

		using the Fundamental Theorem of Calculus												
		Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables	✓	✓	✓	✓								
		Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts.	✓	✓										
		Determine convergence/divergence of improper integrals and evaluate convergent improper integrals	✓	✓	✓									
		Apply various techniques in solving differential equations.	✓	✓	✓									
19149S13	ENGINEERING PHYSICS	The students will gain knowledge on the basics of properties of matter and its applications	✓	✓	✓									
		The students will acquire knowledge on the concepts of waves and optical devices and their applications in fibre optics,	✓	✓	✓	✓	✓							
		The students will have adequate knowledge on the concepts of thermal properties	✓	✓	✓	✓	✓							

		of materials and their applications in expansion joints and heat exchangers,													
		The students will get knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes	✓	✓	✓	✓	✓								
		The students will understand the basics of crystals, their structures and different crystal growth techniques.	✓	✓	✓										
19149S14	ENGINEERING CHEMISTRY	The knowledge gained on engineering materials, fuels, energy sources and water treatment techniques will facilitate better understanding of engineering processes and applications for further learning	✓	✓	✓										
19150S16	PROBLEM SOLVING AND PYTHON PROGRAMMING	Develop algorithmic solutions to simple computational problems	✓	✓	✓			✓							
		Read, write, execute by hand simple Python programs	✓	✓	✓		✓	✓						✓	
		Structure simple Python programs for solving problems	✓	✓	✓		✓	✓							✓
		Decompose a Python program into functions.	✓	✓	✓		✓	✓							✓
		Represent compound data using Python lists, tuples, dictionaries	✓	✓	✓		✓	✓							✓

		Read and write data from/to files in Python Programs	✓	✓	✓		✓	✓						✓
19154S15	ENGINEERING GRAPHICS	Familiarize with the fundamentals and standards of Engineering graphics	✓											
		Perform freehand sketching of basic geometrical constructions and multiple views of objects.		✓										
		Project orthographic projections of lines and plane surfaces			✓									
		Draw projections and solids and development of surfaces.			✓	✓				✓				
19150L17	PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY	Write, test, and debug simple Python programs.	✓											
		Implement Python programs with conditionals and loops.		✓	✓									
		Develop Python programs step-wise by defining functions and calling them		✓	✓									
		Use Python lists, tuples, dictionaries for representing compound data.				✓	✓							
		Read and write data from/to files in Python.			✓									
19149L18	PHYSICS AND CHEMISTRY LABORATORY	Apply principles of elasticity, optics and thermal properties for engineering applications.	✓	✓	✓			✓						✓
		The students will be outfitted with hands-on knowledge in the quantitative chemical			✓	✓	✓							✓

	ENGINEERING MATHEMATICS – II	Symmetric matrices, Positive definite matrices and similar matrices.													
		Gradient, divergence and curl of a vector point function and related identities		✓		✓									
		Evaluation of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification		✓		✓									
		Analytic functions, conformal mapping and complex integration		✓		✓	✓								
		Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients.			✓		✓								
19149S23 A	PHYSICS FOR INFORMATION SCIENCE	Gain knowledge on classical and quantum electron theories, and energy band structures	✓	✓											
		Acquire knowledge on basics of semiconductor physics and its applications in various devices,	✓				✓								
		Get knowledge on magnetic properties of materials and their applications in data storage	✓			✓									
		Have the necessary understanding on the		✓		✓	✓								

		functioning of optical materials for optoelectronics												
		Understand the basics of quantum structures and their applications in carbon electronics..			✓	✓								
19153S25 A	BASIC ELECTRICAL, ELECTRONICS AND MEASUREMENT ENGINEERING	Discuss the essentials of electric circuits and analysis.	✓	✓										
		Discuss the basic operation of electric machines and transformers	✓	✓										
		Introduction of renewable sources and common domestic loads.	✓	✓	✓									
		Introduction to measurement and metering for electric circuits.	✓	✓	✓									
19149S24 A	ENVIRONMENTAL SCIENCE AND ENGINEERING	Environmental Pollution or problems cannot be solved by mere laws. Public participation is an important aspect which serves the environmental Protection. One will obtain knowledge on the following after completing the course.						✓	✓	✓	✓			✓
		Public awareness of environmental is at infant stage.						✓	✓	✓	✓			✓
		Ignorance and incomplete knowledge has lead to misconceptions						✓	✓	✓	✓			✓

