DIVISION OF COMPUTER & INFORMATION SCIENCE
M.Sc. Computer Science (2- Year)

19PCSC101: Design and Analysis of Algorithms
Course Outcomes:
CO1: Apply design principles and concepts to algorithm design.
CO2: Acquire the mathematical foundation in analysis of algorithms.
CO3: Understand the different algorithmic design strategies.
CO4: Analyze the efficiency of algorithms using various Problems.
CO5: Understand about Divide and Conquer and Greedy Method.

19PCSC102: Advanced Web Technology
Course Outcomes:
CO1: Design a web page with Web form fundamentals and web control classes.
CO2: Recognize the importance of validation control, cookies and session.
CO3: Apply the knowledge of ASP.NET object, ADO.NET data access and SQL to develop a client server model.
CO4: Recognize the difference between Data list and Data grid controls in Accessing data.

19PCSC103: Compiler Design
Course Outcomes:
CO1: Apply the knowledge of lexical tool & YACC tool to develop a scanner & parser.
CO2: Design & conduct experiments for Intermediate Code Generation in compiler.
CO3: Design & implement a software system for backend of the compiler.
CO4: Learn the new code optimization techniques to improve the performance of a program in terms of speed & space

19PCSC104: Advanced Java Programming
Course Outcomes:
CO1: Learn the Internet Programming, using Java Applets and create a full set of UI Widgets using Abstract Windowing Toolkit (AWT) & Swings.
CO2: Learn to access database through Java programs, using Java Data Base Connectivity (JDBC).
CO3: Create dynamic web pages using Servlets and JSP.
CO4: Invoke the remote methods and multitier application using Remote Method Invocation (RMI) and EJB.

19PCSP105: Algorithm Lab (Using Java)
Course Outcomes:
CO1: Design algorithms using appropriate design techniques (greedy, dynamic programming, etc.).
CO2: Implement a variety of algorithms such as sorting, graph related, combinatorial, etc., in a high level language.
CO3: Analyze and compare the performance of algorithms using language features.
CO4: Apply and implement learned algorithm design techniques and data structures to solve real world problems.

19PCSP106: Advanced Web Technology Lab
Course Outcomes:
CO1: Develop to build a complete website using HTML.
CO2: Create web pages using DHTML and Cascading Style Sheets.
CO3: Able to include JavaScript for form validations and email validations.

CO4: Develop a simple web application using server side PHP programming and Database Connectivity using MySQL.
CO5: Able to create a complete Web Application with all the required modules.

19PCSC201: Distributed Operating System
Course Outcomes:
CO1: Clear understanding on several resource management techniques like distributed shared memory and other resources.
CO2: Knowledge on mutual exclusion and Deadlock detection of Distributed operating system.
CO3: Able to design and implement algorithms of distributed shared memory and commit Protocols.
CO4: Able to design and implement fault tolerant distributed systems.
CO5: Understand the Mutual exclusion, Deadlock detection and agreement protocols of Distributed operating system.

19PCSC202: Dot Net Programming
Course Outcomes:
CO1: Learn major programming paradigms and techniques involved in design and implementation of modern programming languages.
CO2: Learn about Microsoft .NET framework.
CO3: By the end students can develop, implement and creating Applications with C#. VB.NET and ASP.NET.
CO4: Creating ASP.Net applications using standard .net controls.
CO5: An ability to use current techniques, skills, and tools necessary for computing practice.

19PCSC203: Cryptography and Network Security
Course Outcomes:
CO1: Understand the fundamentals of networks security, security architecture, threats and vulnerabilities.
CO2: Apply the different cryptographic operations of symmetric cryptographic Algorithms.
CO3: Apply the different cryptographic operations of public key cryptography
CO4: Apply the various Authentication schemes to simulate different applications.
CO5: Understand various Security practices and System security standards

19PCSC204: Advanced Database Management System
Course Outcomes:
CO1: Know about the Various data models.
CO2: Works on Database Architecture.
CO3:Analyze data patterns.
CO4: Handle object oriented databases

19PCSP205: Dot Net Programming Lab
Course Outcomes:
CO1: Develop correct, well-documented C# programs using control statements.
CO2: Develop object oriented programming using C# classes and objects.
CO3: Handle the exception and event-driven programs.
CO4: Perform network based programming including chat applications.
CO5: Develop windows and web based applications.

19PCSP206: RDBMS Lab
Course Outcomes:

CO1: In drawing the ER, EER, and UML Diagrams.
CO2: In analyzing the business requirements and producing a viable model for the implementation of the database.
CO3: In converting the entity-relationship diagrams into relational tables.
CO4: To develop appropriate Databases to a given problem that integrates ethical, social, legal, and economic concerns.

19PCSC301:Digital Image Processing
Course Outcomes:
CO1: Review the fundamental concepts of a digital image processing system and Analyze images in the frequency domain using various transforms.
CO2: Evaluate the techniques for image enhancement and image restoration. Categorize various compression techniques.
CO3: Interpret Image compression standards, and Interpret image segmentation and representation techniques.
CO4: Gain idea to process various image used in various fields such as weather forecasting, Diagnosis of various diseases using image such as tumor, cancer etc.

19PCSC302 : Internet of Things
Course Outcomes:
CO1: Gain the basic knowledge about IoT and they will be able to use IoT related products in real life.
CO2: It helps to rely less on physical resources and started to do their work smarter.
CO3: Understand the technology and standards relating to IoTs.
CO4: Understand the critical parts of the ICT ecosystem required to mainstream IoTs.
CO5: Acquire skills on developing their own national and enterprise level technical strategies.

19PCSC303 : Machine Learning
Course Outcomes:
CO1: Have a good understanding of the fundamental issues and challenges of machine learning: data, model selection, model complexity, etc.
CO2: Have an understanding of the strengths and weaknesses of many popular machine learning approaches.
CO3: Appreciate the underlying mathematical relationships within and across Machine Learning algorithms and the paradigms of supervised and un- supervised learning.
CO4: Be able to design and implement various machine learning algorithms in a range of real-world applications.

19PCSP304 : Image Processing Lab
Course Outcomes:
CO1: Read and display the image.
CO2: Transform the domain from spatial to frequency.
CO3: Apply suitable operators to detect the edge.
CO4: Perform compression and segmentation methods.

19PCSP305 : Machine Learning Lab
Course Outcomes:
CO1: Read and display the image.
CO2: Transform the domain from spatial to frequency.
CO3: Apply suitable operators to detect the edge.
CO4: Perform compression and segmentation methods.

19PCSP401 : Software Project Management
Course Outcomes:
CO1: Analyze the scope, cost, timing, and quality of the project, at all times focused on project success as defined by project stakeholders.
CO2: Align the project to the organization's strategic plans and business justification throughout its lifecycle.
CO3: Identify project goals, constraints, deliverables, performance criteria, control needs, and resource requirements in consultation with stakeholders.
CO4: Implement project management knowledge, processes, lifecycle and the embodied concepts, tools and techniques in order to achieve project success.
CO5: Adapt projects in response to issues that arise internally and externally.

19PCSE306.1: Advanced Computer Networks
Course Outcomes:
CO1: To master the terminology and concepts of the OSI reference model and the TCP-IP reference model.
CO2: To master the concepts of protocols, network interfaces, and design/performance issues in local area networks and wide area networks.
CO3: To be familiar with wireless networking concepts, and be familiar with contemporary issues in networking technologies.
CO4: To be familiar with network tools and network programming.

19PCSE306.2: Web Services
Course Outcomes:
CO1: Understand the design principles and application of SOAP and REST based web services.
CO2: Design collaborating web services according to a specification.
CO3: Implement an application that uses multiple web services in a realistic business scenario.
CO4: Use industry standard open source tools such as Apache Axis2, Tomcat, Derby and Eclipse to build, test, deploy and execute web services and web applications that consume them.

19PCSE306.3: Object Oriented Systems Development
Course Outcomes:
CO1: Show how the object-oriented approach differs from the traditional approach to systems analysis and design.
CO2: Analyze, design, document the requirements through use case driven approach.
CO3: Explain the importance of modeling and how the Unified Modeling Language (UML) represents an object-oriented system using a number of modeling views.
CO4: Recognize the difference between various object relationships: inheritance, association and aggregation.
CO5: Show the role and function of test cases, testing strategies and test plans in developing object-oriented software.

19PCSE306.4 : Mobile Computing
Course Outcomes:
CO1: Show how the object-oriented approach differs from the traditional approach to systems analysis and design.
CO2: Analyze, design, document the requirements through use case driven approach.
CO3: Explain the importance of modeling and how the Unified Modeling Language (UML) represents an object-oriented system using a number of modeling views.
CO4: Recognize the difference between various object relationships: inheritance, association and aggregation.

CO5: Show the role and function of test cases, testing strategies and test plans in developing object-oriented software.

19PCSE307.1 : Wireless Networks
Course Outcomes:
CO1: Conversant With The Latest 3G/4G And WiMAX Networks And Its Architecture.
CO2: Design and Implement Wireless Network Environment For Any Application Using Latest Wireless Protocols And Standards.
CO3: Implement Different Type Of Applications For Smart Phones And Mobile Devices With Latest Network Strategies

19PCSE307.2 : Theory of Computation
Course Outcomes:
CO1: Analyse and design finite automata, pushdown automata, Turing machines, formal languages, and grammars.
CO2: Demonstrate their the understanding of key notions, such as algorithm, computability, decidability, and complexity through problem solving.
CO3: Prove the basic results of the Theory of Computation, state and explain the relevance of the Church-Turing thesis.

