VI	ITC501	Data Mining & Business Intelligence	3.ITC501.1	Demonstrate an understanding of the importance of data warehousing and data mining and the principles of business intelligence
			3.ITC501.2	Organize and prepare the data needed for data mining using pre preprocessing techniques
			3.ITC501.3	Perform exploratory analysis of the data to be used for mining
			3.ITC501.4	Implement the appropriate data mining methods like classification, clustering or Frequent Pattern mining on large data sets.
			3.ITC501.5	Define and apply metrics to measure the performance of various data mining algorithms
			3.ITC501.6	Apply BI to solve practical problems: Analyze the problem domain, use the data collected in enterprise apply the appropriat data mining technique, interpret and visualize the results and provide decision support.
VI	ITC602	Web X.0	4.ITC602.1	Understand the basic concepts related to web analytics and semantic web.
			4.ITC602.2	Understand how TypeScript can help you eliminate bugs in your code and enable you to scale your code.
			4.ITC602.3	Understand AngularJS framework and build dynamic, responsive single-page web applications.
			4.ITC602.4	Apply MongoDB for frontend and backend connectivity using REST API.
			4.ITC602.5	Apply Flask web development framework to build web applications with less code.
			4.ITC602..6	Develop Rich Internet Application using proper choice of Framework.
VI	ITC603	Wireless Technology	4.ITC603.1	Describe the basic concepts of Wireless Network and Wireless Generations.
			4.ITC603.2	Demonstrate and Evaluate the various Wid Area Wireless Technologies
			4.ITC603.3	Analyze the prevalent IEEE standards used for implementation of WLAN and

				WMAN Technologies
			4.ITC603.4	Appraise the importance of WPAN, WSN and Ad-hoc Networks.
			4.ITC603.5	Analyze various Wireless Network Security Standards.
			4.ITC603.6	Review the design considerations for deploying the Wireless Network Infrastructure.
VI	5.ITC604	AI and DS	5.ITC604.1	Develop a basic understanding of the building blocks of AI as presented in terms of intelligent agents
			5.ITC604.2	Apply an appropriate problem-solving method and knowledge-representation scheme.
			5.ITC604.3	Develop an ability to analyze and formalize the problem (as a state space, graph, etc.). They will be able to evaluate and select the appropriate search method.
			5.ITC604.4	Apply problem solving concepts with data science and will be able to tackle them from a statistical perspective.
			5.ITC604.5	Choose and apply appropriately from a wider range of exploratory and inferential methods for analyzing data and will be able to evaluate and interpret the results contextually.
			5.ITC604.6	Understand and apply types of machine learning methods for real world problems.
VI	ITDO6011	Software Architecture	6.ITDO6011.1	Understand the need of software architecture for sustainable dynamic systems
			6.ITDO6011.2	Have a sound knowledge on design principles and to apply for large scale systems.
			6.ITDO6011.3	Apply functional and non-functional requirements
			6.ITDO6011.4	Design architectures for distributed, network and heterogeneous systems

			6.ITDO6011.5	Have good knowledge on service oriented and model driven architectures and the aspect-oriented architecture.
			6.ITDO6011.6	Have a working knowledge to develop appropriate architectures through various case studies.
VI	ITDO6012	Image Processing	5.ITDO6012.1	Define image and explain formation of image and recall its types and calculate image parameters by reading images using a programming language.
			5.ITDO6012.2	Apply and differentiate point, mask and histogram processing techniques suitable for enhancing images required for an application.
			5.ITDO6012.3	List and calculate discrete image transform coefficients and use it for enhancement, compression and representation
			5.ITDO6012.4	Compute compression ratio and fidelity criteria to evaluate and compare method efficiency and classify compression techniques into lossless and lossy methods.
			5.ITDO6012.5	Apply the segmentation techniques to highlight and select the region of interest and determine and describe using chain code, shape number and moments for representing objects in an image.
			5.ITDO6012.6	Choose structuring elements and apply morphological operations to find a suitable shape for an object in the image.
VI	6.ITDO6013	Green IT	6.ITDO6013.1	Describe awareness among stakeholders and promote green agenda and green initiatives in their working environments leading to green movement
			6.ITDO6013.2	Identify IT Infrastructure Management and Green Data Centre Metrics for software development
			6.ITDO6013.3	Recognize Objectives of Green Network Protocols for Data communication
			6.ITDO6013.4	Use Green IT Strategies and metrics for ICT development
			6.ITDO6013.5	Illustrate various green IT services and its roles.
			6.ITDO6013.6	Use new career opportunities available in IT profession, audits and others with special skills such as energy efficiency, ethical IT assets disposal, carbon footprint estimation, reporting and development of green products, applications and services.

