Sr. No	Semester	Course Code/Name of the Course	Course Outcome	
01	**Semester III**	ITU321/Computer Organization & Architecture	ITU321.1	Describe the organization of a computer system in terms of its main components.
			ITU321.2	Demonstrate computer architecture concepts related to design of modern processors memories and I/Os.
			ITU321.3	Identify various parts of a system memory hierarchy.
			ITU321.4	Analyze the performance of commercially available computers.
			ITU321.5	Develop logic for assembly language programming.
		ITU322/ Data Structure & Algorithms	ITU 322.1	For a given algorithm student will able to analyze the algorithms to determine the time and computation complexity and justify the correctness.
			ITU 322.2	For a given Search problem (Linear Search and Binary Search) student will able to implement it.
			ITU 322.3	For a given problem of Stacks, Queues and linked list student will able to implement it and analyze the same to determine the time and computation complexity.
			ITU 322.4	Student will able to write an algorithm Selection Sort, Bubble Sort, Insertion Sort, Quick Sort, Merge Sort, Heap Sort and compare their performance in term of Space and Time complexity.
			ITU 322.5	Student will able to implement Graph, Trees search and traversal algorithms and determine the time and computation complexity.
		ITU323/ Digital Logic Design	ITU 323.1	Apply the knowledge of number systems and codes in problem solving related to code conversion and number system.
			ITU 323.2	Learn the simplification of logical statements with karnaugh maps.
			ITU 323.3	Learn and understand the basic concepts of combinational logic devices and apply the concepts in designing them.
			ITU 323.4	Learn the working principles of decoder, encoder.

			ITU 323.5 Learn and understand the fundamentals of sequential logic devices and apply the concepts in designing them.
			ITU 323.6 Apply and design the logical devices by using all these concepts along with implementation knowledge of hardware and peripheral design.
		SHU321B *SHU322B/ Transform and Linear Algebra Differential Equation and Transform	SHU321 B.1 Use the conceptof probability and random variables and various discrete and continuous probability distributions in practical problems.
			SHU321 B.2 Apply the tool of transform in solving engineering problems.
			SHU321 B.3 Analyze the problems related to engineering with the knowledge of
			SHU321 B.4 linear algebra. 1. use the concept of probability 2. and random variables and various discrete and continuous probability distributions in practical problems. 2. apply the tool of transform in solving engineering problems. 3. Analyze the problems related to engineering with the knowledge of linear algebra.
		SHU323/ Introduction to Constitution of India	SHU322.1 Understand and remember the knowledge of basic information about Indian Constitution.
			SHU322.2 Apply the knowledge of fundamental rights and fundamental duties.
		SHU334/ Effective Technical Communication	SHU334.1 Understand how critically analyse data from research and incorporate it into assigned technical writing or documents clearly, concisely, logically with effective style and grammar in précised form.
			SHU334.2 Exhibit integrates sense of ethical values and personal accountability to form realistic development plans to achieve identified goals with creative analysis of self assessment and awareness.

			SHU334.3 Manifest gained self-confidence, skill of verbal communication along with formethical values not only to meet the demand of professional world as a coherent whole but to present their prowess/ employability skills in various workplaces effectively in global world as well.
		ITU324/ Data Structure & Algorithms Lab	ITU 324.1 Interpret and compute asymptotic notations to describe work done by an algorithm and relate to the consumption of resources (time/space).
			ITU 324.2 Exemplify and implement how abstract data types such as stack, queue and linked list can be implemented to manage the memory using static and dynamic allocations.
			ITU 324.3 Apply various data structures trees(Binary tree, Binary Search trees), graphs to solve programming challenges
			ITU 324.4 Develop and compare the comparison-based search algorithms and sorting algorithms.
		ITU325/ Digital Logic Design Lab	ITU 325.1 Distinguish between analog and digital systems.
			ITU 325.2 Identify the various digital ICs and understand their operation.
			ITU 325.3 Apply Boolean laws and K-map to simplify the digital circuits.
			ITU 325.4 Understand the function of elementary digital circuits under real and simulated environment.
			ITU 325.5 Prepare a report on basics of digital electronics and handling of ICs
		ITU326/Object Oriented Technology	ITU 326.1 To identify classes, objects, members of a class and relationships among them needed for a specific problem.
			ITU 326.2 To write application programs using OOP principles and proper program structuring.
			ITU 326.3 To demonstrate the concepts of polymorphism and inheritance.
			ITU 326.4 To implement concept of I/O ,GUI, exception handling.
			ITU 326.5 To demonstrate concept of socket programming.
02	Semester IV	ITU421/ Discrete Mathematics	ITU 421.1 Explain basic terminology, formal logic, proofs, sets, relations, functions, recursion

