

**KOVAI KALAIMAGAL COLLEGE OF ARTS & SCIENCE
(Autonomous)
Coimbatore – 641 109**

**DEPARTMENT OF INFORMATION TECHNOLOGY
PROGRAMME OUTCOMES (PO) OF
B.Sc (IT)**

**For the students admitted In the
Academic Year 2020-2021**

PROGRAMME OUTCOMES (PO)

After completion of three years of study, our B.Sc IT Graduates will be able to :

- PO1:** Exhibit proficiency in oral and written communication.
- PO2:** Learn the principles and applications of various languages, processes involved, and acquire adequate knowledge to write programmes using the above.
- PO3:** Acquire Technical skills such as developing softwares for various applications, Testing them and providing information security.
- PO4:** Acquiring adequate knowledge in interdisciplinary subjects such as Commerce, Mathematics and Statistics for enhanced applications of softwares developed.
- PO5:** Developing positive attitude by instilling confidence in the minds of students by suitable programs.
- PO6:** An ability to make the students think out of the box and solve complex problems arising in shop floor situation.
- PO7:** An ability to function effectively and pro actively and in teams, to accomplish a common goal.
- PO8:** Carrying out the task assigned by the industries with professional ethics and at the same time with the consent for well being of the society.
- PO9:** Aware of one's own weaknesses and strengths, emotions and the way to control emotions to maintain good interpersonal relationships.
- PO10:** Undertake entrepreneurship as a desirable and feasible career option.
- PO11:** Realizing the responsibilities towards the society and to protect the environment, use professional knowledge for providing better living condition to the people.
- PO12:** Learn continuously for updating new knowledge and technologies in the field of Information Technology.

**KOVAI KALAIMAGAL COLLEGE OF ARTS & SCIENCE
(Autonomous)
Coimbatore – 641 109**

**DEPARTMENT OF INFORMATION TECHNOLOGY
PROGRAMME OUTCOMES (PO) OF
B.Sc (IT)**

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

PROGRAMME OUTCOMES (PO)

After completion of three years of study, our B.Sc IT Graduates will be able to :

- PO1:** Exhibit proficiency in oral and written communication.
- PO2:** Learn the principles and applications of various languages, processes involved, and acquire adequate knowledge to write programmes using the above.
- PO3:** Acquire Technical skills such as developing softwares for various applications, Testing them and providing information security.
- PO4:** Acquiring adequate knowledge in interdisciplinary subjects such as Commerce, Mathematics and Statistics for enhanced applications of softwares developed.
- PO5:** Developing positive attitude by instilling confidence in the minds of students by suitable programs.
- PO6:** An ability to make the students think out of the box and solve complex problems arising in shop floor situation.
- PO7:** An ability to function effectively and pro actively and in teams ,to accomplish a common goal.
- PO8:** Carrying out the task assigned by the industries with professional ethics and at the same time with the consent for well being of the society.
- PO9:** Aware of one's own weaknesses and strengths, emotions and the way to control emotions to maintain good interpersonal relationships.
- PO10:** Undertake entrepreneurship as a desirable and feasible career option.
- PO11:** Realizing the responsibilities towards the society and to protect the environment, use professional knowledge for providing better living condition to the people.
- PO12:** Learn continuously for updating new knowledge and technologies in the field of Information Technology.

**KOVAI KALAIMAGAL COLLEGE OF ARTS & SCIENCE
(Autonomous)
Coimbatore – 641 109**

**DEPARTMENT OF INFORMATION TECHNOLOGY
PROGRAMME OUTCOMES (PO) OF
B.Sc (IT)**

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

PROGRAMME OUTCOMES (PO)

After completion of three years of study, our B.Sc IT Graduates will be able to :

PO1: Exhibit proficiency in oral and written communication.

PO2: Learn the principles and applications of various languages, processes involved, and acquire adequate knowledge to write programmes using the above.

PO3: Acquire Technical skills such as developing softwares for various applications, testing them and providing information security.

PO4: Acquiring adequate knowledge in interdisciplinary subjects such as Commerce, Mathematics and Statistics for enhanced applications of softwares developed.

PO5: Developing positive attitude by instilling confidence in the minds of students by suitable programs.

PO6: An ability to make the students think out of the box and solve complex problems arising in step floor situation.

PO7: An ability to function effectively and pro actively and in teams, to accomplish a common goal.

PO8: Carrying out the task assigned by the industries with professional ethics and at the same time with the consent for well being of the society.

PO9: Aware of one's own weaknesses and strengths, emotions and the way to control emotions to maintain good interpersonal relationships.

PO10: Undertake entrepreneurship as a desirable and feasible career option.

PO11: Realizing the responsibilities towards the society and to protect the environment use ones professional knowledge for providing better living condition to the people.

PO12: Learn continuously for updating new knowledge and technologies in the field of Information Technology.

**KOVAI KALAIMAGAL COLLEGE OF ARTS AND
SCIENCE**

An Autonomous Institute, Affiliated to Bharathiar University, Coimbatore.
Re-Accredited with 'A' Grade by NAAC
Narasipuram, Coimbatore -641109

**COURSE OUTCOMES (CO)
OF
BACHELOR OF INFORMATION TECHNOLOGY**

For the Students Admitted in the
Academic year 2020-2021.

SEMESTER I

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	20U1ITCT01	Title : Core 1: C Programming with Problem Solving Techniques	Batch	2020-2023
Hrs/week	4 Hours		Semester	I
			Credits	4

COURSE OBJECTIVES

- .To enable the Students to provide the knowledge on problem solving techniques and algorithm fundamentals and skills that can be applied to the problems in other areas.
- .To clearly understand decision making and branching concepts with various statements.
- .To know about the concept of arrays, strings and functions with its various operations.
- .To learn about the concept of structure, pointers and file management.
- .To know about the Basic Flow Chart design and represents algorithm workflow.

COURSE OUTCOMES (CO)

On the successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Define the basic concepts of Problem solving and algorithms
CO2	Explain the loops and decision making statements to solve the problem
CO3	Apply different operations on arrays
CO4	Use functions to solve the given problem
CO5	Discuss about file system and operations on files

SEMESTER I

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	20U1ITCT02	Title :Core 2: Digital Fundamentals and Architecture	Batch	2020-2023
			Semester	I
Hrs/week	4 Hours		Credits	3

COURSE OBJECTIVES

- 1.To provide a knowledge about the concepts of Computer Fundamentals and enable the students to understand Digital Logic Circuits and Gates.
- 2.To know about number system and binary codes.
- 3.To understand the basics of combinational logic circuits and its operations.
- 4.To know about the sequential circuits and its designing architecture.
- 5.To know about the input -output and memory organizations.

COURSE OUTCOMES (CO):

On the successful completion of the course, students should be able to achieve the following outcomes

CO Number	CO Statement
CO1	Apply the principles of number system, binary codes and Boolean algebra to minimize logic expressions
CO2	Acquire knowledge about various logic gates and logic families and analyze basic circuits of these families
CO3	Develop K-maps to minimize and optimize logic functions up to 5 variables
CO4	Demonstrate computer architecture concepts related to design of modern processors, memories and I/Os.
CO5	Evaluate various design alternatives in processor organization

SEMESTER I

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	20U1IT CP03	Title : Core 3: C Programming - Practical	Batch	2020-2023
			Semester	I
Hrs/week	3 Hours		Credits	3

COURSE OBJECTIVES:

To enable the students to gain knowledge in developing C Programs for certain specified problems.

To develop the applications using C Programming language. To apply the concepts like looping, functions, pointers and file types.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Write programs using various data types in C.
CO2	Use various operators and expressions.
CO3	Apply the concept of Arrays, Pointers and strings
CO4	Apply the concept of loops and functional programming
CO5	Use the file handling concepts for maintaining record.

SEMESTER I

Programme Code :	B.Sc. IT	Programme Title	Bachelor of Science Information Technology	
Course Code :	20U11TAT01	Title :	Batch	2020-2023
Hrs/week	5 Hours	Allied 1:Numerical Methods and Statistics	Semester	I
			Credits	4

COURSE OBJECTIVES:

1. To enable the Students
2. To understand the different Methods of solving numerical, algebraic and Transcendental Equations.
3. To find derivatives using various formulae using numerical differentiation and integrate various functions using numerical integration.
4. To have a knowledge of finding numerical solutions of ordinary differential Equations.
5. To learn how to calculate various statistical constants.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Find Numerical Solution of Algebraic and Transcendental Equations.
CO2	Solve Simultaneous Linear Algebraic Equations by using different methods.
CO3	Explain the methods of Numerical Differentiation, Integration of various functions and finding Numerical Solution of Ordinary Differential Equation using different methods.
CO4	Calculate the Statistical Constants.
CO5	Explain the concepts of Correlation and Regression and their applications in practical situations

SEMESTER II

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	20U2ITCT04	Core 4 : C++ PROGRAMMING	Batch	2020-2023
			Semester	II
Hrs/week	4 Hours		Credits	4

COURSE OBJECTIVES:

- To provide knowledge on object oriented programming concepts using C++.
- To enable the students to provide an in-depth knowledge about the concepts of language structure, program divisions of C++ programming language.
- To enhance the knowledge about dynamic memory management.
- To gain the knowledge about polymorphism.
- To enhance the students knowledge in writing C++ programs and the concepts of File Handling.

COURSE OUTCOMES (CO):

On successful completion of the course, students should be able to achieve the following outcomes.

CO Number	CO Statement
CO1	Describe the object oriented paradigm with concepts of streams, classes, functions, data and objects
CO2	Summarize relative merits of object oriented programming language & concepts.
CO3	Apply pointers, constructors, destructors in dynamic memory management.
CO4	Describe the concept of function overloading, operator overloading and virtual functions
CO5	Explain about exception handling and class templates.

SEMESTER II

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	20U2ITCT05	Core 5 : Data Structures	Batch	2020-2023
			Semester	II
Hrs/week	4 Hours		Credits	4

COURSE OBJECTIVES

- To study about the design and implementation of the data structure and how the data are manipulated in order to develop an application and also helps the students in understanding the use of data structure in the real world.
- To make the students to understand the basic concepts of Data Structures and Algorithms.
- To understand the abstract data types stack, queue, deque, and list.
- To understand the performance of the implementations of basic linear data structures.
- To understand prefix, infix, and postfix expression formats.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Recalls information for writing algorithms in solving problems.
CO2	Choose appropriate data structure as applied to specified problem definition.
CO3	Apply problem solving skills and provide a foundation for advanced programming courses using an object-oriented programming methodology.
CO4	Use linear and non-linear data structures like stacks, queues, linked list etc., and show operations like searching, insertion, deletion, traversing mechanism etc. on various data structures
CO5	Illustrate to store and retrieve data stored in both main memory and in secondary memory.

SEMESTER II

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	20U2ITCP06	Core 6 :C++ Programming -Practical	Batch	2020-2023
Hrs/week	3 Hours		Semester	II
			Credits	3

COURSE OBJECTIVES:

- ✓ To enable the students to gain knowledge in developing C++ Programs for certain specified problems.
- ✓ To develop the applications using C++ Programming language.
- ✓ To apply the concepts like looping, control statements arrays, function overloading and file concepts.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Write programs in C++ to demonstrate Classes and objects
CO2	Use various types of arrays and constructors
CO3	Apply the concepts of virtual functions and function overloading
CO4	Write programs in C++ using special functions, constructor and destructor.
CO5	Use the file handling concepts

SEMESTER II

Programme Code :	B.Sc. IT	Programme Title	Bachelor of Science Information Technology	
Course Code :	20U2ITAT02	Allied 2 : Discrete Mathematics	Batch	2020-2023
Hrs/week	5 Hours		Semester	II
			Credits	4

COURSE OBJECTIVES

- To enable the Students to understand the concept of set theory, Logic and Relations
- To learn the concept of languages and Grammars
- To know the concept of Graph theory and its applications

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Define the concepts of set theory, partition of sets, inclusion and exclusion principles.
CO2	Write an argument using logical notation and determine if the argument is valid or invalid.
CO3	Describe the binary relations between two sets and determine if the relation is partial order relation or equivalence relation using set operations.
CO4	Explain the concepts of formal languages and construct the finite state automata.
CO5	State the concept of graphs, enumerate the types of graphs and their applications practical situations.

SEMESTER – III

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	20U3ITCT07	CORE 7: OPERATING SYSTEMS	Batch	2020-2023
Hrs/week	5 Hours		Semester	III
			Credits	4

COURSE OBJECTIVES:

- To gain knowledge on OS concepts and functioning of modern OS.
- To understand the different types of operating systems concepts like shell, Multi-Tasking / Time-sharing and Distributed Operating System.
- To understand the basic structure of OS , process and threads.
- To understand the deadlock & Memory management concepts.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the basics of operating systems like kernel,shell, types and views of operating systems
CO2	Implement operating system functions.
CO3	Describe the various CPU scheduling algorithms and remove deadlocks
CO4	Explain various memory management techniques and concept of thrashing
CO5	Recognize file system interface, protection and security mechanisms.

SEMESTER – III

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code:	20U3ITCT08	CORE 8: JAVA PROGRAMMING	Batch	2020-2023
			Semester	III
Hrs/week	5 Hours		Credits	4

COURSE OBJECTIVES

1. To introduce the OOP concepts and basic syntax of java.
2. To provide knowledge on classes, inheritance, interfaces and packages.
3. To make the students to understand exception handling and multithreading.
4. To gain the knowledge on Input/Output concepts and applets.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain object oriented programming concepts of java.
CO2	Comprehend building blocks of OOPs language, inheritance, package and interfaces
CO3	Identify exception handling methods
CO4	Develop multithreading object oriented programs
CO5	Develop an object oriented program handling data file.

SEMESTER – III

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code:	20U3ITCT09	Core 9: Microprocessor and ALP	Batch	2020-2023
			Semester	III
Hrs/week	6 Hours		Credits	4

COURSE OBJECTIVES

To make the students to have basic Knowledge and understanding of fundamental microprocessor architecture, and operating models.

To understand various types of processors and data process using Microprocessor architectures

Understand the programs to run on 8086 microprocessor based systems.

Understand and devise techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the various types of processors and data process using Microprocessor architectures.
CO2	Explain the programs to run on 8086 microprocessor based systems.
CO3	Design system using memory chips and peripheral chips for 16 bit 8086microprocessor.
CO4	Discribe the devise techniques for faster execution of instructions, improve speed ofoperations and enhance performance of microprocessors.
CO5	Distinguish between RISC and CISC processors and understand multi core processor and its advantages

SEMESTER – III

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	20U3ITCP10	Core 10: Java Programming - Practical	Batch	2020-2023
Hrs/week	6 Hours		Semester	III
			Credits	3

COURSE OBJECTIVES

- Understand fundamentals of object – oriented programming in Java, including defining classes, invoking methods using class libraries.
- To be able to use the Java SDK environment to create, debug and run simple Java programs.
- To enable the students to gain knowledge in developing Java Programs for certain specified problems.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Implement Object Oriented programming concept using basic syntaxes of control Structures, strings and function for developing skills of logic building activity.
CO2	Identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem
CO3	Demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.
CO4	Demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development.
CO5	Identify and describe common user interface components to design GUI in Java using Applet

SEMESTER-III

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	20U3ITAT03	Allied 3: Operations Research	Batch	2020-2023
			Semester	III
Hrs/week	5 Hours		Credits	4

COURSE OBJECTIVES

To enable the Students

- To Know Operation Research and LPP, solving LPP
- To solve transportation and assignment problems
- To acquire knowledge of queueing theory, PERT and CPM

CO Number	CO Statement
CO1	Define Operations Research, Linear Programming Problem and explain the methods of solving Solution of LPP using Graphical Method simplex method and Big M method
CO2	Solve Transportation and Assignment problems
CO3	Explain the concepts of Game Theory
CO4	Study the concepts of Queueing theory and solving simple problems
CO5	Know distinction between PERT & CPM

SEMESTER – IV

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	20U4ITCT11	CORE 11 :RELATIONAL DATABASE MANAGEMENT SYSTEM	Batch	2020-2023
Hrs/week	5 Hours		Semester	IV
			Credits	4

Course Objectives

On Completion of this Course

- To understand the concepts of RDBMS.
- To have knowledge on DBMS & RDBMS.
- To enhance their on SQL, DDL, DML, DCL Statements, Select, group by and having clause String and set operations, Aggregate Functions, Nested Sub Queries.
- To develop the skills of Embedded and Dynamic SQL.

Course Outcomes (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Define the concept of Database and Database Design
CO2	Use the Commands and understand table
CO3	Use SQL query structure and modify the table
CO4	Describe about function, grouping and PL/SQL
CO5	Define the concept of Embedded SQL and PL/SQL

SEMESTER – IV

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	20U4ITCT12	CORE 12: SYSTEM ANALYSIS AND DESIGN	Batch	2020-2023
Hrs/week	5 Hours		Semester	IV
			Credits	3

COURSE OBJECTIVES

1. To enable the students
2. To understand the principles and tools of systems analysis and design
3. To gather data to analyse and specify the requirements of a system.
4. To design system components and environments..
5. To build general and detailed models that assist programmers in implementing a system. .
6. To design a database for storing data and a user interface for data input and output, as well as controls to protect the system and its data.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the principles and tools of systems analysis and design
CO2	Solve a wide range of problems related to the analysis, design and construction of information systems
CO3	Apply Project Management and Requirement analysis,Principles to S/W project development.
CO4	Analyze the cost estimate and problem complexity using various Analyze estimation techniques
CO5	Plan and undertake a major individual project, prepare and deliver coherent and structured verbal and written technical reports

SEMESTER – IV

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	20U4ITCT13	Core 13 :Data Communication and Networks	Batch	2020-2023
			Semester	IV
Hrs/week	5 Hours		Credits	3

COURSE OBJECTIVES:

To enable the students to

Build an understanding of the fundamental concepts of computer networking.

Understand the various networking modals

Understand the functions of each layer of OSI Layer.

Introduce the student to advanced networking concepts, preparing the student forentry Advanced courses in computer networking.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Describe the components of a data communications system.
CO2	Identify key considerations in selecting various transmission media in networks.
CO3	Identify and define roles and features of various data transmission protocols.
CO4	Describe various error detection and correction schemes.
CO5	Summarize the features and functions of multiplexing and Network Security.

SEMESTER – IV

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	20U4ITCP1 4	.CORE 14: Relational Database Management System -Practical	Batch	2020-2023
			Semester	IV
Hrs/week	6 Hours		Credits	3

On Completion of this Course

- To understand the concepts of RDBMS.
- To have knowledge on DBMS & RDBMS.
- To enhance their on SQL, DDL, DML, DCL Statements, Select, group by and having clause String and set operations, Aggregate Functions, Nested Sub Queries.
- To develop the skills of Embedded and Dynamic SQL.

Course Outcomes (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Understand the concept of Database and Database Design
CO2	Understand the Commands and tables
CO3	Demonstrate SQL query structure and modify the table
CO4	Demonstrate about function, grouping and PL/SQL
CO5	Demonstrate the concept of Embedded SQL and PL/SQL

SEMESTER-IV

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	20U4ITAT04	ALLIED 4: BUSINESS ACCOUNTING	Batch	2020-2023
			Semester	IV
Hrs/week	6 Hours		Credits	4

COURSE OBJECTIVE

To make the students understand the accounting principles, branches of accounting and journal, ledger and trial balance.