VI	4.ITDO6014	Ethical Hacking and Forensic	4.ITDO6014.1	Define the concept of ethical hacking
			4.ITDO6014.2	Recognize the need of digital forensics and define the concept of digital evidence and incident response.
			4.ITDO6014.3	Apply the knowledge of computer forensics using different tools and techniques
			4.ITDO6014.4	Detect the network attacks and analyze the evidence.
			4.ITDO6014.5	Apply the knowledge of computer forensics using different tools and techniques.
			4.ITDO6014.6	List the method to generate legal evidence and supporting investigation reports
VI	ITL601	Business Intelligence Lab	3.ITL601.1	Identify sources of Data for mining and perform data exploration
			3.ITL601.2	Organize and prepare the data needed for data mining algorithms in terms of attributes and class inputs, training, validating, and testing files
			3.ITL601.3	Implement the appropriate data mining methods like classification, clustering or association mining on large data sets using open-source tools like WEKA
			3.ITL601.4	Implement various data mining algorithms from scratch using languages like Python/ Java etc.
			3.ITL601.5	Evaluate and compare performance of some available BI packages
			3.ITL601.6	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
VI	3.ITL602	Web Lab	3.ITL602.1	Understand open source tools for web analytics and semantic web apps development and deployment.
			3.ITL602.2	Understand the basic concepts of TypeScript for designing web applications

			3.ITL602.3	Implement Single Page Applications using AngularJS Framework
			3.ITL602.4	Develop Rich Internet Applications using AJAX
			3.ITL602.5	Create REST Web services using MongoDB.
			3.ITL602.6	Design web applications using Flask.
VI	ITL603	Sensor Lab	4.ITL603.1	Differentiate between various wireless communication technologies based on the range of communication, cost, propagation delay, power and throughput.
			4.ITL603.2	Conduct a literature survey of sensors used in real world wireless applications.
			4.ITL603.3	Demonstrate the simulation of WSN using the Network Simulators (Contiki/ Tinker CAD/ Cup carbon etc).
			4.ITL603.4	Demonstrate and build the project successfully by hardware/sensor requirements, coding, emulating and testing
			4.ITL603.5	Report and present the findings of the study conducted in the preferred domain
			4.ITL603.6	Demonstrate the ability to work in teams and manage the conduct of the research study.
VI	4.ITL604	MAD & PWA Lab	4.ITL604.1	Understand cross platform mobile application development using Flutter framework
			4.ITL604.2	Design and Develop interactive Flutter App by using widgets, layouts, gestures and animation
			4.ITL604.3	Analyze and Build production ready Flutter App by incorporating backend services and deploying on Android / iOS
			4.ITL604.4	Understand various PWA frameworks and their requirements
			4.ITL604.5	Design and Develop a responsive User Interface by applying PWA Design techniques
			4.ITL604.6	Develop and Analyse PWA Features and deploy it over app hosting solutions
VI	5.ITL605	DS using Python Skill based Lab	5.ITL605.1	Understand the concept of Data science process and associated terminologies to solve real-world problems
			5.ITL605.2	Analyze the data using different statistical techniques and visualize the outcome using different types of plots
			5.ITL605.3	Analyze and apply the supervised machine learning techniques like Classification, Regression or Support Vector Machine on data for building the models of data and

				solve the problems
			5.ITL605.4	Apply the different unsupervised machine learning algorithms like Clustering, Decision Trees, Random Forests or Association to solve the problems.
			5.ITL605.5	Design and Build an application that performs exploratory data analysis using Apache Spark
			5.ITL605.6	Design and develop a data science application that can have data acquisition, processing, visualization and statistical analysis methods with supported machine learning technique to solve the real-world problem
VI	ITM601	Mini Project ó 2 B Based on ML	9.ITM601.1	Identify problems based on societal /research needs and Apply knowledge and skill to solve societal problems in a group.
			9.ITM601.2	Draw the proper inferences from available results through theoretical/ experimental/simulations.
			9.ITM601.3	Analyse the impact of solutions in societal and environmental context for sustainable development.
			9.ITM601.4	Demonstrate project management principles during project work and Use standard norms of engineering practices.
			9.ITM601.5	Develop interpersonal skills to work as a member of a group or leader and Excel in written and oral communication.
			9.ITM601.6	Demonstrate capabilities of self-learning in a group, which leads to life-long learning.