			ITU 421.2	Use formal logic proof and logical reasoning to solve problems
			ITU 421.3	Relate the ideas of mathematical induction to recursion and recursively defined structures
			ITU 421.4	Solve problems based on graphs, trees and related algorithms
			ITU 421.5	Relate, interpret and apply the concepts to various areas of computer science
		ITU422/ DATABASE MANAGEMENT SYSTEMS	ITU422.1	Design E-R Model for given requirements and convert the same into database tables and normalization.
			ITU422.2	Create databases in an RDBMS and enforce data integrity constraints using SQL.
			ITU422.3	Solve real world problems using appropriate set, function, and relational models.
			ITU422.4	Understand the principles of storage structure and recovery management.
			ITU422.5	For a given transaction-processing system, determine the transaction atomicity, consistency, isolation, and durability.
			ITU422.6	Implement the isolation property, including locking, time stamping based on concurrency control and Serializability of scheduling
		ITU/ 423 OPERATING SYSTEM	ITU 423.1	Create processes and threads.
			ITU 423.2	Develop algorithms for process scheduling for a given specification of CPU utilization, Throughput, Turnaround Time, Waiting Time, Response Time.
			ITU 423.3	For a given specification of memory organization develop the techniques for optimally allocating memory to processes by increasing memory utilization and for improving the access time.
			ITU 423.4	Simulate file management system.

			ITU 423.5	For a given I/O devices and OS (specify) develop the I/O management functions in OS as part of a uniform device abstraction by performing operations for synchronization between CPU and I/O controllers.
		ITU424/ DESIGN AND ANALYSIS OF ALGORITHMS	ITU 424.1	For a given algorithms analyze worst-case running times of algorithms based on asymptotic analysis and justify the correctness of algorithms.
			ITU 424.2	Describe the greedy paradigm and explain when an algorithmic design situation calls for it. For a given problem develop the greedy algorithms.
			ITU 424.3	Describe the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it. Synthesize divide-and-conquer algorithms. Derive and solve recurrence relation.
			ITU 424.4	Describe the dynamic-programming paradigm and explain when an algorithmic design situation calls for it. For a given problems of dynamic-programming and develop the dynamic programming algorithms, and analyze it to determine its computational complexity.
			ITU 424.5	Student will develop ability to identify weather given problem is NP-Complete or not, and develop efficient algorithm that gives good solution.
		ITU425 /ORGANIZATIONAL BEHAVIOUR	ITU 425.1	Understand the dynamics of organizational behaviour, and explain management roles with a comprehensive view of organizational behaviour.
			ITU 425.2	Knowing the specific aspects of contemporary organizational behavior.
			ITU 425.3	Gain an appreciation of the different approaches to organizational structures.
			ITU 425.4	Understand personality, learning and emotional function at work along with team formation and working.
			ITU 425.5	Comprehending the concept of motivation, leadership, power and conflict and team building.