To enable the students to prepare the final accounts.

To enlighten the students of various methods of costing.

To make the students to calculate the stock level and differentiate between cost, management and financial accounting.

To provide knowledge on various types of budgets.

COURSE OUTCOMES(CO)

On successful completion of the course, students should be able to achieve the following outcomes

CO Number	CO Statement
CO1	Explain the basic Accounting concepts and the procedure to prepare journal and ledger.
CO2	Prepare Final Accounts of sole proprietor concern.
CO3	Prepare the cost sheet.
CO4	Calculate the Pricing of Material Issues.
CO5	Explain the Budgetary control system and prepare the various types of budgets.

SEMESTER – V

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	20USITCT1 5	Core 15: ASP.Net and C#	Batch	2020-2023
Hrs/week	5 Hours		Semester	V
			Credits	4

COURSE OBJECTIVES

To enable the students

- ✓ To learn about the basic concepts of ASP .NET.
- ✓ To learn about the ASP .NET object model and its architecture.
- ✓ To learn about the C# and its functions.

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Understand about ASP.Net environment and its applications.
CO2	Know about the various forms in Visual Basic and Session controls.
CO3	Write various applications using C# Language in the .NET Framework.
CO4	Develop distributed applications using .NET Framework.
CO5	Create various applications using C#.Net framework

SEMESTER V

Programme Code	B.Sc IT	Programme Title	Bachelor of Science Information Technology	
Course Code	20U5ITCT16	Core 16: PHP & MySQL	Batch	2020-2023
Hrs/week	5 Hours		Semester	V
			Credits	4

COURSE OBJECTIVES

Develops skills to create server-side scripts using PHP.

Introduces server-side programming concepts and terminology.

Explores a variety of server-side techniques and MySQL database manipulation.

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Describe and use the features and syntax of programming language PHP
CO2	Create, translate, and process HTML information using the Common Gateway Information (CGI) protocol.
CO3	Apply PHP code to produce outcomes and solve problems.
CO4	Display and insert data using PHP and MySQL. Retrieve, insert, update, and delete data from the relational database MySQL
CO5	Test, debug, and deploy web pages containing PHP and MySQL.

SEMESTER -V

Programme Code :	B.SC IT	Programme Title	Bachelor of Science Information Technology	
Course Code :	20U5ITCP17	Core 17 : ASP .NET AND C# - PRACTICAL	Batch	2020-2023
			Semester	V
Hrs/week	6 Hours		Credits	3

COURSE OBJECTIVES

To enable the students to gain knowledge about the teaching methodologies useful for the implementation and console based application and web based application.

COURSE OUTCOMES (CO)

At the end of the practical session, students would be well-versed in

CO Number	CO Statement
CO1	Design, create, build, and debug arithmetic operations for displaying numeric output using .NET applications.
CO2	Developing a console application in ASP .NET.
CO3	Compute different operations using looping statements.
CO4	Developing applications using C#

SEMESTER -V

Programme Code	B.Sc IT	Programme Title	Bachelor of Science Information Technology	
Course Code	20U5ITCP18	CORE 18: PHP AND MY SQL - PRACTICAL	Batch	2020-2023
Hrs/week	6 Hours		Semester	V
			Credits	3

COURSE OBJECTIVE

To enable the students to gain knowledge in developing PHP and MySQL Programs for certain specified problems.

COURSE OUTCOMES (CO)

At the end of the practical session, students would be well-versed in

CO Number	CO Statement
CO1	Write PHP code to produce outcomes and solve problems.
CO2	Display and insert data using PHP and MySQL.
CO3	Test, debug, and deploy web pages containing PHP and MySQL.

SEMESTER –VI

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science Information Technology	
Course Code :	20U6ITCT19	Core 19: Fundamentals of Python Programming	Batch	2020-2023
Hrs/week	5 Hours		Semester	VI
			Credits	4

COURSE OBJECTIVES

- To understand the fundamentals of Python Programming.
- To understand and practice embedded dynamic scripting on client side Internet Programming.
- To understand and practice web development techniques on client-side.
- Learning Outcomes: To enable the students to gain knowledge in Python Programming with OOPs Concepts.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Exposed to Python syntax and semantics and be fluent in the use Python flow control and functions.
CO2	Create and run Python Programs using Lists, Dictionaries and handle File Systems.
CO3	Explain the concepts of Regular Expressions and Object-Oriented programming as used in Python.
CO4	Build Data Structures using Python.
CO5	Create programming projects from scratch using in-demand skill and technologies

SEMESTER – VI

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science Information Technology	
Course Code :	20U6ITCT20	Core 20: Operations of E-Wallet and Information Security	Batch	2020-2023
Hrs/week	6 Hours		Semester	VI
			Credits	4

Course Objectives:

1. To learn about the basic operations of E-Wallet and Information Security.
2. To acquire knowledge in Risk Management and Planning.
3. To understand the concepts of Logical and Physical Design.
4. To enhance the key concepts of Security Technology.

COURSE OUTCOMES (CO)

At the end of the practical session, students would be well-versed in

CO Number	CO Statement
CO1	Explain the usage and operations of E-wallets
CO2	Explain the need of Information Security, polices, standards
CO3	Explain the various kinds of security technologies available.
CO4	Describe the information security implementation and maintenance models.
CO5	Describe the concepts of Information Security.

SEMESTER – VI

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science Information Technology	
Course Code :	20U6ITCP21	Core 21: Python Programming -Practical	Batch	2020-2023
			Semester	VI
Hrs/week	6 Hours		Credits	3

COURSE OBJECTIVES

To write, test, and debug simple Python programs.

To develop the applications using Python programming language.

COURSE OUTCOMES:

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Develop proficiency in creating applications, testing and debugging of code written in Python using the Python Programming Language.
CO2	Understand the various data structures available in Python programming language and apply them in solving computational problems.
CO3	Perform text filtering with regular expressions in Python
CO4	Draw various kinds of plots using PyLab

SEMESTER-V

Programme Code	B.Sc	Programme Title	Bachelor of Science Information technology	
Course Code	20U5ITET1 A	ELECTIVE 1: DATA MINING AND WAREHOUSING	Batch	2020-2023
Hrs/week	4 Hours		Semester	V
			Credits	3

COURSE OBJECTIVES

To enable the students

- To know the basics of data mining and warehousing.
- To understand various techniques in data mining.
- To learn about architecture of data warehouse and its applications

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	To present survey on different learning, classification and data mining foundations.
CO2	To and methods for data Mining application.
CO3	To solve problems for multi-core or distributed, concurrent/Parallel environments.
CO4	To survey and use latest trends and advances in data mining and warehousing.

SEMESTER-V

Programme Code	B.Sc	Programme Title	Bachelor of Science (Information Technology)	
Course Code	20USITET1 B	ELECTIVE 1: SOFTWARE TESTING	Batch	2020-2023
			Semester	V
Hrs/week	4 Hours		Credits	3

COURSE OBJECTIVES

- To make the students to understand Software Testing principles.
- To discuss the distinctions between types of testing.
- To understand the essential characteristics of tool used for test automation.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	List a range of different software testing techniques and strategies and be able to apply specific (automated) unit testing method to the projects.
CO2	Distinguish characteristics of structural testing methods
CO3	Demonstrate the integration testing which aims to uncover interaction and compatibility problems as early as possible
CO4	Discuss about the functional and system testing methods.
CO5	Demonstrate various issues for object oriented testing with planning, Management, Execution and Reporting.

SEMESTER-V

Programme Code	B.Sc	Programme Title	Bachelor of Science (Information Technology)	
Course Code	20U5ITET1 C	ELECTIVE 1: CYBER SECURITY	Batch	2020-2023
Hrs/week	4 Hours		Semester	V
			Credits	3

COURSE OBJECTIVES

- To enable the students to have
- To learn about the overview of Information Security and Assurance
- To learn about exposure to the spectrum of security activities, methods and methodologies
- To understand on information security policies and procedures

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Analyze and resolve security issues in networks and computer systems to secure an IT infrastructure.
CO2	Design, develop, test and evaluate secure software.
CO3	Develop policies and procedures to manage enterprise security risks
CO4	Evaluate and communicate the human role in security systems with an emphasis on ethics, social engineering vulnerabilities and training.
CO5	Interpret and forensically investigate security incidents.

SEMESTER – V

Programme Code	B.Sc IT	Programme Title	Bachelor of Science Information Technology	
Course Code	20U5ITET2A	ELECTIVE 2: Web Technology and its Applications	Batch	2020-2023
Hrs/week	4 Hours		Semester	V
			Credits	3

COURSE OBJECTIVES

On completion of this course,

- A student will be able to develop a web application using java technologies.
- The students will gain the skills and project-based experience needed for entry into web application and development careers.

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Design a static webpage by applying HTML elements.
CO2	Apply CSS concepts for designing HTML web pages.
CO3	Develop DHTML pages by using JavaScript
CO4	Define the fundamental of scripting languages.
CO5	Describe about how to write a well formed / valid XML document

SEMESTER-V

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	20U5ITET2 B	ELECTIVE 2: Software Engineering	Batch	2020-2023
			Semester	V
Hours/week	4 Hours		Credits	3

COURSE OBJECTIVES

- 1 To learn the basics Concepts of Software Engineering .
- 2 To Understand the Phases of Software Engineering Life Cycle.
- 3 To learn about various types of Testing.

COURSE OUTCOMES

On the successful completion of the course, students will be able to

CO Number	CO Statement
CO1	Explain a planning for a software project Development.
CO2	Prepare the SR analysis and Analysis Modelling Approaches. Apply Project Requirement analysis , Verification and validation
CO3	Generate designing Models
CO4	Developing Component based Software
CO5	Generate test cases using various testing techniques.

SEMESTER – V

Programme Code	B.Sc IT	Programme Title	Bachelor of Science Information Technology	
Course Code	20U5ITET2C	ELECTIVE 2: Software Project Management	Batch	2020-2023
Hrs/week	4 Hours		Semester	V
			Credits	3

COURSE OBJECTIVES

- To get knowledge of how to handle project development activities
- To understand the threats and opportunities in Project managements
- To study various project cost, time estimation models.
- To study how to make quality software products.
- To Appreciate management issues like team structure and group dynamics

COURSE OUTCOMES

On the successful completion of the course, students will be able to achieve the following outcomes

CO Number	CO Statement
CO1	Apply project management concepts and techniques to an IT project.
CO2	Identify issues that could lead to IT project success or failure.
CO3	Explain project management in terms of the software development process.
CO4	Describe the responsibilities of IT project managers.
CO5	Apply project management concepts through working in a group as team leader or active team member on an IT project

SEMESTER-VI

Programme Code	B.Sc IT	Programme Title	Bachelor of Science. Information Technology	
Course Code	20U6ITET3 A	Elective 3 : Artificial Intelligence and Expert System	Batch	2020-2023
			Semester	VI
Hrs/week	4 Hours		Credits	3

COURSE OBJECTIVES

To enable the students

- 1 To understand different planning problems and have the basic knowledge how to design and implement AI planning systems
- 2 To understand the strengths and limitations of various state-space search algorithms and choose the appropriate algorithms for a problem.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the strengths and limitations of various state-space search algorithms and choose the appropriate algorithms for a problem
CO2	Learn the basics of the theory and practice of Artificial Intelligence as a discipline about intelligent agents capable of decision making.
CO3	Apply knowledge representation techniques and problem solving strategies to common AI applications
CO4	Design simple software to experiment with various AI concepts and analyze results
CO5	Build self-learning and research skills to be able to tackle a topic of interest on his/her own or as part of a team

SEMESTER VI

Programme Code	B.SC IT	Programme Title	Bachelor of Science Information Technology	
Course Code	20U6ITET3B	Elective 3: Big Data Analytics	Batch	2020-2023
			Semester	VI
Hrs/week	4 Hours		Credits	3

COURSE OBJECTIVES

To enable the students

- To study the basic technologies that forms the foundations of Big Data.
- To understand the specialized aspects of big data including big data application, and big data analytics
- To study different types case studies on the current research and applications of the Hadoop and big data in industry

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the building blocks of Big Data
CO2	Differentiate and identify right database models for real time applications
CO3	Analyze recent research trends related to Hadoop File System, MapReduce and Google File System etc
CO4	Analyze the analytical aspects of Big Data
CO5	Explain the detailed architecture, database properties and storage requirements

SEMESTER – V

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	20U6ITET3C	ELECTIVE3:Mobile Wireless Technology	Batch	2020-2023
Hrs/week	4 Hours		Semester	VI
			Credits	3

COURSE OBJECTIVES

To enable the students

- To understand mobile radio communication principles and to study the recent trends adopted in cellular systems and wireless standards.
- To understand the evolution of Mobile communication and cell concept to improve capacity of the system
- To understand the types of channel coding techniques, data transmission modes and services

COURSE OUTCOMES (CO)

On the successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Analyze Cellular Systems, CDMA, FDMA, network planning and TDMA Concepts.
CO2	Learn the fundamentals of GSM. viz., channels, coding techniques, data transmission, services.
CO3	Learn the concepts of the Mobile radio propagation, fading, convergence and the channel modeling.
CO4	Differentiate various Wireless LANs and its concepts.
CO5	Design the applications of wireless systems and standards

SEMESTER – VI

Programme code:	B.SC IT	Programme Title	Bachelor of Science Information Technology	
Course Code:	20U6ITET4A	ELECTIVE 4: COMPILER DESIGN	Batch	2020-2023
			Semester	VI
Hrs/Week:	4 Hours		Credits	3

COURSE OBJECTIVES

To enable the students

- To learn the fundamentals of Compiler Designs and knowledge on High level Programming languages.

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Understand the basics of compilation(computing)
CO2	Understand grammar of compilers
CO3	Understand the intermediate form of codes in compilers
CO4	Understand the code generation technique(Machine code)
CO5	Understand the optimization of code in compilers

SEMESTER – VI

Programme code:	B.SC IT	Programme Title	Bachelor of Science Information Technology	
Course Code:	20U6ITET4B	ELECTIVE 4: MOBILE OPERATING SYSTEM	Batch	2020-2023
Hrs/Week:	4 Hrs		Semester	VI
			Credits	3

COURSE OBJECTIVES

To enable the students

- To understand the process of developing software for the mobile and create mobile applications on the Android Platform

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Understand the limitations and challenges of working in a mobile and wireless environment.
CO2	Describe and apply the different types of application models/architectures used to develop mobile software applications.
CO3	Describe the components and structure of a mobile development frameworks (Android SDK and Eclipse Android Development Tools)
CO4	To learn how and when to apply the different components to develop a working system
CO5	Design, implement and deploy mobile applications using an appropriate software development environment.

SEMESTER VI

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	20U6ITET4C	Elective 4:CLOUD COMPUTING	Batch	2020-2023
			Semester	VI
Hrs/week	4 Hours		Credits	3

COURSE OBJECTIVES

To enable the students :

- To Understand the Cloud computing architectures, applications and challenges and learn about various cloud storages

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Understand History and Benefits in cloud computing
CO2	Analyse the Cloud Computing Architecture and Models
CO3	Identify the cloud data center and visualization technologies.
CO4	Analyse the visualization technology and security issues of cloud Computing
CO5	Evaluate various advanced cloud computing platforms

KOVAI KALAIMAGAL COLLEGE OF ARTS AND SCIENCE

An Autonomous Institute, Affiliated to Bharathiar University, Coimbatore.
Re-Accredited with 'A' Grade by NAAC
Narasipuram, Coimbatore -641109

COURSE OUTCOMES (CO) OF BACHELOR OF INFORMATION TECHNOLOGY

For the Students Admitted in the
Academic year 2019-2020.

SEMESTER I

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	19U1ITCT01	Title : Core 1: C Programming with Problem Solving Techniques	Batch	2019-2022
Hrs/week	4 Hours		Semester	I
			Credits	4

COURSE OBJECTIVES

1. To enable the Students to provide the knowledge on problem solving techniques and algorithm
2. fundamentals and skills that can be applied to the problems in other areas.
3. To clearly understand decision making and branching concepts with various statements.
4. To know about the concept of arrays, strings and functions with its various operations.
5. To learn about the concept of structure, pointers and file management.
6. To know about the Basic Flow Chart design and represents algorithm workflow.

COURSE OUTCOMES (CO)

On the successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Define the basic concepts of Problem solving and algorithms
CO2	Explain the loops and decision making statements to solve the problem
CO3	Apply different operations on arrays
CO4	Use functions to solve the given problem
CO5	Discuss about file system and operations on files

SEMESTER I

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	19U1ITCT02	Title :Core 2: Digital Fundamentals and Architecture	Batch	2019-2022
Hrs/week	4 Hours		Semester	I
			Credits	4

COURSE OBJECTIVES

1. To provide a knowledge about the concepts of Computer Fundamentals and enable the students to understand Digital Logic Circuits and Gates.
2. To know about number system and binary codes.
3. To understand the basics of combinational logic circuits and its operations.
4. To know about the sequential circuits and its designing architecture.
5. To know about the input -output and memory organizations.

COURSE OUTCOMES (CO):

On the successful completion of the course, students should be able to achieve the following outcomes

CO Number	CO Statement
CO1	Apply the principles of number system, binary codes and Boolean algebra to minimize logic expressions
CO2	Acquire knowledge about various logic gates and logic families and analyze basic circuits of these families
CO3	Develop K-maps to minimize and optimize logic functions up to 5 variables
CO4	Demonstrate computer architecture concepts related to design of modern processors, memories and I/Os.
CO5	Evaluate various design alternatives in processor organization

SEMESTER I

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	19U1ITCP03	Title : Core 3: C Programming - Practical	Batch	2019-2022
Hrs/week	3 Hours		Semester	I
			Credits	3

COURSE OBJECTIVES:

- To enable the students to gain knowledge in developing C Programs for certain specified problems.
- To develop the applications using C Programming language. To apply the concepts like looping, functions, pointers and file types.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Write programs using various data types in C.
CO2	Use various operators and expressions.
CO3	Apply the concept of Arrays, Pointers and strings
CO4	Apply the concept of loops and functional programming
CO5	Use the file handling concepts for maintaining record.

SEMESTER I

Programme Code :	B.Sc. IT	Programme Title	Bachelor of Science Information Technology	
Course Code :	19U1ITAT01	Title : Numerical Methods and Statistics	Batch	2019-2022
Hrs/week	5 Hours		Semester	I
			Credits	4

. COURSE OBJECTIVES:

- To enable the Students
- To understand the different Methods of solving numerical, algebraic and Transcendental Equations .
- To find derivatives using various formulae using numerical differentiation and integrate various functions using numerical integration.
- To have a knowledge of finding numerical solutions of ordinary differential Equations.
- To learn how to calculate various statistical constants.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Find Numerical Solution of Algebraic and Transcendental Equations.
CO2	Solve Simultaneous Linear Algebraic Equations by using different methods.
CO3	Explain the methods of Numerical Differentiation, Integration of various functions and finding Numerical Solution of Ordinary Differential Equation using different methods.
CO4	Calculate the Statistical Constants.
CO5	Explain the concepts of Correlation and Regression and their applications in practical situations

SEMESTER II

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	19U2ITCT04	Title :Core 4 : C++ PROGRAMMING	Batch	2019-2022
Hrs/week	4 Hours		Semester	II
			Credits	3

. COURSE OBJECTIVES:

- To provide knowledge on object oriented programming concepts using C++.
- To enable the students to provide an indepth knowledge about the concepts of language structure, program divisions of C++ programming language.
- To enhance the knowledge about dynamic memory management.
- To gain the knowledge about polymorphism.
- To enhance the students knowledge in writing C++ programs and the concepts of File Handling.

