KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with 'A' Grade – 3.64 CGPA out of 4 (3rd Cycle)

College of Excellence (UGC)

Coimbatore – 641 029

DEPARTMENT OF INFORMATION TECHNOLOGY (Unaided)

COURSE OUTCOMES (CO)

B.Sc. INFORMATION TECHNOLOGY

**For the students admitted
In the
Academic Year 2018-2019**

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT101		**Core Paper I – C Programming**		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	I	5	75	5

Course Objectives

1. To impart adequate knowledge on the need of programming languages and problem solving techniques.
2. To develop an in-depth understanding of functional and logical concepts of C Programming.
3. To provide exposure to problem-solving through C programming.
4. To familiarize with the basic syntax and semantics of C Language

Course Outcomes (CO)

K1	CO1	Recollect various programming constructs and to develop C programs.
K2	CO2	Understand the fundamentals of C programming.
K3	CO3	Choose the right data representation formats based on the requirements of the problem.
K4	CO4	Implement different Operations on arrays, functions, pointers, structures, unions and files.

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT1CL		**Core Practical I – Programming Lab - C**		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	I	5	75	2

Course Objectives

1. To introduce the field of programming using C language.
2. To learn problem solving techniques using C
3. To enhance the analyzing and problem solving skills and use the same for writing programs in C.

Course Outcomes (CO)

K3	CO1	Understand basic Structure of the C-Programming, declaration and usage of variable
K3	CO2	Develop programs using the control statements, Arrays and Strings
K4	CO3	Apply arrays, structures, functions and pointers for problem solving
K5	CO4	Implement files and command line arguments.

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT202		Core Paper II - Computer Organization and Architecture		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	II	4	60	4

Course Objectives

1. To gain an in-depth knowledge about the different types of number systems and number conversions.
2. To learn the concepts of Multiplexers, Flip-Flops and Registers.
3. To impart the knowledge about Input/ Output devices, Interrupt handling and Priority Interrupt.

Course Outcomes (CO)

K1	CO1	Remember the circuits of various flip flops.
K2	CO2	Understand the organization of various units such as control unit, arithmetic and logic unit, memory unit and I/O unit in a digital computer.
K3	CO3	Apply the rules of Karnaugh map in simplifying the expressions.
K4	CO4	Analyze the concept of mapping techniques.

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT203		**Core Paper III – Object Oriented Programming with C++**		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	II	3	45	5

Course Objectives

1. To develop a greater understanding of the issues involved in programming language design and object oriented paradigms.
2. To impart adequate knowledge on the need of object oriented programming languages.
3. To enhance problem solving and programming skills in C++ by implementing the object oriented concepts.

Course Outcomes (CO)

K1	CO1	Remember the characteristics of Procedure and Object Oriented Programming Languages
K2	CO2	Understand the fundamentals of C++ programming structure, function overloading and constructors.
K3	CO3	Analyze C++ features such as composition of objects, Operator overloading, inheritance, Polymorphism etc.
K4	CO4	Apply the concepts in object oriented programming in terms of software reuse and managing complexity, to solve real-world problems.

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT2CM		**Core Practical II – Programming Lab - C++**		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	II	3	45	2

Course Objectives

1. To understand and Apply Object oriented features and C++ concepts
2. To apply the concept of polymorphism and inheritance.
3. To develop applications using Console I/O and File I/O.

Course Outcomes (CO)

K3	CO1	Apply the basic concepts of Object Oriented Programming
K4	CO3	Solve the programs using virtual functions and inheritance.
K5	CO4	Implement files and command line arguments.

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT304		**Core Paper IV – Data Structures and Algorithms**		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	III	5	75	4

Course Objectives

1. To impart the basic concepts of data structures and algorithms.
2. To understand the basic concepts of searching and sorting algorithms.
3. To teach efficient storage mechanisms of data for an easy access.

Course Outcomes (CO)

K1	CO1	Remember the algorithms of various data structures.
K2	CO2	Understand the operations like searching, insertion, deletion and traversing mechanism on various data structures.
K3	CO3	Apply the data structure in real time problem solving.
K4	CO4	Analyze the complexity of different algorithms.

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT305		**Core Paper V** – **Relational Database Management System and Oracle**		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	III	5	75	4

Course Objectives

1. To learn the basic concepts of database.
2. To understand the concepts of DDL and DML.
3. To gain an insight of basic concepts SQL and PL/SQL languages.

Course Outcomes (CO)

K1	CO1	Remembering the concept of Database
K2	CO2	Understanding the concept of data Integrity constraints
K3	CO3	Applying various DDL, DML statements, Joins, Queries and PL / SQL statements.
K4	CO4	Analyzing various types of database management systems

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT306		Core Paper VI - Java Programming		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	III	5	75	5

Course Objectives

1. To learn the basic features of Java Programming
2. To gain the knowledge about the concepts of Packages, Inheritance,
   Interfaces and Multithreading.
3. To develop the ability to create and run java programs using Applets and AWT.

Course Outcomes (CO)

K1	CO1	Remember the keywords, data types and Control Structures in Java.
K2	CO2	Understand the concept of Creating Classes, Functions and Objects.
K3	CO3	Apply the concepts of Constructors, Inheritance, Exception handling and Method Overloading.
K4	CO4	Analyze the concepts of Threads, applets and Files.

