SIES Graduate School of Technology

Department of Information Technology

Course Outcomes (CBCS)

SEM III

Course Name: Applied Mathematics-III

Course Outcomes : student should be able to:

ITC301.1	Apply Laplace transforms to different applications.
ITC301.2	Apply Inverse Laplace transforms to different applications.
ITC301.3	Define variables and also identify the mapping.
ITC301.4	Apply the Set theory and Relations
ITC301.5	Apply the Functions and define the recursive functions
ITC301.6	Identify the Permutations and Combinations

Course Name: Logic Design

Course Outcomes : student should be able to:

ITC302.1	Understand the concepts of various components to design stable analog circuits.
ITC302.2	Understand different number system and codes and perform arithmetic operations.
ITC302.3	Minimize the Boolean expression using Boolean algebra and design it using logic gates
ITC302.4	Analyze and design combinational circuit.
ITC302.5	Design and develop sequential circuits
ITC302.6	Examine real world problems into digital logic formulations using VHDL.

Course Name: Data structures and Analysis

Course Outcomes : student should be able to:

ITC303.1	Select appropriate data structures as applied to specified problem definition.
ITC303.2	Implement operations like searching, insertion, and deletion, traversing mechanism etc. on various data structures.
ITC303.3	Students will be able to implement Linear and Non-Linear data structures. 4. Implement appropriate sorting/searching technique for given problem.
ITC303.4	Implement appropriate sorting/searching technique for given problem.
ITC303.5	Design advance data structure using Non-Linear data structure.
ITC303.6	Determine and analyze the complexity of given Algorithms.

Course Name: Database Management System

Course Outcomes : student should be able to:

ITC304.1	Explain the features of database management systems and Relational database.
ITC304.2	Design conceptual models of a database using ER modeling for real life applications and also construct queries in Relational Algebra.
ITC304.3	Create and populate a RDBMS for a real life application, with constraints and keys, using SQL.
ITC304.4	Retrieve any type of information from a data base by formulating complex queries in SQL.
ITC304.5	Analyze the existing design of a database schema and apply concepts of normalization to design an optimal database.
ITC304.6	Build indexing mechanisms for efficient retrieval of information from a database.

Course Name: Principle of communications

Course Outcomes : student should be able to:

ITC305.1	Differentiate analog and digital communication systems.
ITC305.2	Identify different types of noise occurred, its minimization and able to apply Fourier analysis in frequency & time domain to quantify bandwidth requirement of variety of analog and digital communication systems.
ITC305.3	Design generation & detection AM, DSB, SSB, FM transmitter and receiver.
ITC305.4	Apply sampling theorem to quantify the fundamental relationship between channel bandwidth, digital symbol rate and bit rate
ITC305.5	Explain different types of line coding techniques for generation and detection of signals.
ITC305.6	Describe Electromagnetic Radiation and propagation of waves.

Course Name: Digital Design

Course Outcomes : student should be able to:

ITL301.1	Minimize the Boolean algebra and design it using logic gate.
ITL301.2	Analyse and design combinational circuit
ITL301.3	Realise given function using combinational circuit.
ITL301.4	Design and develop sequential circuits
ITL301.5	Implement digital systems using programmable logic devices.
ITL301.6	Translate real world problems into digital logic formulations using VHDL.

Course Name: Data Structures and Analysis

Course Outcomes : student should be able to:

ITL302.1	Select appropriate data structures as applied to specified problem definition.
ITL302.2	Implement operations like searching, insertion, and deletion, traversing mechanism etc. on various data structures.
ITL302.3	Students will be able to implement Linear and Non-Linear data structures.
ITL302.4	Implement appropriate sorting/searching technique for given problem.
ITL302.5	Design advance data structure using Non-Linear data structure.
ITL302.6	Determine and analyze the complexity of given Algorithms.

Course Name: SQL Lab

Course Outcomes : student should be able to:

ITL303.1	Construct problem definition statements for real life applications and implement a database for the same.
ITL303.2	Design conceptual models of a database using er modeling for real life applications and also construct queries in relational algebra.
ITL303.3	Create and populate a rdbms, using sql.
ITL303.4	Write queries in sql to retrieve any type of information from a data base.
ITL303.5	Analyze and apply concepts of normalization to design an optimal database.
ITL303.6	Implement indexes for a database using techniques like b or b+ trees.