19PCSE307.3:Optimization Techniques
Course Outcomes:
CO1:Describe clearly a problem, identify its parts and analyze the individual functions. Feasibility study for solving an optimization problem.
CO2: Evaluate and measure the performance of an algorithm, Discovery, study and solve optimization problems.
CO3: Understand optimization techniques using algorithms, and Investigate, study, develop, organize and promote innovative solutions for various applications.

19PCSE307.4 : Embedded Systems
Course Outcomes:
CO1: Describe the differences between the general computing system and the embedded system, also recognize the classification of embedded systems.
CO2: Become aware of interrupts, hyper threading and software optimization.
CO3: Design real time embedded systems using the concepts of RTOS.

19PCSE307.5 : WAP and XML
Course Outcomes:
CO1: Apply XML concepts to develop Web application.
CO2: Develop SOA application using XML and Web Services.
CO3: Extract information from the web sites using XML programming.

19PCSE403.1:Statistical Computing
Course Outcomes:
CO1: Acquire the basic concepts in mathematical logic and theory of inferences.
CO2: Data analytics from a database formed from the real world problem.
CO3: Predict the exact reason for the real time issues

19PCSE403.2 : Soft Computing

Course Outcomes:

CO1: Comprehend the fuzzy logic and the concept of fuzziness involved in various systems and fuzzy set theory.

CO2: Understand the concepts of fuzzy sets, knowledge representation using fuzzy rules, approximate reasoning, fuzzy inference systems, and fuzzy logic.

CO3: To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations.

CO4: Understand appropriate learning rules for each of the architectures and learn several neural network paradigms and its applications.

CO5: Reveal different applications of these models to solve engineering and other problems.

19PCSE403.3 : Data Mining

Course Outcomes:

CO1: Basic data mining concepts for solving real world problems.

CO2: Understand the concepts of data mining.

CO3: Analyze the feasibility of data mining solution.

CO4: Apply basic statistical to evaluate the results of data mining models.

CO5: Develop data mining application to solve problems.

19PCSE403.4 : Cloud Computing

Course Outcomes:

CO1: Apply different cloud programming model as per need.

CO2: Introduce the broad perceptive of cloud architecture.

CO3: Learn the economics of outsourcing IT to the Cloud.

CO4: Explore some important cloud computing driven commercial systems such as Google Apps, Microsoft Azure and Amazon Web Services and other businesses cloud applications.

CO5: Learn how DNS works, and how it can be used for service discovery using cloud

19PCSE403.5 : Data Science and Big Data Analytics

Course Outcomes:

CO1: Apply Hadoop eco system components.

CO2: Participate data science and big data analytics projects.

CO3: Identify the characteristics of datasets for various applications.

CO4: Select environment for the applications.

CO5: Solve problems associated with big data characteristics.

19CSE215.1 - Programming in R

Course Outcomes:

CO1: Install and use R for simple programming tasks.

CO2: Extend the functionality of R by using add-on packages and extract data from files and other sources and perform various data manipulation tasks on them.

CO3: Code statistical functions in R and use R Graphics and Tables to visualize results of various statistical operations on data.

CO4: Apply the knowledge of R gained to data Analytics for real life applications to conduct analytics on large real life datasets

19CISA215: WEB DEVELOPMENT

Course Outcomes:

CO1. Develop simple components in web pages.

CO2. Write code using scripting languages.

CO3. Can connect databases via web applications.
CO4. Design a web page.

19CISA415: Advanced Web Development
Course Outcomes:
CO1. Overall view to develop web pages.
CO2. Write advanced codes in scripting languages.
CO3. Connect the different databases via web applications.
Able to use components, remote calls and web services in distributed web applications.

Core Course 01 – Statistical Methods
Course Outcomes:
CO1: The students should have knowledge on assimilate the data and fit-in appropriate time series model.
CO2: The students should have develop the software for the models at implementation level.
CO3: The students should have the capability of developing statistical packages, which computes descriptive statistics.
CO4: The students should have compares means and variances of the data; and fits the time series models for the given data.

19PDSC102: Core Course 02 – Introduction To Data Science
Course Outcomes:
CO1: Know basic notions and definitions in data analysis, machine learning.
CO2: Know standard methods of data analysis and information retrieval.
CO3: Be able to formulate the problem of knowledge extraction as combinations of data filtration, analysis and exploration methods

19PDSC103: Core Course 03 – Advanced Database Management Systems
Course Outcomes:
CO1: Know about the Various data models.
CO2: Works on Database Architecture
CO3: Analyze data patterns
CO4: Handle object oriented databases

19PDSC104: Core 4: Advanced Java Programming
Course Outcomes:
CO1: Learn the Internet Programming, using Java Applets and create a full set of UI widgets using Abstract Windowing Toolkit (AWT) & Swings
CO2: Learn to access database through Java programs, using Java Data Base Connectivity (JDBC)
CO3: Create dynamic web pages using Servlets and JSP
CO4: Invoke the remote methods and multitier application using Remote Method Invocation (RMI) and EJB

19PDSC105: Core 5: Advanced Web Technology
Course Outcomes:
CO1: Design a web page with Web form fundamentals and web control classes
CO2: Recognize the importance of validation control, cookies and session
CO3: Apply the knowledge of ASP.NET object, ADO.NET data access and SQL to develop a client server model.
CO4: Recognize the difference between Data list and Data grid controls in accessing data.

19PDSP10: 6Core 6: RDBMS – Lab
Course Outcomes:
CO1: In drawing the ER, EER, and UML Diagrams.
CO2: In analyzing the business requirements and producing a viable model for the implementation of the database.
CO3: In converting the entity-relationship diagrams into relational tables.
CO4: To develop appropriate Databases to a given problem that integrates ethical, social, legal, and economic concerns.

19PDSP107: Core 7: Advanced Web Technology – Lab
Course Outcomes:
CO1: Develop to build a complete website using HTML
CO2: Create web pages using DHTML and Cascading Style Sheets.
CO3: Able to include JavaScript for form validations and email validations.
CO4: Develop a simple web application using server side PHP programing and Database Connectivity using MySQL.
CO5: Able to create a complete Web Application with all the required modules.

19PDSC201 : Core 8: Distributed Operating System
Course Outcomes:
CO1: Clear understanding on several resource management techniques like distributed shared memory and other resources
CO2: Knowledge on mutual exclusion and Deadlock detection of Distributed operating system.
CO3: Able to design and implement algorithms of distributed shared memory and commit protocols
CO4: Able to design and implement fault tolerant distributed systems.
CO5: Understand the Mutual exclusion, Deadlock detection and agreement protocols of Distributed operating system.

19PDSC202: Core 9: Dot Net Programming
Course Outcomes:
CO1: Learn major programming paradigms and techniques involved in design and implementation of modern programming languages.
CO2: Learn about Microsoft .NET framework
CO3: By the end students can develop, implement and creating Applications with C#. VB.NET and ASP.NET
CO4: Creating ASP.Net applications using standard .net controls.
CO5: An ability to use current techniques, skills, and tools necessary for computing practice.

19PDSC203: Core 10: Data Science with R Programming
Course Outcomes:
CO1: Install and use R for simple programming tasks.
CO2: Extend the functionality of R by using add-on packages and extract data from files and other sources and perform various data manipulation tasks on them.
CO3: Code statistical functions in R and use R Graphics and Tables to visualize results of various statistical operations on data.
CO4: Apply the knowledge of R gained to data Analytics for real life applications. to conduct analytics on large real life datasets.

19PDSP206: Core 11: Dot Net Programming Lab
Course Outcomes:
CO1: Develop correct, well-documented C# programs using control statements.
CO2: Develop object oriented programming using C# classes and objects.
CO3: Handle the exception and event-driven programs.
CO4: Perform network based programming including chat applications.
CO5: Develop windows and web based applications.

19PDSP207: Core 12: R Programming for Data Analytics – Lab
Course Outcomes:
CO1: Understand and summarize different File handling operations in R.

CO2: Design and develop Client Server network applications using R.

19PDSC301 Core 13: Cryptography and Network Security
Course Outcomes:
CO1: Understand the fundamentals of networks security, security architecture, threats and vulnerabilities
CO2: Apply the different cryptographic operations of symmetric cryptographic algorithms
CO3: Apply the different cryptographic operations of public key cryptography
CO4: Apply the various Authentication schemes to simulate different applications.
CO5: Understand various Security practices and System security standards

19PDSC302: Core 14: Data Analytics using Python
Course Outcomes:
CO1: Analyze and design strategies for solving basic programming problems.
CO2: primitive data types, selection statements, loops, functions to write programs.
CO3: Use Develop programs to solve a variety of problems in math, science, business, and games.
CO4: Use the step-wise refinement approach.
CO5: Use lists to store, process, and sort data.

19PDSC303: Core 15: Machine Learning
Course Outcomes:
CO1: Have a good understanding of the fundamental issues and challenges of machine learning: data, model selection, model complexity, etc.
CO2: Have an understanding of the strengths and weaknesses of many popular machine learning approaches.
CO3: Appreciate the underlying mathematical relationships within and across Machine Learning algorithms and the paradigms of supervised and un-supervised learning.
CO4: Be able to design and implement various machine learning algorithms in a range of real-world applications.

19PDSP306: Core 16: Data Analytics using Python Programming – Lab
Course Outcomes:
CO1: Understand and summarize different File handling operations in Python.
CO2: Design and develop Client Server network applications using Python.