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT3CN		Core Practical III – Programming Lab – Java and Oracle		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	III	5	75	2

Course Objectives

1. To develop the ability to build web based applications using applets and AWT.
2. To create tables and triggers using PL/SQL.
3. To apply the concepts of Multithreading, Inheritance and Packages.

Course Outcomes (CO)

K3	CO1	Recollect the concepts of control structures, inheritance, method overriding in Java
K4	CO2	Implement the concept of interface, packages, multithreading and applets
K5	CO3	Apply manipulation operations using PL/SQL statements and validate the database using triggers

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT407		Core Paper VII - Operating Systems		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	IV	5	75	4

Course Objectives

1. To gain an insight of the fundamentals of Operating System.
2. To enrich the knowledge on process management, CPU Scheduling and Memory management.
3. To provide the design principles of operating system with a case study of Linux and UNIX.

Course Outcomes (CO)

K1	CO1	Remember the fundamentals of operating system
K2	CO2	Understand the basic concepts of Process & Scheduling
K3	CO3	Implement CPU scheduling algorithms for Process Scheduling and to deploy the memory management Concepts
K4	CO4	Analyze the problem of deadlock and File System Concepts

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT408		Core Paper VIII - Visual Basic.Net		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	IV	5	75	5

Course Objectives

1. To describe the basic structure of a Visual Basic.NET project and the features of Integrated development environment (IDE).
2. To integrate variables and functions in developing vb.net applications
3. To build Windows applications using structured and object-based programming techniques.

Course Outcomes (CO)

K1	CO1	Remember the structure and syntax of .NET
K2	CO2	Understand the properties and methods of the various tools.
K3	CO3	Apply the concept of .NET in developing windows and web applications.
K4	CO4	Analyze the database connectivity using ADO.NET.

Programme Code : 12		B.Sc Information Technology			
Course Code: 18UIT409		**Core Paper IX - Principles of Data Communications** **and Network**			
Batch 2018-2019	Semester IV	Hours / Week 5	Total Hours 75	Credits 4	

Course Objectives

1. To learn the terminology and concepts of the OSI reference model and TCP/IP reference model.
2. To Identify the key issues for the realization of the LAN/WAN/MAN network architectures
3. To motivate the need for network security practices in organizational units.

Course Outcomes (CO)

K1	CO1	Remember the basic structure of ISO/OSI reference model.
K2	CO2	Understand the concept of error detection and correction.
K3	CO3	Apply the concept of routing algorithms.
K4	CO4	Analyze the electrical interface and the basics of digital data transmission.

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT4CO		Core Practical IV – Programming Lab – Vb.Net		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	IV	5	75	2

Course Objectives

1. To become familiar with the tools and operations of VB.Net
2. To get a simple understanding of windows- based programming.
3. To gain knowledge in developing real time applications.

Course Outcomes (CO)

K3	CO1	Applying the appropriate tools, methods and events for developing the applications.
K4	CO2	Implementing the syntax and functions in developing the real time applications.
K5	CO3	Analyzing the database connectivity with vb.net applications.

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT4A4		Allied Paper 1V – Microprocessors, PC Hardware and Interfacing		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	IV	6	90	5

Course Objectives

1. To teach the architecture and instruction set of different Microprocessors.
2. To learn the architecture of Microcontrollers, and Peripherals.
3. To understand the architectures of Serial and Parallel Ports.

Course Outcomes (CO)

K1	CO1	Remember the basic architecture of 16 and 32 bit microprocessors.
K2	CO2	Understand the 16 bit memory and peripheral devices.
K3	CO3	Apply the concepts of advanced microprocessors like 80386, Pentium pro, MMX technologies on real time systems.
K4	CO4	Analyze the development tools , I/O devices, Drivers, Ports and USB

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT510		Core Paper X - Client / Server Computing		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	V	6	90	4

Course Objectives

1. To gain knowledge about different types of servers and its functions.
2. To familiarize the concept of Network Operating Systems.
3. To introduce the concept of DCOM architecture and CORBA architecture.

Course Outcomes (CO)

K1	CO1	Remember the building blocks and anatomy of client /server.
K2	CO2	Understand the concept of DSS, EIS, OLTP and OLAP.
K3	CO3	Apply the concept of HTML in developing web forms.
K4	CO4	Implement the concept of stored procedures, rules and triggers in databases.

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT511		Core Paper XI – Software Engineering		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	V	6	90	4

Course Objectives

1. To assist the students in understanding the basic theory of software engineering. 2 To teach about various testing and debugging techniques.

3. To gain knowledge about quality control and to develop good quality software.

Course Outcomes (CO)

K1	CO1	Remember the fundamentals of software engineering concepts.
K2	CO2	Understand common lifecycle processes such as waterfall model, spiral model, prototyping model and evolutionary models.
K3	CO3	Apply the principles and techniques of software engineering in the architectural design, detail design, and implementation of software applications.
K4	CO4	Analyze the developed software using different testing concepts.

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT512		**Core Paper XII – Mobile Computing**		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	V	6	90	4

Course Objectives

1. To teach the basics concepts and various techniques in Mobile Computing.
2. To provide the basics for various techniques in Mobile content services.
3. It provides the basics for portable computers and wireless networks, addressing the convergence of mobility, computing, and information organization.

Course Outcomes (CO)

K1	CO1	Remember the concept of Wireless LANs, PAN, Mobile Networks
K2	CO2	Understand positioning techniques of location-based services and applications
K3	CO3	Apply all techniques used in the GSM and GPRS
K4	CO4	Analyze CDMA and wireless LANS.