COURSE OUTCOMES (CO):

On successful completion of the course, students should be able to achieve the following outcomes.

CO Number	CO Statement
CO1	Describe the object oriented paradigm with concepts of streams, classes, functions, data and objects
CO2	Summarize relative merits of object oriented programming language & concepts.
CO3	Apply pointers, constructors, destructors in dynamic memory management.
CO4	Describe the concept of function overloading, operator overloading and virtual functions
CO5	Explain about exception handling and class templates.

SEMESTER II

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	19U2ITCT05	Title : Core 5 : Data Structures	Batch	2019-2022
			Semester	II
Hrs/week	4 Hours		Credits	3

COURSE OBJECTIVES

To study about the design and implementation of the data structure and how the data are manipulated in order to develop an application and also helps the students in understanding the use of data structure in the real world.

To make the students to understand the basic concepts of Data Structures and Algorithms.

To understand the abstract data types stack, queue, deque, and list.

To understand the performance of the implementations of basic linear data structures.

To understand prefix, infix, and postfix expression formats.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Recalls information for writing algorithms in solving problems.
CO2	Choose appropriate data structure as applied to specified problem definition.
CO3	Apply problem solving skills and provide a foundation for advanced programming courses using an object-oriented programming methodology.
CO4	Use linear and non-linear data structures like stacks, queues, linked list etc., and show operations like searching, insertion, deletion, traversing mechanism etc. on various data structures
CO5	Illustrate to store and retrieve data stored in both main memory and in secondary memory.

SEMESTER II

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	19U2ITCP06	Title : Core 6 : C++ Programming Practical	Batch	2019-2022
Hrs/week	3 Hours		Semester	II
			Credits	3

COURSE OBJECTIVES:

To enable the students to gain knowledge in developing C++ Programs for certain specified problems.

To develop the applications using C++ Programming language.

To apply the concepts like looping, control statements arrays, function overloading and file concepts.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Write programs in C++ to demonstrate Classes and objects
CO2	Use various types of arrays and constructors
CO3	Apply the concepts of virtual functions and function overloading
CO4	Write programs in C++ using special functions, constructor and destructor.
CO5	Use the file handling concepts

SEMESTER II

Programme Code :	B.Sc. IT	Programme Title	Bachelor of Science Information Technology	
Course Code :	19U2ITAT02	Title : Allied 2 : Discrete Mathematics	Batch	2019-2022
Hrs/week	5 Hours		Semester	II
			Credits	4

COURSE OBJECTIVES

To enable the Students to understand the concept of set theory, Logic and Relations

To learn the concept of languages and Grammars

To know the concept of Graph theory and its applications

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Define the concepts of set theory, partition of sets, inclusion and exclusion principles.
CO2	Write an argument using logical notation and determine if the argument is valid or invalid.
CO3	Describe the binary relations between two sets and determine if the relation is partial order relation or equivalence relation using set operations.
CO4	Explain the concepts of formal languages and construct the finite state automata.
CO5	State the concept of graphs, enumerate the types of graphs and their applications practical situations.

SEMESTER – III

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	19U3ITCT07	CORE 7: OPERATING SYSTEMS	Batch	2019-2022
Hrs/week	5 Hours		Semester	III
			Credits	4

COURSE OBJECTIVES:

To gain knowledge on OS concepts and functioning of modern OS.

To understand the different types of operating systems concepts like shell, Multi-Tasking / Time-sharing and Distributed Operating System.

To understand the basic structure of OS , process and threads.

To understand the deadlock & Memory management concepts.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the basics of operating systems like kernel,shell, types and views of operating systems
CO2	Implement operating system functions.
CO3	Describe the various CPU scheduling algorithms and remove deadlocks
CO4	Explain various memory management techniques and concept of thrashing
CO5	Recognize file system interface, protection and security mechanisms.

SEMESTER – III

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code:	19U3ITCT08	CORE 8: JAVA PROGRAMMING	Batch	2019-2022
Hrs/week	5 Hours		Semester	III
			Credits	4

COURSE OBJECTIVES

To introduce the OOP concepts and basic syntax of java.

To provide knowledge on classes, inheritance, interfaces and packages.

To make the students to understand exception handling and multithreading.

To gain the knowledge on Input/Output concepts and applets.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain object oriented programming concepts of java.
CO2	Comprehend building blocks of OOPs language, inheritance, package and interfaces
CO3	Identify exception handling methods
CO4	Develop multithreading object oriented programs
CO5	Develop an object oriented program handling data file.

SEMESTER – III

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code:	19U3ITCT09	Core 9: Microprocessor and ALP	Batch	2019-2022
			Semester	III
Hrs/week	6 Hours		Credits	3

COURSE OBJECTIVES

To make the students to have basic Knowledge and understanding of fundamental microprocessor architecture, and operating models.

To understand various types of processors and data process using Microprocessor architectures

Understand the programs to run on 8086 microprocessor based systems.

Understand and devise techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the various types of processors and data process using Microprocessor architectures.
CO2	Explain the programs to run on 8086 microprocessor based systems.
CO3	Design system using memory chips and peripheral chips for 16 bit 8086 microprocessor.
CO4	Discribe the devise techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors.
CO5	Distinguish between RISC and CISC processors and understand multi core processor and its advantages

SEMESTER – III

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	19U3ITCP10	Core 10: Java Programming - Practical	Batch	2019-2022
			Semester	III
Hrs/week	6 Hours		Credits	3

COURSE OBJECTIVES

Understand fundamentals of object – oriented programming in Java, including defining classes, invoking methods using class libraries.

To be able to use the Java SDK environment to create, debug and run simple Java programs.

To enable the students to gain knowledge in developing Java Programs for certain specified problems.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Implement Object Oriented programming concept using basic syntaxes of control Structures, strings and function for developing skills of logic building activity.
CO2	Identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem
CO3	Demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.
CO4	Demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development.
CO5	Identify and describe common user interface components to design GUI in Java using Applet

SEMESTER-III

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	19U3ITAT03	Allied 3: Operations Research	Batch	2019-2022
			Semester	III
Hrs/week	5 Hours		Credits	4

COURSE OBJECTIVES

To enable the Students

To Know Operation Research and LPP, solving LPP

To solve transportation and assignment problems

To acquire knowledge of queueing theory, PERT and CPM

CO Number	CO Statement
CO1	Define Operations Research, Linear Programming Problem and explain the methods of solving Solution of LPP using Graphical Method simplex method and Big M method
CO2	Solve Transportation and Assignment problems
CO3	Explain the concepts of Game Theory
CO4	Study the concepts of Queueing theory and solving simple problems
CO5	Know distinction between PERT & CPM

SEMESTER – IV

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	19U4ITCT11	CORE 11 : COMPUTER GRAPHICS	Batch	2019-2022
Hrs/week	5 Hours		Semester	IV
			Credits	3

COURSE OBJECTIVES:

To enable the students

Understand the basics of computer graphics, different graphics systems and applications of computer graphics

To study how graphic objects are represented in computer.

To learn the overview of graphic systems.

To learn about the 2D , 3D Transformations.

To provide the programmers perspective of working of computer graphics.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the basics of computer graphics, different graphics systems and applications of computer graphics.
CO2	Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis.
CO3	Use of geometric transformations on graphics objects and their application in composite form.
CO4	Explore projections and visible surface detection techniques for display of 3D .
CO5	Apply the logic to develop animation and gaming programs.

SEMESTER – IV

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	19U4ITCT 12	CORE 12: SYSTEM ANALYSIS AND DESIGN	Batch	2019-2022
Hrs/week	5 Hours		Semester	IV
			Credits	4

COURSE OBJECTIVES

To enable the students

To understand the principles and tools of systems analysis and design

To gather data to analyse and specify the requirements of a system.

To design system components and environments..

To build general and detailed models that assist programmers in implementing a system. .

To design a database for storing data and a user interface for data input and output, as well as controls to protect the system and its data.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the principles and tools of systems analysis and design
CO2	Solve a wide range of problems related to the analysis, design and construction of information systems
CO3	Apply Project Management and Requirement analysis, Principles to S/W project development.
CO4	Analyze the cost estimate and problem complexity using various Analyze estimation techniques
CO5	Plan and undertake a major individual project, prepare and deliver coherent and structured verbal and written technical reports

SEMESTER – IV

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	19U4ITCT13	Core 13 :Data Communication and Networks	Batch	2019-2022
			Semester	IV
Hrs/week	5 Hours		Credits	3

COURSE OBJECTIVES:

To enable the students to

Build an understanding of the fundamental concepts of computer networking.

Understand the various networking modals

Understand the functions of each layer of OSI Layer.

Introduce the student to advanced networking concepts, preparing the student for entry Advanced courses in computer networking.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Describe the components of a data communications system.
CO2	Identify key considerations in selecting various transmission media in networks.
CO3	Identify and define roles and features of various data transmission protocols.
CO4	Describe various error detection and correction schemes.
CO5	Summarize the features and functions of multiplexing and Network Security.

SEMESTER – IV

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	19U4ITCP1	CORE 14: COMPUTER GRAPHICS PRACTICAL	Batch	2019-2022
	4		Semester	IV
Hrs/week	6 Hours		Credits	3

COURSE OBJECTIVES

- ✓ To enable the students to gain knowledge in developing C Programs for certain specified problems.
- ✓ Understand the basics of computer graphics, different graphics systems and applications of computer graphics
- ✓ Understand the concepts of different type of geometric transformation of objects in 2D and 3D

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Demonstrate the basics of computer graphics, different graphics systems and applications of computer graphics.
CO2	Design scan conversion problems using C++ and c applications.
CO3	Apply clipping and filling techniques for modifying an object.
CO4	Implement the concepts of different type of geometric transformation of objects in 2D and 3D.
CO5	Apply the logic to develop animation and gaming programs.

SEMESTER-IV

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	19U4ITAT04	Title: ALLIED 4: BUSINESS ACCOUNTING	Batch	2019-2022
			Semester	IV
Hrs/week	5 Hours		Credits	4

COURSE OBJECTIVE

To make the students understand the accounting principles, branches of accounting and journal, ledger and trial balance.

To enable the students to prepare the final accounts.

To enlighten the students of various methods of costing.

To make the students to calculate the stock level and differentiate between cost, management and financial accounting.

To provide knowledge on various types of budgets.

COURSE OUTCOMES(CO)

On successful completion of the course, students should be able to achieve the following outcomes

CO Number	CO Statement
CO1	Explain the basic Accounting concepts and the procedure to prepare journal and ledger.
CO2	Prepare Final Accounts of sole proprietor concern.
CO3	Prepare the cost sheet.
CO4	Calculate the Pricing of Material Issues.
CO5	Explain the Budgetary control system and Prepare the various types of budgets.

SEMESTER – V

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	19U5ITCT15	Core 15. ASP.Net and C#	Batch	2019-2022
			Semester	V
Hrs/week	5 Hours		Credits	3

COURSE OBJECTIVES

- To enable the students
- To learn about the basic concepts of ASP .NET.
- To learn about the ASP .NET object model and its architecture.
- To learn about the C# and its functions.

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Understand about ASP.Net environment and its applications.
CO2	Know about the various forms in Visual Basic and Session controls.
CO3	Write various applications using C# Language in the .NET Framework.
CO4	Develop distributed applications using .NET Framework.
CO5	Create various applications using C#.Net framework

SEMESTER V

Programme Code	B.SC IT	Programme Title	Bachelor of Science Information Technology	
Course Code	19U5ITCT16	Core 16: PHP & MySQL	Batch	2019-2022
Hrs/week	5 Hours		Semester	V
			Credits	3

COURSE OBJECTIVES

Develops skills to create server-side scripts using PHP. Introduces server-side programming concepts and terminology. Explores a variety of server-side techniques and MySQL database manipulation.

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Describe and use the features and syntax of programming language PHP
CO2	Create, translate, and process HTML information using the Common Gateway Information (CGI) protocol.
CO3	Apply PHP code to produce outcomes and solve problems.
CO4	Display and insert data using PHP and MySQL. Retrieve, insert, update, and delete data from the relational database MySQL
CO5	Test, debug, and deploy web pages containing PHP and MySQL.

SEMESTER -V

Programme Code :	B.SC IT	Programme Title	Bachelor of Science Information Technology	
Course Code :	19USITCP17	Core 17 : ASP .NET AND C# - PRACTICAL	Batch	2019-2022
Hrs/week	6 Hours		Semester	V
			Credits	3

COURSE OBJECTIVES

To enable the students to gain knowledge about the teaching methodologies useful for the implementation and console based application and web based application.

COURSE OUTCOMES (CO)

At the end of the practical session, students would be well-versed in

CO Number	CO Statement
CO1	Design, create, build, and debug arithmetic operations for displaying numeric output using .NET applications.
CO2	Developing a console application in ASP .NET.
CO3	Compute different operations using looping statements.
CO4	Developing applications using C#

SEMESTER -V

Programme Code	B.SC IT	Programme Title	Bachelor of Science Information Technology	
Course Code	19U6ITCP 18	CORE 18: PHP AND MY SQL -PRACTICAL	Batch	2019-2022
Hrs/week	6 Hours		Semester	V
			Credits	3

COURSE OBJECTIVE

To enable the students to gain knowledge in developing PHP and MySQL Programs for certain specified problems.

COURSE OUTCOMES (CO)

At the end of the practical session, students would be well-versed in

CO Number	CO Statement
CO1	Write PHP code to produce outcomes and solve problems.
CO2	Display and insert data using PHP and MySQL.
CO3	Test, debug, and deploy web pages containing PHP and MySQL.

SEMESTER –VI

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science Information Technology	
Course Code :	19U6ITCT19	Core 19: SOFTWARE TESTING	Batch	2019-2022
Hrs/week	5 Hours		Semester	VI
			Credits	3

COURSE OBJECTIVES

- To make the students to understand Software Testing principles.
- To discuss the distinctions between types of testing.
- To understand the essential characteristics of tool used for test automation.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	List a range of different software testing techniques and strategies and be able to apply specific (automated) unit testing method to the projects.
CO2	Distinguish characteristics of structural testing methods
CO3	Demonstrate the integration testing which aims to uncover interaction and compatibility problems as early as possible
CO4	Discuss about the functional and system testing methods.
CO5	Demonstrate various issues for object oriented testing with planning, Management, Execution and Reporting.

SEMESTER – VI

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science Information Technology	
Course Code :	19U6ITCT20	Core 20: Operations of E-Wallet and Information Security	Batch	2019-2022
Hrs/week	6 Hours		Semester	VI
			Credits	3

Course Objectives:

To learn about the basic operations of E-Wallet and Information Security.

To acquire knowledge in Risk Management and Planning.

To understand the concepts of Logical and Physical Design.

To enhance the key concepts of Security Technology.

COURSE OUTCOMES (CO)

At the end of the practical session, students would be well-versed in

CO Number	CO Statement
CO1	Explain the usage and operations of E-wallets
CO2	Explain the need of Information Security, policies, standards
CO3	Explain the various kinds of security technologies available.
CO4	Describe the information security implementation and maintenance models.
CO5	Describe the concepts of Information Security.

SEMESTER – VI

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science Information Technology	
Course Code :	19U6ITCP2 1	Core 21: Software Testing- Practical	Batch	2019-2022
Hrs/week	6 Hours		Semester	VI
			Credits	3

COURSE OBJECTIVES

- To understand software test automation problems and solutions.
- To learn how to planning a test project, design test cases and data, conduct testing operations, manage software problems and defects, generate a testing report.
- To gain the techniques and skills on how to use modern software testing tools to support software testing projects.

COURSE OUTCOMES (CO)

Upon successful completion of this lab Course, student should be able to

CO Number	CO Statement
CO1	Find practical solutions to the problems.
CO2	Solve specific problems alone or in teams manage a project from beginning to end
CO3	Define, formulate and analyze a problem
CO4	Developing applications and Test them
CO5	Find practical solutions to the problems.

SEMESTER-V

Programme Code	B.Sc	Programme Title	Bachelor of Science Information technology	
Course Code	19U5ITET1 A	ELECTIVE 1: DATA MINING AND WAREHOUSING	Batch	2019-2022
Hrs/week	4 Hours		Semester	V
			Credits	3

COURSE OBJECTIVES

To enable the students

- To know the basics of data mining and warehousing.
- To understand various techniques in data mining.
- To learn about architecture of data warehouse and its applications

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	To present survey on different learning, classification and data mining foundations.
CO2	To and methods for data Mining application.
CO3	To solve problems for multi-core or distributed, concurrent/Parallel environments.
CO4	To survey and use latest trends and advances in data mining and warehousing.

SEMESTER-V

Programme Code	B.Sc	Programme Title	Bachelor of Science (Information Technology)	
Course Code	19U5ITET1 B	ELECTIVE 1: SOFTWARE ENGINEERING	Batch	2019-2022
			Semester	V
Hrs/week	4 Hours		Credits	3

COURSE OBJECTIVES

1. To learn the basics Concepts of Software Engineering .
2. To Understand the Phases of Software Engineering Life Cycle.
3. To learn about various types of Testing.

COURSE OUTCOMES

On the successful completion of the course, students will be able to

CO Number	CO Statement
CO 1	Explain a planning for a software project Development.
CO 2	Prepare the SR analysis and Analysis Modelling Approaches. Apply Project Requirement analysis , Verification and validation
CO 3	Generate designing Models
CO 4	Developing Component based Software
CO 5	Generate test cases using various testing techniques.

SEMESTER-V

Programme Code	B.Sc	Programme Title	Bachelor of Science (Information Technology)	
Course Code	19U5ITET1 C	ELECTIVE 1: CYBER SECURITY	Batch	2019-2022
Hrs/week	4 Hours		Semester	V
			Credits	3

COURSE OBJECTIVES

To enable the students to have

To learn about the overview of Information Security and Assurance

To learn about exposure to the spectrum of security activities, methods and methodologies

To understand on information security policies and procedures

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Analyze and resolve security issues in networks and computer systems to secure an IT infrastructure.
CO2	Design, develop, test and evaluate secure software.
CO3	Develop policies and procedures to manage enterprise security risks
CO4	Evaluate and communicate the human role in security systems with an emphasis on ethics, social engineering vulnerabilities and training.
CO5	Interpret and forensically investigate security incidents.

SEMESTER – V

Programme Code	B.Sc IT	Programme Title	Bachelor of Science Information Technology	
Course Code	19U5ITET2A	ELECTIVE 2: Web Technology And Its Applications	Batch	2019-2022
Hrs/week	4 Hours		Semester	V
			Credits	3

COURSE OBJECTIVES

On completion of this course,

- A student will be able to develop a web application using java technologies.
- The students will gain the skills and project-based experience needed for entry into web application and development careers.

