and observational skills	Learn how to communicate effectively with others of varying beliefs and values and in a variety of contexts

USIT105	Communication Skills	Become more knowledgeable about audience centered speaking	
		Develop message generating and delivery skills Become more knowledgeable about current speaking strategies and practices	
		Become more knowledgeable about new media research strategies 8. Gain insight into your own speaking style	
SEM II			
USIT201	Object Oriented Programming	To understand how C++ improves C with object-oriented features.	Students understand the features of C++ supporting object oriented programming
		To learn how to write inline functions for efficiency and performance.	Student understand the relative merits of C++ as an object oriented programming language
		To learn the syntax and semantics of the C++ programming language.	Student understand how to produce object-oriented software using C++
		To learn how to design C++ classes for code reuse.	concepts to implement object oriented programs in C++, encapsulation, inheritance and polymorphism
		To learn how containment and inheritance promote code reuse in C++.	Student understand advanced features of C++ specifically stream I/O, templates and operator overloading
		To learn how to design and implement generic classes with C++ templates.	

USIT202	Microprocessor Architecture	To introduce students with the architecture and operation of typical microprocessors and microcontrollers. To familiarize the students with the programming and interfacing of microprocessors and microcontrollers. To provide strong foundation for designing real world applications using microprocessors and microcontrollers. To learn assembly language programs and download the machine code that will provide solutions real-world control problems.	To describe the architecture and organization of microprocessor along with instruction set format. Describe modes and functional block diagram of 8085 along with pins and their functions. List and describe memory and addressing modes. List, describe and use different types of instructions, directives and interrupts. Develop assembly language programs using various programming tools.
USIT203	Web Programming	Understand the principles of creating an effective web page, including an in-depth consideration of information architecture. Develop skills in analyzing the usability of a web site. Learn the language of the web: HTML and CSS. Develop basic programming skills using JavaScript.	Students understand basic working of Internet and World Wide Web and develop ability to design web pages using Hyper Text Markup Language (HTML) and JavaScript and PHP.
USIT204	Numerical And Statistical	To demonstrate understanding of numerical and statistical methods in support of the analysis, design and application for problem solving in the field of information technology.	Recognize the error in the number generated by the solution.

USIT204	Statistical Methods		Apply method of interpolation and extrapolation for prediction.
			equation by numerical methods like Bisection method and Newton Rapshon method.
USIT205	Green Computing	To reduce the use of hazardous materials	Reduces the energy consumption which results into low carbon dioxide emission.
		Tto maximize energy efficiency during the product's lifetime	We can also save money that was spent in extra usage of energy and resources.
		To promote the recyclability or biodegradability of defunct products and factory waste	Applies changing government policy to encourage recycling.
SEM III			
USIT301	Python Programming	Master the fundamentals of writing Python scripts.	Use if-else statements and switch-case statements to write programs in Python to tackle any decision-making scenario
		Learn core Python scripting elements such as variables and flow control structures.	Master Object-oriented programming to create an entire Python project using objects and classes
		Discover how to work with lists and sequence data.	Store and retrieve information using variables
		Write Python functions to facilitate code reuse.	Develop cost-effective robust applications using the
		Use Python to read and write files.	

USIT302	Data Structure	To impart the basic concepts of data structures and algorithms To understand concepts about searching and sorting techniques To Understand basic concepts about stacks,queues,lists,trees and graphs To understanding about writing algorithms and step by step approach in solving problems with the help of fundamental data structures	Ability to analyze algorithms and their correctness. Ability to summarize searching and sorting techniques Ability to describe stack,queue and linked list operation. Ability to have knowledge of tree and graphs concepts.
USIT303	Computer Network	Study the basic organization and work of OSI Model &TCP/IP model	Student Understand the functions of each layer in OSI and TCP/IP model.
		Study of Switching And Multiplexing knowledgeof Network layer routing protocols and IP addressing.	Students understand concept of Switching and Multiplexing IP Adressing Technique
USIT304	Database Management System	To understand the different issues involved in the design and implementation of a database system.	Students understand the concept of database architecture, data Models and database and also learn to develop PL/SQL programs.
		To study the physical and logical database designs, database modeling, relational, hierarchical, and network models	
		To understand and use data manipulation language to query, update, and manage a database	
		To develop an understanding of essential DBMS concepts such as: database security, integrity, and concurrency.	