Programme Code : 12		B.Sc Information Technology			
Course Code: 18UIT5CP		Core Practical V–Software Testing Lab			
Batch	Semester	Hours / Week	Total Hours		Credits
2018-2019	V	5	75		2

Course Objectives

1. To gain knowledge about recording the test case in different modes.
2. To design and construct the test cases using Test Script Language.
3. To learn about GUI objects and bitmap objects

Course Outcomes (CO)

K3	CO1	Apply validation and verification in sample applications.
K4	CO2	Analyze the fields of the database and text area of the applications.
K5	CO3	Implement the concepts of checkpoints.

Programme Code : 12		B.Sc Information Technology			
Course Code: 18UIT613		Core Paper XIII - Open Source Tools			
Batch	Semester	Hours / Week		Total Hours	Credits
2018-2019	VI	6		90	5

Course Objectives

1. To learn the basic programming techniques using JavaScript and PHP.
2. To gain an insight of creating classes and using functions in PHP.
3. To learn the process of developing a PHP application and to work with files and directories.

Course Outcomes (CO)

K1	CO1	Remember the basic syntax of PHP and Java script
K2	CO2	Understand Arrays and Strings in PHP
K3	CO3	Implement the concepts of files and directories
K4	CO4	Evaluate the database connectivity using PHP and SQLite

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT614		**Core Paper XIV – Information Security**		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	VI	6	90	4

Course Objectives

1. To enable the students to learn fundamental concepts of computer security.
2. To provide an understanding of principal concepts, major issues, technologies and basic approaches in information security.
3. To understand the concepts of security policies such as authentication, integrity and confidentiality.

Course Outcomes (CO)

K1	CO1	Remembering the basic concepts of security and how to avoid threats.
K2	CO2	Understanding the issues and technologies in information security.
K3	CO3	Applying various protection mechanisms.
K4	CO4	Analyzing various legal and ethical issues in security.

Programme Code : 12		B.Sc Information Technology			
Course Code: 18UIT6CQ		Core Practical VI – Programming Lab – PHP			
Batch	Semester	Hours / Week		Total Hours	Credits
2018-2019	VI	5		75	2

Course Objectives

1. To develop the ability to build efficient web based applications using PHP.
2. To learn the basic constructs in PHP and JavaScript.
3. To utilize the concepts of strings and Array functions in PHP applications.

Course Outcomes (CO)

K3	CO1	Recollect the concepts of creating a web page using HTML and validate it using JavaScript
K4	CO2	Understand the concept of String functions and Arrays
K5	CO3	Validate the file system functions and Date & time functions

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT6Z1		Core Project – Project Work & Viva - Voce ***		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	VI	6	90	4

Course Objectives

On successful completion of all the above courses

1. To get the knowledge about selecting the task based on their course skills.
2. To get the knowledge about analytical skill for solving the selected task.
3. To gain confidence for implementing the task.
4. To gain confidence for solving the real time problems.

Course Outcomes (CO)

K3	CO1	Applying the programming skill for solving the project.
K4	CO2	Analyzing the task and to collect the necessary information about the system.
K5	CO3	Evaluating the project based on the software.

Programme Code : 12	B.Sc Information Technology		
Elective - Embedded Systems			
Batch 2018-2019	Hours / Week 5	Total Hours 75	Credits 5

Course Objectives

1. To teach all aspects of design and development of an embedded System.
2. To understand hardware and software of development system.
3. To earn the basic concepts of operating systems and embedded system project management.

Course Outcomes (CO)

K1	CO1	Acquire knowledge about microcontrollers embedded processors and their applications.
K2	CO2	Understand the internal architecture and interfacing of different peripheral devices with Microcontrollers.
K3	CO3	Apply key concepts of embedded systems like interrupts interaction, drivers, and ports with peripheral devices.
K4	CO4	Analyze the design concept of embedded systems.

Programme Code : 12	B.Sc Information Technology		
Elective - Network Security and Administration			
Batch	Hours / Week	Total Hours	Credits
2018-2019	5	75	5

Course Objectives

1. To learn the need for network security and security approaches.
2. To inculcate the concept of transferring authentic data along the network with several methods and algorithms.
3. To enrich the knowledge on different types of Internet Security Protocols.

Course Outcomes (CO)

K1	CO1	Remember the basic concept of Cryptography and various types of attacks.
K2	CO2	Understand about various types of protocols for Internet Security.
K3	CO3	Implement various algorithms for Cryptography
K4	CO4	Review Firewall and IP security

Programme Code : 12	B.Sc Information Technology		
Elective - Object Oriented Analysis and Design(using UML)			
Batch	Hours / Week	Total Hours	Credits
2018-2019	5	75	5

Course Objectives

1. To learn the essential modeling elements of Unified Modeling Language.
2. To teach the various components of UML.
3. To teach Documenting user requirements using the UML notation.

Course Outcomes (CO)

K1	CO1	Remember and modeling software specifications.
K2	CO2	Understand object-oriented concepts and methodology
K3	CO3	Apply object-oriented method for analysis and design
K4	CO4	Analyze the usage of UML notations.