Course Name: Java Programming Lab

Course Outcomes : student should be able to:

ITL304.1	Implement Object Oriented programming concept using basic syntaxes of control Structures, strings and function for developing skills of logic building activity.
ITL304.2	Identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem
ITL304.3	Demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.
ITL304.4	Demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development.
ITL304.5	Identify and describe common abstract user interface components to design GUI in Java using Applet & AWT along with response to events
ITL304.6	Identify, Design & develop complex Graphical user interfaces using principal Java Swing classes based on MVC architecture

SEM IV

Course Name Applied Mathematics-IV

Course Outcomes : student should be able to:

ITC401.1	Apply the Number Theory to different applications using theorem.
ITC401.2	Apply probability and understand PDF.
ITC401.3	Understand sampling theory and correlation.
ITC401.4	Apply the graphs and trees concepts to different applications
ITC401.5	Understand group's theory.
ITC401.6	Understand the Lattice theory.

Course Name Computer Network

Course Outcomes : student should be able to:

ITC402.1	CO1. Describe the functions of each layer in OSI and TCP/IP model.
ITC402.2	CO2.Explain the functions of Application layer and Presentation layer paradigms and Protocols.
ITC402.3	CO3.Describe the Session layer design issues and Transport layer services
ITC402.4	CO4. Classify the routing protocols and analyze how to assign the IP addresses for the given network.
ITC402.5	CO5.Describe the functions of data link layer and explain the protocols.
ITC402.6	CO6.Explain the types of transmission media with real time applications.

Course Name Operating system

Course Outcomes : student should be able to:

ITC403.1	CO1. Describe the important computer system resources and the role of operating system in their management policies and algorithms.
ITC403.2	CO2. Describe the process management policies and scheduling of processes by CPU
ITC403.3	CO3. Evaluate the requirement for process synchronization and coordination handled by operating system
ITC403.4	CO4. Describe and analyze the memory management and its allocation policies
ITC403.5	CO5. Identify use and evaluate the storage management policies with respect to different storage management technologies
ITC403.6	CO6. Identify the need to create the special purpose operating system

Course Name Computer Organization andArchitecture

Course Outcomes : student should be able to:

ITC404.1	CO1.Describe basic organization of computer and the architecture of 8086 microprocessor.
ITC404.2	CO2.Implement assembly language program for given task for 8086 microprocessor.
ITC404.3	CO3. Demonstrate control unit operations and conceptualize instruction level parallelism.
ITC404.4	CO4.Demonstrate and perform computer arithmetic operations on integer and real numbers.

ITC404.5	CO5.Categorize memory organization and explain the function of each element of a memory hierarchy.
ITC404.6	CO6.Identify and compare different methods for computer I/O mechanisms.

Course Name Automata Theory

Course Outcomes : student should be able to:

ITC405.1	CO1.Understand, design, construct, analyze and interpret Regular languages, Expression and Grammars.
ITC405.2	CO2.Design different types of Finite Automata and Machines as Acceptor, Verifier and Translator.
ITC405.3	CO3. Understand, design, analyze and interpret Context Free languages, Expression and Grammars.
ITC405.4	CO4.Design different types of Push down Automata as Simple Parser.
ITC405.5	CO5.Design different types of Turing Machines as Acceptor, Verifier, Translator and Basic computing machine
ITC405.6	CO6.Compare, understand and analyze different languages, grammars, Automata and Machines and appreciate their power and convert Automata to Programs and Functions

Course Name Networking Lab

Course Outcomes : student should be able to:

ITL401.1	LO1.Execute and evaluate network administration commands and demonstrate their use in different network scenarios
ITL401.2	LO2.Demonstrate the installation and configuration of network simulator.
ITL401.3	LO3.Demonstrate and measure different network scenarios and their performance behavior.
ITL401.4	LO4.Analyze the packet contents of different protocols
ITL401.5	LO5.Implement the socket programming for client server architecture
ITL401.6	LO6.Design and setup a organization network using packet tracer

Course Name Unix Lab

Course Outcomes : student should be able to:

ITL402.1	LO1. Identify the basic Unix general purpose commands.
ITL402.2	LO2. Apply and change the ownership and file permissions using advance Unix commands.
ITL402.3	LO3. Use the awk, grep, perl scripts.
ITL402.4	LO4.Implement shell scripts and sed.
ITL402.5	LO5. Apply basic of administrative task.
ITL402.6	LO6.Apply networking Unix commands.

Course Name Microprocessor programming lab

Course Outcomes : student should be able to:

ITL403.1	LO1. Apply the fundamentals of assembly level programming of microprocessors.
ITL403.2	LO2.Build a program on a microprocessor using arithmetic & logical instruction set of 8086.
ITL403.3	LO3.Develop the assembly level programming using 8086 loop instruction set.

ITL403.4	LO4. Write programs based on string and procedure for 8086 microprocessor.
ITL403.5	LO5. Analyze abstract problems and apply a combination of hardware and software to address the problem
ITL403.6	LO6. Make use of standard test and measurement equipment to evaluate digital interfaces.

