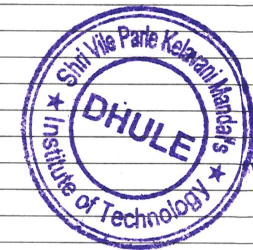




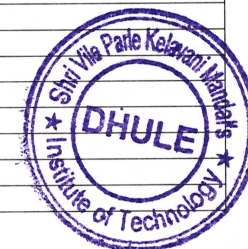
Course Outcome Statements for Academic Year 2023-24

SEM	Subject Code	Subject Name	CO Number	Course outcome Statement
SEM-I	BTBS101	Engineering Mathematics – I	CO101.1	Apply the matrix technique (Linear algebra) to find solutions of system of linear equations arising in many engineering problem
			CO101.2	Demonstrate the concept partial derivatives and their applications to Maxima/ Minima , series expansion of multi valued functions
			CO101.3	Compute Jacobian of functions of several variables and their applications to engineering problems
			CO101.4	Identify and sketch of curves in various coordinate system
			CO101.5	Evaluate multiple integrals and their applications to area and volume
	BTBS102	Engineering Chemistry	CO102.1	Develop the importance of water in industrial and domestic usage.
			CO102.2	Study the knowledge of phases, components, degree of freedom and apply it in various phase diagrams.
			CO102.3	Apply the knowledge of corrosion to prevent corrosion of metallic and non-metallic surfaces.
			CO102.4	Examine a fuel and suggest alternative fuels.
			CO102.5	Study the basic concept of electrochemistry and use their applications in the industry.
	BTES103	Engineering Mechanics	CO103.1	Know and apply fundamental Laws of Engineering Mechanics
			CO103.2	Know and apply conditions of static equilibrium to analyze given force system
			CO103.3	Compute Centre of gravity and Moment of Inertia of plane surfaces
			CO103.4	Compute the motion characteristics of a body /particle for a Rectilinear and Curvilinear motion.
			CO103.5	Know and discuss relation between force and motion characteristics
	BTES104	Computer Programming in C	CO104.1	To illustrates the use of editors, translation, flowchart and Algorithm in C language
			CO104.2	To recognize various operators and implement program in C using operators
			CO104.3	To illustrate the use of control statement and Implement C program using control statement
			CO104.4	To describe the concept of Array in C language and implement the C program using one and multidimensional Array
			CO104.5	To describe the control of Structures and Pointer and implement structure and pointer concept in C Language
	BTES105L	Workshop Practices	COBTES206L.1	Perform carpentry operations like planning, cutting, fitting of joints using hand and power tools
			COBTES206L.2	Perform fitting operations such as marking, cutting, filling, drilling and tapping using hand and power tools and also basic plumbing Operations.
			COBTES206L.3	Perform sheet metal operations such as marking, shearing, bending, punching, and soldering using hand and power tools and Welding operations like joint preparations, electrode selections.
			COBTES206L.4	Understand the simple machining skills on lathe machine operations and its use during their project work
	BTES106	Basic Electrical and Electronic Engineering	CO106.1	Apply basic ideas and principles of electrical engineering
			CO106.2	Identify protection equipment and energy storage devices
			CO106.3	Differentiate electrical and electronics domains and explain the operation of diodes and transistors.
			CO106.4	Acquire knowledge of digital electronics
CO106.5			Design simple combinational and sequential logic circuits.	
BTBS107L	Engineering Chemistry Lab	CO107L.1	Test the quality of water sample by determination of hardness, acidity, alkalinity and dissolve oxygen present in it.	
		CO107L.2	Examine the chemical property of an oil and quality of bleaching powder.	
		CO107L.3	Determine the concentration of specific ions present in the solution using titration methods.	
		CO107L.4	Examine the physical properties of liquid sample.	
BTES108L	Engineering Mechanics Lab	CO108L.1	Calculate beam reaction by Parallel Force apparatus and graphics static method and forces in truss.	
		CO108L.2	Evaluate co-efficient of friction and centroid of irregular shaped bodies.	
		CO108L.3	Evaluate mechanical advantage, Velocity ratio, efficiency and mass moment of inertia.	