Programme Code : 12	B.Sc Information Technology		
Elective - E - Commerce			
Batch	Hours / Week	Total Hours	Credits
2018-2019	5	75	5

Course Objectives

1. To teach the basic E-commerce functions.
2. To explain the security issues and the measures used to protect against security threats.
3. To introduce about E-commerce Payment system.

Course Outcomes (CO)

K1	CO1	Remember the basic concepts and technologies used in the field of management information systems.
K2	CO2	Understand the processes of developing and implementing information systems.
K3	CO3	Apply ethical, social, and security issues of information systems.
K4	CO4	Analyze the importance of managing organizational change associated with information systems.

Programme Code : 12	B.Sc Information Technology		
Elective – Cloud Computing			
Batch	Hours / Week	Total Hours	Credits
2018-2019	5	75	5

Course Objectives

1. To teach the basics of cloud computing.
2. To understand the broad perspective of cloud architecture
3. To gain the knowledge of cloud services and cloud security.

Course Outcomes (CO)

K1	CO1	Identify the architecture and infrastructure of cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud.
K2	CO2	Uderstand the core issues of cloud computing such as security, privacy, and interoperability.
K3	CO3	Apply the appropriate technologies and approaches for the related issues.
K4	CO4	Analyze the appropriate cloud computing solutions and recommendations according to the applications used.

Programme Code : 12	B.Sc Information Technology		
Elective - Data Mining			
Batch	Hours / Week	Total Hours	Credits
2018-2019	5	75	5

Course Objectives

1. To introduce the basic concepts of Data Mining algorithms, methods and tools.
2. To develop and apply critical thinking, problem-solving, and decision-making skills.
3. To discover interesting patterns, analyze supervised and unsupervised models and estimate the accuracy of the algorithms.

Course Outcomes (CO)

K1	CO1	Remembering the data mining principles and techniques.
K2	CO2	Understanding the concept of raw data processing using data mining algorithms.
K3	CO3	Applying data mining algorithms to build analytical applications.
K4	CO4	Analyzing large amount of data to extract patterns and to solve problems.

Programme Code : 12		B.Sc Information Technology		
Course Code: 18UIT3S1		Skill Based Subject 1 – Python Programming I		
Batch 2018-2019	Semester III	Hours / Week 2	Total Hours 30	Credits 3

Course Objectives

1. To introduce the fundamentals of Python Programming.
2. To teach about the concept of Functions in Python.
3. To impart the knowledge of formatting and escape sequencing characters

Course Outcomes (CO)

K1	CO1	Remember the syntax of looping statements.
K2	CO2	Understand the concept of python scripts.
K3	CO3	Apply the concept of functions and user defined functions in programming.
K4	CO4	Analyze the concept of operators and looping statements in programming.

Programmee: 12		B.Sc Information Technology		
Course Code: 18UIT4SL		**Skill Based Subject 2 (Practical)- Python Programming Lab I**		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	IV	2	30	3

Course Objectives

1. To gain knowledge about the concepts of python programming.
2. To understand the concepts of Built-in functions and User-defined functions.
3. To develop programs using String functions.

Course Outcomes (CO)

K3	CO1	Apply different types of operators in programming.
K4	CO2	Implement the concepts of built-in functions in programming.
K5	CO3	Analyze the use control structures in programming.

Programme Code: 12		B.Sc Information Technology		
Course Code: 18UIT5S2		Skill Based Subject 3 - Python Programming II		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	V	2	30	3

Course Objectives

1. To teach the concepts of Strings and Tuples and dictonaries.
2. To gain knowledge about files and directories in python.
3. To learn the concepts of dictionaries in python.

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Course Outcomes (CO)

K1	CO1	Remember the structures of Lists, Tuples and Dictionaries.
K2	CO2	Understand the concepts of Input / Output operations in file.
K3	CO3	Apply the concepts of exception handling in programs.
K4	CO4	Analyze the concepts of Files and Directories.

Programme Code: 12		B.Sc Information Technology		
Course Code: 18UIT6SM		Skill based subject 4 (Practical):Python Programming Lab II		
Batch	Semester	Hours / Week	Total Hours	Credits
2018-2019	VI	2	30	3

Course Objectives

1. To gain knowledge about the usage of tuples in Programming.
2. To teach the concepts of using dictionaries programming.
3. To impart knowledge about the creation of files and directories.

Course Outcomes (CO)

K3	CO1	Apply the concepts of tuples in programming.
K4	CO2	Implement the concepts of files and directories in programming
K5	CO3	Analyze the concept of exception handling in programming.

Programme Code : 12	B.Sc Information Technology		
Non- Major Elective – Consumer Affairs			
Batch 2018-2019	**Hours/Week** 2	**Total Hours** 30	**Credits** 2

Course Objectives

1. To familiarize the students with their rights and responsibilities as a consumer.
2. To understand the procedure of redress of consumer complaints, and the role of different agencies in establishing product and service standards.
3. To have a handle the business firms' interface with consumers and the consumer related regulatory and business environment.

Course Outcomes (CO)

K1	CO1	Able to know the rights and responsibility of consumers.
K2	CO2	Understanding the various procedure of redress.
K3	CO3	Applying the role of different agencies in establishing product and service standards.
K4	CO4	To enable them to handle the business firms' interface with consumers.