Course Name Python Lab

Course Outcomes : student should be able to:

ITL404.1	LO1. Describe the Numbers, Math functions, Strings, List, Tuples and Dictionaries in Python
ITL404.2	LO2. Express different Decision Making statements and Functions
ITL404.3	LO3. Interpret Object oriented programming in Python
ITL404.4	LO4.Understand and summarize different File handling operations
ITL404.5	LO5. Explain how to design GUI Applications in Python and evaluate different database operations
ITL404.6	LO6. Design and develop Client Server network applications using Python

SEM V

Course Name Microcontroller & Embedded Programming

Course Outcomes : student should be able to:

ITC501.1	CO1.Students will be able to analyse conceptual embedded system for a given purpose
ITC501.2	CO2.Students will be able to describe architecture of microcontroller 8051 and demonstarte assembly and embedded C programming skills for 8051 microcontroller
ITC501.3	CO3.Students will be able to Design the interfacing of I/O devices with 8051 microcontroller.
ITC501.4	CO4.Students will be able to describe architecture of ARM7 and demonstarte assembly programming skills for ARM7 processor
ITC501.5	CO5.Students will be able to Demonstare the fundamentals of Real-Time Operating System.
ITC501.6	CO6.students will be able to select elements for designing any embedded systems application

Course Name Image Processing

Course Outcomes : student should be able to:

ITDLO5012.1	CO1. Students will be able to explain the fundamental concepts of image processing.
ITDLO5012.2	CO2. Students will be able to explain different Image enhancement techniques
ITDLO5012.3	CO3. Students will be able to describe and review image transforms
ITDLO5012.4	CO4. Students will be able to analyze the basic algorithms used for image processing &image compression with morphological image processing.
ITDLO5012.5	CO5. Students will be able to contrast Image Segmentation and Representation
ITDLO5012.6	CO6. Students will be able to design & synthesize Color image processing and its real world applications.

Course Name Internet Programming

Course Outcomes : student should be able to:

ITC502.1	Implement interactive web page(s) using HTML,CSS and JavaScript.
ITC502.2	Design a responsive web site using HTML5 and CSS3.
ITC502.3	Demonstrate Rich Internet Application .
ITC502.4	Build Dynamic web site using server side PHP Programming and Database connectivity.
ITC502.5	Describe and differentiate different Web Extensions and Web Services.
ITC502.6	Demonstrate web application using Python web Framework-Django

Course Name Advanced Data Management Technology

Course Outcomes : student should be able to:

ITC503.1	CO1. Explain and understand the concept of a transaction and how acid properties are maintained when concurrent transaction occur in a database
ITC503.2	CO2. Measure query costs and design alternate efficient paths for query execution
ITC503.3	CO3. Apply sophisticated access protocols to control access to the database
ITC503.4	CO4. Implement alternate models like distributes databases and design applications using advanced models like mobile, spatial databases
ITC503.5	CO5. Organize strategic data in an enterprise and build a data warehouse

ITC503.6	CO6. Analyze data using OLAP operations so as to take strategic decisions

Course Name	Cryptography & Network Security
	Course Outcomes : student should be able to:
ITC504.1	CO1 . Apply the knowledge of symmetric cryptography to implement simple ciphers
ITC504.2	CO2 . Analyze and implement public key algorithms like rsa and el gamal
ITC504.3	CO3 . Analyze and evaluate performance of hashing algorithms
ITC504.4	CO4 . Explore the different network reconnaissance tools to gather information about networks
ITC504.5	CO5 . Use tools like sniffers, port scanners and other related tools for analyzing packets in a network.
ITC504.6	CO6 . Apply and set up firewalls and intrusion detection systems using open source technologies and to explore email security.

Course Name	Internet Programming Lab
	Course Outcomes : student should be able to:
ITL501.1	Design a basic web site using HTML5 and CSS3 to demonstrate responsive web design.
ITL501.2	Implement dynamic web pages with validation using JavaScript objects by applying different event handling mechanism.
ITL501.3	Use AJAX Programming Technique to develop RIA
ITL501.4	Develop simple web application using server side PHP programing and Database Connectivity using MySQL.
ITL501.5	Build well-formed XML Document and implement Web Service using Java.
ITL501.6	Demonstrate simple web application using Python Django Framework.

Course Name	Security Lab
	Course Outcomes : student should be able to:
ITL502.1	Apply the knowledge of symmetric cryptography to implement simple ciphers
ITL502.2	Analyze and implement public key algorithms like RSA and El Gamal
ITL502.3	Analyze and evaluate performance of hashing algorithms
ITL502.4	Explore the different network reconnaissance tools to gather information about networks
ITL502.5	Use tools like sniffers, port scanners and other related tools for analyzing packets in a network.
ITL502.6	Apply and set up firewalls and intrusion detection systems using open source technologies and to explore email security.