19PDSP307 Core 17: Machine Learning – Lab
Course Outcomes:
CO1: Understand components of a machine learning algorithm.
CO2: Apply machine learning tools to build and evaluate predictors
CO3: Comprehend how machine learning uses computer algorithms to search for patterns in data.
CO4: Familiarize in using data patterns to make decisions and predictions with real-world examples

19PDSC401 Core 18: Big Data Analytics
Course Outcomes:
CO1: Identify the characteristics of datasets for various applications.
CO2: Select environment for the applications.
CO3: Solve problems associated with big data characteristics.
CO4: Integrate mathematical and statistical tools with modern technologies like Hadoop and Mapreduce
CO5: Provide better solutions and develop applications to the problem associated with big data

19PDSC402: Core 19: Software Project Management
Course Outcomes:
CO1: Analyze the scope, cost, timing, and quality of the project, at all times focused on project success as defined by project stakeholders.
CO2: Align the project to the organization's strategic plans and business justification throughout its lifecycle.
CO3: Identify project goals, constraints, deliverables, performance criteria, control needs, and resource requirements in consultation with stakeholders.
CO4: Implement project management knowledge, processes, lifecycle and the embodied concepts, tools and techniques in order to achieve project success.
CO5: Adapt projects in response to issues that arise internally and externally.+

19PDSE204: 11 – Fundamentals of Business Statistics
Course Outcomes:
CO1: Apply knowledge to solve simple tasks using computer tools.
CO2: Independently calculate basic statistical parameters (mean, measures of dispersion, correlation coefficient, indexes).
CO3: Choose a statistical method for solving practical problems.

19PDSE204: 12 – Time Series Analysis and Forecasting
Course Outcomes:
CO1: Understand the fundamental advantage and necessity of forecasting in various situations.
CO2: Know how to choose an appropriate forecasting method in a particular environment.
CO3: Know how to apply various forecasting methods, which includes obtaining the relevant data and carrying out the necessary computation.
CO4: Improve forecast with better statistical models based on statistical analysis

19PDSE204 13 – Multivariate Data Analytics
Course Outcomes:
CO1: The students should have knowledge on assimilate the data and fit-in appropriate time series model.
CO2: The students should have develop the software for the models at implementation level.
CO3: The students should have the capability of developing statistical packages, which computes descriptive statistics.
CO4: The students should have compares means and variances of the data; and fits the time series models for the given data.

19PDSE205 21 – Introduction to Data Mining
Course Outcomes:
CO1: Understand the concepts of data mining.
CO2: Analyze the feasibility of data mining solution.
CO3: Apply basic statistical analysis to evaluate the results of data mining models.
CO4: Develop data mining application to solve problems.

19PDSE205: 22 - Web Database and Information System
Course Outcomes:
CO1: Know the concepts and terminologies related to web analytics.
CO2: Explore various parameters used for web analytics and their impact.
CO3: Explore the use of tools and techniques of web analytics.
CO4: Get experience on websites, web data insights and conversions

19PDSE205: 23 - Green Computing
Course Outcomes:
CO1: Acquire knowledge to adopt green computing practices to minimize negative impacts on the environment.
CO2: Enhance the skill in energy saving practices in their use of hardware.
CO3: Evaluate technology tools that can reduce paper waste and carbon footprint by the stakeholders.
CO4: Understand the ways to minimize equipment disposal requirements.

19PDSE304: 31 - Management Decision Analysis
Course Outcomes:
CO1: Make decision on the managerial problem
CO2: Apply the statistical methods for real time problems
CO3: Solve the Complicated problem with the help of decision making optimization strategies.

19PDSE304: 32 Soft Skills Development
Course Outcomes:
CO1: The students community enrich the knowledge in the field of soft skills
CO2: They can able to cope up with recent development in business world
CO3: The students will have the powerful knowledge in attitude and personality

19PDSE304: 33 - Financial Risk Analytics And Management
Course Outcomes:
CO1: Identify and categorize the various risks faced by an organization.
CO2: Explore the tools and practices needed to assess and evaluate financial risks.
CO3: Explore risk management practices in an industry.
CO4: Identify and solve legal issues that impact financial and other risk affecting business

19PDSE305: 41 - Image and Video Analytics
Course Outcomes:
CO1: Describe the fundamental principles of image and video analysis and have an idea of their application.
CO2: Apply image and video analysis in real world problems.

19PDSE305: 42 - Data Science Ethics
Course Outcomes:
CO1: Know the ethics of data science.
CO2: Apply data representation and techniques to solve real-world problems.
CO3: Explore the different performance issues and tasks in parallel and distributed computing.
CO4: Develop parallel algorithms for solving real–world problems.

19PDSE305: 43 - Cloud Computing
Course Outcomes:
CO1: Acquire Knowledge on the features and development of Cloud Computing.
CO2: Define the principles of virtualization.
CO3: Use various performance criteria to evaluate the quality of the cloud architecture.
CO4: Identify the Service-Oriented Architecture for Distributed Computing workflow.
CO5: Create combinatorial auctions for cloud resources and design scheduling algorithms for computing clouds

19PDSE402: 51 - Distributed and Parallel Computing
Course Outcomes:
O1: Explore the methodologies adopted for concurrent and distributed environment.
CO2: Analyse the networking aspects of Distributed and Parallel Computing

19PDSE402: 52 - Healthcare Data Analytics
Course Outcomes:
CO1: Analyse health care data using appropriate analytical techniques.
CO2: Apply analytics for decision making in healthcare services.
CO3: Apply data mining to integrate health data from multiple sources and develop efficient clinical decision support systems.

19PDSE402: 53- Business Intelligence
Course Outcomes:
CO1: Link data mining with business intelligence.
CO2: Apply various modelling techniques.
CO3: Explain the data analysis and knowledge delivery stages.
CO4: Apply business intelligence methods to various situations.

19IENC12: English Through Literature I: Prose
Course Outcomes: At the end of the course, the students will be able to: CO1: Competency in communication both in written and oral skills CO2: Fluency in the English language CO3: Knowledge about construction of sentence structures CO4: English Vocabulary to use the English language effectively CO5: Proficiency in the four communication skills

19IMAC14: Allied I: Mathematics–I
Course Outcomes:
CO1. Handle matrix applications.
CO2. Understand the calculus, differential calculus, integral calculus and vector differentiation.
CO3. To solve problems related to computer science and applications.

19IITT15: Digital Computer Fundamentals
Course Outcomes:
CO1. Convert different type of codes and number systems which are used in digital communication and computer systems.
CO2. Form different digital circuits and analyse different types of digital electronic circuit
CO3. Implement logical operations using combinational logic circuits.
CO4. Understand the counters
CO5. Know the basic terms and ideas of ROM and RAM

19IITT16: Programming in C
Course Outcomes:
CO1. Develop programs using the basic elements like control statements, arrays and strings
CO2. Understand about the code reusability with the help of user defined functions.
CO3. Develop advanced applications using enumerated data types, function pointer, nested structures, pre-processors and various header file directories.
CO4. Learn the basics of the handling mechanism that is essential for understanding the concepts in systems develop applications.
CO5. Handle the arrays, structures, pointers and more importantly files.

19IITP17: Practical – I: C Programming Lab
Course Outcomes:
CO1. Know concepts in problem solving and understand the fundamentals of C programming.
CO2. Choose the loops and decision making statements to solve the problem.
CO3. Implement different Operations on arrays.
CO4. Ability to work with textual information, characters and strings.
CO5. Ability to understand the different sorting algorithm and their complexity

19ITAC21: Hindi – II (Option)
Course Outcomes: At the end of the course, the students will be able to:
CO1: Competency in communication, both in written and oral skills
CO2: Fluency in English language
CO3: Knowledge about construction of sentence structures
CO4: Vocabulary to use the English language effectively CO5: Acquire the aesthetic sense for appreciating poetry

19IMAC23: Allied – II: Discrete Mathematics

Course Outcomes:
CO1. Acquire the basic concepts in mathematical logic and theory of inferences.
CO2. Understand the concepts of set theory, relations and equivalence classes with matrix representation
CO3. Formalities lattice theory, Boolean algebra and group theory
CO4. Understand the basic concepts of graph theory, Eulerian and Hamiltonian graphs

19IITT24: Data Structures and Algorithms
Course Outcomes:
CO1. implement suitable data structures for various applications.
CO2. use appropriate sorting techniques.
CO3. handle different file organizations.
CO4. Familiarize with the usage of symbol tables.

19IITT25: Object Oriented Programming Using C++
Course Outcomes:
CO1. Describe the principles of object-oriented problem solving and programming.
CO2. Explain programming fundamentals, including statement and control flow.
CO3. Apply the concepts of class, method, constructor, pointers, data abstraction, function abstraction, inheritance, overriding, overloading, polymorphism, IO streams, Templates.
CO4. Design program with basic data structure like array.

9IITP26: Practical – II: Data Structures Using C La
Course Outcomes:
CO1. Analyse the problem and develop the mathematical logic and algorithm.
CO2. Analyse the problem and implement the dynamic memory concepts.
CO3. Analyse the problem and should have the implementation of the non-linear data structures like Tree and Graph.
CO4. Implement the various Searching and Sorting Techniques with Time complexity.
CO5. Analyse and implement the appropriate data structures with optimized memory and computational time complexity.

19IITP27: Practical – III: C++ Programming Lab
Course Outcomes:
CO1. Demonstrate the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.
CO2. Implement dynamic memory management techniques using pointers, constructors, destructors, etc.
CO3. Write programs using concept of function overloading, operator overloading, virtual functions and polymorphism.
CO4. Implement early and late binding, usage of exception handling and generic programming.
CO5. Implement the use of various OOPs concepts with the help of program

19ITAC31 : Hindi – III (Option)
CO1: Obtain a literary acumen to answer MCQs of NET/SET Examinations and other competitive examination
CO2: Appreciate conversational English
CO3: Recognize the dramatic elements of Shakespearean dramas
CO4: Use punctuations and capitals effectively in their composition
CO5: Recognize the elements of the spoken discourses

19IMAC33: Allied – III: Resource Management Technique
Course Outcomes:On successful completion of the course, students will be able to 49
CO1. Model any real life situation into a mathematical model,
CO2. Solve the problem for the required demand,
CO3. Optimize the transportation and assignment of jobs,
CO4. Upgrade their ability in production management through project scheduling and allocation of resources,
CO5. Develop their personnel management through manpower planning and salary administration.