BTBS201	Engineering Mathematics – II	CO201.1	Discuss the need and use of complex variables to find roots, to separate complex quantities and to establish relation between circular and hyperbolic functions.	
		CO201.2	Solve first and higher order differential equations and apply them as a mathematical modeling in electric and mechanical systems.	
		CO201.3	Determine Fourier series representation of periodic functions over different intervals.	
		CO201.4	Demonstrate the concept of vector differentiation and interpret the physical and geometrical meaning of gradient, divergence & curl in various engineering streams. Apply the principles of vector integration to transform line integral to surface integral, surface to volume integral & vice versa using Green's , stokes and Gauss divergence theorems	

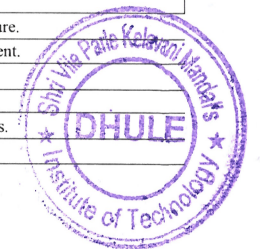


SEM-2

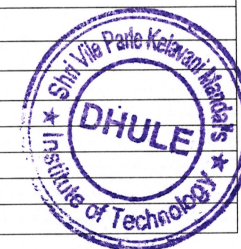
BTBS202	Engineering Physics	CO102.1	Apply the concept of types of oscillations in engineering.	
		CO102.2	Apply the fundamentals of interference, polarization in LASER, and optical fiber in engineering.	
		CO102.3	Determine the application of the trajectory of charge particles in the electromagnetic field, with basic principles of quantum physics.	
	BTES203	Engineering Graphics	CO102.4	Determine the different types of crystal structures using the X-ray diffraction technique, and study the fundamentals of material science and its application in Magnetic material, Superconductors, and semiconductors.
			CO103.1	Use of drawing instruments effectively for drawing and dimensioning
			CO103.2	Explain conventions and methods of engineering drawing
			CO103.3	Apply concepts of projections of points, lines, planes, solids and section of solids
	BTHM204	Communication Skills	CO103.4	Construct isometric and orthographic views of given objects
			CO104.1	Apply Verbal and Non-Verbal communication in professional and social situations
			CO104.2	Apply communication skills for presentations, group discussion, interpersonal interactions, public speaking, report writing and business correspondence
	BTES205	Energy and Environmental Engineering	CO104.3	Apply phonetics and grammar in communication to develop a neutral accent
			CO205.1	Identify conventional, non-conventional energy sources.
			CO205.2	Know and discuss power consuming and power developing devices for effective utilization and power consumption
			CO205.3	Identify various sources of air, water pollution and its effects.
	BTES206	Basic Civil and Mechanical Engineering	CO205.4	Know and discuss noise, soil, thermal pollution and Identify solid, biomedical and hazardous waste.
CO206.1			Identify various Civil Engineering materials and choose suitable material among various options.	
CO206.2			Apply principles of surveying to solve engineering problem.	
CO206.3			Identify various Civil Engineering structural components and select appropriate structural system among various options.	
CO206.4			Explain and define various properties of basic thermodynamics, materials and manufacturing processes.	
BTBS207L	Engineering Physics Lab	CO206.5	Know and discuss the working principle of various power consuming and power developing devices.	
		CO1202L.1	Determine the mechanical & electrical properties of matter.	
		CO1202L.2	Determine the wavelength of He-Ne Laser and numerical aperture of optical fibre.	
BTES208L	Engineering Graphics Lab	CO1202L.3	Determine the various properties of semiconducting materials.	
		CO1203L.1	Use of drawing instruments effectively for drawing and dimensioning	
		CO1203L.2	Implement various fundamental geometrical constructions	
		CO1203L.3	Apply concepts of projections of points, lines, planes, solids and section of solids	
BTHM209L	Communication Skills Lab	CO1203L.4	Construct isometric and orthographic views of given objects	
		CO209L.1	To illustrate the process of introduction with RP exercising Transcription, Stress and Intonations	
BTES209S	Seminar	CO209L.2	To apply Verbal and Non-Verbal communication through Extempore, GD, Debate, Presentation and Interviews.	