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Design a static webpage by applying HTML elements.
CO2	Apply CSS concepts for designing HTML web pages.
CO3	Develop DHTML pages by using JavaScript
CO4	Define the fundamental of scripting languages.
CO5	Describe about how to write a well formed / valid XML document

SEMESTER-V

Programme Code	B.Sc IT	Programme Title	Bachlor of Science (Information Technology)	
Course Code	19U5ITET2B	ELECTIVE 2: INTERNETWORKING WITH TCP / IP	Batch	2019-2022
Hours/week	4 Hours		Semester	V
			Credits	3

.COURSE OBJECTIVES: To enable the students

- To learn about the basic concepts of Internetworking and its various protocols.
- To learn about the concepts of protocol addressing.
- To learn about the Email transactions and its protocol.

COURSE OUTCOMES (CO):

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the computer networking, and basic network services
CO2	Define layers of the OSI model; identify the protocols, and services associated with each layer.
CO3	Recognize and describe logical and physical network topologies in terms of media and network hardware.
CO4	Justify information security issues in computer networks.
CO5	Describe current common protocols in terms of their function, routing, addressing schemes, interoperability, and naming conventions.

SEMESTER – V

Programme Code	B.Sc IT	Programme Title	Bachelor of Science Information Technology	
Course Code	19U5ITET2C	ELECTIVE 2: Software Project Management	Batch	2019-2022
Hrs/week	4 Hours		Semester	V
			Credits	3

COURSE OBJECTIVES

- To get knowledge of how to handle project development activities
- To understand the threats and opportunities in Project managements
- To study various project cost, time estimation models.
- To study how to make quality software products.
- To Appreciate management issues like team structure and group dynamics

COURSE OUTCOMES

On the successful completion of the course, students will be able to achieve the following outcomes

CO Number	CO Statement
CO1	Apply project management concepts and techniques to an IT project.
CO2	Identify issues that could lead to IT project success or failure.
CO3	Explain project management in terms of the software development process.
CO4	Describe the responsibilities of IT project managers.
CO5	Apply project management concepts through working in a group as team leader or active team member on an IT project

SEMESTER-VI

Programme Code	B.Sc IT	Programme Title	Bachlor of Science. Information Technology	
Course Code	19U6ITET3A	Elective 3 : Artificial Intelligence and Expert System	Batch	2019-2022
Hrs/week	4 Hours		Semester	VI
			Credits	3

COURSE OBJECTIVES

To enable the students

- 4 To understand different planning problems and have the basic knowledge how to design and implement AI planning systems
- 5 To understand the strengths and limitations of various state-space search algorithms and choose the appropriate algorithms for a problem.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the strengths and limitations of various state-space search algorithms and choose the appropriate algorithms for a problem
CO2	Learn the basics of the theory and practice of Artificial Intelligence as a discipline about intelligent agents capable of decision making.
CO3	Apply knowledge representation techniques and problem solving strategies to common AI applications
CO4	Design simple software to experiment with various AI concepts and analyze results
CO5	Build self-learning and research skills to be able to tackle a topic of interest on his/her own or as part of a team

SEMESTER VI

Programme Code	B.SC IT	Programme Title	Bachelor of Science Information Technology	
Course Code	19U6ITET3B	Elective 3: Big Data Analytics	Batch	2019-2022
Hrs/week	4 Hours		Semester	VI
			Credits	3

COURSE OBJECTIVES

To enable the students

- To study the basic technologies that forms the foundations of Big Data.
- To understand the specialized aspects of big data including big data application, and big data analytics
- To study different types case studies on the current research and applications of the Hadoop and big data in industry

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the building blocks of Big Data
CO2	Differentiate and identify right database models for real time applications
CO3	Analyze recent research trends related to Hadoop File System, MapReduce and Google File System etc
CO4	Analyze the analytical aspects of Big Data
CO5	Explain the detailed architecture, database properties and storage requirements

SEMESTER – V

Programme Code	B.Sc IT	Programme Title	.Bachelor of Science (Information Technology)		
Course Code	19U6ITET3C	ELECTIVE3:Mobile Wireless Technology	and	Batch	2019-2022
Hrs/week	4 Hours			Semester	VI
				Credits	3

COURSE OBJECTIVES

To enable the students

- 3 To understand mobile radio communication principles and to study the recent trends adopted in cellular systems and wireless standards.
- 4 To understand the evolution of Mobile communication and cell concept to improve capacity of the system
- 5 To understand the types of channel coding techniques, data transmission modes and services

COURSE OUTCOMES (CO)

On the successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Analyze Cellular Systems, CDMA, FDMA, network planning and TDMA Concepts.
CO2	Learn the fundamentals of GSM. viz., channels, coding techniques, data transmission, services.
CO3	Learn the concepts of the Mobile radio propagation, fading, convergence and the channel modeling.
CO4	Differentiate various Wireless LANs and its concepts.
CO5	Design the applications of wireless systems and standards

SEMESTER – VI

Programme code:	B.SC IT	Programme Title	Bachelor of Science Information Technology	
Course Code:	19U6ITET4A	ELECTIVE 4: COMPILER DESIGN	Batch	2019-2022
			Semester	VI
Hrs/Week:	4 Hours		Credits	3

COURSE OBJECTIVES

To enable the students

- To learn the fundamentals of Compiler Designs and knowledge on High level Programming languages.

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Understand the basics of compilation(computing)
CO2	Understand grammar of compilers
CO3	Understand the intermediate form of codes in compilers
CO4	Understand the code generation technique(Machine code)
CO5	Understand the optimization of code in compilers

SEMESTER – VI

Programme code:	B.SC IT	Programme Title	Bachelor of Science Information Technology	
Course Code:	19U6ITET4B	ELECTIVE 4: MOBILE OPERATING SYSTEM	Batch	2019-2022
Hrs/Week:	4 Hrs		Semester	VI
			Credits	3

COURSE OBJECTIVES

To enable the students

- To understand the process of developing software for the mobile and create mobile applications on the Android Platform

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Understand the limitations and challenges of working in a mobile and wireless environment.
CO2	Describe and apply the different types of application models/architectures used to develop mobile software applications.
CO3	Describe the components and structure of a mobile development frameworks (Android SDK and Eclipse Android Development Tools)
CO4	To learn how and when to apply the different components to develop a working system
CO5	Design, implement and deploy mobile applications using an appropriate software development environment.

SEMESTER VI

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	19U6ITET4C	Elective 4:CLOUD COMPUTING	Batch	2019-2022
Hrs/week	4 Hours		Semester	VI
			Credits	3

COURSE OBJECTIVES

To enable the students :

- To Understand the Cloud computing architectures, applications and challenges and learn about various cloud storages

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Understand History and Benefits in cloud computing
CO2	Analyse the Cloud Computing Architecture and Models
CO3	Identify the cloud data center and visualization technologies.
CO4	Analyse the visualization technology and security issues of cloud Computing
CO5	Evaluate various advanced cloud computing platforms

**KOVAI KALAIMAGAL COLLEGE OF ARTS AND
SCIENCE**

An Autonomous Institute, Affiliated to Bharathiar University, Coimbatore.
Re-Accredited with 'A' Grade by NAAC
Narasipuram, Coimbatore -641109

**COURSE OUTCOMES (CO)
OF
BACHELOR OF INFORMATION TECHNOLOGY**

For the Students Admitted in the
Academic year 2018-2019.

SEMESTER I

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	18U1ITCT01	Title : Core 1: C Programming with Problem Solving Techniques	Batch	2018-2021
Hrs/week	5		Semester	I
			Credits	4

COURSE OBJECTIVES

To enable the Students

1. To know about problem solving techniques and algorithm fundamentals and basics of C Programming.
2. To clearly understand decision making and branching concepts with various statements.
3. To know about the concept of arrays, strings and functions with its various operations.
4. To learn about the concept of structure, pointers and file management.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Define the basic concepts of Problem solving and algorithms
CO2	Explain the loops and decision making statements to solve the problem
CO3	Apply different operations on arrays
CO4	Use functions to solve the given problem
CO5	Discuss about file system and operations on files

SEMESTER I

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	18U1ITCT02	Title : Core 2: Digital Fundamentals and Architecture	Batch	2018-2021
			Semester	I
Hrs/week	5		Credits	4

COURSE OBJECTIVES

.To provide a knowledge about the concepts of Computer Fundamentals and enable the students to understand Digital Logic Circuits and Gates.

- **COURSE OUTCOMES (CO)**

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Review various Numbering System and Conversion problems
CO2	Design basic circuit for gates.
CO3	Apply Boolean laws and rules to simplify simple expressions
CO4	Identify and illustrate basic input-output organization of computer.
CO5	Illustrate the memory concepts, I/O devices and peripherals

SEMESTER I

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	18U1ITCP03	Title : Core 3: C Programming - Practical	Batch	2018-2021
Hrs/week	4		Semester	I
			Credits	3

COURSE OBJECTIVES:

- To enable the students to gain knowledge in developing C Programs for certain specified problems.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Write programs using various data types in C.
CO2	Use various operators and expressions.
CO3	Apply the concept of Arrays, Pointers and strings
CO4	Apply the concept of loops and functional programming
CO5	Use the file handling concepts for maintaining record.

SEMESTER I

Programme Code	B.Sc. IT	Programme Title	Bachelor of Science Information Technology	
Course Code	18UIITAT01	Title :Allied 1- Numerical Methods and Statistics	Batch	2018-2021
			Semester	I
Hrs/week	5		Credits	4

COURSE OBJECTIVES

To enable the Students

- To understand the different Methods of solving numerical, algebraic and Transcendental Equations .
- To find derivatives of various formulae and Integration using numerical differentiation and integrate various functions using numerical integration.
- To have a knowledge of finding numerical solutions of ordinary differential Equations.
- To learn how to calculate various statistical constants.

COURSE OUTCOMES (CO)

On successful completion of the course, students will be able to

CO Number	CO Statement
CO1	Find Numerical Solution of Algebraic and Transcendental Equations.
CO2	Solve Simultaneous Linear Algebraic Equations by using different methods.
CO3	Explain the methods of Numerical Differentiation, Integration of various functions and finding Numerical Solution of Ordinary Differential Equation using different methods.
CO4	Calculate the Statistical Constants.
CO5	Explain the concepts of Correlation and Regression and their applications in practical situations

SEMESTER II

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	18U2ITCT04	Title : Core 4 :C++ PROGRAMMING	Batch	2018-2021
Hrs/week	5		Semester	II
			Credits	4

COURSE OBJECTIVES

- ✓ To provide knowledge on object oriented programming concepts using C++.
- ✓ To enable the students to provide an indepth knowledge about the concepts of language structure, program divisions of C++ programming language.
- ✓ To enhance the knowledge about dynamic memory management.
- ✓ To gain the knowledge about polymorphism.
- ✓ To enhance the students knowledge in writing C++ programs and the concepts of File Handling.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Describe the object oriented paradigm with concepts of streams, classes, functions, data and objects
CO2	Summarize advanced use of arrays, structures in C++ programming.
CO3	Apply pointers, constructors, destructors in dynamic memory management.
CO4	Describe the concept of function overloading, operator overloading, virtual functions and polymorphism.
CO5	Explain about exception handling and class templates.

SEMESTER II

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	18U2ITCT 05	Title : Core 5 : Data Structures	Batch	2018-2021
			Semester	II
Hrs/week	4		Credits	4

COURSE OBJECTIVES

- To study about the design and implementation of the data structure and how the data are manipulated in order to develop an application and also helps the students in understanding the use of data structure in the real world.
- To make the students to understand the basic concepts of Data Structures and Algorithms.
- To understand the abstract data types stack, queue, dequeue, and list.
- To understand the performance of the implementations of basic linear data structures.
- To understand prefix, infix, and postfix expression formats.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Recalls information for writing algorithms in solving problems.
CO2	Choose appropriate data structure as applied to specified problem definition.
CO3	Apply problem solving skills and provide a foundation for advanced programming courses using an object-oriented programming methodology.
CO4	Use linear and non-linear data structures like stacks, queues, linked list etc., and show operations like searching, insertion, deletion, traversing mechanism etc. on various data structures
CO5	Illustrate to store and retrieve data stored in both main memory and in secondary memory.

SEMESTER II

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	18U2ITCP06	Title : Core 6 :Programming in C++ Practical	Batch	2018-2021
Hours/week	5		Semester	II
			Credits	3

COURSE OBJECTIVES:

- To enable the students to gain knowledge in developing C++ Programs for certain specified problems.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Write programs in C++ to demonstrate Classes and objects
CO2	Use various types of arrays and constructors
CO3	Apply the concepts of virtual functions and function overloading
CO4	Write programs in C++ using special functions, constructor and destructor.
CO5	Use the file handling concepts

SEMESTER II

Programme Code	B.Sc. IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	18U2ITAT02	Title : Allied 2 :Discrete Mathematics	Batch	2018-2021
			Semester	II
Hours/week	5		Credits	4

COURSE OBJECTIVES

To enable the Students

- To understand the concept of set theory, Logic and Relations
- To learn the concept of languages and Grammars
- To know the concept of Graph theory and its applications

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Define the concepts of set theory, partition of sets, inclusion and exclusion principles.
CO2	Write an argument using logical notation and determine if the argument is valid or invalid.
CO3	Describe the binary relations between two sets and determine if the relation is partial order relation or equivalence relation using set operations.
CO4	Explain the concepts of formal languages and construct the finite state automata.
CO5	State the concept of graphs, enumerate the types of graphs and their applications practical situations.

SEMESTER III

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	18U3ITCT07	CORE 7: OPERATING SYSTEMS	Batch	2018-2021
Hrs/week	5		Semester	III
			Credits	4

COURSE OBJECTIVES:

To gain knowledge on OS concepts and functioning of modern OS.

To understand the basics of operating systems like kernel, shell, types and views of operating systems

To understand the structure of OS, process and Interprocess Communications.

To understand the deadlock & Memory management concepts.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the basics of operating systems like kernel, shell, types and views of operating systems
CO2	Implement operating system functions.
CO3	Describe the various CPU scheduling algorithms and remove deadlocks
CO4	Explain various memory management techniques and concept of thrashing
CO5	Recognize file system interface, protection and security mechanisms.

SEMESTER – III

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	18U3ITCT08	Core 8: Java Programming	Batch	2018-2021
Hrs/week	5		Semester	III
			Credits	4

COURSE OBJECTIVES

To introduce the OOP concepts and basic syntax of java.

To provide knowledge on classes, inheritance, interfaces and packages.

To make the students to understand exception handling and multithreading.

To gain the knowledge on Input/Output concepts and applets.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain object oriented programming concepts of java.
CO2	Comprehend building blocks of OOPs language, inheritance, package and interfaces
CO3	Identify exception handling methods
CO4	Develop multithreading object oriented programs
CO5	Develop an object oriented program handling data file.

SEMESTER – III

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U3ITCT0	Core 9: Microprocessor and ALP	Batch	2018-2021
	9		Semester	III
Hrs/week	6		Credits	4

COURSE OBJECTIVES

To make the students to have basic Knowledge and understanding of fundamental microprocessor architecture, and operating models.

To understand various types of processors and data process using Microprocessor architectures

Understand the programs to run on 8086 microprocessor based systems.

Understand and devise techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the various types of processors and data process using Microprocessor architectures.
CO2	Explain the programs to run on 8086 microprocessor based systems.
CO3	Design system using memory chips and peripheral chips for 16 bit 8086 microprocessor.
CO4	Describe the devise techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors.
CO5	Distinguish between RISC and CISC processors and understand multi core processor and its advantages

SEMESTER – III

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U3ITCP10	Core 10: Java Programming - Practical	Batch	2018-2021
			Semester	III
Hrs/week	6		Credits	3

COURSE OBJECTIVES

Understand fundamentals of object – oriented programming in Java, including defining classes, invoking methods using class libraries.

To be able to use the Java SDK environment to create, debug and run simple Java programs.

To enable the students to gain knowledge in developing Java Programs for certain specified problems.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Implement Object Oriented programming concept using basic syntaxes of controlStructures, strings and function for developing skills of logic building activity.
CO2	Identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem
CO3	Demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.
CO4	Demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development.
CO5	Identify and describe common user interface components to design GUI in Java using Applet

SEMESTER III

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U3CAAT03	Title : Allied 3:Operations Research	Batch	2018-2021
Hours/week	5		Semester	III
			Credits	4

COURSE OBJECTIVES

- To enable the Students
- To Know Operation Research and LPP, solving LPP
- To solve transportation and assignment problems
- To acquire knowledge of queueing theory, PERT and CPM

CO Number	CO Statement
CO1	Define Operations Research, Linear Programming Problem and explain the methods of solving Solution of LPP using Graphical Method simplex method and Big M method
CO2	Solve Transportation and Assignment problems
CO3	Explain the concepts of Game Theory
CO4	Study the concepts of Queueing theory and solving simple problems
CO5	Know distinction between PERT & CPM

SEMESTER – IV

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U4ITCT1	CORE 11 : COMPUTER GRAPHICS	Batch	2018-2021
	1		Semester	IV
Hrs/week	5		Credits	4

COURSE OBJECTIVES:

To enable the students

Understand the basics of computer graphics, different graphics systems and applications of computer graphics

To study how graphic objects are represented in computer.

To learn the overview of graphic systems.

To learn about the 2D , 3D Transformations.

To provide the programmers perspective of working of computer graphics.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the basics of computer graphics, different graphics systems and applications of computer graphics.
CO2	Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis.
CO3	Use of geometric transformations on graphics objects and their application in composite form.
CO4	Explore projections and visible surface detection techniques for display of 3D .
CO5	Apply the logic to develop animation and gaming programs.

SEMESTER IV

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U4ITCT12	Core 12:Systems Analysis and Design	Batch	2018-2021
Hrs/week	6		Semester	IV
			Credits	4

COURSE OBJECTIVES

To enable the students

To Understand the principles and tools of systems analysis and design

To gather data to analyse and specify the requirements of a system.

To design system components and environments..

To build general and detailed models that assist programmers in implementing a system. .

To design a database for storing data and a user interface for data input and output, as well as controls to protect the system and its data.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the principles and tools of systems analysis and design
CO2	Solve a wide range of problems related to the analysis, design and construction of information systems
CO3	Apply Project Management and Requirement analysis,Principles to S/W project development.
CO4	Analyze the cost estimate and problem complexity using various Analyze estimation techniques
CO5	Plan and undertake a major individual project, prepare and deliver coherent and structured verbal and written technical reports

SEMESTER – IV

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	18U4ITCT13	Core 13 :Data Communication and Networks	Batch	2018-2021
Hrs/week	5		Semester	IV
			Credits	3

COURSE OBJECTIVES:

To enable the students to

Build an understanding of the fundamental concepts of computer networking.

Understand the various networking modals

Understand the functions of each layer of OSI Layer.

Introduce the student to advanced networking concepts, preparing the student for entry Advanced courses in computer networking.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Describe the components of a data communications system.
CO2	Identify key considerations in selecting various transmission media in networks.
CO3	Identify and define roles and features of various data transmission protocols.
CO4	Describe various error detection and correction schemes.
CO5	Summarize the features and functions of multiplexing and modulation.

SEMESTER – IV

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U4ITCP1 4	.CORE 14 : COMPUTER .GRAPHICS PRACTICAL	Batch	2018-2021
			Semester	IV
Hrs/week	6		Credits	3

COURSE OBJECTIVES

To enable the students to gain knowledge in developing C Programs for certain specified problems.