19IITT34: Computer Organization and Architecture
Course Outcomes:
CO1. Understand the Organization of Computer and Basic Architecture Components involved in Computer Designs.
CO2. Explain the Central Processing Units system and Address, Arithmetic and Logical Instructions.
CO3. Analyse the various devices and Input / Output Organization Systems.
CO4. Understand the Addressing methods and Programs of Bus Structure in Computer Systems.

19IITT35: Basics of Information Technology
Course Outcomes:
CO1. Describe the usage of computers and why computers are essential components in business and society.
CO2. Solve common business problems using appropriate Information Technology applications and systems.
CO3. Identify categories of programs, system software and applications. Organize and work with files and folders and utilize the Internet Web resources and evaluate on-line e-business system.
CO4. Design a responsive web site using HTML5 and demonstrate Rich Internet Application.
CO5. Designate various types of networks, network standards and communication software.

19IITT36: Programming in Java
Course Outcomes:
CO1. Identify, declare and define the data type with scope of the variables and methods.
CO2. Identify and define the modules, classes, subclasses and methods.
CO3. To develop a package using inheritance and interface.
CO4. To identify and divide the system into various subsystems and apply the multithreading concepts. Also the student can be able to operate file handling mechanisms.
CO5. To develop GUI based applications using Applet and Swing.

19IITP37: Practical – IV: Java Programming Lab
Course Outcomes:
CO1. Understand Android platform, Architecture and features.
CO2. Design User Interface and develop activity for Android App.
CO3. Use Intent, Broadcast receivers and Internet services in Android App.
CO4. Design and implement Database Application and Content providers.

19IENC42: English Through Literature IV: Short Story
Course Outcomes:At the end of the course, the students will be able to:
CO1. Use more vocabularies while writing
CO2. Learner can ensure about the history and development
CO3. The learner has a development in flow of writing
CO4. Students can come up with new ideas while reading stories from different perspectives.
CO5. Write in a style appropriate for communicative purposes

19IITT43: Web Technology

Course Outcomes:

CO1. Analyze a web page and identify its elements and attribute.

CO2. Create web pages using HTML and CSS.

CO3. Validate the web data using java Script.

CO4. Develop applications using JSP.

19IITT44: Relational Data Base Management System

Course Outcomes:

CO1. Analyse and design required tables with appropriate forms.

CO2. Analyse the problem at various subsystem level with appropriate data types and marshalling.

CO3. To design the relational database with appropriate features using various normalization.

CO4. Design basic database storage structures and access techniques.

19IITT45: System Software

Course Outcomes:

CO1. Develop the system and program in assembler and lexical analyser.

CO2. Develop SIC assembler functions and algorithm, Program relocation and Machine independent assembler features.

CO3. Understand how linker and loader create an executable program from an object module created by assembler and compiler.

CO4. Understand macro processor functions, definition and expansion, macro processor algorithm, Macro within Macro-Implementation and ANSI C Macro language.

19IITP46: Practical-V: Web Technology Lab

Course Outcomes:

CO1. Develop to build a complete website using HTML

CO2. Create web pages using DHTML and Cascading Style Sheets.

CO3. Able to include JavaScript for form validations and email validations.

CO4. Develop a simple web application using server side PHP programing and Database Connectivity using MySQL

19IITP47: Practical – VI: SQL and PL/SQL Lab

Course Outcomes:

CO1. Identify the data types, draw appropriate conceptual models, design database structure, and forms.

CO2. Implement different types of queries.

CO3. Develop the PL/SQL program for scientific problems and business data models.

CO4. Implement the DDL, DML and DCL methods in Business data models.

CO5. Normalize the business data model and should have the ability of implement the object oriented database concepts.

19IITT51: Software Engineering

Course Outcomes:

CO1. Analyse the problem, estimate cost, time and risk and model the problem.

CO2. Gather information about the project and validate the requirements.

CO3. Design and develop various design tools.

CO4. Understand the various testing techniques and how to test the system with various approaches.

19IITT52: Operating System
Course Outcomes:
CO1. Understand the structure the OS and basic architectural components involved in OS design.
CO2. Understands the concepts of operating structure and how to design and implement the system.
CO3. Understands the concept of scheduling for process and how to avoid the dead lock situations for the process.
CO4. Finding the ways to manage the memory and how to utilize the memory effectively.

19IITT53: Programming in Python
Course Outcomes:
CO1. analyze and design strategies for solving basic programming problems.
CO2. use primitive data types, selection statements, loops, functions to write programs.
CO3. develop programs to solve a variety of problems in math, science, business, and games.
CO4. use the step-wise refinement approach.
CO5. use lists to store, process, and sort data.

19IITT54: Open Source Technology
Course Outcomes:
CO1. Access the open source software.
CO2. Handle open source project.
CO3. Operate on different platform.
CO4. Learn receive and process form submission data.

19IITP55: Practical - VII: Python Programming Lab
Course Outcomes:
CO1. Enable to understand the usage of the Mathematical and Statistical function; and image processing related functions and incorporation of the same functions.
CO2. Enable to develop applications related to business and scientific data in Python.
CO3. Enable to create comprehensive package for data processing methods.
CO4. To search and retrieve the image object and business data from website.

19IITP56: Practical – VIII: Open Source Technology Lab
Course Outcomes:
CO1. Write PHP scripts to find various solutions.
CO2. Write PHP functions to develop the programs.
CO3. Validate the web pages.
CO4. Implement various open source technologies.

19IITT61: Principles and Practices of Communication Systems
Course Outcomes:
CO1. Comprehend the electronic communication system.
CO2. Understand the working principles of AM, DSBSC, SSB and VSB signals.
CO3. Understand the skills in FM Transmission Bandwidth.
CO4. Understand the Fundamental of Noise Theory.
CO5. Know the basic concepts of Digital Transmission, Satellite and Optical Communication.

19IITT62: Mobile Computing
Course Outcomes:
CO1. Have knowledge on the concepts and features of mobile computing technologies and applications.

CO2. Have a good understanding of wireless and mobile communication networks and their applications.
CO3. Identify the important issues of developing mobile computing systems and applications.
CO4. Possess good knowledge on Android platform and Architecture designing User Interface and developing Android App.

19IITT63: Linux and Shell Programming
Course Outcomes:
CO1. have good knowledge in script writing.
CO2. process the text in the Linux environment.
CO3. solve the practical issues in Linux shell scripting.
CO4. able to write scripts with functions.

19IITT64: Data Communications and Network
Course Outcomes:
CO1. Familiarize the student with the basic taxonomy and terminology of the computer networking area.
CO2. Identify the different types of network topologies and protocols.
CO3. To understand the functions of each layer of the OSI model and TCP/IP.
CO4. Familiarize the student with the concept of SDMS, TDMA, FDMA AND CDMA.

19IITT65: Computer Graphics
Course Outcomes:
CO1. Understand the concepts of computer graphics system.
CO2. Handle the devices relates to computer graphics.
CO3. Develop algorithms for geometric transformation.
CO4. Detect visible surfaces using various techniques.

19IITP66: Practical – IX: Shell Programming Lab
Course Outcomes:
CO1. Write shell script for implementing control structures.
CO2. Write shell script for handling strings.
CO3. Write shell script for simulating file commands.
CO4. Write shell script for solving various problems

19IITD67: Mini Project
Course Outcomes:
CO1. Obtain practical knowledge on chosen project domain.
CO2. Distinguish, analyze, articulate and handle projects in a systematic manner. CO3. Manage and work as an individual or in a team in development of technical projects.
CO4. Develop plans and effective communication skills for presentation of project and other development environment.

19IITT71: Distributed Operating System
Course Outcomes:
CO1. Analyze the structure of OS and basic architectural components involved in OS design.
CO2. Analyze and design the applications to run in parallel either using process or thread models of different OS.
CO3. Analyze the various device and resource management techniques for timesharing and distributed systems.

CO4. Understand the Mutual exclusion, Deadlock detection, agreement protocols of Distributed operating system and Interpret the mechanisms adopted for file sharing in distributed Applications.
CO5. Conceptualize the components involved in Real time Operating systems.

19IITT72: Advanced Java Programming
Course Outcomes:
CO1. Learn the Internet Programming, using Java Applets and create a full set of UI widgets using Abstract Windowing Toolkit (AWT) & Swings
CO2. Learn to access database through Java programs, using Java Data Base Connectivity (JDBC)
CO3. Create dynamic web pages using Servlets and JSP
CO4. Invoke the remote methods and multitier application using Remote Method Invocation (RMI) and EJB

19IITT73: Design and Analysis of Algorithms
Course Outcomes:
CO1. Apply design principles and concepts to algorithm design.
CO2. Acquire the mathematical foundation in analysis of algorithms.
CO3. Understand the different algorithmic design strategies.
CO4. Analyze the efficiency of algorithms using various Problems and solve them.
CO5. It implement stepwise procedure to solve problems

19IITT74: Cryptography and Network Security
Course Outcomes: At the end of the course, the student should be able to:
CO1. Understand the fundamentals of networks security, security architecture, threats and vulnerabilities
CO2. Apply the different cryptographic operations of symmetric cryptographic algorithms.
CO3. Apply the different cryptographic operations of public key cryptography.
CO4. Apply the various Authentication schemes to simulate different applications.
CO5. Understand various Security practices and System security standards
19IITP75: Practical – X: Advanced Java Lab
Course Outcomes: On completion of this course the students will be able to
CO1. Create a full set of UI widgets using Abstract Windowing Toolkit (AWT) & Swings.
CO2. Learn to access database through Java programs, using Java Data Base Connectivity (JDBC).
CO3. Create dynamic web pages using Servlets and JSP.
CO4. Invoke the remote methods in an application using Remote Method Invocation (RMI) and EJB.