			ITU 425.6	Understand the fundamentals of group actions and the organizational change and growth process.
		SHU 422 /ENVIRONMENTAL STUDIES	SHU 422.1	Convey the Environmental awareness among peoples.
			SHU 422.2	Apply Conservation of various natural resources and environmental factors.
			SHU 422.3	Aware about social and environmental issues
		ITU426/ DATABASE MANAGEMENT SYSTEMS LAB	ITU426.1	Apply the basic concepts of Database Systems and Applications.
			ITU426.2	Use the basics of SQL and construct queries using SQL in database creation and interaction.
			ITU426.3	Design a commercial relational database system (Oracle, MySQL) by writing SQL using the system.
			ITU426.4	Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database.
			ITU426.5	Formulate, using SQL, solutions to a broad range of query and data update problems.
		ITU427/ OPERATING SYSTEM LAB	ITU427.1	Apply basic commands in Linux for understanding OS concepts.
			ITU427.2	Recognize CPU Scheduling, synchronization, and deadlock.
			ITU427.3	Use Linux commands, and develop various system programs under Linux to make use of OS concepts related to process synchronization, shared memory, file systems.
		ITU428 /DESIGN AND ANALYSIS OF ALGORITHMS LAB	ITU 428.1	Ability to write programs to solve problems using algorithm design techniques such as Divide and Conquer.
			ITU 428.2	Ability to write programs to solve problems using algorithm design techniques such as Greedy.
			ITU 428.3	Ability to write programs to solve problems using algorithm design techniques such as Dynamic programming.
		ITU 429 /PYTHON	**ITU429.1**	Implement various applications using open source system of Python

		PROGRAMMING LAB	**ITU429.2** Create simple GUI applications and develop experiments using Python
			ITU429.3 Understand configuration and virtual environment of open source systems and Python
			ITU429.4 To be able to explain open source project structure and how to successfully setup a project
03	Semester V	ITU521/ SOFTWARE ENGINEERING	ITU521.1. Considering the general understanding of software engineering from a wider viewpoint.
			ITU521.2. Apply methodically the skills learned during the course to actual circumstances of problem understanding and software development.
			ITU521.3. Understand the processes of software development as an effective role player.
			ITU521.4. Good communication in software development activities.
			ITU521.5. Understandthe technical and ethical obligation of developing contemporary software and engaging in lifelong learning.
		ITU522/ COMPUTER NETWORK	ITU522.1 Interpret the functions of the different layer of the OSI Protocol.
			ITU522.2 Draw the functional block diagram of wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs) describe the function of each block.
			ITU522.3 Demonstrate design concept for a given requirement (small scale) of wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs) .
			ITU522.4 Apply solution to problems related TCP/IP protocol.

			ITU522.5 Configure DNS DDNS, TELNET, EMAIL, File Transfer Protocol (FTP), WWW, HTTP, SNMP, Bluetooth, Firewalls using opensource available software and tools.
		ITU523/ FORMAL LANGUAGES AND AUTOMATA THEORY	ITU523.1. To acquire a full understanding and mentality of Automata Theory as the basis of all computer science languages design.
			ITU523.2. Have a clear understanding of the Automata theory concepts such as RE's, DFA's, NFA's, Stack's, Turing machines, and Grammars.
			ITU523.3. Design FAs, NFAs, Grammars, languages modeling, small compilers basics.
			ITU523.4. Design sample automata. Be able to minimize FA's and Grammars of Context Free Languages.
			ITU523.5. Design finite automata to recognize a given regular language. Transform a language into regular expression or finite automata or Transition graph.
		ITU524/ MACHINE LEARNING	ITU524.1. Students will be able to model the learning primitives. ITU524.2. Students will be able to build the learning model.
			ITU524.3. Student will be able to tackle real world problems in the domain of Data Mining, Information Retrieval, Computer vision, Linguistics and Bioinformatics.
		ITU525/ (A) INFORMATION RETRIEVAL	ITU525(A).1. Student will understanding the basic concept and techniques in Information Retrieval
			ITU525(A).2. Student will be able to apply Information Retrieval principles to locate relevant information from collections of data
			ITU525(A).3. Student will be able to implement different Retrieval Models like Boolean model, vector space model
			ITU525(A).4. Student will design document clustering and Text classification methods.