Understand the basics of computer graphics, different graphics systems and applications of computer graphics

Understand the concepts of different type of geometric transformation of objects in 2D and 3D

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Demonstrate the basics of computer graphics, different graphics systems and applications of computer graphics.
CO2	Design scan conversion problems using C++ and c applications.
CO3	Apply clipping and filling techniques for modifying an object.
CO4	Implement the concepts of different type of geometric transformation of objects in 2D and 3D.
CO5	Apply the logic to develop animation and gaming programs.

SEMESTER-IV

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U4ITAT04	Title: ALLIED 4: BUSINESS ACCOUNTING	Batch	2018-2021
			Semester	IV
Hrs/week	5		Credits	4

COURSE OBJECTIVE

To make the students understand the accounting principles, branches of accounting and journal, ledger and trial balance.

To enable the students to prepare the final accounts.

To enlighten the students of various methods of costing.

To make the students to calculate the stock level and differentiate between cost, management and financial accounting.

To provide knowledge on various types of budgets.

COURSE OUTCOMES(CO)

On successful completion of the course, students should be able to achieve the following outcomes

CO Number	CO Statement
CO1	Explain the basic Accounting concepts and the procedure to prepare journal and ledger.
CO2	Prepare Final Accounts of sole proprietor concern.
CO3	Prepare the cost sheet.
CO4	Calculate the Pricing of Material Issues.
CO5	Explain the Budgetary control system and Prepare the various types of budgets.

SEMESTER – V

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U5ITCT15	Core 15:ASP.Net and C#	Batch	2018-2021
			Semester	V
Hours/week	5		Credits	4

COURSE OBJECTIVES

To enable the students

To learn about the basic concepts of ASP .NET.

To learn about the ASP .NET object model and its architecture.

To learn about the C# and its functions.

Understand about ASP.Net environment and its applications

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain about ASP.Net environment and its applications.
CO2	Know about the various forms in Visual Basic and Session controls.
CO3	Write various applications using C# Language in the .NET Framework.
CO4	Develop distributed applications using .NET Framework.
CO5	Create various applications using C#.Net framework

SEMESTER – V

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U5ITCT1	CORE 16: PHP AND MYSQL	Batch	2018-2021
	6		Semester	V
Hours/week	5		Credits	4

COURSE OBJECTIVES:

To understand the general concepts of PHP scripting language for the development of Internet websites.

To understand the basic functions of MySQL database program.

To learn the relationship between the client side and the server side scripts.

To develop a final project using the learned techniques.

To Understand the post and publish process in PHP .

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Use a PHP editing program and develop functional PHP script.
CO2	Explain how to post and publish a PHP website.
CO3	Convert current HTML based websites to integrate PHP and a database
CO4	De-bug PHP code and fix database problems.Develop Database connectivity using MySQL.
CO5	Debug script and develop Web Applications.

SEMESTER V

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U5ITCP17	Core 17 : ASP .NET AND C# - PRACTICAL	Batch	2018-2021
			Semester	V
Hours/week	6		Credits	4

COURSE OBJECTIVES

To enable the students to gain knowledge about the teaching methodologies useful for the implementation and console based application and web based application.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Design, create, build, and debug arithmetic operations for displaying numeric output using .NET applications.
CO2	Developing a console application in ASP .NET.
CO3	Compute different operations using looping statements.
CO4	Developing applications using C#

SEMESTER -V

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U5ITCP18	CORE 18 : PHP AND MY SQL -PRACTICAL	Batch	2018-2021
			Semester	V
Hours/week	6		Credits	3

COURSE OBJECTIVE:

To enable the students to gain knowledge in developing PHP and MySQL Programs for certain specified problems.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Write PHP code to produce outcomes and solve problems.
CO2	Display and insert data using PHP and MySQL.
CO3	Test, debug, and deploy web pages containing PHP and MySQL.

SEMESTER VI

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U6ITCT19	Core 19:SOFTWARE TESTING	Batch	2018-2021
			Semester	VI
Hours/week	5		Credits	4

COURSE OBJECTIVES

To make the students to understand Software Testing principles.

To discuss the distinctions between types of testing.

To understand the essential characteristics of tool used for test automation.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	List a range of different software testing techniques and strategies and be able to apply specific(automated) unit testing method to the projects.
CO2	Distinguish characteristics of structural testing methods
CO3	Demonstrate the integration testing which aims to uncover interaction and compatibility problems as early as possible
CO4	Discuss about the functional and system testing methods.
CO5	Demonstrate various issues for object oriented testing with planning, Management, Execution, and Reporting.

SEMESTER – VI

Programme Code	B.Sc.IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	18U6ITCT20	Core 20 : Operations Of E-Wallet And Information Security	Batch	2018-2021
			Semester	VI
Hours/week	6		Credits	3

Course Objectives:

To learn about the basic operations of E-Wallet and Information Security.

To Acquire knowledge in Risk Management and Planning.

To understand the concepts of Logical and Physical Design.

To enhance the key concepts of Security Technology.

COURSE OUTCOMES (CO)

At the end of the practical session, students would be well-versed in

CO Number	CO Statement
CO1	Explain the usage and operations of E-wallets
CO2	Explain the need of Information Security, polices, standards
CO3	Explain the various kinds of security technologies available.
CO4	Describe the information security implementation and maintenance models.
CO5	Describe the concepts of Information Security.

SEMESTER VI

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U6ITCP2	Core 21:SOFTWARE TESTING -PRACTICAL	Batch	2018-2021
Hours/week	5		Semester	VI
			Credits	3

COURSE OBJECTIVES

To enable the students to gain software testing experience by applying software testing knowledge and methods to practice-oriented software testing projects.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Implement Apache Jmeter Testing Tool for performance.
CO2	Analyze the Apache Jmeter Testing tool with suitable problem.
CO3	Develop the test cases for mathematical calculations.
CO4	Develop the test cases for Java programs.

SEMESTER-V

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	18U5ITET1A	ELECTIVE 1: DATA MINING AND WAREHOUSING	Batch	2018-2021
Hours/week	4		Semester	V
			Credits	3

COURSE OBJECTIVES:

- To enable the students
- To know the basics of data mining and warehousing.
- To Understand various techniques in data mining.
- To learn about architecture of data warehouse and its applications

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the present survey on different learning, classification and data mining foundations.
CO2	Explain the various methods of Data Mining applications.
CO3	Solve problems for multi-core or distributed, concurrent/Parallel environments.
CO4	Discuss the latest trends and advances in data mining and warehousing.
CO5	Discuss the case study on Data warehouse.

SEMESTER- V

Programme Code	B.Sc IT	Programme Title	Bachlor of Science (Information Technology)	
Course Code	18U5ITET1B	ELECTIVE 1: Internet of Things	Batch	2018-2021
			Semester	V
Hours/week	4		Credits	3

COURSE OBJECTIVES

To understand state of the art IoT architecture,real world IoT deisgn constraints,industrial automation and commercial building automation in IoT.

To understand the data analytics and cloud in the context of IoT

To understand the concepts of SOCRADES

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the concept of IoT.
CO2	Analyze various protocols for IoT.
CO3	Analyze applications of IoT in real time scenario
CO4	Explain the data analytics and cloud in the context of IoT
CO5	Explain the concepts of SOCRADES.

SEMESTER- V

Programme Code	B.Sc IT	Programme Title	Bachlor of Science (Information Technology)	
Course Code	18U5ITET1C	ELECTIVE 1: Enterprise Resource Planning	Batch	2018-2021
Hours/week	4		Semester	V
			Credits	3

COURSE OBJECTIVES

To develop the capability to streamline the differnt organizational process and work flows in ERP.
To understand the ways of improving efficiency,performance and productivity levels of ERP projects.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Make basic use of Enterprise software, and its role in integrating business functions
CO2	Analyze the strategic options for ERP identification and adoption
CO3	Design the ERP implementation strategies.
CO4	Create reengineered business processes for successful ERP implementation.
CO5	Analyze a current architecture and perform an effective gap analysis before an ERP implementation

SEMESTER- V

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	18U5ITET2A	ELECTIVE 2: WEB TECHNOLOGY AND ITS APPLICATIONS	Batch	2018-2021
			Semester	V
Hours/week	4		Credits	3

COURSE OBJECTIVES: To enable the students
To learn about the basic concepts of various networking model and its layers.
To learn about the concepts of protocol and its architecture.
To learn about the Scripting Languages and XML.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Define the fundamental ideas and standards underlying OSI Model.
CO2	Differentiate the major frameworks allowing to develop Tcp/IP and UDP and assess their suitability for specific usage scenarios.
CO3	Explain the link between the concepts of services and business processes and discuss and critique related standards.
CO4	Define the fundamental of scripting languages.
CO5	Write a valid XML Script.

SEMESTER- V

Programme Code	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code	18U5ITET2B	ELECTIVE 2: INTERNETWORKING WITH TCP / IP	Batch	2018-2021
Hours/week	4		Semester	V
			Credits	3

COURSE OBJECTIVES: To enable the students
To learn about the basic concepts of Internetworking and its various protocols.
To learn about the concepts of protocol addressing.
To learn about the Email transactions and its protocol.

COURSE OUTCOMES (CO):

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the computer networking, and basic network services
CO2	Define layers of the OSI model; identify the protocols, and services associated with each layer.
CO3	Recognize and describe logical and physical network topologies in terms of media and network hardware.
CO4	Justify information security issues in computer networks.
CO5	Describe current common protocols in terms of their function, routing, addressing schemes, interoperability, and naming conventions.

SEMESTER- V

Programme Code	B.Sc IT	Programme Title	Bachlor of Science (Information Technology)	
Course Code	18USITET2C	ELECTIVE 2: SOFTWARE PROJECT MANAGEMENT	Batch	2018-2021
Hours/week	4		Semester	V
			Credits	3

COURSE OBJECTIVES

To enable the students

- To get knowledge on how to handle project development activities.
- To understand the threats and opportunities in Project Managements.
- To study various project cost, time estimation models.
- To study on how to make quality software products.
- To study management issues like team structure and group dynamics.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Select and implement different software development process models
CO2	Extract and analyze software requirements specifications for different projects.
CO3	Develop some basic level of software architecture.
CO4	Explain the concepts and importance of Software project management concepts like cost estimation, scheduling and reviewing the progress
CO5	Apply different testing and debugging techniques and analyzing their effectiveness.

SEMESTER- VI

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U6ITET3	ELECTIVE 3 : ARTIFICIAL INTELLIGENT AND EXPERT SYSTEM	Batch	2018-2021
	A		Semester	VI
Hours/week	4		Credits	3

COURSE OBJECTIVES

To enable the students

To Understand different planning problems and have the basic knowledge how to design and implement AI planning systems

Understand the strengths and limitations of various state-space search algorithms and choose the appropriate algorithms for a problem

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the strengths and limitations of various state-space search algorithms and choose the appropriate algorithms for a problem
CO2	Learn the basics of the theory and practice of Artificial Intelligence as a discipline about intelligent agents capable of decision making.
CO3	Apply knowledge representation techniques and problem solving strategies to common AI applications
CO4	Design simple software to experiment with various AI concepts and analyze results
CO5	Build self-learning and research skills to be able to tackle a topic of interest on his/her own or as part of a team

SEMESTER- VI

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U6ITET3	ELECTIVE 3 : SOFTWARE ENGINEERING	Batch	2018-2021
Hrs/week	4		Semester	VI
			Credits	3

COURSE OBJECTIVES

To enable the students

To understand various techniques of cost estimation of software , software design and software Requirements and various issues in implementation of software , verification , validation and maintenance of software to give a roadmap to design a new software project.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the principles at various phases of software development
CO2	Analyze and identify an appropriate process model for a given project
CO3	Discuss the software project estimation models and estimate the work to be done, resources required and the schedule for a software project
CO4	Translate specifications into design, and identify the components to build the architecture for a given problem, all using an appropriate software engineering methodology
CO5	Define a Project Management Plan and tabulate appropriate Testing Plans at different levels during the development of the software

SEMESTER- VI

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U6ITET3C	Elective 3: MOBILE AND WIRELESS TECHNOLOGY	Batch	2018-2021
Hours/week	4		Semester	VI
			Credits	3

COURSE OBJECTIVES

To enable the students

To learn the wireless communication on digital mobile communication system and integration of services and applications from fixed networks into networks supporting mobility of end user and wireless access .

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Explain the basics of radio access and networks
CO2	Learn to simulate wireless networks and analyze the simulation results
CO3	Describe the concepts of ad hoc networks, design and implementation issues, and available solutions
CO4	Apply knowledge of wireless sensor networks to various application areas
CO5	Explain advanced knowledge of networking and wireless networking

SEMESTER VI

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U6ITET4A	Elective: 4 COMPILER DESIGN	Batch	2018-2021
Hours/week	4		Semester	VI
			Credits	3

COURSE OBJECTIVES

To enable the students

To learn the fundamentals of Compiler Designs and its knowledge on High level Programming languages .

Understand the basics of compilation(computing) and grammar of compilers

Understand the intermediate form of codes in compilers and the code generation technique(Machine code)

Understand the optimization of code in compilers

COURSE OUTCOMES

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the basics of compilation(computing)
CO2	Discuss the grammar of compilers.
CO3	Discuss the intermediate form of codes in compilers
CO4	Explain the code generation technique(Machine code)
CO5	Discuss the optimization of code in compilers

SEMESTER VI

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U6ITET4B	Elective :4 MOBILE OPERATING SYSTEM	Batch	2018-2021
Hours/week	4		Semester	VI
			Credits	3

COURSE OBJECTIVES

To enable the students

To understand the process of developing software for the mobile and create mobile applications on the Android Platform.

To understand the limitations and challenges of working in a mobile and wireless environment.

To learn how and when to apply the different components to develop a working system

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Explain the limitations and challenges of working in a mobile and wireless environment.
CO2	Describe and apply the different types of application models/architectures used to develop mobile software applications.
CO3	Describe the components and structure of a mobile development frameworks (Android SDK and Eclipse Android Development Tools)
CO4	To learn how and when to apply the different components to develop a working system
CO5	Design, implement and deploy mobile applications using an appropriate software development environment.

SEMESTER VI

Programme Code :	B.Sc IT	Programme Title	Bachelor of Science (Information Technology)	
Course Code :	18U6ITET4C	Elective 4:CLOUD COMPUTING	Batch	2018-2021
Hours/week	4		Semester	VI
			Credits	3

COURSE OBJECTIVES

To enable the students

To understand security implications in cloud computing

To understand the Cloud computing architectures, applications and challenges and learn about various cloud storages

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the security implications in cloud computing
CO2	Analyse the trade-offs inherent in cloud computing
CO3	Identify the architecture and infrastructure of cloud computing, including Service models and Cloud Access.
CO4	Explain the core issues of cloud computing such as security, privacy, and interoperability
CO5	Identify problems, and explain, analyze, and evaluate various cloud computing solutions

**KOVAI KALAIMAGAL COLLEGE OF ARTS & SCIENCE
(Autonomous)
Coimbatore – 641 109**

**DEPARTMENT OF INFORMATION TECHNOLOGY
PROGRAMME OUTCOMES (PO) OF
M.Sc (IT)**

**For the students admitted In the
Academic Year 2020-2021**

PROGRAMME OUTCOMES (PO)

After completion of two years of study, our M.Sc IT Graduates will be able to :

- PO1:** Demonstrate English language proficiency to an appropriate level to perform effectively in the enterprise/industry/Community such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.
- PO2:** Develop domain knowledge relevant to the industry enabling to succeed in rapidly changing working environment.
- PO3:** Ability to apply the knowledge of computer system design principles in building system software and hardware.
- PO4:** Acquiring adequate knowledge in inter-disciplinary subjects such as Commerce, Mathematics and Statistics for enhanced applications of software developed.
- PO5:** Developing positive attitude by instilling confidence in the minds of students by suitable programs.
- PO6:** An ability to make the students think out of the box and solve complex problems arising in shop floor situation.
- PO7:** Work individually or as a team with responsibility to function on multidisciplinary teams.
- PO8:** Carrying out the task assigned by the industries with professional ethics and at the same time with the consent for well being of the society.
- PO9:** An ability to recognize their own strengths and weaknesses and balance their own emotions at the time of crisis
- PO10:** An ability to acquire entrepreneurship qualities and to take efforts to become entrepreneurs.
- PO11:** Extend the services of the department for the betterment of the society and environmental protection.
- PO12:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

**KOVAI KALAIMAGAL COLLEGE OF ARTS & SCIENCE
(Autonomous)
Coimbatore – 641 109**

**DEPARTMENT OF INFORMATION TECHNOLOGY
PROGRAMME OUTCOMES (PO) OF
M.Sc (IT)**

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

PROGRAMME OUTCOMES (PO)

After completion of two years of study, our M.Sc IT Graduates will be able to :

- PO1:** Demonstrate English language proficiency to an appropriate level to perform effectively in the enterprise/industry/Community such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.
- PO2:** Develop domain knowledge relevant to the industry enabling to succeed in rapidly changing working environment.
- PO3:** Ability to apply the knowledge of computer system design principles in building system software and hardware.
- PO4:** Acquiring adequate knowledge in inter-disciplinary subjects such as Commerce, Mathematics and Statistics for enhanced applications of software developed.
- PO5:** Developing positive attitude by instilling confidence in the minds of students by suitable programs.
- PO6:** An ability to make the students think out of the box and solve complex problems arising in shop floor situation.
- PO7:** Work individually or as a team with responsibility to function on multidisciplinary teams.
- PO8:** Carrying out the task assigned by the industries with professional ethics and at the same time with the consent for well being of the society.
- PO9:** An ability to recognize their own strengths and weaknesses and balance their own emotions at the time of crisis
- PO10:** An ability to acquire entrepreneurship qualities and to take efforts to become entrepreneurs.
- PO11:** Extend the services of the department for the betterment of the society and environmental protection.
- PO12:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

KOVAI KALAIMAGAL COLLEGE OF ARTS & SCIENCE
(Autonomous)
Coimbatore – 641 109

DEPARTMENT OF INFORMATION TECHNOLOGY
PROGRAMME OUTCOMES (PO) OF
M.Sc (IT)

For the students admitted In the
Academic Year 2018-2019

PROGRAMME OUTCOMES (PO)

After completion of two years of study, our M.Sc IT Graduates will be able to:

PO1: Demonstrate English language proficiency to an appropriate level to perform effectively in the enterprise/industry/Community such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.

PO2: Develop domain knowledge relevant to the industry enabling to succeed in rapidly changing working environment.

PO3: Ability to apply the knowledge of computer system design principles in building system software and hardware.

PO4: Acquiring adequate knowledge in inter-disciplinary subjects such as Commerce, Mathematics and Statistics for enhanced applications of software developed.

PO5: Developing positive attitude by instilling confidence in the minds of students by suitable programs.

PO6: An ability to make the students think out of the box and solve complex problems arising in shop floor situation.

PO7: Work individually or as a team with responsibility to function on multidisciplinary teams.

PO8: Carrying out the task assigned by the industries with professional ethics and at the same time with the consent for well being of the society.

PO9: An ability to recognize their own strengths and weaknesses and balance their own emotions at the time of crisis

PO10: An ability to acquire entrepreneurship qualities and to take efforts to become entrepreneurs.

PO11: Extend the services of the department for the betterment of the society and environmental protection.

PO12: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

KOVAI KALAIMAGAL COLLEGE OF ARTS AND SCIENCE

An Autonomous Institute, Affiliated to Bharathiar University, Coimbatore.