		CO210S.1	Learn to differentiate information from data to present it in meaning full way	
		CO210S.2	Learn to use and cite resources	
BTBS301	Engineering Mathematics – III	CO210S.3	Develop the ability of critical thinking	
		C301.1	Find Laplace transform of functions using various formulas and properties. Evaluate particular types of integration.	
		C301.2	Find Inverse Laplace transform of functions using various formulas and properties. Solve linear differential/simultaneous linear differential equation using Laplace and inverse Laplace transform.	
		C301.3	Find Fourier and inverse Fourier transform, Fourier sine and inverse Fourier sine transform, Cosine transform and inverse Fourier cosine Transform of functions.	
		C301.4	Form PDE by eliminating arbitrary constant, solve PDE and use PDE to solve one and two dimensional heat flow equation.	
BTCOC302	Discrete Mathematics	C301.5	Determine Analytic functions//Bilinear transformation/ apply Cauchy's theorem/Cauchy's integral formula and Residue theorem to solve contour integration.	
		C302.1	To Understand the basic principles of sets and operations in sets and Interpret mathematical properties formally via the formal language of propositional logic and predicate logic	
		C302.2	To perform operations on various discrete structures such as functions, relations, and sequences. To solve problems using counting techniques, permutation and combination, recursion and generating functions.	
		C302.3	To Use graphs as tools to visualize and simplify situations.	
		C302.4	To Use trees as tools to visualize and simplify situations.	
BTCOC303	Data Structures	C302.5	To solve problems using algebraic structures and understand the concept of morphism.	
		C303.1	To classify data structures as linear or non-linear and describe storage representations.	
		C303.2	To implement stack and queue using sequential and linked allocation and demonstrate their application.	
		C303.3	To explain concept of linked list and implement singly and doubly linked list.	
		C303.4	To describe concept of trees and graphs and implement binary tree and its traversals.	
		C303.5	To explain the concept of dictionaries, file handling, skip list and implement different searching and sorting operation.	



SEM-3	BTCOC304	Computer Architecture and Organization	C304.1	To Illustrate the concept of computer organization and architecture
			C304.2	To Describe instruction sets
			C304.3	To Perform arithmetic operation
			C304.4	To Illustrate the concept of memory organization
			C304.5	To Describe role of control unit and Input / Output organization
	BTCOC305A	Object - oriented Programming in C++	C305.1	To appreciate and understand the concept of object oriented programming and their utility
			C305.2	To apply the Object oriented approach to design software
			C305.3	To analyze and solve the ambiguity and membership problems using static and dynamic polymorphism.
			C305.4	To use different file systems operation and apply different design methodologies based on the problem specification and objectives.
			C305.5	To Analyze and solve different features of Object Oriented Methodology with templates, exception handling etc.
	BTCOL306	Data Structures Lab	L306A.1	To describe and implement various concepts in stacks and Evaluate polish notation for given expression.
			L306A.2	To implement concepts in queue such as circular queue as well as dequeue using array.
			L306A.3	To design a stack using queues and perform basic operations in linear and constant time. Design a queue using stacks and perform dequeue operations in linear as well as in constant.
			L306A.4	To implement data structures as single and double linked list. Design stack using link list and perform stack operations with time complexity O(1).
			L306A.5	To explain and implement concepts in trees and graphs and Construct Search trees.
			L306A.6	To describe and implement concepts in hashing and different sorting algorithms.
	BTCOL306	Object Oriented Programming Lab	L306B.1	To appreciate and understand the concept of object oriented programming and their utility
			L306B.2	To apply the Object oriented approach to design software
			L306B.3	To analyze and solve the ambiguity and membership problems using static and dynamic polymorphism.
			L306B.4	To use different file systems operation and apply different design methodologies based on the problem specification and objectives.
			L306B.5	To Analyze and solve different features of Object Oriented Methodology with templates, exception handling etc.
	BTCOS307A	Seminar-I (Java Programming Lab)	S307A.1	To Illustrate the concept of basics of Java programming.
			S307A.2	To Implement Java programs on Arithmetic Promotion and Method Calling
			S307A.3	To Implement java program using different java class.