USIT305	Applied Mathematics	Compute a given integral using the most efficient method;	Solve mathematical problems using analytical methods.
		Use integrals to formulate and solve application problems in science and engineering;	Recognize the relationships between different areas of mathematics and the connections between mathematicsand other disciplines.
SEM IV			
USIT401	Core Java	Gain knowledge about basic Java language syntax and semantics to write Java programs and use concepts such as variables, conditional and iterative execution methods etc.	Implement Object Oriented Programming Concepts
		Understand the fundamentals of object-oriented programming in Java, including defining classes, objects, invoking methods etc and exception handling mechanisms.	Use and create packages and interfaces in a Java program
		Understand the principles of inheritance, packages and interfaces.	Use graphical user interface in Java programs
			Implement exception handling in Java.
			Implement Multithreading.
			Use Input/Output Streams.

USIT402	Introduction to Embeded System	To make students familiar with the basic concepts and terminology of the target area, the embedded systems design flow. – To give students an understanding of the embedded system architecture. – To acquaint students with methods of executive device control and to give them opportunity to apply and test those methods in practice; – To teach students to make measurements with the specified accuracy.	To understand basic concepts in the embedded computing systems To learn characteristics of an embedded system To design and program an embedded system at the basic level To develop hardware-software complex with the use of the various peripherals.
USIT403	Computer Oriented Statistical Techniques	expose students to the fundamentals and concepts of statistical and optimization methods, in particular, with reference to frequency distribution and measures of central tendency, measures of dispersion, skewness and kurtosis, theory of probability, linear programming problems, transportation, assignment and game problems.	To learn statistical and optimization methods, in particular, with reference to frequency distribution and measures of central tendency, measures of dispersion, skewness and kurtosis, To learn theory of probability, linear programming problems, transportation, assignment and game problems.
		Help the students to understand important theorems, different formulae and practical applications of these statistical and optimization methods in the field of Computer Sciences and Applications.	To learn important theorems, different formulae and practical applications of these statistical and optimization methods in the field of Computer Sciences and Applications.
		The concept of Software engineering and software development process	Students understand the concept of Software Development Life cycle

USIT404	Software Engineering	Needs for software specifications also they can classify different types of software requirements and their gathering techniques.	Understand Design and develop Software and test cases.Understand the Security and Reuse of software
		To understand the	
		Concepts of Quality Assurance	
		Implementation and Support of software	
USIT405	Computer Graphics and Animation	To be able to discuss the application of computer graphics concepts , computer games, information visualization, and business applications.	Understand the overview of computer graphics, two dimensional system and mapping.
		Explain two-dimensional transformation; Clipping, filling and an introduction to 3-D graphics and animation.	Understand two-dimensional transformation; Clipping, filling and an introduction to 3-D graphics and animation.
		All aspects of computer graphics including hardware, software and applications. Students will gain experience using a graphics application programming	Hardware, software and applications. Students will gain experience using a graphics application programming
SEM V			
USIT501	Software Project Management	Understand the fundamental principles of Software Project management & will also have a good knowledge of responsibilities of project manager and how to handle these.	Identify the different project contexts and suggest an appropriate management strategy. Practice the role of professional ethics unsuccessful software development.
		Be familiar with the different methods and techniques used for project management.	Identify and describe the key phases of project management. Determine an appropriate project management approach through an evaluation of the business context and scope of the project.

		Software Project Management also come to know how to successfully plan and implement a software project management activity, and to complete a specific project in time with the available budget.	
USIT502	Internet of Things	To learn the concepts of IOT.	Apply the concepts of IOT.
		To identify the different technology.used in IOT	Identify the different technology.
		To learn different applications in IOT.	Apply IOT to different applications.
		To learn different protocols used in IOT.	Analyse and evaluate protocols used in IOT
		To learn the concepts of smart city development in IOT.	Design and develop Simple projects in IOT.
			Analyse and evaluate the data received through sensors in IOT.
USIT503	Advanced Web Programming	To provide a very high degree of language interoperability	Learn about MS.NET framework developed by Microsoft.
		To provide a runtime environment that completely manages code execution	You will be able to using XML in C#.NET specifically ADO.NET and SQL server
		To provide a very simple software deployment and versioning model	Be able to understand use of C# basics, Objects and Types, Inheritance
		To provide high-level code security through code access security and strong type checking	To develop, implement and creating Applications with C#.
		To provide a consistent object-oriented programming model	To develop, implement, and demonstrate Component Services, Threading, Remoting, Windows services, web