19IITP76: Practical – XI: Algorithm Lab
Course Outcomes:
CO1. Design and implement the algorithms using appropriate techniques like brute-force, greedy, dynamic programming, etc.
CO2. Implement a variety of algorithm, such as sorting, searching and Tree traverse, combinatorial, with minimum time complexity.
CO3. Analyze and compare the performance of the algorithms in terms of time complexity and accuracy.
CO4. Apply and implement learned algorithm design techniques and data structures to solve real world problems

19IITT81: Advanced Web Technology
Course Outcomes: On the successful completion of this course, students will be able to
CO1. Design a web page with Web form fundamentals and web control classes
CO2. Recognize the importance of validation control, cookies and session

CO3. Apply the knowledge of ASP.NET object, ADO.NET data access and SQL to develop a client server model.
CO4. Recognize the difference between Data list and Data grid controls in accessing data.

19IITT82: Compiler Design
Course Outcomes: On the successful completion of this course, Students will be able to:
CO1. Use the knowledge of patterns, tokens & regular expressions
CO2. Have the knowledge in semantic analysis and syntax directed translation.
CO3. Design a code generator with a knowledge in code optimization.
CO4. Learn the new code optimization techniques to improve the performance of a program in terms of speed and space

19IITT83: Digital Image Processing
Course Outcomes: On completion of this course, the students will be able to
CO1. Analyze general terminology of digital image processing.
CO2. Examine various types of images, intensity transformations and spatial filtering.
CO3. Analyze images in the frequency domain using various transforms.
CO4. Evaluate the methodologies for image compression and segmentation techniques.

19IITP84: Practical – XII: Advanced Web Technology Lab
Course Outcomes:
CO1. Develop to build a complete web application using .NET Framework
CO2. Create interactive web pages using web controls.
CO3. Able to connect with databases using ADO.NET and ASP.NET.
CO4. Develop a simple web application using servicer side PHP programming and Database connectivity using MySQL.
CO5. Able to create a complete web application with all the required modules.

19IITP85: Practical – XIII: Image Processing Lab
Course Outcomes:
CO1. Read and display the image
CO2. Transform the domain from spatial to frequency.
CO3. Apply suitable operators to detect the edge.
CO4. Perform compression and segmentation methods.

19IITT91: Machine Learning
Course Outcomes: On completion of the course students will be expected to:
CO1. Have a good understanding of the fundamental issues and challenges of machine learning: data, model selection, model complexity, etc.
CO2. Have an understanding of the strengths and weaknesses of many popular machine learning approaches.
CO3. Appreciate the underlying mathematical relationships within and across Machine Learning algorithms and the paradigms of supervised and un-supervised learning.
CO4. Be able to design and implement various machine learning algorithms in a range of real-world applications.

19IITT92: Data Warehousing and Mining
Course Outcomes:
CO1. Basic data mining concepts for solving real world problems.
CO2. Understand the concepts of data mining
CO3. Analyze the feasibility of data mining solution.

CO4. Apply basic statistical to evaluate the results of data mining models.
CO5. Develop data mining application to solve problems.

19IITT93: Internet of Things
Course Outcomes:
CO1. Understand the technology and standards relating to IoTs
CO2. Understand the critical parts of the ICT ecosystem required to mainstream IoTs
CO3. Acquire skills on developing their own national and enterprise level technical strategies;
CO4. Interpret the vision of IoT from a global context
CO5. Determine the Market perspective of IoT

19IITP94: Practical – XIV: Machine Learning Lab
Course Outcomes:
CO1. Understand components of a machine learning algorithm.
CO2. Apply machine learning tools to build and evaluate predictors
CO3. Comprehend how machine learning uses computer algorithms to search for patterns in data.
CO4. Familiarize in using data patterns to make decisions and predictions with real-world examples.

19IITP95: Practical – XV: Data Warehousing and Mining Lab
Course Outcomes:
CO1. Implement the data mining tools for data cleaning, pre-processing and data integration.
CO2. Apply the statistical techniques through R tool, Hadoop, WEKA and interpret the results obtained.
CO3. Install outsourcing packages related to R tool, use the statistical techniques and apply time series models and interpret the results obtained.
CO4. Develop packages in R tool related to mathematical and statistical techniques and incorporate them to the R tool.

19IITT101: Cloud Computing
Course Outcomes:
CO1. Apply different cloud programming model as per need.
CO2. Introduce the broad perceptive of cloud architecture
CO3. Learn the economics of outsourcing IT to the Cloud.
CO4. Explore some important cloud computing driven commercial systems such as Google Apps, Microsoft Azure and Amazon Web Services and other businesses cloud applications.
CO5. Learn how DNS works, and how it can be used for service discovery using Cloud.

19IITT102: Advanced Database Management Systems
Course Outcomes:
CO1. Know about the Various data models
CO2. Works on Database Architecture
CO3. Analyze data patterns
CO4. Handle object oriented databases

19IITT103: Data Science and Big Data Analytics
Course Outcomes:
CO1. Identify the characteristics of datasets for various applications.
CO2. Select environment for the applications.
CO3. Solve problems associated with big data characteristics.
CO4. Integrate mathematical and statistical tools with modern technologies like Hadoop and Mapreduce thereby provide better solution.

19IITP104: Practical – XVI: Data Analytics Lab
Course Outcomes:
CO1. Make the students to create data frame, list and factors using R Language.
CO2. Make the students select and implement machine learning techniques and computing environment that are suitable for the applications under consideration.
CO3. Implementing Apriori Algorithm in R using sample data set.
CO4. Make the students to integrate machine learning libraries and mathematical and statistical tools with modern technologies like R Programm and WEKA tools.

19IITP105: Practical – XVII: Advanced Database Management Systems Lab
Course Outcomes:
CO1. Get exposure for students to write complex queries including full outer joins, self-join, sub queries, and set theoretic queries.
CO2. To perform the file organization and query optimization,
CO3. To perform transaction management, and database administration techniques.
CO4. To manage the web based transactions related to databases and recovery.

19IITD106: Project Work/ In-Plant Training
Course Outcomes:
CO1. Discover the most thrust areas in the field of Information Technology.
CO2. Develop a complete project for a particular problem domain.
CO3. Identify, analyse, design and implement any IT related projects.
CO4. Compare and contrast existing solutions for developing a project.
CO5. Demonstrate an ability to work in a teams and manage with good communication skill

19IITE18.1 Internet and its Applications
Course Outcomes:
CO1. Understand Internet technologies.
CO2. Understand basics of communications
CO3. Learn about web servers
CO4. Learn about web browser and search engines.

19IITE18.2 Internet Programming
Course Outcomes:
CO1. Understand the concepts of elements in the web.
CO2. Write programs in Javascript
CO3. Design and implement webpages.
CO4. Understand the XML basics.

19IITE38.1 PHP Scripting Language
Course Outcomes:
CO1. Understand the concepts of elements in the PHP.
CO2. Write programs in PHP.
CO3. Design and implement webpages.
CO4. Deploy web scripting.

19IITE38.2 Multimedia Systems
Course Outcomes:
CO1. Work on multimedia.

CO2. Handle various multimedia software
CO3. Develop multimedia projects.
CO4. Deploy multimedia projects.

19IITE57.1 GUI programming
Course Outcomes:
CO1. Learn major programming paradigms and techniques involved in windows and form based applications
CO2. Learn about Visual Studio and Visual Basic.
CO3. By the end students can develop, implement and creating Applications with Visual Basic
CO4. Creating databases and accessing the databases
CO5. An ability to use current techniques, skills, and tools necessary for computing practice.

19IITE57.2 Problem Solving Techniques
Course Outcomes: On the successful completion of this course, Students will be able to
CO1. write algorithms and to draw flowcharts for solving problems.
CO2. convert the algorithms/flowcharts to programs
CO3. decompose a problem into functions and to develop modular reusable code.
CO4. analyze and implement perform searching and sorting problems.

19IITE86.1: Advanced Computer Networks
Course Outcomes: After the completion of this course, students will be able to
CO1. To master the terminology and concepts of the OSI reference model and the TCP-IP reference model.
CO2. To master the concepts of protocols, network interfaces, and design/performance issues in local area networks and wide area networks.
CO3. To be familiar with wireless networking concepts, and be familiar with contemporary issues in networking technologies.
CO4. To be familiar with network tools and network programming

19IITE86.2: Business Intelligence
Course Outcomes: After the completion of this course students will be able to
CO1. Explain the fundamentals of business intelligence.
CO2. Link data mining with business intelligence.
CO3. Apply various modelling techniques.
CO4. Explain the data analysis and knowledge delivery stages.
CO5. Apply business intelligence methods to various situations.
CO6. Decide on appropriate technique.