			S307A.4	To Use the different java principles like inheritance, polymorphism, packaging and interface
	BTCOS307B	Seminar-I	S307.1	To identify an engineering problem, analyze it and propose a system to solve it using literature survey
			S307.2	To Analysis and comprehension of proof-of-concept and related data.
			S307.3	To use of new and recent technology for creating technical reports; and improve soft skills for effective presentation
BTES211P	Field Training/Internship	S211P:1	To identify the challenges, problem and future potential in internship area and solve the problem during the internship period.	
		S211P:2	To test the theoretical learning and research-based knowledge in practical situations by completing assigned tasks during the internship period.	
		S211P:2	To apply various soft skills such as time management, positive attitude, ethical principles and communication skills during the internship program.	
BTCOC401	Design & Analysis of Algorithms	C401.1	To Examine the running time of an algorithm using asymptotic analysis and to check correctness of algorithm by solving recurrence relation.	
		C401.2	To Describe the Divide-and-Conquer paradigm and use this technique to solve different algorithms.	
		C401.3	To Describe the Backtracking, Branch and Bound paradigm and use this technique to solve different algorithms.	
		C401.4	To Describe the Greedy paradigm and use this technique to solve different algorithms.	
		C401.5	To Describe the Dynamic Programming paradigm and use this technique to solve different algorithms and examine the classes of algorithms based on P, NP, and NP-Complete	
BTCOC402	Operating System	C402.1	To Comprehend and Use basic concepts of Operating System with its structure	
		C402.2	To Illustrate concepts of Process as well as Thread Management along with Implement concepts of CPU Scheduling algorithms.	
		C402.3	To Illustrate concepts of Process Synchronization as well as deadlock along with Implement concepts of Synchronization primitives and banker's algorithms	
		C402.4	To Comprehend concept of Memory Management along with Implement concepts of page replacement algorithms and memory allocation algorithms.	
		C402.5	To Illustrate concepts of File System Manipulation as well as Disk Management along with Implement concepts of file allocation algorithms and disk secluding algorithms	
BTHM403	Basic Human Rights	C403.1	Discuss the importance, philosophical and historical perspectives of human rights.	
		C403.2	Examine the challenges of the pluralistic society and the rising conflicts and tensions in the name of particular loyalties to caste, religion, region and culture.	
		C403.3	Discuss prominent issues such as Economy, Poverty, Unemployment, Migrant workers and human rights violation and the responsibility of the government.	
		C403.4	Discuss Fundamental Rights and Directive Principles of State Policy in the Constitution of India in context with the present situation	
		C403.5	Discuss Universal declaration of human rights and provisions of India	
	Probability Theory	C404.1	Find probability of given events Using addition and multiplication theorem. Apply Bayes theorem. Translate real-world problems into probability models.	
		C404.2	Find expectation and variance of discrete and continuous random variable. Find probability using Binomial, Poisson and Normal distribution.	

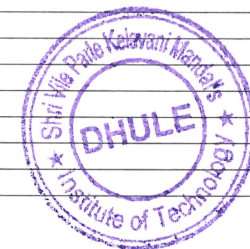


SEM-4	BTBS404	and Random Processes	C404.3	Calculate and interpret the correlation coefficient between two variables.
			C404.4	Calculate the simple linear regression equation for a set of data.
			C404.5	Apply the concept of sampling theory to the engineering problems.
BTES405	Digital Logic Design & Microprocessors	C405.1	Illustrate the fundamental concepts of digital signal, positive and negative logic, Boolean algebra, logic gates, logical variables, the truth table, number systems, codes, and their interconversion, code error detection and correction.	
		C405.2	Perceive, analyse and design various minimization techniques, combinational and sequential circuits, to develop skill to construct and troubleshoot digital circuits.	
		C405.3	Perceive, the fundamentals and internal design of Microprocessors along with the features and their programming to build systems for real time applications.	
BTCOL406A	Operating System Lab	L406A.1	To Comprehend and Use basic concepts of Operating System with its structure	
		L406A.2	To Illustrate concepts of Process as well as Thread Management along with Implement concepts of CPU Scheduling algorithms.	
		L406A.3	To Illustrate concepts of Process Synchronization as well as deadlock along with Implement concepts of Synchronization primitives and banker's algorithms	
		L406A.4	To Comprehend concept of Memory Management along with Implement concepts of page replacement algorithms and memory allocation algorithms.	