Course Name	OLAP Lab
	Course Outcomes : student should be able to:
ITL503.1	1. Implement simple query optimizers and design alternate efficient paths for query execution.
ITL503.2	2. Simulate the working of concurrency protocols, recovery mechanisms in a database
ITL503.3	3. Design applications using advanced models like mobile, spatial databases.
ITL503.4	4. Implement a distributed database and understand its query processing and transaction processing mechanisms

ITL503.5	5. Build a data warehouse
ITL503.6	6. Analyze data using OLAP operations so as to take strategic decisions.

Course Name IOT (Mini Project) Lab

Course Outcomes : student should be able to:

ITL505.1	1. Identify the requirements for the real world problems.
ITL505.2	2. Conduct a survey of several available literatures in the preferred field of study.
ITL505.3	3. Study and enhance software/ hardware skills.
ITL505.4	4. Demonstrate and build the project successfully by hardware requirements, coding, emulating and testing.
ITL505.5	5. To report and present the findings of the study conducted in the preferred domain
ITL505.6	6. Demonstrate an ability to work in teams and manage the conduct of the research study.

Course Name Business Communication & Ethics

Course Outcomes : student should be able to:

ITL505.1	CO1: Design a techhical document using precise language, suitable vocabulary and apt style
ITL505.2	CO2: Develop the life skills/interpersonal skills to progress professionally by building stronger relationships.
ITL505.3	CO3 : Demonstrate awareness of contemporary issues , knowledge of professional and ethical responsibility.
ITL505.4	CO4 :Apply the traits of a suitable candidate for a job/ higher education upon being trained in the techniques of holding a group discussion, facing interviews and writing resume/SOP
ITL505.5	CO5: Deliver formal presentations effectively implenting the verbal and non-verbal skills.
ITL505.6	CO6: Demonstrate awareness on intellectual property rights and responsible use of social media.

SEM VI

Course Name	Software Engineering with project management
	Course Outcomes : student should be able to:
ITC601.1	1.Define various software application domains and remember different process model used in software development
ITC601.2	2.Explain needs for software specifications also they can classify different types of software requirements and their gathering techniques
ITC601.3	3.Convert the requirements model into the design model and demonstrate use of software and user-interface design principles.
ITC601.4	4.Distinguish among scm and sqa and can classify different testing strategies and tactics and compare them.
ITC601.5	5.Justify role of sdlc in software project development and they can evaluate importance of software engineering in plc.
ITC601.6	6.Generate project schedule and can construct, design and develop network diagram for different type of projects. They can also organize different activities of project as per risk impact factor

Course Name	Data Mining and Business Intelligence
	Course Outcomes : student should be able to:
ITC602.1	1.Demonstrate an understanding of the importance of data mining and the principles of business intelligence
ITC602.2	2. Organize and Prepare the data needed for data mining using pre preprocessing techniques
ITC602.3	3. mPerform exploratory analysis of the data to be used for mining.
ITC602.4	4.Implement the appropriate data mining methods like classification, clustering or Frequent Pattern mining on large data sets.
ITC602.5	5.Define and apply metrics to measure the performance of various data mining algorithms.
ITC602.6	6. Apply BI to solve practical problems : Analyze the problem domain, use the data collected in enterprise apply the appropriate data mining technique, interpret and visualize the results and provide decision support.

Course Name	Cloud Computing Services
	Course Outcomes : student should be able to:
(ITC603.1)	Students should be able to Define Cloud Computing and memorize the different Cloud service and deployment models
(ITC603.2)	Students will be able to describe importance of virtualization along with their technologies.
(ITC603.3)	Students will be able to Use and Examine different cloud computing services
(ITC603.4)	Students will be able to Analyze the components of open stack & Google Cloud platform and understand Mobile Cloud Computing
(ITC603.5)	Students will be able to Describe the key components of Amazon web Service
(ITC603.6)	Students will be able to Design & develop backup strategies for cloud data based on features.

Course Name	Wireless Network
	Course Outcomes : student should be able to:

ITC604.1	1. explain the basic concepts of wireless network and wireless generations.
ITC604.2	Demonstrate the different wireless technologies such as cdma, gsm, gprs etc
ITC604.3	3. appraise the importance of ad-hoc networks such as manet and vanet and wireless
ITC604.4	4. describe and judge the emerging wireless technologies standards such as wll, wlan, wpan, wman.
ITC604.5	5. explain the design considerations for deploying the wireless network infrastructure.
ITC604.6	6. differentiate and support the security measures, standards. services and layer wise security considerations.

Course Name	Adavnced Internet Programming
	Course Outcomes : student should be able to:
ITDLO6021.1	1.Determine seo objectives and develop seo plan prior to site development.
ITDLO6021.2	2. Explain search engine optimization techniques and develop keyword generation.
ITDLO6021.3	3.. Describe different web services standards
ITDLO6021.4	4. Describe different web services standards
ITDLO6021.5	5. Apply multiple quantitative and qualitative methods for web analytics 2.0.
ITDLO6021.6	5. Apply multiple quantitative and qualitative methods for web analytics 2.0.