19IITE86.3: Distributed and Parallel Computing
Course Outcomes: After the completion of this course, students will be able to
CO1. Explore the methodologies adopted for concurrent and distributed environment.
CO2. Analyse the networking aspects of Distributed and Parallel Computing.
CO3. Design high performance computing.
CO4. Establish effective communication among the network.
19IITE96.1: Object Oriented System Development
Course Outcomes:
CO1. Show how the object-oriented approach differs from the traditional approach to systems analysis and design.
CO2. Analyze, design, document the requirements through use case driven approach

CO3. Explain the importance of modeling and how the Unified Modeling Language (UML) represents an object-oriented system using a number of modeling views.
CO4. Recognize the difference between various object relationships: inheritance, association and aggregation.
CO5. Show the role and function of test cases, testing strategies and test plans in developing object-oriented software

19IITE96.2: Dot NET Programming
Course Outcomes:
CO1. Learn major programming paradigms and techniques involved in design and implementation of modern programming languages.
CO2. Learn about Microsoft .NET framework
CO3. By the end students can develop, implement and creating Applications with C#. VB.NET and ASP.NET
CO4. Creating ASP.Net applications using standard .net controls.
CO5. An ability to use current techniques, skills, and tools necessary for computing practice.

19IITE96.3: Wireless Networks
Course Outcomes:
CO1. Conversant With The Latest 3G/4G And WiMAX Networks And Its Architecture.
CO2. Design and Implement Wireless Network Environment For Any Application Using Latest Wireless Protocols And Standards.
CO3. Implement Different Type of Applications For Smart Phones And Mobile Devices With Latest Network Strategies.

19IITE97.1: Cyber Security
Course Outcomes:
CO1. Assess cyber security risk management policies in order to adequately protect an organizations critical information and assets.
CO2. Measure the performance of security systems within an enterprise-level information system.
CO3. Troubleshoot, maintain and update an enterprise-level information security system.
CO4. Implement continuous network monitoring and provide real-time security solutions.
CO5. Formulate, update and communicate short- and long-term organizational cyber security strategies and policies.

19IITE97.2: Advanced Data Structure and Algorithm
Course Outcomes:
CO1. Appropriate data structure as applied to specified problem definition.
CO2. Handle operations like searching, insertion, deletion, traversing mechanism etc. on various data structures.
CO3. Apply concepts learned in various domains like DBMS, compiler construction etc.
CO4. Analyse the data structures and their implementation algorithms.

19IITE97.3: Web Services
Course Outcomes:
CO1. Understand the design principles and application of SOAP and REST based web services.
CO2. Design collaborating web services according to a specification.
CO3. Implement an application that uses multiple web services in a realistic business scenario.
CO4. Use industry standard open source tools such as Apache Axis2, Tomcat, Derby and Eclipse to build, test, deploy and execute web services and web applications that consume them.
19IITE97.4: Web Database and Information System

Course Outcomes:
CO1. Know the concepts and terminologies related to web analytics.
CO2. Explore various parameters used for web analytics and their impact.
CO3. Explore the use of tools and techniques of web analytics.
CO4. Get experience on websites, web data insights and conversions.

19CSE215.1 R Programming
Course Outcomes:
CO1. Install and use R for simple programming tasks.
CO2. Extend the functionality of R by using add-on packages and extract data from files and other sources and perform various data manipulation tasks on them.
CO3. Code statistical functions in R and use R Graphics and Tables to visualize results of various statistical operations on data.
CO4. Apply the knowledge of R gained to data Analytics for real life applications and to conduct analytics on large real life datasets.

Value Added Courses

19CISA215: Web Development
Course Outcomes:
CO1. Develop simple components in web pages.
CO2. Write code using scripting languages.
CO3. Can connect databases via web applications.
CO4. Design a web page.

19CISA415: Advanced Web Development
Course Outcomes:
CO1. Overall view to develop web pages.
CO2. Write advanced codes in scripting languages.
CO3. Connect the different databases via web applications.

19IENC12: English Through Literature I: Prose
Course Outcomes:
CO1: Competency in communication both in written and oral skills
 CO2: Fluency in the English language
CO3: Knowledge about construction of sentence structures
CO4: English Vocabulary to use the English language effectively
CO5: Proficiency in the four communication skills

19IMAC14: Allied-I Mathematics–I
Course Outcomes:
CO1. Handle matrix applications.
CO2. Understand the calculus, differential calculus, integral calculus and vector differentiation.
CO3. To solve problems related to computer science and applications.

19ISET15: Programming in C
Course Outcomes:
CO1. Develop programs using the basic elements like control statements, arrays and strings
CO2. Understand about the code reusability with the help of user defined functions.
CO3. Develop advanced applications using enumerated data types, function pointer, nested structures, pre-processors and various header file directories.
CO4. Learn the basics of the handling mechanism that is essential for understanding the concepts in systems develop applications.
CO5. Handle the arrays, structures, pointers and more importantly files.

19IENC 22: English Through Literature II: Poetry
Course Outcomes: At the end of the course, the students will be able to: CO1: Competency in communication, both in written and oral skills CO2: Fluency in English language CO3: Knowledge about construction of sentence structures CO4: Vocabulary to use the English language effectively CO5: Acquire the aesthetic sense for appreciating poetry

19IMAC23: Allied-II Discrete Mathematics
Course Outcomes:
CO1. Acquire the basic concepts in mathematical logic and theory of inferences.
CO2. Understand the concepts of set theory, relations and equivalence classes with matrix representation
CO3. Formalities lattice theory, Boolean algebra and group theory
CO4. Understand the basic concepts of graph theory, Eulerian and Hamiltonian graphs.

19ISET24: Data Structures and Algorithms
Course Outcomes:
CO1. Implement suitable data structures for various applications.
CO2. Use appropriate sorting techniques.
CO3. Handle different file organizations.
CO4. Familiarize with the usage of symbol tables.

19ISET25: Digital Computer Fundamentals
Course Outcomes:
CO1. Convert different type of codes and number systems which are used in digital communication and computer systems.
CO2. Form different digital circuits and analyse different types of digital electronic circuit
CO3. Implement logical operations using combinational logic circuits.
CO4. Understand the counters
CO5. Know the basic terms and ideas of ROM and RAM

19ISEP26: Practical – I: C Programming
Course Outcomes:
CO1. Know concepts in problem solving and understand the fundamentals of C programming.
CO2. Choose the loops and decision making statements to solve the problem.
CO3. Implement different Operations on arrays.
CO4. Ability to work with textual information, characters and strings.
CO5. Ability to understand the different sorting algorithm and their complexity.

19ISEP27: Practical – II: Data Structures Using C
Course Outcomes:
CO1. Analyse the problem and develop the mathematical logic and algorithm.
CO2. Analyse the problem and implement the dynamic memory concepts.
CO3. Analyse the problem and should have the implementation of the non-linear data structures like Tree and Graph.
CO4. Implement the various Searching and Sorting Techniques with Time complexity.
CO5. Analyse and implement the appropriate data structures with optimized memory and computational time complexity

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19IENC32: English Through Literature III: Drama
Course Outcomes:
CO1: Obtain a literary acumen to answer MCQs of NET/SET Examinations and other competitive examination
CO2: Appreciate conversational English
CO3: Recognize the dramatic elements of Shakespearean dramas
CO4: Use punctuations and capitals effectively in their composition
CO5: Recognize the elements of the spoken discourses

19IMAC33: Allied-III Resource Management Technique
Course Outcomes:
CO1. Model any real life situation into a mathematical model,
CO2. Solve the problem for the required demand,
CO3. Optimize the transportation and assignment of jobs,
CO4. Upgrade their ability in production management through project scheduling and allocation of resources,
CO5. Develop their personnel management through manpower planning and salary administration

19ISET34: Relational Data Base Management Systems
Course Outcomes:
CO1. Analyse and design required tables with appropriate forms.

CO2. Analyse the problem at various subsystem level with appropriate data types and marshalling.
CO3. To design the relational database with appropriate features using various normalization.
CO4. Design basic database storage structures and access techniques.

19ISET35: Internet Programming
Course Outcomes:
CO1. Understand the concepts of elements in the web.
CO2. Write programs in Javascript and servelets.
CO3. Design and implement webpages.
CO4. Deploy web services.

19ISEP36: Practical – III: SQL and PL/SQL
Course Outcomes:
CO1. Identify the data types, draw appropriate conceptual models, design database structure, and forms.
CO2. Implement different types of queries.
CO3. Develop the PL/SQL program for scientific problems and business data models.
CO4. Implement the DDL, DML and DCL methods in Business data models.
CO5. Normalize the business data model and should have the ability of implement the object oriented database concepts

19IENC 42: English Through Literature IV: Short Story
Course Outcomes:
CO1. Use more vocabularies while writing
CO2. Learner can ensure about the history and development
 CO3. The learner has a development in flow of writing
CO4. Students can come up with new ideas while reading stories from different perspectives.
CO5. Write in a style appropriate for communicative purposes

19ISET43: Object Oriented Programming Using C++
Course Outcomes:
CO1. Describe the principles of object-oriented problem solving and programming.
CO2. Explain programming fundamentals, including statement and control flow.
CO3. Apply the concepts of class, method, constructor, pointers, data abstraction, function abstraction, inheritance, overriding, overloading, polymorphism, IO streams, Templates.
CO4. Design program with basic data structure like array.

19ISET44: Web Technology
Course Outcomes:
CO1. Analyze a web page and identify its elements and attribute.
CO2. Create web pages using HTML and CSS.
CO3. Validate the web data using java Script
CO4. Develop applications using JSP.

19ISET45: Computer Graphics
Course Outcomes:
CO1. Understand the concepts of computer graphics system
CO2. Handle the devices related to computer graphics.
CO3. Develop algorithms for geometric transformation.
CO4. Detect visible surfaces using various techniques.