		L406A.5	To Illustrate concepts of File System Manipulation as well as Disk Management along with Implement concepts of file allocation algorithms and disk secluding algorithms	
BTCOL406B	Python Programming Lab	L406B.1	To Use the Python language syntax including control statements, loops and functions to write programs for a wide variety problem in mathematics, science, and games.	
		L406B.2	To Examine the core data structures like lists, dictionaries, tuples and sets in Python to store, process and sort the data.	
		L406B.3	To Determine the methods to handle the strings in python and to use string functions.	
		L406B.4	To Interpret the concepts of Object-oriented programming as used in Python using encapsulation, polymorphism and inheritance.	
		L406B.5	To Write a program to Read and write data from & to files in Python	
BTCOS407B	Seminar – II : Web Technology Lab	S407.1	To Design a web page using HTML and CSS.	
		S407.2	To Implement program logic using JavaScript	
		S407.3	To Use JavaScript Function for designing web page	
		S407.4	To Use PHP for designing responsive web pages and To create sessions using PHP.	
		S407.5	To Use AJAX and PHP Functionality in web page designing and To implement Connection with MySQL Database.	
BTCOC501	Database Systems	C501.1	To Identify the basic database management system concepts and entity relationship model.	
		C501.2	To Describe database relational data model and relational calculus.	
		C501.3	To Implement database concepts using SQL commands and join operations.	
		C501.4	To Use Various Normalization and Indexing technique for database schema design.	
		C501.5	To Describe the principles of transaction processing of databases.	
BTCOC502	Theory of Computation	C502.1	To identify formal machines, computations, Implement finite state machines for acceptance of strings and Construct Regular Expression, regular set, FA to RE and vice versa	
		C502.2	To Design Context Free Grammar, derivation of CFG, know ambiguity in grammar, simplify CFG and Classify different types of Grammars.	
		C502.3	To illustrate Regular Grammar, its types, construct FA for Regular grammar and vice versa and translate CFG to different normal forms	
		C502.4	To implement pushdown automata accepting strings	
		C502.5	To design and model Turing machine and Distinguish between decidability and undecidability	
BTCOC503	Software Engineering	C503.1	To discuss ethical standards, legal responsibilities in the field of software engineering discipline and Software engineering processes.	
		C503.2	To discuss agile software development and importance of requirement engineering.	
		C503.3	To discuss system modeling and architecture.	
		C503.4	To know Design and Implementation using UML.	
		C503.5	To know the importance of testing at different level and examine dependability properties	
BTCOE504(B)	Numerical Methods	CO504.1	Apply numerical methods to find out the solution of algebraic or transcendental equations using different methods under different conditions.	
		CO504.2	Apply numerical methods to find out the numerical solution of system of algebraic equations	
		CO504.3	Apply various interpolation methods and finite difference concepts	
		CO504.4	Apply numerical method techniques to find approximate value of definite Integrals	
		CO504.5	Solve ordinary differential equations using different numerical methods through the theory of finite differences	
BTHM505B	Business Communication	C505.1	To explain the fundamentals of business communication for communicative competence.	
		C505.2	To identify Intercultural Communication, Non-verbal Communication to elucidate translations as problematic discourse.	
		C505.3	To explain listening skills, communication styles to overcome barriers in business communication.	
		C505.4	To develop effective communication in business exhibiting effective interpersonal skills.	
		C505.5	To develop negotiation skills in cultural transaction to unleash technological means and ethics in business communication.	



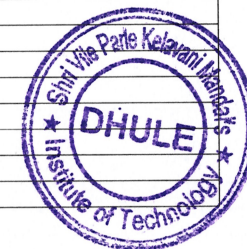
SEM-5

BTHM505A	Economics and Management	C505A.1	To demonstrate about market, demand, supply and cost.
		C505A.2	To apply skills like decision making and process costing.
		C505A.3	To implement financial management, accounting and handling financial risks.
		C505A.4	To discuss forecasting and capacity planning.