Course Name	Digital Forensics
	Course Outcomes : student should be able to:
ITDLO6023.1	1. Define the concept of ethical hacking and its associated applications in Information Communication Technology (ICT) world.
ITDLO6023.2	2. Describe the need of digital forensic and role of digital evidences .
ITDLO6023.3	3. Explain the methodology of incident response and various security issues in ICT world, and identify digital forensic tools for data collection .
ITDLO6023.4	4. Recognize the importance of digital forensic duplication and various tools for analysis to achieve adequate perspectives of digital forensic investigation in various applications /devices like Windows/Unix system.
ITDLO6023.5	5. Apply the knowledge of IDS to secure network and performing router and network analysis
ITDLO6023.6	6. List the method to generate legal evidence and supporting investigation reports and will also be able to use various digital forensic tools .

Course Name	Software design lab
	Course Outcomes : student should be able to:
ITL601.1	1.Sketch a modeling with uml
ITL601.2	2.Design and deploy structural modeling
ITL601.3	3.Design and deploy behavioral modeling
ITL601.4	4.Deploy architectural modeling
ITL601.5	5.Examine estimation about schedule and cost for project development.
ITL601.6	6.Select project development tool.
ITL601.7	

Course Name	Business Intelligence Lab
	Course Outcomes : student should be able to:

ITL602.1	1. Identify sources of Data for mining and perform data exploration
ITL602.2	2. Organize and prepare the data needed for data mining algorithms in terms of attributes and class inputs, training, validating, and testing files.
ITL602.3	3. Implement the appropriate data mining methods like classification, clustering or association mining on large data sets using open source tools like WEKA
ITL602.4	4. Implement various data mining algorithms from scratch using languages like Python/ Java etc.
ITL602.5	5. Evaluate and compare performance of some available BI packages
ITL602.6	6. Apply BI to solve practical problems : Analyze the problem domain, use the data collected in enterprise apply the appropriate data mining technique, interpret and visualize the results and provide decision support.

Course Name	Cloud Service Design Lab
	Course Outcomes : student should be able to:
ITL603.1	1. Define & implement Virtualization using different types of Hypervisors
ITL603.2	2. Describe steps to perform on demand Application delivery using Ulteo .
ITL603.3	3. Examine the installation and configuration of Open stack cloud
ITL603.4	4. Analyze and understand the functioning of different components involved in Amazon web services cloud platform.
ITL603.5	5. Describe the functioning of Platform as a Service
ITL603.6	6. Design & Synthesize Storage as a service using own Cloud

Course Name	Sensor Network Lab
	Course Outcomes : student should be able to:
ITL604.1	1. Identify the requirements for the real world problems.
ITL604.2	2. Conduct a survey of several available literatures in the preferred field of study.
ITL604.3	3. Study and enhance software/ hardware skills.
ITL604.4	4. Demonstrate and build the project successfully by hardware/sensor requirements, coding, emulating and testing.
ITL604.5	5. To report and present the findings of the study conducted in the preferred domain
ITL604.6	6. Demonstrate an ability to work in teams and manage the conduct of the research study.

Course Name	Mini project
	Course Outcomes : student should be able to:
ITM605.1	Discover potential research areas in the field of IT
ITM605.2	Conduct a survey of several available literature in the preferred field of study
ITM605.3	Compare and contrast the several existing solutions for research challenge
ITM605.4	Demonstrate an ability to work in teams and manage the conduct of the research study.
ITM605.5	Formulate and propose a plan for creating a solution for the research plan identified
ITM605.6	To report and present the findings of the study conducted in the preferred domain