19ISEP46: Practical – IV: C++ Programming
Course Outcomes:
CO1. Demonstrate the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.
CO2. Implement dynamic memory management techniques using pointers, constructors, destructors, etc
CO3. Write programs using concept of function overloading, operator overloading, virtual functions and polymorphism.
CO4. Implement early and late binding, usage of exception handling and generic programming.
CO5. Implement the use of various OOPs concepts with the help of program.

19ISEP47: Practical-V: Web Technology Lab
Course Outcomes:
CO1. Develop to build a complete website using HTML
CO2. Create web pages using DHTML and Cascading Style Sheets.
CO3. Able to include JavaScript for form validations and email validations.
CO4. Develop a simple web application using server side PHP programing and Database Connectivity using MySQL.

19ISET51: Operating Systems
Course Outcomes:
CO1. Understand the structure the OS and basic architectural components involved in OS design.
CO2. Understands the concepts of operating structure and how to design and implement the system.
CO3. Understands the concept of scheduling for process and how to avoid the dead lock situations for the process.
CO4. Finding the ways to manage the memory and how to utilize the memory effectively.

19ISET52: Programming in Java
Course Outcomes:
CO1. Identify, declare and define the data type with scope of the variables and methods.
CO2. Identify and define the modules, classes, subclasses and methods.
CO3. To develop a package using inheritance and interface.
CO4. To identify and divide the system into various subsystems and apply the multithreading concepts. Also the student can be able to operate file handling mechanisms.
CO5. To develop GUI based applications using Applet and Swing

19ISET53: Computer Networks
Course Outcomes:
CO1. To master the terminology and concepts of the OSI reference model and the TCP-IP reference model.
CO2. To master the concepts of protocols, network interfaces, and design/performance issues in local area networks and wide area networks.
CO3. To be familiar with wireless networking concepts.
CO4. To be familiar with contemporary issues in networking technologies.

19ISET54: Multimedia Systems
Course Outcomes:
CO1. Work on multimedia.
CO2. Handle various multimedia softwares

CO3. Develop multimedia projects.
CO4. Deploy multimedia projects.

19ISEP55: Practical – VI: Java Programming
Course Outcomes:
CO1. Understand Android platform, Architecture and features.
CO2. Design User Interface and develop activity for Android App.
CO3. Use Intent, Broadcast receivers and Internet services in Android App.
CO4. Design and implement Database Application and Content providers.

19ISEP56: Practical – VII: Open Source Technology Lab
Course Outcomes:
CO1. Write PHP scripts to find various solutions.
CO2. Write PHP functions to develop the programs
CO3. Implement various open source technologies.
CO4. Design and deploy the product

19ISET61: Programming in Python
Course Outcomes:
CO1. analyze and design strategies for solving basic programming problems.
CO2. use primitive data types, selection statements, loops, functions to write programs.
CO3. develop programs to solve a variety of problems in math, science, business, and games.
CO4. use the step-wise refinement approach.
CO5. use lists to store, process, and sort data.

19ISET62: Software Engineering
Course Outcomes:
CO1. Analyse the problem, estimate cost, time and risk and model the problem.
CO2. Gather information about the project and validate the requirements.
CO3. Design and develop various design tools.
CO4. Understand the various testing techniques and how to test the system with various approaches.

19ISET63: Linux and Shell Programming
Course Outcomes:
CO1. Posses good knowledge in script writing.
CO2. Process the text in the Linux environment.
CO3. Solve the practical issues in Linux shell scripting.
CO4. Able to write scripts with functions.

19ISET64: Mobile Computing
Course Outcomes:
CO1. Have knowledge on the concepts and features of mobile computing technologies and applications.
CO2. Have a good understanding of wireless and mobile communication networks and their applications.
CO3. Identify the important issues of developing mobile computing systems and applications.

CO4. Possess good knowledge on Android platform and Architecture designing User Interface and developing Android App.

19ISET65: Wireless Network
Course Outcomes:
CO1. Conversant With The Latest 3G/4G And WiMAX Networks And Its Architecture.
CO2. Design and Implement Wireless Network Environment For Any Application Using Latest Wireless Protocols And Standards.
CO3. Implement Different Type of Applications For Smart Phones And Mobile Devices With Latest Network Strategies.

19ISEP66: Practical - VIII: Python Programming
Course Outcomes:
CO1. Enable to understand the usage of the Mathematical and Statistical function; and image processing related functions and incorporation of the same functions.
CO2. Enable to develop applications related to business and scientific data in Python.
CO3. Enable to create comprehensive package for data processing methods.
CO4. To search and retrieve the image object and business data from website.

19ISEP67: Practical –IX: Shell Programming
Course Outcomes:
CO1. Write shell script for implementing control structures.
CO2. Write shell script for handling strings.
CO3. Write shell script for simulating file commands.
CO4. Write shell scripts for solving various problems.

19ISET71: Design and Analysis of Algorithms
Course Outcomes:
CO1. Apply design principles and concepts to algorithm design.
CO2. Acquire the mathematical foundation in analysis of algorithms.
CO3. Understand the different algorithmic design strategies.
CO4. Analyze the efficiency of algorithms using various Problems and solve them.
CO5. It implement stepwise procedure to solve problems

19ISET72: Advanced Web Technology
Course Outcomes:
CO1. Design a web page with Web form fundamentals and web control classes
CO2. Recognize the importance of validation control, cookies and session
CO3. Apply the knowledge of ASP.NET object, ADO.NET data access and SQL to develop a client server model.
CO4. Recognize the difference between Data list and Data grid controls in accessing data.

19ISET73: Advanced Database Management Systems
Course Outcomes:
CO1. Know about the Various data models
CO2. Works on Database Architecture
CO3. Analyze data patterns
CO4. Handle object oriented databases
19ISET74: Software Project Management
Course Outcomes:

CO1. Analyze the scope, cost, timing, and quality of the project, at all times focused on project success as defined by project stakeholders.
CO2. Align the project to the organization's strategic plans and business justification throughout its lifecycle.
CO3. Identify project goals, constraints, deliverables, performance criteria, control needs, and resource requirements in consultation with stakeholders.
CO4. Implement project management knowledge, processes, lifecycle and the embodied concepts, tools and techniques in order to achieve project success
CO5. Adapt projects in response to issues that arise internally and externally

19ISEP75: Practical – X: Advanced Web Technology Lab
Course Outcomes:
CO1. Develop to build a complete web application using .NET Framework
CO2. Create interactive web pages using web controls.
CO3. Able to connect with databases using ADO.NET and ASP.NET.
CO4. Develop a simple web application using servicer side PHP programming and database connectivity using MySQL.
CO5. Able to create a complete web application with all the required modules.

19ISEP76: Practical – XI: Algorithm Lab
Course Outcomes:
CO1. Design and implement the algorithms using appropriate techniques like brute-force, greedy, dynamic programming, etc.
CO2. Implement a variety of algorithm, such as sorting, searching and Tree traverse, combinatorial, with minimum time complexity.
CO3. Analyze and compare the performance of the algorithms in terms of time complexity and accuracy.
CO4. Apply and implement learned algorithm design techniques and data structures to solve real world problems

19ISET81: Distributed Operating System
Course Outcomes:
CO1. Analyze the structure of OS and basic architectural components involved in OS design.
CO2. Analyze and design the applications to run in parallel either using process or thread models of different OS.
CO3. Analyze the various device and resource management techniques for timesharing and distributed systems.
CO4. Understand the Mutual exclusion, Deadlock detection, agreement protocols of Distributed operating system and Interpret the mechanisms adopted for file sharing in distributed Applications.
CO5. Conceptualize the components involved in Real time Operating systems.

19ISET82: Advanced Java Programming
Course Outcomes:
CO1. Learn the Internet Programming, using Java Applets and create a full set of UI widgets using Abstract Windowing Toolkit (AWT) & Swings
CO2. Learn to access database through Java programs, using Java Data Base Connectivity (JDBC)
CO3. Create dynamic web pages using Servlets and JSP
CO4. Invoke the remote methods and multitier application using Remote Method Invocation (RMI) and EJB

19ISET83: Dot Net Programming
Course Outcomes:
CO1. Learn major programming paradigms and techniques involved in design and implementation of modern programming languages.
 CO2. Learn about Microsoft .NET framework
 CO3. By the end students can develop, implement and creating Applications with C#. VB.NET and ASP.NET.
CO4. Creating ASP.Net applications using standard .net controls.
CO5. An ability to use current techniques, skills, and tools necessary for computing practice

19ISEP84: PRACTICAL – XII: Advanced Java- Lab
Course Outcomes:
CO1. Create a full set of UI widgets using Abstract Windowing Toolkit (AWT) & Swings.
CO2. Learn to access database through Java programs, using Java Data Base Connectivity (JDBC).
CO3. Create dynamic web pages using Servlets and JSP.
CO4. Invoke the remote methods in an application using Remote Method Invocation (RMI) and EJB.

19ISEP85: PRACTICAL – XIII: Dot Net Programming Lab
Course Outcomes:
CO1. Develop correct, well-documented C# programs using control statements.
CO2. Develop object oriented programming using C# classes and objects.
CO3. Handle the exception and event-driven programs.
CO4. Perform network based programming including chat applications.
CO5. Develop windows and web based applications

19ISET91: Digital Image Processing
Course Outcomes:
CO1. Analyze general terminology of digital image processing.
CO2. Examine various types of images, intensity transformations and spatial filtering.
CO3. Analyze images in the frequency domain using various transforms.
CO4. Evaluate the methodologies for image compression and segmentation techniques.

19ISET92: Machine Learning
Course Outcomes:
CO1. Have a good understanding of the fundamental issues and challenges of machine learning: data, model selection, model complexity, etc.
CO2. Have an understanding of the strengths and weaknesses of many popular machine learning approaches.
CO3. Appreciate the underlying mathematical relationships within and across Machine Learning algorithms and the paradigms of supervised and un-supervised learning.
CO4. Be able to design and implement various machine learning algorithms in a range of real-world applications.