BTCOL506A	Database System Lab	L506.1	To Discuss the installation procedure of DBMS software
		L506.2	To Implement database language commands for database concepts
		L506.3	To Examine the data using queries to retrieve data from database
		L506.4	To Use PL/SQL concepts for processing a data
		L506.5	To Develop solutions using database concepts for requirements
BTCOL506B	Software Engineering Lab	L506.1	To perform system analysis for a given problem statement
		L506.2	To draw UML diagrams for a given problem statement
		L506.3	To perform testing and checking the correctness of a system
BTCOF408	Field Work/Internship	CF408.1	To identify the challenges, problem and future potential in internship area and solve the problem during the internship period.
		CF408.2	To test the theoretical learning and research-based knowledge in practical situations by completing assigned tasks during the internship period.
		CF408.3	To apply various soft skills such as time management, positive attitude, ethical principles and communication skills during the internship program.
BTCOM507B	Data Science Lab	L507B.1	To Use numpy python package to perform numerical calculations.
		L507B.2	To Use pandas python packages to Create DataFrame using external files and perform statistical computations on it.
		L507B.3	To Use pandas, Matplotlib and Seaborn python packages to perform data visualization.
		L507B.4	To Use beautiful soup python package to perform web scrapping.
		L507B.5	To Use numpy python package to perform numerical calculations.
BTCOS507	Mini Project	MC507.1	To Analyse current trends in computer-related domains in order to uncover real-world issues and domain requirements.
		MC507.2	To Apply software engineering principles in planning, formulating an innovative design/ approach and computing requirements which are appropriate to solve the problem within the context of legal, global and environment constraint.
		MC507.3	To design and create projects using the proper methods, materials, and modern equipment while upholding integrity and moral conduct in engineering practices.
		MC507.4	Ability to schedule, monitor, and manage project's resources, finance and work assignments to assure timely completion and to validate and verify project's performance with respect to proposed solution.
		MC507.5	Ability to effectively communicate in both formal and informal environments with team members and mentors; professional performance as a team member; acceptance of responsibility, initiative, and leadership required to present and create technical documents for successful project.
BTCOC601	Compiler Design	C601.1	To explain the concepts and different phases of compilation with compile time error handling.
		C601.2	To Use regular expressions, context free grammar and finite automata to Represent language tokens and design lexical analyzer for a language.
		C601.3	To compare top down with bottom up parsers, and use appropriate parser to produce parse tree representation of the input.
		C601.4	To Design syntax directed translation schemes for a given context free grammar.
		C601.5	To Generate intermediate code for statements in high level language.
		C601.6	To Apply optimization techniques to intermediate code and generate machine code for high level language program.
BTCOC602	Computer Networks	C602.1	To discuss the essential components of a network as well as network layered architecture.
		C602.2	To discuss and compare various LAN Technologies.
		C602.3	To discuss the data link layer's design difficulties and use of datalink layer error detection and correction methods.
		C602.4	To describe routing algorithms in network layer, congestion control and examine QOS.
		C602.5	To demonstrate working of Application Layer Protocols and describe basics of network security.
BTCOC603	Machine Learning	C603.1	To recognize the characteristics of machine learning that makes it useful to real-world problems and Use different linear methods for regression and classification with their optimization through different regularization techniques.
		C603.2	To apply probability to perform Bayesian classifier to label data points and to describe and apply the different supervised learning methods of logistic regression and support vector machine
		C603.3	To Select the appropriate type of neural network architecture and apply for learning non-linear functions
		C603.4	To Compare and Apply different dimensionality reduction techniques
		C603.5	To Illustrate and apply clustering algorithms and identify its applicability in real life problems.
BTCOE604C	Internet of Things	C604.1	To Recognize different IoT Network Architecture and core concepts in IoT
		C604.2	To Examine communication criteria in IoT access Technologies and identify different elements in smart objects.
		C604.3	To Discuss and compare different protocols in IoT.
		C604.4	To Use of different tools and technologies for IoT.
		C604.5	To Demonstrate IoT Based system using IoT Physical Devices and endpoints.



SEM-6

BTHM605B	Employability Skills Development	C605B.1	To differentiate between soft skills and hard skills and use basics of employability skills.