SEM VII

Course Name	Enterprise Network Design
	Course Outcomes : student should be able to:
ITC701	1. Analyzing the customer requirements and apply a methodology to network design
	2. Student will be able to create structure and modularize the network.
	3. Student will be design basic campus and data center network.
	4. Student will be able to design remote connectivity for enterprise network.
	5. Student will be able to design ip addressing and select suitable routing protocols for
	6. Student will be able to compare openflow controllers and switches with other enter
Course Name	Infrastructure Security
	Course Outcomes : student should be able to:
ITC702.1	1. Understand the concept of vulnerabilities, attacks and protection mechanisms
ITC702.2	2. Analyze and evaluate software vulnerabilities and attacks on databases and operatir
ITC702.3	3. Explain the need for security protocols in the context of wireless communication
ITC702.4	4. Understand and explain various security solutions for web and cloud infrastructure
ITC702.5	5. Understand, and evaluate different attacks on open web applications and web servi
ITC702.6	6. Design appropriate security policies to protect infrastructure components
Course Name	MOBILE APPLICATION DEVELOPMENT
	Course Outcomes : student should be able to:
ITDLO7032 .1	1. Describe android platform, architecture and features.
ITDLO7032 .2	2. Design user interface and develop activity for android app.
ITDLO7032 .3	3. Use intent , broadcast receivers and internet services in android app.
ITDLO7032 .4	4. Design and implement database application and content providers.
ITDLO7032 .5	5. Use multimedia, camera and location based services in android app.
ITDLO7032 .6	6. Discuss various security issues in android platform.
Course Name	Software Testing and Quality Assurance
	Course Outcomes : student should be able to:
ITDLO7034.1	1. Investigate the reason for bugs and analyze the principles in software testing to prevent and remove bugs
ITDLO7034.2	2. Implement various test processes for quality improvement
ITDLO7034.3	3. Design test planning
ITDLO7034.4	4. Manage the test process
ITDLO7034.5	5. Apply the software testing techniques in commercial environment
ITDLO7034.6	6. Use practical knowledge of a variety of ways to test software and an understanding of some of the trade-offs between testing techniques.
Course Name	Artificial Intelligence
	Course Outcomes : student should be able to:
BEITC703.1	1.Demonstrate knowledge of the building blocks of AI as presented in terms of intelligent agents

BEITC703.2	2.Analyze and formalize the problem as a state space, graph, design heuristics and select amongst different search or game based techniques to solve them.
BEITC703.3	3.Develop intelligent algorithms for constraint satisfaction problems and also design intelligent systems for Game Playing
BEITC703.4	4.Attain the capability to represent various real life problem domains using logic based techniques and use this to perform inference or planning
BEITC703.5	5.Formulate and solve problems with uncertain information using Bayesian approaches.
BEITC703.6	6.Apply concept Natural Language processing to problems leading to understanding of cognitive computing.

Course Name	Network Design Lab
	Course Outcomes : student should be able to:
ITL701.1	To be familiarized with the requirements of an enterprise and address its major design areas
ITL701.2	To recognize the hierarchical network model for the enterprise
ITL701.3	Identify the networking devices and their configurations required for the design and also prepare a bill of materials
ITL701.4	Propose a design for the Server Farm of an enterprise network and discuss up gradations if needed.
ITL701.5	Provide suitable IP addressing plan and best possible routing protocol for an enterprise network.
ITL701.6	Construct a suitable design for an enterprise network and test it using a tool.

Course Name	Advance Security Lab
	Course Outcomes : student should be able to:
ITL702.1	Implement and analyze program and database vulnerabilities buffer overflow and sql i
ITL702.2	Explore and analyze different security tools to secure mobile devices, web browser, wi
ITL702.3	Explore reconnaissance, attack and forensics tools in kali linux
ITL702.4	Learn security of system using personal firewall installation
ITL702.5	Understand aaa using raduis
ITL702.6	Understand aaa using tacacs
ITL702.7	
Course Name	Intelligent system Lab
	Course Outcomes : student should be able to:
BEITL703.1	Design the building blocks of an Intelligent Agent using PEAS representation
BEITL703.2	Analyze and formalize the problem as a state space, graph, design heuristics and select amongst different search or game based techniques to solve them.
BEITL703.3	Develop intelligent algorithms for constraint satisfaction problems and also design intelligent systems for Game Playing
BEITL703.4	Attain the capability to represent various real life problem domains using logic based techniques and use this to perform inference or planning.
BEITL703.5	Formulate and solve problems with uncertain information using Bayesian approaches

BEITL703.6	Apply concept Natural Language processing and cognitive computing for creation of domain specific ChatBots

Course Name	ANDROID APPS DEVELOPMENT LAB
	Course Outcomes : student should be able to:
ITL704.1	Install and configure an integrated development environment for android application d
ITL704.2	Design and implement user interfaces and layouts of android app.
ITL704.3	Use intents for activity and broadcasting data in android app.
ITL704.4	Design and implement database application and content providers.
ITL704.5	Experiment with camera and location based service.
ITL704.6	Develop android app with security features.

Course Name	PROJECT-I
	Course Outcomes : student should be able to:
ITM705.1	Discover potential research areas in the field of IT
ITM705.2	Conduct a survey of several available literature in the preferred field of study
ITM705.3	Compare and contrast the several existing solutions for research challenge
ITM705.4	Demonstrate an ability to work in teams and manage the conduct of the research study.
ITM705.5	Formulate and propose a plan for creating a solution for the research plan identified
ITM705.6	To report and present the findings of the study conducted in the preferred domain

Course Name	Product Lifecycle Management
	Course Outcomes : student should be able to:
ILO7011.1	1.Explain the phases of PLM, PLM strategies and methodology for PLM feasibility study and PDM implementation.
ILO7011.2	2. Illustrate various approaches and techniques for designing and developing products.
ILO7011.3	3. Apply product engineering guidelines / thumb rules in designing products for moulding, machining, sheet metal working etc.
ILO7011.4	4.Acquire knowledge in applying virtual product development tools for components, machining and manufacturing plant
ILO7011.5	5. Illustrate various environmental aspects in product design
ILO7011.6	6. Demonstrate the relevance between Understand product lifecycle assessment and life cycle cost analysis.