		ITU525/ (B) PARALLEL ARCHITECTURE	ITU525(B).1. Understand the critical methods and techniques related to parallel computing.
			ITU525(B).2. The students will have a deep understanding of how parallel systems are designed and what are the fundamental methods to program and analyze them.
			ITU525(B).3. Understand the components and operation of a memory hierarchy & I/O and the performance issues influencing its design.
			ITU525(B).4. Explain how large-scale parallel systems are architecture and how massive parallelism are implemented in accelerator architectures.
			ITU525(B).5. Write parallel programs for large-scale parallel systems, shared address space platforms, and heterogeneous platforms.
		ITU525 (C) INTERNET OF THINGS	ITU321.6 Understand general concepts of Internet of Things (IoT)
			ITU321.7 Recognize various devices, sensors and applications
			ITU321.8 Apply design concept to IoT solutions
			ITU321.9 Analyze various M2M and IoT architectures
			ITU321.10 Evaluate design issues in IoT applications
		ITU526/ DATA WAREHOUSING AND DATA MINING	ITU526.1. Identify and apply the data warehouse and OLAP technology for data mining.
			ITU526.2. Understand the data preprocessing issues and data mining functions.
			ITU526.3. Analyze different data mining primitives for the functions.
			ITU526.4. Implement the different algorithms of classification and prediction.
			ITU526.5. Implement the different algorithms for data clustering.
		ITU527 /COMPUTER NETWORK LAB	ITU527.1. Use simulation tools
			ITU527.2. Understand the various protocols

			ITU527.3. Implement the various protocols
			ITU527.4. Analyze various routing algorithms
		ITU528/ MACHINE LAERNING LAB	ITU528.1 Understand Machine Learning concepts in solving problems of regression, clustering, classification and SVMs nature
			ITU528.2 Understand the use of various open-source/free-to-use global datasets being used for Machine Learning concepts and its implementation.
			ITU528.3 Identify and understand the areas /domains in which Machine Learning can be utilized as a solution finding process.
			ITU528.4 Applyappropriate Machine Learning algorithms in tackling real life problems.
		ITU529/ SOFTWARE ENGINEERING LAB	ITU529.1. Able to create object oriented analysis features in SE program development
			ITU529.2. Apply CASE tools for SE scenario
			ITU529.3. Understand to implement program analysis tools in SELife Cycle
			ITU529.4. Able to develop test cases for effective software development
		ITU530/ DATA WAREHOUSING AND DATA MINING LAB	ITU530.1. Identify the data warehouse and OLAP technology for data mining.
			ITU530.2. Identify the data preprocessing issues, data mining functions.
			ITU530.3. Analyze different data mining primitives for the functions.
			ITU530.4. Implement the different algorithms for classification and prediction.
04	Semester VI	ITU621 /GEOSPATIAL TECHNOLOGIES	ITU621.1 Analyze spatial data, using GIS analysis tool

			ITU621.2 Create maps, images and apps to communicate spatial data in a meaningful way to others
			ITU621.3 Workplace competencies are strengthened as students apply the analytical and evaluative tools to GIS mapping and apps ITU621.4 Explore mapped data & Relate GIS with remote sensing technologies
			ITU621.5 Develop and manage geodatabases
		ITU622/ ARTIFICIAL INTELLIGENCE	ITU622.1. Student will be able to demonstrate fundamental understanding of the history of artificial intelligence (AI) and its foundations.
			ITU622.2. Student will apply basic principles of AI in solutions that require problem solving, inference, perception.
			ITU622.3. Student will apply basic principles of AI in knowledge representation, and learning.
			ITU622.4. Students will able to demonstrate proficiency in applying scientific method to models of machine learning.
			ITU622.5. Students will apply AI techniques to real-world problems to develop intelligent systems.
		PROGRAM ELECTIVE-II ITU623/ (A) WEB MINING	ITU623(A).1 Apply machine learning concepts to web content mining
			ITU623(A).2 Implement Page Ranking algorithm and modify the algorithm for mining information
			ITU623(A).3 Process data using the Map Reduce paradigm
			ITU623(A).4 Design a system to harvest information available on the web to build recommender systems
			ITU623(A).5 Analyze social media data using appropriate data/web mining
		ITU623 (B) PARALLEL PROGRAMMING	ITU623(B).1. Describe different ways of achieving parallelism and different parallel computer systems.