		C605B.2	To demonstrate analytical reasoning and quantitative skills in problem solving.
		C605B.3	To demonstrate correct grammar usage in writing skills
		C605B.4	To use appropriately verbal and non-verbal communication in professional situations
		C605B.5	To sketch various stages in solving a problem
BTCOC606A	Competitive Programming	L606A.1	Discuss the concepts of online Judges, feedback and the standard input output to solve the programming challenges based on number theory.
		L606A.2	Design and Implement back tracking challenging problems on Hackerrank, Codechef websites.
		L606A.3	Design and Implement graph based challenging problems.
		L606A.4	Design and implement the Dynamic Programming based challenging problems on Hackerrank, Codechef websites and use the guidelines for designing the test cases for the various programs.
BTCOC606B	ML Lab	L606B.1	Understand the mathematical and statistical prospective of machine learning algorithms through python programming.
		L606B.2	Evaluate the machine learning models pre-processed through various feature engineering algorithms by python programming.
		L606B.3	Design and evaluate the supervised models through python in built functions.
		L606B.4	Design and evaluate the unsupervised models through python in built functions.
		L606B.5	Recognize and implement various ways of selecting suitable model parameters for different machine learning techniques.
BTCOL607B	Internet of Things Laboratory	L607B.1	To Identify different microcontrollers used in IoT systems and discuss the setup required to execute applications.
		L607B.2	To Write program to design applications in IoT using Raspberry Pi and IoT physical devices as sensors, actuators.
		L607B.3	To Assemble IoT Based system using IoT Physical Devices and endpoints.
BTCOL607	Mini Project-II	C607.1	To Analyse current trends in computer-related domains in order to uncover real-world issues and domain requirements.
		C607.2	To Apply software engineering principles in planning, formulating an innovative design/ approach and computing requirements which are appropriate to solve the problem within the context of legal, global and environment constraint.
		C607.3	To design and create projects using the proper methods, materials, and modern equipment while upholding integrity and moral conduct in engineering practices.
		C607.4	Ability to schedule, monitor, and manage project's resources, finance and work assignments to assure timely completion and to validate and verify project's performance with respect to proposed solution.
		C607.5	Ability to effectively communicate in both formal and informal environments with team members and mentors; professional performance as a team member; acceptance of responsibility, initiative, and leadership required to present and create technical documents for successful project.
BTCOL602	Computer Networks Laboratory	L602.1	Demonstration of networking commands, analyze the usage in different network scenario and studying network devices.
		L602.2	To design different networks, analyze packet transmission and checking the data rate.
		L602.3	To demonstrate routing protocols.
		L602.4	To demonstrate Installation and configuration of file server and web server
BTCOC701	Artificial Intelligence	C701.1	Describe the historical development and key milestones in the field of Artificial Intelligence.
		C701.2	Apply various problem-solving techniques, including searching algorithms, to address AI-related problems effectively.
		C701.3	Apply computable functions and predicates, resolution, and natural deduction in logical reasoning tasks
		C701.4	To Demonstrate knowledge in uncertain domains using probabilistic models, including Bayesian networks
		C701.5	Describe the fundamentals of Natural Language Processing (NLP) and its significance in AI.
BTCOC702	Cloud Computing	C703A.1	To understand the basic terminologies of cloud computing.
		C703A.2	To identify various service models in cloud architecture.
		C703A.3	To know cloud usage and implementation for enterprise level.
		C703A.4	To deploy Aneka cloud platform
		C703A.5	Applying cloud applications and services to various domain specific platforms.
BTCOE703A	Big Data Analytics	C702A.1	To Understand the building blocks of Big Data.
		C702A.2	To Analyze the various big data platform like Hadoop, Map Reduce.
		C702A.3	To Illustrate the use of various Big Data Streaming Platforms.
		C702A.4	To Perform big data application using machine learning and deep learning.
		C702A.5	To Understand various big data modern database for web.
BTCOE703B	Distributed Systems	C703B.1	Understand the concept of architecture and communication systems in Distributed Systems.
		C703B.2	Describe the remote procedure call in Distributed Systems.
		C703B.3	Understand the Distributed shared memory concept and various distributed algorithms related to clock synchronization, deadlock detection.