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College of Excellence (UGC)

Coimbatore – 641 029

DEPARTMENT OF INFORMATION TECHNOLOGY (Unaided)

COURSE OUTCOMES (CO)

B.Sc. INFORMATION TECHNOLOGY

**For the students admitted
In the
Academic Year 2019-2020**

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT101		**Core Paper I – C Programming**		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	I	5	75	5

Course Objectives

1. To impart adequate knowledge on the need of programming languages and problem solving techniques.
2. To develop an in-depth understanding of functional and logical concepts of C Programming.
3. To provide exposure to problem-solving through C programming.

4. To familiarize with the basic syntax and semantics of C Language

Course Outcomes (CO)

K1	CO1	Recollect various programming constructs and to develop C programs.
K2	CO2	Understand the fundamentals of C programming.
K3	CO3	Choose the right data representation formats based on the requirements of the problem.
K4	CO4	Implement different Operations on arrays, functions, pointers, structures, unions and files.

Programme Code : 12		B.Sc Information Technology			
Course Code: 19UIT1CL		Core Practical I – Programming Lab - C			
Batch	Semester	Hours / Week		Total Hours	Credits
2019-2020	I	5		75	2

Course Objectives

1. To introduce the field of programming using C language.
2. To learn problem solving techniques using C
3. To enhance the analyzing and problem solving skills and use the same
   for writing programs in C.

Course Outcomes (CO)

K3	CO1	Understand basic Structure of the C-Programming, declaration and usage of variable
K3	CO2	Develop programs using the control statements, Arrays and Strings
K4	CO3	Apply arrays, structures, functions and pointers for problem solving
K5	CO4	Implement files and command line arguments.

Programme Code : 12		B.Sc Information Technology			
Course Code: 19UIT202		Core Paper II - Computer Organization and Architecture			
Batch	Semester	Hours / Week	Total Hours		Credits
2019-2020	II	4	60		4

Course Objectives

1. To gain an in-depth knowledge about the different
   types of number systems and number conversions.
2. To learn the concepts of Multiplexers, Flip-Flops and Registers.
3. To impart the knowledge about Input/ Output devices,
   Interrupt handling and Priority Interrupt.

Course Outcomes (CO)

K1	CO1	Remember the circuits of various flip flops.
K2	CO2	Understand the organization of various units such as control unit, arithmetic and logic unit, memory unit and I/O unit in a digital computer.
K3	CO3	Apply the rules of Karnaugh map in simplifying the expressions.
K4	CO4	Analyze the concept of mapping techniques.

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT203		Core Paper III – Object Oriented Programming with C++		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	II	3	45	5

Course Objectives

1. To develop a greater understanding of the issues involved in programming language design and object oriented paradigms.
2. To impart adequate knowledge on the need of object oriented programming languages.
3. To enhance problem solving and programming skills in C++ by implementing the object oriented concepts.

Course Outcomes (CO)

K1	CO1	Remember the characteristics of Procedure and Object Oriented Programming Languages
K2	CO2	Understand the fundamentals of C++ programming structure, function overloading and constructors.
K3	CO3	Analyze C++ features such as composition of objects, Operator overloading, inheritance, Polymorphism etc.
K4	CO4	Apply the concepts in object oriented programming in terms of software reuse and managing complexity, to solve real-world problems.

Programme Code : 12		B.Sc Information Technology			
Course Code: 19UIT2CM		Core Practical II – Programming Lab - C++			
Batch	Semester	Hours / Week		Total Hours	Credits
2019-2020	II	3		45	2

Course Objectives

1. To understand and Apply Object oriented features and C++ concepts
2. To apply the concept of polymorphism and inheritance.
3. To develop applications using Console I/O and File I/O.

Course Outcomes (CO)

K3	CO1	Apply the basic concepts of Object Oriented Programming
K4	CO3	Solve the programs using virtual functions and inheritance.
K5	CO4	Implement files and command line arguments.

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT304		**Core Paper IV – Data Structures and Algorithms**		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	III	5	75	4

Course Objectives

1. To impart the basic concepts of data structures and algorithms.
2. To understand the basic concepts of searching and sorting algorithms.
3. To teach efficient storage mechanisms of data for an easy access.

Course Outcomes (CO)

K1	CO1	Remember the algorithms of various data structures.
K2	CO2	Understand the operations like searching, insertion, deletion and traversing mechanism on various data structures.
K3	CO3	Apply the data structure in real time problem solving.
K4	CO4	Analyze the complexity of different algorithms.

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT305		**Core Paper V** – **Relational Database Management System and Oracle**		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	III	5	75	4

Course Objectives

1. To learn the basic concepts of database.
2. To understand the concepts of DDL and DML.
3. To gain an insight of basic concepts SQL and PL/SQL languages.

Course Outcomes (CO)

K1	CO1	Remembering the concept of Database
K2	CO2	Understanding the concept of data Integrity constraints
K3	CO3	Applying various DDL, DML statements, Joins, Queries and PL / SQL statements.
K4	CO4	Analyzing various types of database management systems

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT306		Core Paper VI – Advanced Java Programming		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	III	5	75	5

Course Objectives

1. To learn the basic features of Java Programming
2. To gain the knowledge about the concepts of Packages, Inheritance, Interfaces and Multithreading.
3. To develop the ability to create and run java programs using Applets and AWT.

Course Outcomes (CO)

K1	CO1	Remember the keywords, data types and Control Structures in Java.
K2	CO2	Understand the concept of Creating Classes, Functions and Objects.
K3	CO3	Apply the concepts of Constructors, Inheritance, Exception handling and Method Overloading.
K4	CO4	Analyze the concepts of Threads, applets and Files.