19ISET93: Internet OF Things
Course Outcomes:
CO1. Understand the technology and standards relating to IoTs
CO2. Understand the critical parts of the ICT ecosystem required to mainstream IoTs
CO3. Acquire skills on developing their own national and enterprise level technical strategies;
CO4. Interpret the vision of IoT from a global context

CO5. Determine the Market perspective of IoT.

19ISEP94: Practical – XIV: Image Processing - Lab
Course Outcomes:
CO1. Read and display the image
CO2. Transform the domain from spatial to frequency.
CO3. Apply suitable operators to detect the edge.
CO4. Perform compression and segmentation methods.

19ISEP95: Practical – XV: Machine Learning - Lab
Course Outcomes:
CO1. Understand components of a machine learning algorithm.
CO2. Apply machine learning tools to build and evaluate predictors
CO3. Comprehend how machine learning uses computer algorithms to search for patterns in data.
CO4. Familiarize in using data patterns to make decisions and predictions with real-world examples.

19ISET101: Software Testing and Quality Assurance
Course Outcomes:
CO1. Apply modern software testing processes in relation to software development and project management.
CO2. Create test strategies and plans, design test cases, prioritize and execute them.
CO3. Manage incidents and risks within a project.
CO4. Contribute to efficient delivery of software solutions and implement improvements in the software development processes.

19ISET102: Data Science and Big Data Analytics
Course Outcomes:
CO1. Identify the characteristics of datasets for various applications.
CO2. Select environment for the applications.
CO3. Solve problems associated with big data characteristics.
CO4. Integrate mathematical and statistical tools with modern technologies like Hadoop and Mapreduce thereby provide better solution

19ISEP103: Practical – XVI: Software Testing Lab
Course Outcomes:
CO1. Apply modern software testing processes in relation to software development and project management.
CO2. Create test strategies and plans, design test cases, prioritize and execute them.
CO3. Manage incidents and risks within a project.
CO4. Contribute to efficient delivery of software solutions and implement improvements in the software development processes

19ISEP104: Dissertation and Viva-Voce / In-Plant Training
Course Outcomes:
CO1. Discover the most thrust areas in the field of Information Technology.
CO2. Develop a complete project for a particular problem domain.
CO3. Identify, analyse, design and implement any IT related projects.
CO4. Compare and contrast existing solutions for developing a project.
CO5. Demonstrate an ability to work in a teams and manage with good communication skill.

19ISEE16.1: Computer Organization and Architecture
Course Outcomes:
CO1. Understand the Organization of Computer and Basic Architecture Components involved in Computer Designs.
CO2. Explain the Central Processing Units system and Address, Arithmetic and Logical Instructions.
CO3. Analyse the various devices and Input / Output Organization Systems.
CO4. Understand the Addressing methods and Programs of Bus Structure in Computer Systems.

19ISEE16.2 : Microprocessor and Its Applications
Course Outcomes:
CO1. Understand basic architecture of 8085,8051 microcontroller and 8086 microprocessor.
CO2. Understand interfacing of 8 bit,16 bit,32 bit and 64 bit microprocessor with memory and peripheral device.
CO3. Understand the concept of Pentium processor.
CO4. Distinguish between Microprocessor and Microcontroller.

19ISEE37.1: System Software
Course Outcomes:
CO1. Develop the system and program in assembler and lexical analyser.
CO2. Develop SIC assembler functions and algorithm, Program relocation and Machine independent assembler features.
CO3. Understand how linker and loader create an executable program from an object module created by assembler and compiler.
CO4. Understand macro processor functions, definition and expansion, macro processor algorithm, Macro within Macro-Implementation and ANSI C Macro language.

19ISEE37.2: Compiler Design
Course Outcomes:
CO1. Use the knowledge of patterns, tokens & regular expressions
CO2. Have the knowledge in semantic analysis and syntax directed translation.
CO3. Design a code generator with a knowledge in code optimization.
CO4. Learn the new code optimization techniques to improve the performance of a program in terms of speed and space.

19ISEE57.1: Open Source Technology
Course Outcomes:
CO1. Access the open source software.
CO2. Handle open source project.
CO3. Operate on different platform.
CO4. Learn receive and process form submission data

19ISEE57.2: Cyber Security
Course Outcomes:
CO1. Assess cyber security risk management policies in order to adequately protect an organizations critical information and assets.
CO2. Measure the performance of security systems within an enterprise-level information system.
CO3. Troubleshoot, maintain and update an enterprise-level information security system.
CO4. Implement continuous network monitoring and provide real-time security solutions.

CO5. Formulate, update and communicate short- and long-term organizational cyber security strategies and policies.

19ISEE86.1. Object Oriented System Development
Course Outcomes:
CO1. Show how the object-oriented approach differs from the traditional approach to systems analysis and design.
CO2. Analyze, design, document the requirements through use case driven approach
CO3. Explain the importance of modeling and how the Unified Modeling Language (UML) represents an object-oriented system using a number of modeling views.
CO4. Recognize the difference between various object relationships: inheritance, association and aggregation.
CO5. Show the role and function of test cases, testing strategies and test plans in developing object-oriented software

19ISEE86.2. Advanced Data Structure and Algorithm
Course Outcomes:
CO1. Appropriate data structure as applied to specified problem definition.
CO2. Handle operations like searching, insertion, deletion, traversing mechanism etc. on various data structures.
CO3. Apply concepts learned in various domains like DBMS, compiler construction etc.
CO4. Analyse the data structures and their implementation algorithm.

19ISEE86.3. Theory of Computation
Course Outcomes:
CO1. Analyse and design finite automata, pushdown automata, Turing machines, formal languages, and grammars.
CO2. Demonstrate their the understanding of key notions, such as algorithm, computability, decidability, and complexity through problem solving.
CO3. Prove the basic results of the Theory of Computation, state and explain the relevance of the Church-Turing thesis.
 CO4. Design formal languages and grammars

19ISEE87.1. Social Computing
Course Outcomes:
CO1. Represent knowledge using social networks.
CO2. Predict human behaviour in social web related communities.
CO3. Develop the different models of social web.
CO4. Apply the data analysis methods.
CO5. Develop social web applications.

19ISEE87.2. Cloud Computing
Course Outcomes:
CO1. Apply different cloud programming model as per need.
CO2. Introduce the broad perceptive of cloud architecture
CO3. Learn the economics of outsourcing IT to the Cloud.
CO4. Explore some important cloud computing driven commercial systems such as Google Apps, Microsoft Azure and Amazon Web Services and other businesses cloud applications.
CO5. Learn how DNS works, and how it can be used for service discovery using Cloud.

19ISEE87.3.Distributed and Parallel Computing
Course Outcomes:
CO1. Explore the methodologies adopted for concurrent and distributed environment.
CO2. Analyse the networking aspects of Distributed and Parallel Computing.
CO3. Design high performance computing.
CO4. Establish effective communication among the network.

19ISEE96.1. Embedded Systems
Course Outcomes:
CO1. Describe the differences between the general computing system and the embedded system, also recognize the classification of embedded systems. CO2. Become aware of interrupts, hyper threading and software optimization. CO3. Design real time embedded systems using the concepts of RTOS. CO4. Implement real time embedded systems

19ISEE96.2 Cryptography and Network Security
Course Outcomes:
CO1. Understand the fundamentals of networks security, security architecture, threats and vulnerabilities
CO2. Apply the different cryptographic operations of symmetric cryptographic algorithms.
CO3. Apply the different cryptographic operations of public key cryptography.
CO4. Apply the various Authentication schemes to simulate different applications.
CO5. Understand various Security practices and System security standards.

19ISEE96.3 Web Services
Course Outcomes:
CO1. Understand the design principles and application of SOAP and REST based web services.
CO2. Design collaborating web services according to a specification.
CO3. Implement an application that uses multiple web services in a realistic business scenario.
CO4. Use industry standard open source tools such as Apache Axis2, Tomcat, Derby and Eclipse to build, test, deploy and execute web services and web applications that consume them.

19ISEE97.1 Web Database and Information System
Couse outcomes**:**
CO1. Know the concepts and terminologies related to web analytics.
CO2. Explore various parameters used for web analytics and their impact.
CO3. Explore the use of tools and techniques of web analytics.
CO4. Get experience on websites, web data insights and conversions

19ISEE97.2 – Business Intelligence
Course Outcomes:
CO1. Explain the fundamentals of business intelligence.
CO2. Link data mining with business intelligence.
CO3. Apply various modelling techniques.
CO4. Explain the data analysis and knowledge delivery stages.
CO5. Apply business intelligence methods to various situations.
CO6. Decide on appropriate technique.

19ISEE97.3. Advanced Computer Networks
Course Outcomes:
CO1. To master the terminology and concepts of the OSI reference model and the TCP-IP reference model.

CO2. To master the concepts of protocols, network interfaces, and design/performance issues in local area networks and wide area networks.
CO3. To be familiar with wireless networking concepts, and be familiar with contemporary issues in networking technologies.
CO4. To be familiar with network tools and network programming

19CSE215.1 R Programming
Course Outcomes:
CO1. Install and use R for simple programming tasks.
CO2. Extend the functionality of R by using add-on packages and extract data from files and other sources and perform various data manipulation tasks on them.
CO3. Code statistical functions in R and use R Graphics and Tables to visualize results of various statistical operations on data.
CO4. Apply the knowledge of R gained to data Analytics for real life applications. to conduct analytics on large real life datasets