Course Name	Management Information System
	Course Outcomes : student should be able to:
ILO7013.1	1.Explain the impact of Information Systems on Organisations and Society at large.
ILO7013.2	2. Discuss the implementaion of data and information management in an organisation and the challenges associated with it.
ILO7013.3	3. Describe ethical issues, potential threats to privacy and the methods to protect Information resources.
ILO7013.4	4. Analyse the effect of Social Computing and the ways in which modern organizations use this technology.

ILO7013.5	5. Explain how businesses can use different types of computer networks along with latest technologies.
ILO7013.6	6. Learn the various information systems that modern organizations utilize.

Course Name	Operation Research
	Course Outcomes : student should be able to:
ILO7015.1	1. Understand the theoretical workings of the simplex method, the relationship between a linear
	program and its dual, including strong duality and complementary slackness.
ILO7015.2	2. Perform sensitivity analysis to determine the direction and magnitude of change of a model's
	optimal solution as the data change.
ILO7015.3	3. Solve specialized linear programming problems like the transportation and assignment
	problems, solve network models like the shortest path, minimum spanning tree, and maximum
	flow problems.
ILO7015.4	4. Understand the applications of integer programming and a queuing model and compute
	important performance measures

Course Name	Cyber Security and Laws
	Course Outcomes : student should be able to:
ILO7016.1	1. Understand the concept of cybercrime and its effect on outside world
ILO7016.2	2. Understand different cyber offences and cyber crime on different environment
ILO7016.3	3. Analyse various tools used in performing cybercrime
ILO7016.4	4. Understand the legal requirement of cyberspace
ILO7016.5	5. Distinguish different aspects of cyber law
ILO7016.6	6. Identify the need for different Information Security Standards compliance during software design and development

SEM VIII

Course Name	Big Data Analytics
	Course Outcomes : student should be able to:
ITL801.1	Student will be able to explain the motivation for big data systems and identify the main sources of Big Data in the real world.
ITL801.2	Student will be able to demonstrate an ability to use frameworks like Hadoop, NOSQL to efficiently store retrieve and process Big Data for Analytics.
ITL801.3	Student will be able to implement several Data Intensive tasks using the Map Reduce Paradigm.
ITL801.4	Student will be able to apply several newer algorithms for Clustering Classifying and finding associations in Big Data.
ITL801.5	Student will be able to design algorithms to analyze Big data like streams, Web Graphs and Social Media data.
ITL801.6	Student will be able to design and implement successful Recommendation engines for enterprises.

Course Name	Internet of Everything
	Course Outcomes : student should be able to:
ITC802.1	1. Apply the concepts of IOT
ITC802.2	2 Identify the different technology
ITC802.3	3. Apply IOT to different applications
ITC802.4	4. Analysis and evaluate protocols used in IOT.
ITC802.5	5 Design and develop smart city in IOT.
ITC802.6	6. Analysis and evaluate the data received through sensors in IOT

Course Name	User Interaction Design
	Course Outcomes : student should be able to:
ITDLO8041.1	Students will be able to identify and criticize bad features of interface designs.
ITDLO8041.2	Students will be able to predict good features of interface designs
ITDLO8041.3	Students will be able to illustrate and analyze user needs and formulate user design specifications
ITDLO8041.4	Students will be able to interpret and evaluate the data collected during the process
ITDLO8041.5	Students will be able to evaluate designs based on theoretical frameworks and methodological approaches.
ITDLO8041.6	Students will be able to produce/show better techniques to improve the user interaction design interfaces.

Course Name	R-PROGRAMMING LAB
	Course Outcomes : student should be able to:
ITL804.1	Install and use R for simple programming tasks.
ITL804.2	Extend the functionality of R by using add-on packages
ITL804.3	Extract data from files and other sources and perform various data manipulation tasks
ITL804.4	Code statistical functions in R. 5. Use R Graphics and Tables to visualize results of variou
ITL804.5	Use R Graphics and Tables to visualize results of various statistical operations on data .
ITL804.6	Apply the knowledge of R gained to data Analytics for real life applications.