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT3CN		Core Practical III – Programming Lab – Advanced Java and Oracle		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	III	5	75	2

Course Objectives

1. To develop the ability to build web based applications using applets and AWT.
2. To create tables and triggers using PL/SQL.
3. To apply the concepts of Multithreading, Inheritance and Packages.

Course Outcomes (CO)

K3	CO1	Recollect the concepts of control structures, inheritance, method overriding in Java
K4	CO2	Implement the concept of interface, packages, multithreading and applets
K5	CO3	Apply manipulation operations using PL/SQL statements and validate the database using triggers

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT407		**Core Paper VII - Operating Systems**		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	IV	5	75	4

Course Objectives

1. To gain an insight of the fundamentals of Operating System.
2. To enrich the knowledge on process management, CPU Scheduling and Memory management.
3. To provide the design principles of operating system with a case study of Linux and UNIX.

Course Outcomes (CO)

K1	CO1	Remember the fundamentals of operating system
K2	CO2	Understand the basic concepts of Process & Scheduling
K3	CO3	Implement CPU scheduling algorithms for Process Scheduling and to deploy the memory management Concepts
K4	CO4	Analyze the problem of deadlock and File System Concepts

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT408		Core Paper VIII - .Net Programming		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	IV	5	75	5

Course Objectives

1. To describe the basic structure of a Visual Basic.NET project and the features of Integrated development environment (IDE).
2. To integrate variables and functions in developing vb.net applications
3. To build Windows applications using structured and object-based programming techniques.

Course Outcomes (CO)

K1	CO1	Remember the structure and syntax of .NET
K2	CO2	Understand the properties and methods of the various tools.
K3	CO3	Apply the concept of .NET in developing windows and web applications.
K4	CO4	Analyze the database connectivity using ADO.NET.

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT409		**Core Paper IX - Computer Networks**		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	IV	5	75	4

Course Objectives

1. To learn the terminology and concepts of the OSI reference model and TCP/IP reference model.
2. To Identify the key issues for the realization of the LAN/WAN/MAN network architectures
3. To motivate the need for network security practices in organizational units.

Course Outcomes (CO)

K1	CO1	Remember the basic structure of ISO/OSI reference model.
K2	CO2	Understand the concept of error detection and correction.
K3	CO3	Apply the concept of routing algorithms.
K4	CO4	Analyze the electrical interface and the basics of digital data transmission.

Programme Code : 12		**B.Sc Information Technology**		
Course Code: 19UIT4CO		**Core Practical IV – Programming Lab – .Net**		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	IV	5	75	2

Course Objectives

1. To become familiar with the tools and operations of VB.Net
2. To get a simple understanding of windows- based programming.
3. To gain knowledge in developing real time applications.

Course Outcomes (CO)

K3	CO1	Applying the appropriate tools, methods and events for developing the applications.
K4	CO2	Implementing the syntax and functions in developing the real time applications.
K5	CO3	Analyzing the database connectivity with vb.net applications.

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT4A4		Allied Paper 1V – Microprocessors, PC Hardware and Interfacing		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	IV	6	90	5

Course Objectives

1. To teach the architecture and instruction set of different Microprocessors.
2. To learn the architecture of Microcontrollers, and Peripherals.
3. To understand the architectures of Serial and Parallel Ports.

Course Outcomes (CO)

K1	CO1	Remember the basic architecture of 16 and 32 bit microprocessors.
K2	CO2	Understand the 16 bit memory and peripheral devices.
K3	CO3	Apply the concepts of advanced microprocessors like 80386, Pentium pro, MMX technologies on real time systems.
K4	CO4	Analyze the development tools , I/O devices, Drivers, Ports and USB

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT510		Core Paper X - Client / Server Computing		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	V	6	90	4

Course Objectives

1. To gain knowledge about different types of servers and its functions.
2. To familiarize the concept of Network Operating Systems.
3. To introduce the concept of DCOM architecture and CORBA architecture.

Course Outcomes (CO)

K1	CO1	Remember the building blocks and anatomy of client /server.
K2	CO2	Understand the concept of DSS, EIS, OLTP and OLAP.
K3	CO3	Apply the concept of HTML in developing web forms.
K4	CO4	Implement the concept of stored procedures, rules and triggers in databases.

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT511		Core Paper XI – Software Engineering		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	V	6	90	4

Course Objectives

1. To assist the students in understanding the basic theory of software engineering. 2 To teach about various testing and debugging techniques.

3. To gain knowledge about quality control and to develop good quality software.

Course Outcomes (CO)

K1	CO1	Remember the fundamentals of software engineering concepts.
K2	CO2	Understand common lifecycle processes such as waterfall model, spiral model, prototyping model and evolutionary models.
K3	CO3	Apply the principles and techniques of software engineering in the architectural design, detail design, and implementation of software applications.
K4	CO4	Analyze the developed software using different testing concepts.

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT512		Core Paper XII – Mobile Computing		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	V	6	90	4

Course Objectives

1. To teach the basics concepts and various techniques in Mobile Computing.
2. To provide the basics for various techniques in Mobile content services.
3. It provides the basics for portable computers and wireless networks, addressing the convergence of mobility, computing, and information organization.