Re-Accredited with 'A' Grade by NAAC

Narasipuram, Coimbatore -641109

COURSE OUTCOMES (CO) OF MASTER OF INFORMATION TECHNOLOGY

For the Students Admitted in the
Academic year 2020-2021.

SEMESTER I

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P1ITCT01	Core 1 : Advanced Java Programming	Batch	2020-2022
			Semester	I
Hrs/week	4		Credits	4

COURSE OBJECTIVES

To enable the students

- To enable the students to provide an indepth knowledge about the concepts of language structure, program divisions of JAVA .
- Ability to design console based, GUI based programming language and Web based applications
- Understand the concept of JSP,Servlet Basics and JDBC and Inter Servlet Communications.
- Understand the Java Bean Component model.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the fundamental concepts of Java language.
CO2	Use GUI components from AWT and Swing including buttons and text components
CO3	Illustrate the methods to send and receive data through sockets
CO4	Describe the concept of JSP,Servlet Basics and JDBC
CO5	Summarize the concepts of JavaBean

SEMESTER I

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	20P1ITCT02	Core 2: Network Security	Batch	2020-2022
			Semester	I
Hrs/week	4		Credits	4

COURSE OBJECTIVES

To enable the students

- Understand the fundamental principles of Network, various network, cryptographic techniques, authentication and its standards.
- Understand the various methods of password management and protocols to maintain system security
- Understand various types of attacks and their characteristics
- Learn the security concepts exposed to original research in network security

COURSE OUTCOMES (CO)

On successful completion of the course the student should be able to

CO Number	CO Statement
CO1	Explain various types of attacks and their characteristics
CO2	Illustrate the basic concept of encryption and decryption for secure data transmission.
CO3	Describe the fundamentals of secret and public cryptography
CO4	Describe the various methods of password management and protocols to maintain system security
CO5	Survey the security concepts exposed to original research in network security

SEMESTER I

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P1ITCT03	Core 3 : Cyber Laws and Security Policies	Batch	2020-2022
Hrs/week	3		Semester	I
			Credits	3

COURSE OBJECTIVES

To enable the students

- Understand the Basics of Cyber Law and Cyber Security.
- Identify how intruders escalate privileges and what steps can be taken to secure a system.
- Introduce and demonstrate hacking tools for penetration testing purposes only.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the basic concepts of Cyber Law & Ethics of Cyber Law.
CO2	Indicate the various Data Encryption Methodologies.
CO3	Enumerate about the Cyber Crime factors & Preventive Measures.
CO4	Demonstrate the use of Digital Signatures & Certificates.
CO5	Recognize and Detect Cyber Attacks.

SEMESTER I

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	20P1ITCT04	Core 4: Design and Analysis of Algorithms	Batch	2020-2022
			Semester	I
Hrs/week	4		Credits	4

COURSE OBJECTIVES

To enable the students

- To enable the students to write efficient algorithms for simple computational tasks and reasoning about the correctness of them.
- To Understand different design strategies and the use of data structures in improving algorithmic performance.
- To Understand the security concepts exposed to original research in network security
- To enable the students to learn the Branch and Bound Techniques

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Analyze the asymptotic performance of algorithms
CO2	Differentiate different algorithmic approaches, techniques and methods
CO3	Apply design and analysis techniques for a given algorithm.
CO4	Apply optimization techniques for improving the efficiency of algorithms.
CO5	Find optimal solution by applying various methods

SEMESTER I

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P1ITCP05	Core 5: Advanced Java Programming- Practical	Batch	2020-2022
Hrs/week	4		Semester	I
			Credits	4

COURSE OBJECTIVES

To enable the students

- To enable the students to gain knowledge in developing Java Programs for certain specified problems.
- To understand the basics of various applications using servlet communications.
- To understand the concepts of virtual functions and control structures

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Develop programs in Java to demonstrate Classes and objects
CO2	Use various types constructors and JFC.
CO3	Apply the concepts of virtual functions and control structures.
CO4	Design various applications using servlet communications.
CO5	Demonstrate Bean Development Environment and JSP Scripts.

SEMESTER I

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	20P1ITCP06	Core 6 :Design and Analysis of Algorithms - Practical	Batch	2020-2022
Hrs/week	3		Semester	I
			Credits	3

COURSE OBJECTIVES

To enable the students

- To enable the students to gain knowledge about the teaching methodologies useful for the implementation and empirical evaluation of various algorithms and to efficiently implement the solutions for specific problems.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Identify the problem given and design the algorithm using various algorithm design techniques.
CO2	Implement various algorithms in a high level language
CO3	Analyze the performance of various algorithms.
CO4	Compare the performance of different algorithms for same problem.

SEMESTER II

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	20P2ITCT07	Core 7: Distributed Computing And Linux	Batch	2020-2022
Hrs/week	5		Semester	II
			Credits	4

COURSE OBJECTIVES

To enable the students

- To enable the students to provide an indepth knowledge about the concepts of Distributed computing and enable the students to write programs using Linux.
- To understand the concept of distributed process and communication.
- To understand the concept of Linux,file managemet operation and shell script.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Discuss the concept of distributed system,types and its architecture
CO2	Describe the concept of distributed process and communication
CO3	Summarize the distributed synchronization and its algorithms
CO4	Use the Fault Tolerance and Client-Server Communication
CO5	Summarize the concepts of Linux,file managemet operation and shell script.

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P2ITCT08	Core 8 : Python Programming	Batch	2020-2022
			Semester	II
Hrs/week	4		Credits	3

COURSE OBJECTIVE:

To enable the students

- To enable the students to Learn Syntax, semantics and create Functions in Python.
- To Understand Regular expressions in constructing Data Structures and Build Web Services.
- To understand the Data Structures using Python
- Understand the concepts of Regular Expressions and Object-Oriented programming as used in Python

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Exposed to Python syntax and semantics and be fluent in the use Python flow control and functions.
CO2	Create and run Python Programs using Lists, Dictionaries and handle File Systems.
CO3	Explain the concepts of Regular Expressions and Object-Oriented programming as used in Python.
CO4	Build Data Structures using Python.
CO5	Create programming projects from scratch using in-demand skill and technologies

SEMESTER II

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	20P2ITCT09	Core 9: Object Oriented Analysis and Design	Batch	2020-2022
Hrs/week	4		Semester	II
			Credits	3

COURSE OBJECTIVES

To enable the students

- To specify, analyze and design the use case driven requirements for a particular system and helps to model the event driven state of object and transform them into implementation specific layouts.
- Understands the UML programming by exploiting the objects in the real world.
- Understands the UML programming by exploiting the objects in the real-time

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Analyze and design the use case driven requirements for a particular system
CO2	Analyze and identify the subsystems, various components and collaborate them interchangeably
CO3	Recollect about the basic functionality of object and to know how objects work with different methodologies.
CO4	To analyse the problem and tends to refine the problem into concepts.
CO5	Describe the UML programming by exploiting the objects in the real world.

SEMESTER II

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	20P2ITCT10	Core 10: Big Data Analytics	Batch	2020-2022
			Semester	II
Hrs/week	5		Credits	4

COURSE OBJECTIVES

To enable the students

- To enable the students to provide the knowledge about the Big Data Fundamentals, including the characteristics of Big Data, the sources Big Data (such as social media, sensor data, geospatial data etc),
- To enable the students to understand the challenges imposed around information management, data analytics, privacy and security, as well as platforms and architectures
- Understand the the concepts of HDFS and MapReduce framework

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the the concepts of HDFS and MapReduce framework
CO2	Explain the Hadoop 2.x Architecture
CO3	Implement HBase and MapReduce Integration
CO4	To analyse the problem and tends to refine the problem into concepts. Implement best Practices for Hadoop Development
CO5	Work on a Real Life Project on Big Data Analytics

SEMESTER II

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	20P2ITCP11	Core 11:Linux - Practical	Batch	2020-2022
			Semester	II
Hrs/week	4		Credits	3

COURSE OBJECTIVES

To enable the students

- To develop the applications using Linux Programming.
- To apply the concepts of shell script and linux programming

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Learn to know the working of RMI and RPC
CO2	Know the concept working in synchronization
CO3	How to make, remove, rename, copy and move files and directories
CO4	Learn to identify and change the permissions of files and directories and what the consequences of these are.
CO5	Learn to write shell scripting.

SEMESTER II

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P2ITCP12	Core 12 :Python Programming- Practical	Batch	2020-2022
			Semester	II
Hrs/week	4		Credits	3

COURSE OBJECTIVES

To enable the students

- To write, test, and debug simple Python programs.
- To develop the applications using Python programming language.

COURSE OUTCOMES:

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Develop proficiency in creating applications, testing and debugging of code written in Python using the Python Programming Language.
CO2	Understand the various data structures available in Python programming language and apply them in solving computational problems.
CO3	Perform text filtering with regular expressions in Python
CO4	Draw various kinds of plots using PyLab

SEMESTER II

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	20P2ITET1A	Elective 1 : Grid Computing	Batch	2020-2022
			Semester	II
Hrs/week	4		Credits	4

COURSE OBJECTIVES

To enable the students

- To be familiar with the fundamental components of Grid environments, such as authentication, authorization, resource access, and resource discovery.
- To design and implement Grid computing applications using Globus or similar toolkits .
- To justify the applicability, or non-applicability, of Grid technologies for a specific application.
- To understand where the grid computing could be effectively utilized by illustrations of applications of grid computing.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain various Grid Standards, Principles, Approaches , Methods in Grid Environment.
CO2	Know the application, History, learning and Motivation theories in assessing the Economic Strategy and Satisfaction.
CO3	Describe the grounding in the architecture of the Grid, and exposure to various implementations of the infrastructure.
CO4	Evaluate the Grid Service Taxonomy, functionalities in Grid Service Architecture.
CO5	Explain the various applications of grid computing.

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P2ITET1B	Elective 1 : Introduction to Robotics	Batch	2020-2022
			Semester	II
Hrs/week	4		Credits	4

COURSE OBJECTIVES

To enable the students

- To learn the basic concepts of Robots and the concepts of Kinematics of Robotics
- To learn the concepts of Motions, velocities and dynamic analysis of force
- To understand the concepts of Motion planning and Trajectory Planning
- To understand the concepts Actuators and sensors.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the basic concepts of Robots.
CO2	Describe the working kinematics of Robots
CO3	Explain the concept of motion, velocities and dynamic forces
CO4	Realise the Motion and Trajectory planning
CO5	Explain the different Actuators and Sensors.

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P2ITET1C	Elective 1 : Bioinformatics	Batch	2020-2022
			Semester	II
Hrs/week	4		Credits	4

COURSE OBJECTIVES:

To enable the students

- To understand the basic concepts in molecular biology and genetics.
- To understand the various methods of phylogenetic tree construction
- To understand the various techniques of proteomics.
- To understand the structure and functions of the genomes.
- To know the application areas of bioinformatics.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Describes about the concepts of molecular biology.
CO2	Interpret the characteristics of phylogenetic methods
CO3	Explain the pair wise sequence alignment methods.
CO4	Explain the protein synthesis in eukariotic cells.
CO5	Describe the various bioinformatics applications.

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P2ITET1D	Elective 1 : Wireless Communication	Batch	2020-2022
Hrs/week	4		Semester	II
			Credits	4

COURSE OBJECTIVES

To enable the students

- To understand the basics of wireless voice and data communication technologies.
- To study the working principles of wireless LAN and its standards .
- To build working knowledge on various telephone and satellite networks.
- To build knowledge on various Mobile Computing algorithms.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Recognize various bandwidth Coherences and various Channels.
CO2	Explain the Cellular concepts and Frequency coverage calculations.
CO3	Elucidate the Wireless computing Algorithms and Technologies.
CO4	Identify two core networks associated with 3G Cellular networks
CO5	Compare the data transfer rates with those over Wireless LAN

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P3ITCT13	Core 13: Web Data Mining	Batch	2020-2022
			Semester	III
Hours/week	4		Credits	4

COURSE OBJECTIVES

To enable the students

- Understand the difference between web content mining, web structure mining and web usage mining and their applications.
- Understand the web content mining in accordance with machine learning concepts.
- Understand to extract the structured data from some fixed templates and extracting enables us to separate the particular data from multiple sources.
- Understand the automatic discovery of meaningful patterns and relationships from the large collection of semi-structured data.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Classify the difference between web content mining, web structure mining and web usage mining and their applications.
CO2	Summarize the web content mining in accordance with machine learning concepts.
CO3	Communicate the diverse concepts of object ranking, group detection, collective classification, link prediction and sub graph discovery to build various models in linked data.
CO4	Focusing on extracting the structured data from some fixed templates and extracting enables us to separate the particular data from multiple sources.
CO5	Explain the automatic discovery of meaningful patterns and relationships from the large collection of semi-structured data.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P3ITCT14	Core 14: Advanced Computer Networks	Batch	2020-2022
			Semester	III
Hours/week	4		Credits	4

COURSE OBJECTIVES

To enable the students

- To learn the basic computer network technology.
- To enhance the knowledge about digital transmission methods.
- To Identify the different types of network topologies.
- To learn different protocols used for transmission of data in various layers.
- To learn about user networks interfaces and protocols of ATM and its operations and maintenance.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the Data Communications System and its components.
CO2	Describe routing and congestion in network layer with routing algorithms
CO3	master the terminology and concepts of the OSI reference models and TCP/IP
CO4	Illustrate applications of Computer Network capabilities, selection and usage for various sectors of user community.
CO5	Explain the concepts of ATM and its Methods.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P3ITCT15	Core 15: Internet of Things	Batch	2020-2022
			Semester	III
Hours/week	4		Credits	3

COURSE OBJECTIVES:

To enable the students

- To know the basics of data mining and warehousing.
- To Understand various techniques in data mining.
- To learn about architecture of data warehouse and its applications

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the concept of IoT.
CO2	Analyze various protocols for IoT.
CO3	Analyze applications of IoT in real time scenario
CO4	Explain the data analytics and cloud in the context of IoT
CO5	Explain the concepts of SOCRADES.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P3ITCT16	Core 16: Web Programming	Batch	2020-2022
			Semester	III
Hours/week	4		Credits	3

COURSE OBJECTIVES:

To enable the students

- To learn about the basic concepts of various computer and internet.
- To learn about the concepts of cascading style sheet.
- To learn about the Java Scripts and XML.
- To learn about the various web servers.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Gain deep understanding of the use and implementation of HTML 5 tags.
CO2	Understand the CSS, the role of JavaScript in web page creation.
CO3	Program, access, and manipulate data through the adoption of accepted standards, mark-up languages, client-side programming, and server-side programming
CO4	Predict the need of various web servers
CO5	To know about the client side scripting.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P3ITCP17	Core 17: Network - Practical	Batch	2020-2022
			Semester	III
Hrs/week	4		Credits	3

COURSE OBJECTIVES

To enable the students

- To learn the digital networks & internet protocols
- To have a clear idea about various functions of TCP and UDP.
- To learn about user networks interfaces and protocols of on B-ISDN and its operations and maintenance.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Demonstrate LAN and WAN protocol behavior using Modern Tools.
CO2	Analyze data flow between peer to peer in an IP network using Application, Transport and Network Layer Protocols.
CO3	Demonstrate basic configuration of switches and routers.
CO4	Develop Client - Server architectures and prototypes by the means of correct standards and technology
CO5	Demonstrate basic configuration of TCP and UDP Sockets.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P3ITCP18	Core 18: Web Programming - Practical	Batch	2020-2022
			Semester	III
Hrs/week	4		Credits	3

COURSE OBJECTIVE:

To enable the students

- Design the concept and usages of web based programming techniques.
- Develop the HTML documents using JavaScript and CSS.
- Use of different types of server side Applications
- Design and implement user interactive dynamic web based applications.
- Implement XML Namespace & PHP Programming.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Demonstrating the concept and usages of web based programming techniques.
CO2	Demonstrating HTML Programs using JavaScript and CSS.
CO3	Demonstrating the different types of server side Applications
CO4	Designing interactive dynamic web based applications.
CO5	Demonstrating XML Namespace & PHP Programming.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P3ITET2A	Elective 2 : Soft Computing	Batch	2020-2022
Hours/week	4		Semester	III
			Credits	4

COURSE OBJECTIVES

To enable the students

- To enable the Students to learn the basic concepts of Soft Computing.
- To become familiar with various techniques like neural networks, genetic algorithms and fuzzy systems.
- To apply soft computing techniques to solve problems.
- To understand the basic principles and working of Genetic Algorithms.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Apply suitable soft computing techniques for various applications.
CO2	Integrate various soft computing techniques for complex problems.
CO3	Explain the basic principles and working of Genetic Algorithms.
CO4	Summarize the basic Fuzzy Principles and fuzzy logic.
CO5	Describe the concept of neural networks and its applications.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P3ITET2B	Elective 2 : Embedded System	Batch	2020-2022
Hrs/week	4		Semester	III
			Credits	4

COURSE OBJECTIVES

To enable the students

- To learn the architecture and programming of ARM processor.
- To become familiar with the embedded computing platform design and analysis.
- To get thorough knowledge in interfacing concepts
- To design an embedded system and to develop programs

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Describe the architecture and programming of ARM processor
CO2	Explain the Concepts of peripherals and interfacing of sensors.
CO3	Capable of using the system design techniques to develop firmware
CO4	Illustrate the code for constructing a system
CO5	Explain the concepts of embedded systems.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P3ITET2C	Elective 2:Cloud Computing	Batch	2020-2022
Hrs/week	4		Semester	II
			Credits	4

COURSE OBJECTIVES

To enable the students

- To understand security implications in cloud computing
- To understand the Cloud computing architectures, applications and challenges and learn about various cloud storages

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the security implications in cloud computing
CO2	Analyse the trade-offs inherent in cloud computing
CO3	Identify the architecture and infrastructure of cloud computing, including Service models and Cloud Access.
CO4	Explain the core issues of cloud computing such as security, privacy, and interoperability
CO5	Identify problems, and explain, analyze, and evaluate various cloud computing solutions

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	20P3ITET2D	Elective 2:Software Quality Assurance	Batch	2020-2022
Hrs/week	4		Semester	II
			Credits	4

COURSE OBJECTIVES

To enable the students

- To understand the importance and types of testing
- To understand the test strategy and execution and test automation

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the software Development Life Cycles
CO2	Analyse the various types of testing
CO3	Explain the types of test cases
CO4	Explain the test Strategy And Execution
CO5	Identify the testing automation

**KOVAI KALAIMAGAL COLLEGE OF ARTS AND
SCIENCE**

An Autonomous Institute, Affiliated to Bharathiar University, Coimbatore.
Re-Accredited with 'A' Grade by NAAC
Narasipuram, Coimbatore -641109

**COURSE OUTCOMES (CO)
OF
MASTER OF INFORMATION TECHNOLOGY**

For the Students Admitted in the
Academic year 2019-2020.