Course Name	Big Data Lab
	Course Outcomes : student should be able to:
ITL 801.1	Demonstrate capability to use Big Data Frameworks like Hadoop
ITL 801.2	Program applications using tools like Hive, pig, , NO SQL and MongoDB for Big data Applications
ITL 801.3	Construct scalable algorithms for large Datasets using Map Reduce techniques
ITL 801.4	Implement algorithms for Clustering, Classifying and finding associations in Big Data
ITL 801.5	Design and implement algorithms to analyze Big data like streams, Web Graphs and Social Media data and construct recommendation systems.
ITL 801.6	Apply the knowledge of Big Data gained to fully develop a BDA applications for real life

Course Name	Internet of Everything Lab
	Course Outcomes : student should be able to:
ITL802.1	1. Identify the requirements for the real world problems.
ITL802.2	2. Conduct a survey of several available literatures in the preferred field of study.
ITL802.3	3. Study and enhance software/ hardware skills.
ITL802.4	4. Demonstrate and build the project successfully by hardware/sensor requirements, coding, emulating and testing.
ITL802.5	5. To report and present the findings of the study conducted in the preferred domain
ITL802.6	6. Demonstrate an ability to work in teams and manage the conduct of the research study.

Course Name	DevOps Lab
	Course Outcomes : student should be able to:
ITL803.1	Summarize the importance of DevOps tools used in software development life cycle
ITL803.2	Summarize the importance of Jenkins to Build, Deploy and Test Software Applications
ITL803.3	Examine the different Version Control strategies
ITL803.4	Analyze & Illustrate the Containerization of OS images and deployment of applications over Docker
ITL803.5	Summarize the importance of Software Configuration Management in DevOps
ITL803.6	Synthesize the provisioning using Chef/Puppet/Ansible or Saltstack

Course Name	PROJECT-II
	Course Outcomes : student should be able to:
ITM805.1	Discover potential research areas in the field of IT
ITM805.2	Conduct a survey of several available literature in the preferred field of study
ITM805.3	Compare and contrast the several existing solutions for research challenge
ITM805.4	Demonstrate an ability to work in teams and manage the conduct of the research study.
ITM805.5	Formulate and propose a plan for creating a solution for the research plan identified
ITM805.6	To report and present the findings of the study conducted in the preferred domain

Course Name	Enterprise Resource Planning

	Course Outcomes : student should be able to:
ITDLO8045.1	1. Explain the basic concepts of Enterprise Resource Planning.
ITDLO8045.2	2. Identify different technologies used in Enterprise Resource Planning.
ITDLO8045.3	3. Analyse the concepts of ERP Manufacturing Perspective and ERP Modules.
ITDLO8045.4	4. Discuss the benefits of Enterprise Resource Planning.
ITDLO8045.5	5. Review different activities carried out in the Enterprise Resource Planning life cycle.
ITDLO8045.6	6. Examine the role of E-Commerce & E-Business in Enterprise Resource Planning.

Course Name	Project Management
	Course Outcomes : student should be able to:
ILO 8021.1	Gain project management foundation and various organizational structures knowledge
ILO 8021.2	Apply selection criteria and select an appropriate project from different options
ILO 8021.3	Write work break down structure for a project and develop a schedule based on it.
ILO 8021.4	Identify opportunities and threats to the project and decide an approach to deal with them strategically
ILO 8021.5	Use Earned value technique and determine & predict status of the project
ILO 8021.6	Capture lessons learned during project phases and document them for future reference

Course Name	Digital Business Management
	Course Outcomes : student should be able to:
ILO 8028.1	Summarize drivers of digital business.
ILO 8028.2	Illustrate various approaches and techniques for E-business and management
ILO 8028.3	Explain different digital business support services and technologies in E infrastructure
ILO 8028.4	Explain various ethics and societal impacts of ecommerce
ILO 8028.5	Identify the need of security and summarize various security techniques.
ILO 8028.6	Develop E-business plan

Course Name	Finance Management
	Course Outcomes : student should be able to:
ILO 8022.1	Explain the importance and components of the Indian Financial System
ILO 8022.2	Estimate the risk & returns and present / future value of of various investments
ILO 8022.3	Describe corporate finance and significance of financial statements & ratio analysis
ILO 8022.4	Calculate capital budgeting using various investment appraisal criterias & also the working capital requirements
ILO 8022.5	Explain the various sources of finance and capital structure theories & approaches
ILO 8022.6	Describe the dividend policy theories & approaches

Course Name	Environmental Management
	Course Outcomes : student should be able to:

ILO8029.1	1.Identify environmental Issues relevant to India and Global concerns.
ILO8029.2	2. Understand and apply the concept of Environment Management and Sustainable dev
ILO8029.3	3.Relate to the scope of Environment Management and identify career opportunities.
ILO8029.4	4. Understand the concept of ecology, Ecosystem, its interdependence and food chain.
ILO8029.5	5. Demonstrate awareness of environment related legislations.
ILO8029.6	6.Develop awareness of EMS and ISO-14000.