			ITU623(B).2.	Design Memory and Input/output subsystems in Uniprocessor and Multiprocessor environment considering the performance issues influencing its design.
			ITU623(B).3.	Analyze the organization and operation of different parallel computer architectures such as Pipelined processor, SIMD Array processor, Multiprocessor and Multi-core systems, superscalar processor & GPU based architectures.
			ITU623(B).4.	Demonstrate the parallel hardware constructs and operating system support for parallel computing.
		ITU623(C)/ WIRELESS & MOBILE COMPUTING	ITU623(C).1.	Demonstrate the fundamentals of wireless technology.
			ITU623(C).2.	Apply the layered protocols and fundamentals for the design of wireless communication.
			ITU623(C).3.	Analyze and apply resource optimization techniques for better performance.
			ITU623(C).4.	Apply the working of different wireless networks.
			ITU623(C).5.	Demonstrate knowledge of the mobile network.
		PROGRAM ELECTIVE-III ITU 624 (A) /NETWORK ARCHITECTURE AND WIRELESS PROTOCOLS	ITU624(A).1.	Describes fundamental concepts of computer networking and functionality of layered network architecture
			ITU624(A).2.	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies.
			ITU624(A).3.	Describe wireless and mobile networking concepts.
			ITU624(A).4.	Apply networking concepts to various situations, classifying networks, analyzing performance and implementing new technologies.
		ITU624 (B)/ SOFTWARE PROJECT MANAGEMENT-INDUSTRY PERSPECTIVE	ITU624(B).1.	Able to use the concepts of SPM to find solutions to general problems of the world.

			ITU624(B).2. Apply methodically the skills learned during the course to actual circumstances of problem understanding and software development.
			ITU624(B).3. Create in themselves abilities of thoughtful managers and team members throughaugmented understanding of the intricacies of software project management with inter,multi and cross-disciplinary approach.
			ITU624(B).4. Understand the distinctive challenges integral in planning, executing and monitoring projects, which provide quality results for their stake-holders.
		ITU624 (C)/ DISTRIBUTED COMPUTING	ITU624(C).1. Identify the issues in designing distributed operating system.
			ITU624(C).2. Identify the desirable features of good message passing system and issues in designing inter process communication system by message passing.
			ITU624(C).3. Design and develop distributed programs using RPC.
			ITU624(C).4. Identify the issues of distributed shared memory system.
			ITU624(C).5. Analyze different algorithms and techniques for the synchronization
		ITU625 /CLOUD COMPUTING	ITU625.1. Understand the concept of virtualization and how this has enabled the development of Cloud Computing ITU625.2. Know the fundamentals of cloud, cloud Architectures and types of services in cloud ITU625.3. Understand scaling, cloud security and disaster management ITU625.4. Design different Applications in cloud ITU625.5. Explore some important cloud computing driven commercial systems
		OPEN ELECTIVE-I ITU633 (A) /COMPUTER ORIENTED OPERATION RESEARCH	ITU626(A).1. Formulate and solve mathematical model (linear programming problem) for a physical situations like production, distribution of goods