		C703B.4	Apply various distributed algorithm related to resource management
		C703B.5	Analyze the design and functioning of existing distributed file systems.



SEM-7	BTCOE704	Blockchain Technology	C704 A.1	To recognize various concepts in blockchain technology such as Ledger, Public Ledger, block and blockchain, hashing function, hashing properties and also classify blockchain Models along with its security aspects.
			C704 A.2	To Demonstrate creation of coins in bitcoin in Bitcoin P2P Network and explain double spending, Block Mining and also compare different types of Consensus algorithm in Blockchain such as PoW, PoS, PoB, PoET etc.
			C704 A.3	To examine different Consensus algorithms in Permissioned Blockchain on various design issue parameters.
			C704 A.4	To solve identity issues in different enterprise applications such as cross border payment, KYC, Food security, enabled trade using Blockchain
			C704 A.5	To Examine and Experiment platforms for writing smart contracts using Hyper ledger, Ethereum, Ripple, Corda.
	BTCOE705	Design Thinking	C705C.1	To Explain the principles of design thinking and its approaches
			C705C.2	To Identify the empathy of person and use empathy map to create the Persona and Customer Journey map.
			C705C.3	To perform analysis of design thinking problem and develop an idea using the ideation tools.
			C705C.4	To build a prototype and test in design thinking context.
			C705C.5	To Implement design thinking techniques for product innovation and Use design thinking in business process models.
	BTCOL707A	Artificial Intelligence Lab	C707.1	Demonstrate proficiency in writing basic Prolog programs.
			C707.2	To Develop logical and efficient solutions using recursion and backtracking in Prolog.
			C707.3	To Apply depth-first search to solve problems involving state space exploration & Apply best-first search to solve optimization problems and Integrate heuristic functions with search algorithms for problem-solving.
			C707.4	Design and implement solutions for traversal problems using Prolog.
	BTCOL707B	Cloud Computing Lab	C707A.1	To develop PaaS using various cloud platforms.
			C707A.2	To use SaaS cloud services from various service providers.
			C707A.3	To Design and develop IaaS to provide physical environment
C707A.4			To Implement and use sample cloud services from various service providers	
BTCOF608	Field/Internship	CF608.1	To identify the challenges, problem and future potential in internship area and solve the problem during the internship period.	
		CF608.2	To test the theoretical learning and research-based knowledge in practical situations by completing assigned tasks during the internship period.	
		CF608.3	To apply various soft skills such as time management, positive attitude, ethical principles and communication skills during the internship program.	
BTCOS708	Project Phase-I	C708.1	To Analyse current trends in computer-related domains in order to uncover real-world issues and domain requirements.	
		C708.2	To Apply software engineering principles in planning, formulating an innovative design/ approach and computing requirements which are appropriate to solve the problem within the context of legal, global and environment constraint.	
		C708.3	To design and create projects using the proper methods, materials, and modern equipment while upholding integrity and moral conduct in engineering practices.	
		C708.4	Ability to schedule, monitor, and manage project's resources, finance and work assignments to assure timely completion and to validate and verify project's performance with respect to proposed solution.	
		C708.5	Ability to effectively communicate in both formal and informal environments with team members and mentors; professional performance as a team member; acceptance of responsibility, initiative, and leadership required to present and create technical documents for successful project.	
SEM-8	BTCOF801	Project Phase-II	C801.1	To Analyse current trends in computer-related domains in order to uncover real-world issues and domain requirements.
			C801.2	To Apply software engineering principles in planning, formulating an innovative design/ approach and computing requirements which are appropriate to solve the problem within the context of legal, global and environment constraint.
			C801.3	To design and create projects using the proper methods, materials, and modern equipment while upholding integrity and moral conduct in engineering practices.
			C801.4	Ability to schedule, monitor, and manage project's resources, finance and work assignments to assure timely completion and to validate and verify project's performance with respect to proposed solution.
			C801.5	Ability to effectively communicate in both formal and informal environments with team members and mentors; professional performance as a team member; acceptance of responsibility, initiative, and leadership required to present and create technical documents for successful project.



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