Course Outcomes (CO)

K1	CO1	Remember the concept of Wireless LANs, PAN, Mobile Networks
K2	CO2	Understand positioning techniques of location-based services and applications
K3	CO3	Apply all techniques used in the GSM and GPRS
K4	CO4	Analyze CDMA and wireless LANS.

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT5CP		Core Practical V–Software Testing Lab		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	V	5	75	2

Course Objectives

1. To gain knowledge about recording the test case in different modes.
2. To design and construct the test cases using Test Script Language.
3. To learn about GUI objects and bitmap objects

Course Outcomes (CO)

K3	CO1	Apply validation and verification in sample applications.
K4	CO2	Analyze the fields of the database and text area of the applications.
K5	CO3	Implement the concepts of checkpoints.

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT613		**Core Paper XIII - Open Source Tools**		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	VI	6	90	5

Course Objectives

1. To learn the basic programming techniques using JavaScript and PHP.
2. To gain an insight of creating classes and using functions in PHP.
3. To learn the process of developing a PHP application and to work with files and directories.

Course Outcomes (CO)

K1	CO1	Remember the basic syntax of PHP and Java script
K2	CO2	Understand Arrays and Strings in PHP
K3	CO3	Implement the concepts of files and directories
K4	CO4	Evaluate the database connectivity using PHP and SQLite

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT614		Core Paper XIV – Information Security		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	VI	6	90	4

Course Objectives

1. To enable the students to learn fundamental concepts of computer security.
2. To provide an understanding of principal concepts, major issues, technologies and basic approaches in information security.
3. To understand the concepts of security policies such as authentication, integrity and confidentiality.

Course Outcomes (CO)

K1	CO1	Remembering the basic concepts of security and how to avoid threats.
K2	CO2	Understanding the issues and technologies in information security.
K3	CO3	Applying various protection mechanisms.
K4	CO4	Analyzing various legal and ethical issues in security.

Programme Code : 12	B.Sc Information Technology			
Course Code: 19UIT6CQ	Core Practical VI – Programming Lab – PHP			
Batch 2019-2020	Semester VI	Hours / Week 5	Total Hours 75	Credits 2

Course Objectives

1. To develop the ability to build efficient web based applications using PHP.
2. To learn the basic constructs in PHP and JavaScript.
3. To utilize the concepts of strings and Array functions in PHP applications.

Course Outcomes (CO)

K3	CO1	Recollect the concepts of creating a web page using HTML and validate it using JavaScript
K4	CO2	Understand the concept of String functions and Arrays
K5	CO3	Validate the file system functions and Date & time functions

Programme Code : 12	B.Sc Information Technology			
Course Code: 19UIT6Z1	**Core Project – Project Work & Viva - Voce *****			
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	VI	6	90	4

Course Objectives

On successful completion of all the above courses

1. To get the knowledge about selecting the task based on their course skills.
2. To get the knowledge about analytical skill for solving the selected task.
3. To gain confidence for implementing the task.
4. To gain confidence for solving the real time problems.

Course Outcomes (CO)

K3	CO1	Applying the programming skill for solving the project.
K4	CO2	Analyzing the task and to collect the necessary information about the system.
K5	CO3	Evaluating the project based on the software.

Programme Code : 12	B.Sc Information Technology		
Elective - Embedded Systems			
Batch	Hours / Week	Total Hours	Credits
2019-2020	5	75	5

Course Objectives

1. To teach all aspects of design and development of an embedded System.
2. To understand hardware and software of development system.
3. To earn the basic concepts of operating systems and embedded system project management.

Course Outcomes (CO)

K1	CO1	Acquire knowledge about microcontrollers embedded processors and their applications.
K2	CO2	Understand the internal architecture and interfacing of different peripheral devices with Microcontrollers.
K3	CO3	Apply key concepts of embedded systems like interrupts interaction, drivers, and ports with peripheral devices.
K4	CO4	Analyze the design concept of embedded systems.

Programme Code : 12	B.Sc Information Technology		
Elective - Network Security and Administration			
Batch	Hours / Week	Total Hours	Credits
2019-2020	5	75	5

Course Objectives

1. To learn the need for network security and security approaches.

2. To inculcate the concept of transferring authentic data along the network with several methods and algorithms.

3. To enrich the knowledge on different types of Internet Security Protocols.

Course Outcomes (CO)

K1	CO1	Remember the basic concept of Cryptography and various types of attacks.
K2	CO2	Understand about various types of protocols for Internet Security.
K3	CO3	Implement various algorithms for Cryptography
K4	CO4	Review Firewall and IP security

Programme Code : 12	B.Sc Information Technology		
Elective - Object Oriented Analysis and Design (using UML)			
Batch 2019-2020	Hours / Week 5	Total Hours 75	Credits 5

Course Objectives

1. To learn the essential modeling elements of Unified Modeling Language.
2. To teach the various components of UML.
3. To teach Documenting user requirements using the UML notation.

Course Outcomes (CO)

K1	CO1	Remember and modeling software specifications.
K2	CO2	Understand object-oriented concepts and methodology
K3	CO3	Apply object-oriented method for analysis and design
K4	CO4	Analyze the usage of UML notations.

Programme Code : 12	B.Sc Information Technology		
Elective - E - Commerce			
Batch	Hours / Week	Total Hours	Credits
2019-2020	5	75	5

Course Objectives

1. To teach the basic E-commerce functions.
2. To explain the security issues and the measures used to protect against security threats.
3. To introduce about E-commerce Payment system.