			and economics. ITU626(A).2. Apply the concept of simplex method and its extensions to dual simplex algorithm. ITU626(A).3. Solve the problem of transporting the products from origins to destinations with least transportation cost. ITU626(A).4. Convert and solve the practical situations into non-linear programming problem. ITU626(A).5. Identify the resources required for a project and generate a plan and work schedule.
		ITU633 (B)/ INTRODUCTION TO DATA STRUCTURES	ITU626(B).1 For a given algorithm student will able to analyze the algorithms to determine the time and computation complexity. ITU626(B).2 For a given problem student will able to apply the concepts of Arrays,Stacks, Queues and linked list ITU626(B).3 Student will able to understand concepts of Graph and traversal algorithms ITU626(B).4 Student will able to summarize searching and sorting techniques ITU626(B).5 Student will able to apply the concepts of Trees search and traversal algorithms
		ITU627/ GEOSPATIAL TECHNOLOGIES LAB	ITU627.1. Understand basic practical understanding of GIS concepts. ITU627.2. Apply spatial data analysis and visualize using GIS tools and software. ITU627.3. Develop and solve societal problems using Geo spatial technologies and programming languages like webGIS and MobileGIS.
		ITU628/ ARTIFICIAL INTELLIGENCE LAB	ITU628.1. Elicit, analyze and specify software requirements. ITU628.2. Simulate given problem scenario and analyze its performance. ITU628.3. Develop programming solutions for given problem scenario. ITU628.4. Apply AI based algorithms to solve real life problems.

		ITU 629 /WEB & INTERNET TECHNOLOGY LAB	**ITU629.1** Create and Mange static web pages for given scenario. ITU629.2 Apply server side technologies to establish dynamic applications. ITU629.3 Implement web applications with effective data management. ITU629.4 Develop secure web applications with session management API‟s.
		ITU630/ MINOR PROJECT	ITU630.1. Discover potential research areas in the field of IT ITU630.2. Conduct a survey of several available literature in the preferred field of study and Formulate and propose a plan for creating a solution for the research plan identified ITU630.3. Compare and contrast the several existing solutions for research challenge and demonstrate an ability to work in teams and manage the ITU630.4. conduct of the research study. ITU630.5. To report and present the findings of the study conducted in the preferred domain
05	Semester VII	PROGRAM ELECTIVE-IV ITU721 (A)/ DATA ANALYTICS	ITU721(A).1 Understand the essentials of data analytics and the corresponding terminologies. ITU721(A).2 Analyze the steps involved in the Analytics process. ITU721(A).3 Identify meaningful patterns in data. ITU721(A).4 Understand use of descriptive, predictive and prescriptive analytics. ITU721(A).5 Simulate algorithms for data analytics.

		ITU721 (B) /AD-HOC NETWORKS	ITU721.1 Understand characteristics of conventional networks and ad hoc networks. ITU721.2 Design wireless network as per the requirement. ITU721.3 Evaluate the existing network and improve its quality of service. ITU721.4 Choose appropriate protocol for various applications. ITU721.5 Examine security measures present at different level.
		ITU721(C) /SPEECH AND NATURAL LANGUAGE PROCESSING	ITU721(C).1 Describesfundamental concepts and techniques of speech and natural language processing ITU721(C).2 Apply various Part-of-Speech Tagging algorithms ITU721(C).3 Identify and apply efficient parsing for context-free grammars (CFGs). ITU721(C).4 Understand and apply lexical semantics and Information Extraction techniques ITU721(C).5 Explain Statistical machine translation framework
		ITU721 (D) /INFORMATION SECURITY	ITU721(D).1 Design encryption/ decryption algorithms using open source tools ITU721(D).2 Understand the various techniques of cryptographic algorithms ITU721(D).3 Solve various problems in Public Key Encryption algorithms ITU721(D).4 Understand Secure Email techniques and functionalities ITU721(D).5 Analyze the various techniques of encryption, key management in security, Secure Electronic Transaction
		PROGRAM ELECTIVE-V ITU722 (A)/ DIGITAL FORENSICS	ITU722 (A).1. Explain the role of digital forensics in the business and private world. ITU722(A).2 Identify potential sources of electronic evidence and explain the importance. ITU722(A).3 Recognize current techniques and tools for forensic investigations. ITU722(A).4 Explain and perform forensic analysis in various fields. ITU722(A). 5 Describe the procedures for virtual, network and mobile device forensics**.**