SEMESTER I

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P1ITCT01	Core 1 : Advanced Java Programming	Batch	2019-2021
			Semester	I
Hrs/week	4		Credits	4

COURSE OBJECTIVES

To enable the students

- To enable the students to provide an indepth knowledge about the concepts of language structure, program divisions of JAVA .
- Ability to design console based, GUI based programming language and Web based applications
- Understand the concept of JSP,Servlet Basics and JDBC and Inter Servlet Communications.
- Understand the Java Bean Component model.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the fundamental concepts of Java language.
CO2	Use GUI components from AWT and Swing including buttons and text components
CO3	Illustrate the methods to send and receive data through sockets
CO4	Describe the concept of JSP,Servlet Basics and JDBC
CO5	Summarize the concepts of JavaBean

SEMESTER I

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	19P1ITCT02	Core 2: Network Security	Batch	2019-2021
			Semester	I
Hrs/week	4		Credits	4

COURSE OBJECTIVES

To enable the students

- Understand the fundamental principles of Network, various network, cryptographic techniques, authentication and its standards.
- Understand the various methods of password management and protocols to maintain system security
- Understand various types of attacks and their characteristics
- Learn the security concepts exposed to original research in network security

COURSE OUTCOMES (CO)

On successful completion of the course the student should be able to

CO Number	CO Statement
CO1	Explain various types of attacks and their characteristics
CO2	Illustrate the basic concept of encryption and decryption for secure data transmission.
CO3	Describe the fundamentals of secret and public cryptography
CO4	Describe the various methods of password management and protocols to maintain system security
CO5	Survey the security concepts exposed to original research in network security

SEMESTER I

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P1ITCT03	Core 3 : Cyber Laws and Security Policies	Batch	2019-2021
			Semester	I
			Credits	

COURSE OBJECTIVES

To enable the Students

- Understand the Basics of Cyber Law and Cyber Security.
- Identify how intruders escalate privileges and what steps can be taken to secure a system.
- Introduce and demonstrate hacking tools for penetration testing purposes only.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the basic concepts of Cyber Law & Ethics of Cyber Law.
CO2	Indicate the various Data Encryption Methodologies.
CO3	Enumerate about the Cyber Crime factors & Preventive Measures.
CO4	Demonstrate the use of Digital Signatures & Certificates .
CO5	Recognize and Detect Cyber Attacks.

SEMESTER I

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)
Course Code :	19P1ITCT04	Core 4: Design and Analysis of Algorithms	Batch 2019-2021
Hrs/week	4		Semester I
			Credits 4

COURSE OBJECTIVES

To enable the students

- To enable the students to write efficient algorithms for simple computational tasks and reasoning about the correctness of them.
- To understand different design strategies and the use of data structures in improving algorithmic performance.
- To Understand the security concepts exposed to original research in network security
- To enable the students to learn the Branch and Bound Techniques

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Analyze the asymptotic performance of algorithms
CO2	Differentiate different algorithmic approaches, techniques and methods
CO3	Apply design and analysis techniques for a given algorithm.
CO4	Apply optimization techniques for improving the efficiency of algorithms.
CO5	Find optimal solution by applying various methods

SEMESTER I

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P1ITCP05	Core 5: Advanced Java Programming- Practical	Batch	2019-2021
Hrs/week	4		Semester	I
			Credits	4

COURSE OBJECTIVES

To enable the students

- To enable the students to gain knowledge in developing Java Programs for certain specified problems.
- To understand the basics of various applications using servlet communications.
- To understand the concepts of virtual functions and control structures

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Develop programs in Java to demonstrate Classes and objects
CO2	Use various types constructors and JFC.
CO3	Apply the concepts of virtual functions and control structures.
CO4	Design various applications using servlet communications.
CO5	Demonstrate Bean Development Environment and JSP Scripts.

SEMESTER I

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	19P1ITC P06	Core 6 :Design and Analysis of Algorithms - Practical	Batch	2019-2021
			Semester	I
Hrs/week	3		Credits	3

COURSE OBJECTIVES

To enable the students

- To enable the students to gain knowledge about the teaching methodologies useful for the implementation and empirical evaluation of various algorithms and to efficiently implement the solutions for specific problems.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Identify the problem given and design the algorithm using various algorithm design techniques.
CO2	Implement various algorithms in a high level language
CO3	Analyze the performance of various algorithms.
CO4	Compare the performance of different algorithms for same problem.

SEMESTER II

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	19P2ITCT07	Core 7: Distributed Computing And Linux	Batch	2019-2021
Hrs/week	5		Semester	II
			Credits	4

COURSE OBJECTIVES

To enable the students

- To enable the students to provide an indepth knowledge about the concepts of Distributed computing and enable the students to write programs using Linux.
- To understand the concept of distributed process and communication.
- To understand the concept of Linux,file managemet operation and shell script.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Discuss the concept of distributed system,types and its architecture
CO2	Describe the concept of distributed process and communication
CO3	Summarize the distributed synchronization and its algorithms
CO4	Use the Fault Tolerance and Client-Server Communication
CO5	Summarize the concepts of Linux,file managemet operation and shell script.

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P2ITCT08	Core 8 : Python Programming	Batch	2019-2021
			Semester	II
Hrs/week	4		Credits	3

COURSE OBJECTIVE:

To enable the students

- To enable the students to Learn Syntax, semantics and create Functions in Python.
- To Understand Regular expressions in constructing Data Structures and Build Web Services.
- To understand the Data Structures using Python
- Understand the concepts of Regular Expressions and Object-Oriented programming as used in Python

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Exposed to Python syntax and semantics and be fluent in the use Python flow control and functions.
CO2	Create and run Python Programs using Lists, Dictionaries and handle File Systems.
CO3	Explain the concepts of Regular Expressions and Object-Oriented programming as used in Python.
CO4	Build Data Structures using Python.
CO5	Create programming projects from scratch using in-demand skill and technologies

SEMESTER II

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	19P2ITCT09	Core 9: Object Oriented Analysis and Design	Batch	2019-2021
			Semester	II
Hrs/week	4		Credits	3

COURSE OBJECTIVES

To enable the students

- To specify, analyze and design the use case driven requirements for a particular system and helps to model the event driven state of object and transform them into implementation specific layouts.
- Understands the UML programming by exploiting the objects in the real world.
- Understands the UML programming by exploiting the objects in the real-time

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Analyze and design the use case driven requirements for a particular system
CO2	Analyze and identify the subsystems, various components and collaborate them interchangeably
CO3	Recollect about the basic functionality of object and to know how objects work with different methodologies.
CO4	To analyse the problem and tends to refine the problem into concepts.
CO5	Describe the UML programming by exploiting the objects in the real world.

SEMESTER II

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	19P2ITCT10	Core 10: Big Data Analytics	Batch	2019-2021
			Semester	II
Hrs/week	5		Credits	4

COURSE OBJECTIVES

To enable the students

- To enable the students to provide the knowledge about the Big Data Fundamentals, including the characteristics of Big Data, the sources Big Data (such as social media, sensor data, geospatial data etc),
- To enable the students to understand the challenges imposed around information management, data analytics, privacy and security, as well as platforms and architectures
- Understand the the concepts of HDFS and MapReduce framework

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the the concepts of HDFS and MapReduce framework
CO2	Explain the Hadoop 2.x Architecture
CO3	Implement HBase and MapReduce Integration
CO4	To analyse the problem and tends to refine the problem into concepts. Implement best Practices for Hadoop Development
CO5	Work on a Real Life Project on Big Data Analytics

SEMESTER II

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	19P2ITCP11	Core 11:Linux - Practical	Batch	2019-2021
Hrs/week	4		Semester	II
			Credits	3

COURSE OBJECTIVES

To enable the students

- To develop the applications using Linux Programming.
- To apply the concepts of shell script and linux programming

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Learn to know the working of RMI and RPC
CO2	Know the concept working in synchronization
CO3	How to make, remove, rename, copy and move files and directories
CO4	Learn to identify and change the permissions of files and directories and what the consequences of these are.
CO5	Learn to write shell scripting.

SEMESTER II

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P2ITCP12	Core 12 :Python Programming-Practical	Batch	2019-2021
			Semester	II
Hrs/week	4		Credits	3

COURSE OBJECTIVES

To enable the students

- To write, test, and debug simple Python programs.
- To develop the applications using Python programming language.

COURSE OUTCOMES:

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Develop proficiency in creating applications, testing and debugging of code written in Python using the Python Programming Language.
CO2	Understand the various data structures available in Python programming language and apply them in solving computational problems.
CO3	Perform text filtering with regular expressions in Python
CO4	Draw various kinds of plots using PyLab

SEMESTER II

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	19P2ITET1A	Elective 1 : Grid Computing	Batch	2019-2021
			Semester	II
Hrs/week	4		Credits	4

COURSE OBJECTIVES

To enable the students

- To be familiar with the fundamental components of Grid environments, such as authentication, authorization, resource access, and resource discovery.
- To design and implement Grid computing applications using Globus or similar toolkits .
- To justify the applicability, or non-applicability, of Grid technologies for a specific application.
- To understand where the grid computing could be effectively utilized by illustrations of applications of grid computing.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain various Grid Standards, Principles, Approaches, and Methods in Grid Environment.
CO2	Know the application, History, learning and Motivation theories in assessing the Economic Strategy and Satisfaction.
CO3	Describe the grounding in the architecture of the Grid, and exposure to various implementations of the infrastructure.
CO4	Evaluate the Grid Service Taxonomy, functionalities in Grid Service Architecture.
CO5	Explain the various applications of grid computing.

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P2ITET1B	Elective 1 : Introduction to Robotics	Batch	2019-2021
Hrs/week	4		Semester	II
			Credits	4

COURSE OBJECTIVES

To enable the students

- To learn the basic concepts of Robots and the concepts of Kinematics of Robotics
- To learn the concepts of Motions, velocities and dynamic analysis of force
- To understand the concepts of Motion planning and Trajectory Planning
- To understand the concepts Actuators and sensors.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the basic concepts of Robots.
CO2	Describe the working kinematics of Robots
CO3	Explain the concept of motion, velocities and dynamic forces
CO4	Realise the Motion and Trajectory planning
CO5	Explain the different Actuators and Sensors.

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P2ITET1C	Elective 1 : Bioinformatics	Batch	2019-2021
Hrs/week	4		Semester	II
			Credits	4

COURSE OBJECTIVES:

To enable the students

- To understand the basic concepts in molecular biology and genetics.
- To understand the various methods of phylogenetic tree construction
- To understand the various techniques of proteomics.
- To understand the structure and functions of the genomes.
- To know the application areas of bioinformatics.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Describes about the concepts of molecular biology.
CO2	Interpret the characteristics of phylogenetic methods
CO3	Explain the pair wise sequence alignment methods.
CO4	Explain the protein synthesis in eukariotic cells.
CO5	Describe the various bioinformatics applications.

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P2ITET1D	Elective 1 : Wireless Communication	Batch	2019-2021
Hrs/week	4		Semester	II
			Credits	4

COURSE OBJECTIVES

To enable the Students

- To understand the basics of wireless voice and data communication technologies.
- To study the working principles of wireless LAN and its standards .
- To build working knowledge on various telephone and satellite networks.
- To build knowledge on various Mobile Computing algorithms.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Recognize various bandwidth Coherences and various Channels.
CO2	Explain the Cellular concepts and Frequency coverage calculations.
CO3	Elucidate the Wireless computing Algorithms and Technologies.
CO4	Identify two core networks associated with 3G Cellular networks
CO5	Compare the data transfer rates with those over Wireless LAN

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P3ITCT 13	Core 13: Web Data Mining	Batch	2019-2021
Hours/week	4		Semester	III
			Credits	4

COURSE OBJECTIVES

To enable the students to

- Understand the difference between web content mining, web structure mining and web usage mining and their applications.
- Understand the web content mining in accordance with machine learning concepts.
- Understand to extract the structured data from some fixed templates and extracting enables us to separate the particular data from multiple sources.
- Understand the automatic discovery of meaningful patterns and relationships from the large collection of semi-structured data.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Classify the difference between web content mining, web structure mining and web usage mining and their applications.
CO2	Summarize the web content mining in accordance with machine learning concepts.
CO3	Communicate the diverse concepts of object ranking, group detection, collective classification, link prediction and sub graph discovery to build various models in linked data.
CO4	Focusing on extracting the structured data from some fixed templates and extracting enables us to separate the particular data from multiple sources.
CO5	Explain the automatic discovery of meaningful patterns and relationships from the large collection of semi-structured data.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P3ITCT14	Core 14: Advanced Computer Networks	Batch	2019-2021
			Semester	III
Hours/week	4		Credits	4

COURSE OBJECTIVES

To enable the students

- To learn the basic computer network technology.
- To enhance the knowledge about digital transmission methods.
- To identify the different types of network topologies.
- To learn different protocols used for transmission of data in various layers.
- To learn about user networks interfaces and protocols of ATM and its operations and maintenance.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the Data Communications System and its components.
CO2	Describe routing and congestion in network layer with routing algorithms
CO3	master the terminology and concepts of the OSI reference models and TCP/IP
CO4	Illustrate applications of Computer Network capabilities, selection and usage for various sectors of user community.
CO5	Explain the concepts of ATM and its Methods.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P3ITCT15	Core 15: Internet of Things	Batch	2019-2021
			Semester	III
Hours/week	4		Credits	3

COURSE OBJECTIVES

To enable the students

- To know the basics of data mining and warehousing.
- To understand various techniques in data mining.
- To learn about architecture of data warehouse and its applications

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the concept of IoT.
CO2	Analyze various protocols for IoT.
CO3	Analyze applications of IoT in real time scenario
CO4	Explain the data analytics and cloud in the context of IoT
CO5	Explain the concepts of SOCRADES.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P3ITCT16	Core 16: Web Programming	Batch	2018-2020
Hours/week	4		Semester	III
			Credits	3

COURSE OBJECTIVES:

- To learn about the basic concepts of various computer and internet.
- To learn about the concepts of cascading style sheet.
- To learn about the Java Scripts and XML.
- To learn about the various web servers.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Gain deep understanding of the use and implementation of HTML 5 tags.
CO2	Understand the CSS, the role of JavaScript in web page creation.
CO3	Program, access, and manipulate data through the adoption of accepted standards, mark-up languages, client-side programming, and server-side programming
CO4	Predict the need of various web servers
CO5	To know about the client side scripting.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P3ITCP17	Core 17: Network - Practical	Batch	2019-2021
			Semester	III
Hrs/week	4		Credits	3

COURSE OBJECTIVES

To enable the students

- To learn the digital networks & internet protocols
- To have a clear idea about various functions of TCP and UDP.
- To learn about user networks interfaces and protocols of on B-ISDN and its operations and maintenance.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Demonstrate LAN and WAN protocol behavior using Modern Tools.
CO2	Analyze data flow between peer to peer in an IP network using Application, Transport and Network Layer Protocols.
CO3	Demonstrate basic configuration of switches and routers.
CO4	Develop Client - Server architectures and prototypes by the means of correct standards and technology
CO5	Demonstrate basic configuration of TCP and UDP Sockets.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P3ITCP18	Core 18: Web Programming -Practical	Batch	2019-2021
			Semester	III
Hrs/week	4		Credits	3

COURSE OBJECTIVE:

To enable the students to

- Design the concept and usages of web based programming techniques.
- Develop the HTML documents using JavaScript and CSS.
- Use of different types of server side Applications
- Design and implement user interactive dynamic web based applications.
- Implement XML Namespace & PHP Programming.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Demonstrating the concept and usages of web based programming techniques.
CO2	Demonstrating HTML Programs using JavaScript and CSS.
CO3	Demonstrating the different types of server side Applications
CO4	Designing interactive dynamic web based applications.
CO5	Demonstrating XML Namespace & PHP Programming.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P3ITET2A	Elective 2 : Soft Computing	Batch	2019-2021
Hours/week	4		Semester	III
			Credits	4

COURSE OBJECTIVES

To enable the students to

- To enable the Students to learn the basic concepts of Soft Computing.
- To become familiar with various techniques like neural networks, genetic algorithms and fuzzy systems.
- To apply soft computing techniques to solve problems.
- To understand the basic principles and working of Genetic Algorithms.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Apply suitable soft computing techniques for various applications.
CO2	Integrate various soft computing techniques for complex problems.
CO3	Explain the basic principles and working of Genetic Algorithms.
CO4	Summarize the basic Fuzzy Principles and fuzzy logic.
CO5	Describe the concept of neural networks and its applications.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P3ITET2B	Elective 2 : Embedded System	Batch	2019-2021
Hrs/week	4		Semester	III
			Credits	4

COURSE OBJECTIVES

To enable the students to

- To learn the architecture and programming of ARM processor.
- To become familiar with the embedded computing platform design and analysis.
- To get thorough knowledge in interfacing concepts
- To design an embedded system and to develop programs

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Describe the architecture and programming of ARM processor
CO2	Explain the Concepts of peripherals and interfacing of sensors.
CO3	Capable of using the system design techniques to develop firmware
CO4	Illustrate the code for constructing a system
CO5	Explain the concepts of embedded systems.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P3ITET2C	Elective 2:Cloud Computing	Batch	2019-2021
Hrs/week	4		Semester	II
			Credits	4

COURSE OBJECTIVES

To enable the students

- To understand security implications in cloud computing
- To understand the Cloud computing architectures, applications and challenges and learn about various cloud storages

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the security implications in cloud computing
CO2	Analyse the trade-offs inherent in cloud computing
CO3	Identify the architecture and infrastructure of cloud computing, including Service models and Cloud Access.
CO4	Explain the core issues of cloud computing such as security, privacy, and interoperability
CO5	Identify problems, and explain, analyze, and evaluate various cloud computing solutions

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	19P3ITET2D	Elective 2:Software Quality Assurance	Batch	2019-2021
Hrs/week	4		Semester	II
			Credits	4

COURSE OBJECTIVES

To enable the students

- To understand the importance and types of testing
- To understand the test strategy and execution and test automation

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the software Development Life Cycles
CO2	Analyse the various types of testing
CO3	Explain the types of test cases
CO4	Explain the test Strategy And Execution
CO5	Identify the testing automation

KOVAI KALAIMAGAL COLLEGE OF ARTS AND SCIENCE

An Autonomous Institute, Affiliated to Bharathiar University, Coimbatore.

Re-Accredited with 'A' Grade by NAAC

Narasipuram, Coimbatore -641109

COURSE OUTCOMES (CO) OF MASTER OF INFORMATION TECHNOLOGY

For the Students Admitted in the
Academic year 2018-2019.

SEMESTER I

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P1ITCT01	Core 1 : Advanced Java Programming	Batch	2018-2020
Hours/week	4		Semester	I
			Credits	4

COURSE OBJECTIVES

To enable the students

- To provide an in-depth knowledge about the concepts of language structure, program divisions of JAVA.
- Ability to design console based, GUI based programming language and Web based applications

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the fundamental concepts of Java language.
CO2	Use GUI components from AWT and Swing including buttons and text components
CO3	Illustrate the methods to send and receive data through sockets
CO4	Describe the concept of JSP,Servlet Basics and JDBC
CO5	Summarize the concepts of Java Bean

SEMESTER I

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P1ITCT02	Core 2 : Network Security	Batch	2018-2020
Hours/week	4		Semester	I
			Credits	4

COURSE OBJECTIVES:

To enable the Students to

- Understand various types of attacks and their characteristics.
- Learn the basic concept of encryption and decryption for secure data transmission.
- Understand the fundamentals of secret and public cryptography
- Understand the various methods of password management and protocols to maintain system security
- Understand the security concepts exposed to original research in network security

COURSE OUTCOMES (CO)

On successful completion of the course the student should be able to

CO Number	CO Statement
CO1	Explain the various types of attacks and their characteristics
CO2	Illustrate the basic concept of encryption and decryption for secure data transmission.
CO3	Describe the fundamentals of secret and public cryptography
CO4	Explain the various methods of password management and protocols to maintain system security
CO5	Explain the security concepts exposed to original research in network security

SEMESTER I

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P1ITCT03	Core 3 : Cyber Laws and Security Policies	Batch	2018-2020
Hours/week	3		Semester	I
			Credits	3

COURSE OBJECTIVES

To enable the Students

- Understand the Basics of Cyber Law and Cyber Security.
- Identify how intruders escalate privileges and what steps can be taken to secure a system.
- Introduce and demonstrate hacking tools for penetration testing purposes only.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the basic concepts of Cyber Law & Ethics of Cyber Law.
CO2	Indicate the various Data Encryption Methodologies.
CO3	Enumerate about the Cyber Crime factors & Preventive Measures.
CO4	Demonstrate the use of Digital Signatures & Certificates .
CO5	Recognize and Detect Cyber Attacks.