		To facilitate application communication by using industry standards such as SOAP and XML.	To understand and be able to explain Security in the .NET framework and Deployment in the .NET.
		To simplify Web application development	To develop Assemblies and Deployment in .NET, Mobile Application Development.
USIT504	Artificial Intelligence	Gain a historical perspective of AI and its foundations.	Demonstrate fundamental understanding of the history of artificial intelligence (AI) and its foundations.
		Become familiar with basic principles of AI toward problem solving, inference, perception, knowledge representation, and learning. Investigate applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.	Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning.
		Experience AI development tools such as an 'AI language', expert system shell, and/or data mining tool.	Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.
		Experiment with a machine learning model for simulation and analysis.	
		Explore the current scope, potential, limitations, and implications of intelligent systems.	

USIT507	Next Generation Technologies	To provide an overview of an exciting growing field of Big Data.	Understand conceptualization and summarization of big data.
		To understand the different databases and involved in the implementation of BigData.	Understand The Concept of JSON and Jquery
		To study the MongoDB databases, Replication And Sharding Concept.	
		To understand and use data manipulation to query, update, and manage a database.	
		To develop an understanding Limitation and Advantages of NOSQL database.	
		To Study JSON and Jquery	
SEM VI			
USIT601	Software Quality Assurance	To study fundamental concepts in software testing, including software testing objectives, process, criteria, strategies, and methods.	Student learn systematic approach to the development, operation, maintenance, and retirement of software Student learn how to use available resources to develop software, reduce cost of software and how to maintain quality of software
		To discuss various software testing issues and solutions in software unit test; integration, regression, and system testing.	Methods and tools of testing and maintainace of software's.
		To understand underlying principles of infrastructure security	Understand the concept of vulnerabilities,attacks and protection mechanisms

USIT602	Security in computing	To explore software vulnerabilities, attacks and protection mechanisms	Analyze and evaluate software vulnerabilities and attacks on databases and operating systems
		To investigate webserver vulnerabilities and theircountermeasures	Explain the need for security protocols in the context of wireless communication
		To develop policies for securitymanagement and mitigate security related risks in the organization	Understand and explain various security solutions for Web and Cloud infrastructure
		To Learn the different attacks on Open Web Applications and Web services.	Design appropriate security policies to protect infrastructure components
		To Learn the different security policies.	
USIT603	Business Intelligence	Assess Advanced BI concepts and core IT concepts	Identify the major frameworks of computerized decision support: decision support systems (DSS), data analytics and business intelligence (BI).
		Explain predictive analytics fundamentals	Explain the foundations, definitions, and capabilities of DSS, data analytics and BI.
		Facilitate advanced problem solving using data mining.	List the definitions, concepts, and architectures of data mining.
		Critique problems, issues, and trends using predictive analysis	
		Add value to spatial data by allowing it to be organized and viewed efficiently, by integrating them with other data, by analysis, and by creation of new data.	Apply basic graphic and data visualization concepts such as color theory, symbolization, and use of white space.

USIT604	Principles of Geographic Information	Provide efficient means for data distribution and handling.	Apply GIS analysis to address geospatial problems and/or research questions.
		Update data quickly and cheaply. Complex analysis/queries involving geographical reference data to generate new information.	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.
		Elimination of redundant database-minimize duplication.	
USIT606	IT Services Management	To analyze and determine the present IT infrastructure, services and processes.	Develop and innovate, gain market advantage and differentiate themselves to their end customers.
		To create management practices which are futuristic in nature.	Drive increased productivity and efficiency, improve business processes, make cost savings, and increase sales and growth.
		To formulate a roadmap to elevate the state of the business.	
		To create steps for the roadmap.	