		ITU722 (B)/ ADVANCE PROGRAMMING LANGUAGE	ITU 722(B).1 Design Java Applet and Swing Components ITU 722(B).2 Update and retrieve the data from the databases using JDBC-ODBC. ITU 722(B).3 Develop server side programs using Servlets. ITU 722(B).4 Develop Java applications using networking concepts ITU 722(B).5 Develop application using Hibernate.
		ITU722 (C)/ ADVANCE PROJECT MANAGEMENT AND ICT IN AGRI-RURAL DEVELOPMENT	ITU722(C).1 Understand the technical and ethical obligation of developing contemporary softwarefor overall project development. ITU722(C).2 Students will get clear understanding about the Information and Communication Technology (ICT) and its components for Rural Development. ITU722(C).3 Students will be able to grasp and manage use of ICT in various fields like E-Gram Panchayat, Agriculture, Education, Health, Economic Development etc.
		ITU 722 (D) HUMAN COMPUTER INTERACTION	ITU722(D) 1. Design effective dialog for HCI ITU722(D) 2. Design effective HCI for individuals and persons with disabilities. ITU722(D) 3. Assess the importance of user feedback. ITU722(D) 4. Explain the HCI implications for designing multimedia/e-commerce/e-learning web sites. ITU722(D) 5. Develop meaningful user interface.
		OPEN ELECTIVE-II ITU733 (A) /SOFTWARE ENGINEERING	ITU723(A).1 Able to interpret a general understanding of software engineering from a professional and wider viewpoint. ITU723(A).2 Apply methodically the skills learned during the course to actual circumstances ofproblem understanding and software development. ITU723(A).3 Understand the processes of software development as an effective role player. ITU723(A).4 Able to practice good communicationin software development activities. ITU723(A).5 Understand the technical and ethical obligation of developing contemporary software and engaging in lifelong learning.

		ITU733 (B)/ DATA COMMUNICATION	ITU723.1 Explain the concepts of data communication. ITU723.2 Perform various operations on analog and digital signals. ITU723.3 Evaluate the performance of existing network models. ITU723.4 Choose appropriate multiplexing technique for various applications. ITU723.5 Examine the working and applications of networking components.
06	Semester VIII	PROGRAM ELECTIVE-VI ITU821 (A)CRYPTOGRAPHY AND NETWORK SECURITY	ITU821(A).1 Understand various network security services ITU821(A).2 Explain the concepts related to applied cryptography, including plaintext, ciphertext, symmetric cryptography, asymmetric cryptography, and digital signatures ITU821(A).3 Demonstrate the understanding of common network vulnerabilities and attacks, defence mechanisms against network attacks, and cryptographic protection mechanisms. ITU821(A).4 Detect possible threats to different defence mechanisms and different ways to protect against these threats ITU821(A).5 Identify the need for System Security like intrusion detection and prevention system
		ITU821 (B) /GRAPH MINING	ITU821(B).1. Understand of the graph theory and graph miningfoundations. ITU821(B).2. Analyse graph miningmethods. ITU821(B).3. Formulate and solve graph-relatedproblems. ITU821(B).4. Apply graph mining algorithms to analyze large-scale datasets on variousdomains. ITU821(B).5. Analyse graph algorithms.
		ITU821(C)/ REAL TIME SYSTEM	ITU821(B).6. Identify the hardware units required in designing embedded system. ITU821(B).7. Identify the desirable features of processors in embedded system. ITU821(B).8. Analyze different use of FIFO queues, Stacks, Lists and Ordered Lists. ITU821(B).9. Analyze differentmodeling processes in embedded system.

			ITU821(B).10.Identify the schedule management in embedded system.
		ITU821 (D)/ AUGMENTED REALITY	ITU821(D).1 Describe how AR systems work and list the applications of AR. ITU821(D).2 Understand and analyze the hardware requirement of AR. ITU821(D).3 Use computer vision concepts for AR and describe AR ITU821(D).4 Analyze and understand the working of various state of the art AR ITU821(D).5 Understand AR devices and components