SEMESTER I

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P1ITCT04	Core 4 : Design and Analysis of Algorithms	Batch	2018-2020
			Semester	I
Hours/week	4		Credits	3

COURSE OBJECTIVES

To enable the students

- To write efficient algorithms for simple computational tasks and reasoning about the correctness of them.
- To understand different design strategies and the use of data structures in improving algorithmic performance.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Describe about fundamentals of algorithmic problem solving and the analysis frameworks.
CO2	Explain various design and analysis techniques such as greedy algorithms, Divide and conquer
CO3	Discuss various algorithm design techniques for dynamic programming techniques
CO4	Explain backtracking, decrease and conquer techniques.
CO5	Summarize the concepts of P, NP and NP Complete problems

SEMESTER I

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P1ITCT05	Core 5: Object Oriented Analysis and Design	Batch	2018-2020
			Semester	I
Hours/week	4		Credits	4

COURSE OBJECTIVES:

To enable the students to

- Understand the operations of object oriented principles by Unified Modelling Language (UML).
- Understand an application by applying object-oriented programming with unique methodologies.
- Understand the transformation of a problem definition into a coherent statement of system's requirements.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Elaborate the operations of object oriented principles by Unified Modelling Language (UML).
CO2	Analyse an application by applying object-oriented programming with unique methodologies.
CO3	Explain the transformation of a problem definition into a coherent statement of system's requirements.
CO4	Explain how a software design may be represented as a set of interacting objects that manage their own state and behaviour using object oriented design.
CO5	Recognize the concepts and notations used for drawing the Use Case Diagrams, Class Diagrams under different approaches.

SEMESTER I

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P1ITCP06	Core 6: Advanced Java Programming- Practical	Batch	2018-2020
			Semester	I
Hours/week	4		Credits	3

COURSE OBJECTIVES

To enable the students to gain knowledge in developing Java Programs for certain specified problems to.

- Design programs in Java to demonstrate Classes and objects
- Design various types constructors and JFC.
- Design programs using virtual functions and control structures.
- Design various applications using servlet communications.
- Design Bean Development Environment and JSP Scripts.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Writing programs in Java to demonstrate Classes and objects
CO2	Writing various types of constructors and JFC.
CO3	Applying the concepts of virtual functions and control structures.
CO4	Constructing applications using servlet communications.
CO5	Demonstrating Bean Development Environment and construct JSP Scripts.

SEMESTER I

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P1ITCP07	Core 7 : Design and Analysis of Algorithms - Practical	Batch	2018-2020
Hrs/week	3		Semester	I
			Credits	3

COURSE OBJECTIVES

To enable the students

- To gain knowledge about the various algorithms and to efficiently implement the solutions for specific problems.
- To solve various sorting techniques.
- To solve N Queen's problem using BackTracking.
- To solve shortest path finding problem.
- To solve 0/1 Knapsack problem using Dynamic Programming.
- To solve the programs using BFS and DFS.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Demonstrating the Quicksort, Merge Sort and Topological ordering techniques for sorting the numbers.
CO2	Demonstrating N Queen's problem using BackTracking.
CO3	Demonstrating the shortest path using Dijkstra's algorithm, Kruskal's algorithm, Floyd's algorithm and Travelling salesman problem.
CO4	Demonstrating 0/1 Knapsack problem using Dynamic Programming.
CO5	Demonstrating the subset of a given set and check the graph connection using BFS and DFS.

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P2ITCT08	Core 8:Distributed Computing And Linux	Batch	2018-2020
Hours/week	5		Semester	II
			Credits	4

COURSE OBJECTIVES

To enable the students to

- Understand the concept of distributed system,types and its architecture
- Understand the concept of distributed process and communication
- Understand the distributed synchronization and its algorithms
- Understand the Fault Tolerance and Client-Server Communication
- Know the concepts of Linux,file managemet operation and shell script.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Discuss the concept of distributed system,types and its architecture
CO2	Describe the concept of distributed process and communication
CO3	Summarize the distributed synchronization and its algorithms
CO4	Use the Fault Tolerance and Client-Server Communication
CO5	Summarize the concepts of Linux,file managemet operation and shell script.

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P2ITCT09	Core 9 : Python Programming	Batch	2018-2020
			Semester	II
Hours/week	4		Credits	4

COURSE OBJECTIVE:

To enable the students to

- Exposed to Python syntax and semantics and be fluent in the use Python flow control and functions.
- Create and run Python Programs using Lists, Dictionaries and handle File Systems.
- Understand the concepts of Regular Expressions and Object-Oriented programming as used in Python.
- Build Data Structures using Python.
- Create programming projects from scratch using in-demand skill and technologies

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Memorize the Python syntax and semantics and be fluent in the use Python flow control and functions.
CO2	Examine and run Python Programs using Lists, Dictionaries and handle File Systems.
CO3	Write Regular Expressions and Object-Oriented programming as used in Python.
CO4	Demonstrate the various Data Structures using Python.
CO5	Demonstrate projects from scratch using in-demand skill and technologies

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P2ITCT10	Core 10: Web Data Mining	Batch	2018-2020
Hours/week	5		Semester	II
			Credits	4

COURSE OBJECTIVES

To enable the students to

- Understand the difference between web content mining, web structure mining and web usage mining and their applications.
- Understand the web content mining in accordance with machine learning concepts.
- Understand to extract the structured data from some fixed templates and extracting enables us to separate the particular data from multiple sources.
- Understand the automatic discovery of meaningful patterns and relationships from the large collection of semi-structured data.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Classify the difference between web content mining, web structure mining and web usage mining and their applications.
CO2	Summarize the web content mining in accordance with machine learning concepts.
CO3	Communicate the diverse concepts of object ranking, group detection, collective classification, link prediction and sub graph discovery to build various models in linked data.
CO4	Focusing on extracting the structured data from some fixed templates and extracting enables us to separate the particular data from multiple sources.
CO5	Explain the automatic discovery of meaningful patterns and relationships from the large collection of semi-structured data.

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P2ITCP11	Core 11:Linux - Practical	Batch	2018-2020
Hours/week	4		Semester	II
			Credits	3

COURSE OBJECTIVES

To enable the students to

- Use various Shell commands in a file.
- Write a shell script program to display string,current date, user name,list of files and directories
- Use menu driven and case conversion to perform some operations in shell script
- Create the small programs in shell script.
- Develop a scientific calculator and Fibonacci series using shell script.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Demonstrating various commands in a file.
CO2	Demostrate a shell script program to display string,current date, user name, list of files and directories
CO3	Demonstrate a menu driven and case conversion program in shell script
CO4	Develop sum of digits,biggest of three numbers, count the number of lines,even or odd number,number of characters, words and lines in a file,grade of student's marks in shell script
CO5	Develop a scientific calculator and Fibonacci series using shell script.

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P2ITCP12	Core 12 :Python Programming-Practical	Batch	2018-2020
			Semester	II
Hrs/week	4		Credits	3

COURSE OBJECTIVES

To enable the students to

- Develop proficiency in creating based applications,testing and debugging of code written in Python using the Python Programming Language.
- Understand the various data structures available in Python programming language and apply them in solving computational problems.
- Perform text filtering with regular expressions in Python

COURSE OUTCOMES:

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Develop proficiency in creating based applications,testing and debugging of code written in Python using the Python Programming Language.
CO2	Demonstrate the various data structures available in Python programming language and apply them in solving computational problems.
CO3	Perform text filtering with regular expressions in Python
CO4	Draw various kinds of plots using PyLab

SEMESTER II

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	18P2ITET1A	Elective 1 : Grid Computing	Batch	2018-2020
			Semester	II
Hrs/week	4		Credits	4

COURSE OBJECTIVES

To enable the students

- To be familiar with the fundamental components of Grid environments, such as authentication, authorization, resource access, and resource discovery.
- To design and implement Grid computing applications using Globus or similar toolkits .
- To justify the applicability, or non-applicability, of Grid technologies for a specific application.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain various Grid Standards, Principles, Approaches , Methods in Grid Environment.
CO2	Know the application, History, learning and Motivation theories in assessing the Economic Strategy and Satisfaction.
CO3	Explain the architecture of the Grid, and exposure to various implementations of the infrastructure.
CO4	Explain the Grid Service Taxonomy, functionalities in Grid Service Architecture.
CO5	Know the grid computing utilized by illustrations of applications.

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P2ITET1B	Elective 1 : Neural Networks and Fuzzy Logic	Batch	2018-2020
Hours/week	4		Semester	II
			Credits	4

COURSE OBJECTIVES

To enable the Students

- To learn about the basics of neural networks and its applications.
- To know about artificial neural networks and its processes.
- To understand about Feed forward neural networks, competitive learning neural networks and their various methodologies.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the fundamental theory and concepts of neural networks, neuro - modeling, several neural network paradigms and its applications.
CO2	Analyze the concepts of fuzzy sets, knowledge representation using fuzzy rules, approximate reasoning, fuzzy inference systems, and fuzzy logic control and other machine intelligence applications of fuzzy logic.
CO3	Explain the basics of an evolutionary computing paradigm known as genetic algorithms and its application to engineering optimization problems.
CO4	Explain concept of classical and fuzzy sets, fuzzification and defuzzification, with which they can be able to apply the conceptual things to the real world electrical and electronics problems and applications.
CO5	Compare the analysis between human and computer, Artificial Neural Networks models, characteristics of ANN's learning strategies, learning rules and basics of fuzzy logic.

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P2ITET1C	Elective 1 : Management Concepts and Organizational Behaviour	Batch	2018-2020
Hours/week	4		Semester	II
			Credits	4

COURSE OBJECTIVES

To enable the Students

- To Understand the nature and scope of management.
- To know the difference between management and administration; to understand various levels of management.
- To Learn the various skills that are necessary for successful managers.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Elucidate & Evolution, Principles, importance and Functions of Management in an Organization.
CO2	Explain the application of Attribution, learning and Motivation theories in assessing performance and Satisfaction.
CO3	Possess the skills of Individual decision making, problem solving and balancing ones emotions.
CO4	Know the process of effectively managing a group and individual and the group behaviour.
CO5	Explain the traits necessary to become a leader.

SEMESTER II

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P2ITET1D	Elective 1 : Wireless Communication	Batch	2018-2020
Hours/week	4		Semester	II
			Credits	4

COURSE OBJECTIVES

To enable the Students

- To understand the basics of wireless voice and data communication technologies.
- To study the working principles of wireless LAN and its standards .
- To build working knowledge on various telephone and satellite networks.
- To build knowledge on various Mobile Computing algorithms.

COURSE OUTCOMES (CO)

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Recognize various bandwidth Coherences and various Channels.
CO2	Explain the Cellular concepts and Frequency coverage calculations.
CO3	Elucidate the Wireless computing Algorithms and Technologies.
CO4	Identify two core networks associated with 3G Cellular networks
CO5	Compare the data transfer rates with those over Wireless LAN

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P3ITCT13	Core 13: Digital Image Processing	Batch	2018-2020
Hours/week	4		Semester	III
			Credits	4

COURSE OBJECTIVES

To enable the Students

- To provide an idea about the fundamentals of digital image processing and the methods of representation.
- To comprehend the techniques of Spatial and Frequency domain.
- To outline the various methods of image Transformation and image Enhancement and also to have the knowledge of different approaches.
- To summarize the concepts of image segmentation and representation.
- To demonstrate the usability of image compression and restoration in image processing.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Illustrate the fundamentals concepts of digital image processing.
CO2	Operations to be performed on various techniques like smoothing, sharpening and enhancement
CO3	Compaise the idea of image restoration and filtering.
CO4	Explain the basics of segmentation, features extraction, compression and recognition methods for color models.
CO5	Know about the compression techniques and 2D Transforms.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P3ITCT14	Core 14: Advanced Computer Networks	Batch	2018-2020
			Semester	III
Hours/week	4		Credits	4

COURSE OBJECTIVES

To enable the students

- To learn the basic computer network technology.
- To enhance the knowledge about digital transmission methods.
- To identify the different types of network topologies.
- To learn different protocols used for transmission of data in various layers.
- To learn about user networks interfaces and protocols of ATM and its operations and maintenance.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Explain the Data Communications System and its components.
CO2	Describe routing and congestion in network layer with routing algorithms
CO3	master the terminology and concepts of the OSI reference models and TCP/IP
CO4	Illustrate applications of Computer Network capabilities, selection and usage for various sectors of user community.
CO5	Explain the concepts of ATM and its Methods.

SEMESTER III

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	18P3ITCT15	Core 15: Mobile Applications	Batch	2018-2020
			Semester	III
Hrs/week	4		Credits	3

COURSE OBJECTIVES:

To enable the students

- To learn android based environment for application development.
- To understand and design Android Application.
- To have the knowledge about embedded activity.
- To design a user interface in views.
- To acquire information about accessing SQLITE databases actions.

COURSE OUTCOMES (CO):

On successful completion of the course, students would be able to

CO Number	CO Statement
CO1	Explain the android environment and its development phases.
CO2	Demonstrate the working platform of a android application.
CO3	Explain the complete structure of the components.
CO4	Describe the various life cycle activity.
CO5	Developing database applications using SQLITE.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P3ITCT16	Core 16 : WEB PROGRAMMING	Batch	2018-2020
			Semester	III
Hours/week	4		Credits	3

COURSE OBJECTIVES:

To enable the students

- To learn about the basic concepts of various computer and internet.
- To learn about the concepts of cascading style sheet.
- To learn about the Java Scripts and XML.
- To learn about the various web servers.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Gain deep understanding of the use and implementation of HTML 5 tags.
CO2	Understand the CSS, the role of JavaScript in web page creation.
CO3	Program, access, and manipulate data through the adoption of accepted standards, mark-up languages, client-side programming, and server-side programming
CO4	Predict the need of various web servers
CO5	To know about the client side scripting.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P3ITCP17	Core 17: Network Practical	Batch	2018-2020
			Semester	III
Hrs/week	3		Credits	3

COURSE OBJECTIVES

To enable the students

- To learn the digital networks & internet protocols
- To have a clear idea about various functions of TCP and UDP.
- To learn about user networks interfaces and protocols of on B-ISDN and its operations and maintenance.

COURSE OUTCOMES (CO)

On successful completion of the course, students should be able to

CO Number	CO Statement
CO1	Demonstrate LAN and WAN protocol behavior using Modern Tools.
CO2	Analyze data flow between peer to peer in an IP network using Application, Transport and Network Layer Protocols.
CO3	Demonstrate basic configuration of switches and routers.
CO4	Develop Client - Server architectures and prototypes by the means of correct standards and technology
CO5	Demonstrate basic configuration of TCP and UDP Sockets.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P3ITCP18	Core 18 : Web Programming Practical	Batch	2018-2020
			Semester	III
Hrs/week	3		Credits	3

COURSE OBJECTIVE:

To enable the students to

- Design the concept and usages of web based programming techniques.
- Develop the HTML documents using JavaScript and CSS.
- Use of different types of server side Applications
- Design and implement user interactive dynamic web based applications.
- Implement XML Namespace & PHP Programming.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Demonstrating the concept and usages of web based programming techniques.
CO2	Demonstrating HTML Programs using JavaScript and CSS.
CO3	Demonstrating the different types of server side Applications
CO4	Designing interactive dynamic web based applications.
CO5	Demonstrating XML Namespace & PHP Programming.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P3ITET2 A	Elective 2 : Soft Computing	Batch	2018-2020
			Semester	III
			Credits	4

COURSE OBJECTIVE:

To enable the students to

- To enable the Students to learn the basic concepts of Soft Computing.
- To become familiar with various techniques like neural networks, genetic algorithms and fuzzy systems.
- To apply soft computing techniques to solve problems.
- To understand the basic principles and working of Genetic Algorithms.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Apply suitable soft computing techniques for various applications.
CO2	Integrate various soft computing techniques for complex problems.
CO3	Explain the basic principles and working of Genetic Algorithms.
CO4	Summarize the basic Fuzzy Principles and fuzzy logic.
CO5	Describe the concept of neural networks and its applications.

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P3ITET2B	Elective 2 : Embedded System	Batch	2018-2020
			Semester	III
			Credits	4

COURSE OBJECTIVE:

To enable the students to

- To learn the architecture and programming of ARM processor.
- To become familiar with the embedded computing platform design and analysis.
- To get thorough knowledge in interfacing concepts
- To design an embedded system and to develop programs

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Describe the architecture and programming of ARM processor
CO2	Explain the Concepts of peripherals and interfacing of sensors.
CO3	Capable of using the system design techniques to develop firmware
CO4	Illustrate the code for constructing a system
CO5	Explain the concepts of embedded systems.

SEMESTER III

Programme Code :	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code :	18P3ITET2C	Elective 2: Big Data Analytics	Batch	2018-2020
			Semester	I
Hrs/week	4 Hours		Credits	4

COURSE OBJECTIVE:

To enable the students to

- To explore the fundamental concepts of big data analytics and develop in-depth knowledge and understanding of the big data analytic domain.
- To learn to analyze the big data using intelligent techniques.
- To understand the various file systems and components of Hadoop.
- To understand the Applications on Big Data Using Pig.

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Understand the the concepts of HDFS and MapReduce framework
CO2	Understand Hadoop stream Data Model and Architecture.
CO3	Implement HBase and MapReduce Integration
CO4	To analyse the problem and tends to refine the problem into concepts. Implement best Practices for Hadoop Development
CO5	Work on a Real Life Project on Big Data Analytics

SEMESTER III

Programme Code	M.Sc IT	Programme Title	Master of Science (Information Technology)	
Course Code	18P2ITET2D	Elective 2 : Software Project Management	Batch	2018-2020
Hrs/week	4 Hours		Semester	III
			Credits	4

COURSE OBJECTIVE:

To enable the students to

- To get knowledge of how to handle project development activities
- To understand the threats and opportunities in Project managements
- To study various project cost, time estimation models.
- To study how to make quality software products.
- To Appreciate management issues like team structure and group dynamics

COURSE OUTCOMES (CO)

At the end of the practical session, students should be well-versed in

CO Number	CO Statement
CO1	Explain the importance of software project management, its methodologies, principles, and project planning and risk evolution strategies.
CO2	Analyze various software process models to choose appropriate development methodology.
CO3	Identify, assess and monitor risks involved in project planning and develop a risk management strategy.
CO4	Evaluate the performance of software project and apply on effective software configuration management strategies
CO5	Develop the skills for tracking and controlling software deliverables to understand the importance of team work