Course Outcomes (CO)

K1	CO1	Remember the basic concepts and technologies used in the field of management information systems.
K2	CO2	Understand the processes of developing and implementing information systems.
K3	CO3	Apply ethical, social, and security issues of information systems.
K4	CO4	Analyze the importance of managing organizational change associated with information systems.

Programme Code : 12	B.Sc Information Technology		
Elective – Cloud Computing			
Batch 2019-2020	Hours / Week 5	Total Hours 75	Credits 5

Course Objectives

1. To teach the basics of cloud computing.
2. To understand the broad perspective of cloud architecture
3. To gain the knowledge of cloud services and cloud security.

Course Outcomes (CO)

K1	CO1	Identify the architecture and infrastructure of cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud.
K2	CO2	Uderstand the core issues of cloud computing such as security, privacy, and interoperability.
K3	CO3	Apply the appropriate technologies and approaches for the related issues.
K4	CO4	Analyze the appropriate cloud computing solutions and recommendations according to the applications used.

Programme Code : 12	B.Sc Information Technology		
Elective - Data Mining			
Batch	Hours / Week	Total Hours	Credits
2019-2020	5	75	5

Course Objectives

1. To introduce the basic concepts of Data Mining algorithms, methods and tools.
2. To develop and apply critical thinking, problem-solving, and decision-making skills.
3. To discover interesting patterns, analyze supervised and unsupervised models and estimate the accuracy of the algorithms.

Course Outcomes (CO)

K1	CO1	Remembering the data mining principles and techniques.
K2	CO2	Understanding the concept of raw data processing using data mining algorithms.
K3	CO3	Applying data mining algorithms to build analytical applications.
K4	CO4	Analyzing large amount of data to extract patterns and to solve problems.

Programme Code : 12		B.Sc Information Technology		
Course Code: 19UIT3S1		**Skill Based Subject 1 – Web Programming (HTML, CSS, XML)**		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	III	2	30	3

Course Objectives

1. The course introduces the basic concepts of the World Wide Web, principles and tools
2. To develop an ability to design and implement static and dynamic website.
3. Design and develop a Web site using text, images, links, lists, and tables for navigation and layout.

Course Outcomes (CO)

K1	CO1	To remember the internet related concepts that are vital in understanding web development.
K2	CO2	To understand the important HTML tags for designing static pages and separate design from content using Cascading Style sheet.
K3	CO3	Design and develop web pages using CSS styles, internal and/or external style sheets.
K4	CO4	To develop interactive web applications through coding using HTML, CSS and XML.

Programmee: 12		B.Sc Information Technology		
Course Code: 19UIT4SL		**Skill Based Subject 2 (Practical)- Web Programming Lab (HTML, CSS, XML)**		
Batch 2019-2020	Semester IV	Hours / Week 2	Total Hours 30	Credits 3

Course Objectives

1. The course introduces the basic concepts of the World Wide Web, principles and tools that are used to develop Web applications.
2. To develop an ability to design and implement static and dynamic website.
3. Design and develop a Web site using text, images, links, lists, and tables for navigation and layout.

Course Outcomes (CO)

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K3	CO1	Apply HTML tags for designing static pages and separate design from content using Cascading Style sheet.
K4	CO2	Analyze the use of interactive web applications.
K5	CO3	Implement the concepts of CSS styles to design web pages.

Programme Code: 12		B.Sc Information Technology			
Course Code: 19UIT5S2		Skill Based Subject 3 - Python Programming II			
Batch	Semester	Hours / Week	Total Hours		Credits
2019-2020	V	2	30		3

Course Objectives

1. To teach the concepts of Strings and Tuples and dictonaries.
2. To gain knowledge about files and directories in python.
3. To learn the concepts of dictionaries in python.

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Course Outcomes (CO)

K1	CO1	Remember the structures of Lists, Tuples and Dictionaries.
K2	CO2	Understand the concepts of Input / Output operations in file.
K3	CO3	Apply the concepts of exception handling in programs.
K4	CO4	Analyze the concepts of Files and Directories.

Programme Code: 12.		B.Sc Information Technology		
Course Code: 19UIT6SM		Skill based subject 4 (Practical):Python Programming Lab II		
Batch	Semester	Hours / Week	Total Hours	Credits
2019-2020	VI	2	30	3

Course Objectives

1. To gain knowledge about the usage of tuples in Programming.
2. To teach the concepts of using dictionaries programming.
3. To impart knowledge about the creation of files and directories.

Course Outcomes (CO)

K3	CO1	Apply the concepts of tuples in programming.
K4	CO2	Implement the concepts of files and directories in programming
K5	CO3	Analyze the concept of exception handling in programming.

Programme Code : 12	B.Sc Information Technology		
Non- Major Elective – Consumer Affairs			
Batch 2019-2020	Hours/Week 2	Total Hours 30	Credits 2

Course Objectives

1. To familiarize the students with their rights and responsibilities as a consumer.

2. To understand the procedure of redress of consumer complaints, and the role of different agencies in establishing product and service standards.

3. To have a handle the business firms' interface with consumers and the consumer related regulatory and business environment.

Course Outcomes (CO)

K1	CO1	Able to know the rights and responsibility of consumers.
K2	CO2	Understanding the various procedure of redress.
K3	CO3	Applying the role of different agencies in establishing product and service standards.
K4	CO4	To enable them to handle the business firms' interface with consumers.