		Development and improvement in std. of living has lead to serious environmental disasters							✓	✓	✓	✓		✓	
19150S26 A	PROGRAMMING IN C	Develop simple applications in C using basic constructs	✓	✓	✓										
		Design and implement applications using arrays and strings	✓	✓	✓										
		Develop and implement applications in C using functions and pointers.		✓	✓										
		Develop applications in C using structures.		✓	✓										
		Design applications using sequential and random access file processing.		✓	✓										
19154L27	ENGINEERING PRACTICES LABORATORY	Fabricate carpentry components and pipe connections including plumbing works.	✓							✓			✓		
		Use welding equipments to join the structures. Carry out the basic machining operations Make the models using sheet metal works	✓		✓			✓			✓				
		Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings Carry out basic home electrical works and appliances	✓	✓	✓	✓		✓							

		Measure the electrical quantities Elaborate on the components, gates, soldering practices.	✓	✓	✓	✓	✓		✓	✓				
19150L28 A	C - PROGRAMMING LAB	Develop C programs for simple applications making use of basic constructs, arrays and strings	✓	✓	✓									
		Develop C programs involving functions, recursion, pointers, and structures	✓	✓	✓	✓								
		Design applications using sequential and random access file processing	✓	✓	✓	✓	✓				✓			
19148C31 A	DISCRETE MATHEMATICS	Have knowledge of the concepts needed to test the logic of a program	✓	✓	✓									
		Have an understanding in identifying structures on many levels	✓		✓	✓								
		Be aware of a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science.	✓	✓	✓	✓								✓
		Be aware of the counting principles.	✓	✓	✓	✓	✓					✓		✓
		Be exposed to concepts and properties of algebraic structures such as groups, rings and fields.	✓	✓	✓	✓	✓	✓				✓		

19150C32	DIGITAL PRINCIPLES AND SYSTEM DESIGN	Simplify Boolean functions using KMap	✓	✓	✓	✓		✓	✓	✓					
		Design and Analyze Combinational and Sequential Circuits	✓	✓	✓	✓	✓	✓	✓	✓				✓	
		Implement designs using Programmable Logic Devices	✓	✓	✓	✓	✓	✓	✓	✓				✓	
		Write HDL code for combinational and Sequential Circuits	✓	✓	✓	✓		✓	✓	✓				✓	
19150C33	DATA STRUCTURES	Implement abstract data types for linear data structures.	✓	✓	✓						✓				
		Apply the different linear and non-linear data structures to problem solutions	✓	✓	✓							✓			
		Critically analyze the various sorting algorithms	✓	✓	✓							✓			
19150C34	OBJECT ORIENTED PROGRAMMING	Develop Java programs using OOP principles	✓	✓	✓	✓	✓							✓	
		Develop Java programs with the concepts inheritance and interfaces	✓	✓	✓	✓	✓						✓	✓	
		Build Java applications using exceptions and I/O streams	✓	✓	✓	✓	✓						✓	✓	
		Develop Java applications with threads and generics classes	✓	✓	✓	✓	✓				✓		✓	✓	
		Develop interactive Java programs using swings	✓	✓	✓	✓	✓	✓			✓		✓	✓	
19150C35		Apply analog and digital communication techniques	✓		✓	✓							✓		

		Compare and contrast various indexing strategies in different database systems	✓	✓		✓		✓	✓					
		Appraise how advanced databases differ from traditional databases	✓	✓	✓	✓	✓	✓						
19150C44	DESIGN AND ANALYSIS OF ALGORITHMS	Design algorithms for various computing problems	✓			✓								
		Analyze the time and space complexity of algorithms.		✓	✓	✓								
		Critically analyze the different algorithm design techniques for a given problem		✓	✓	✓	✓							
		Modify existing algorithms to improve efficiency.		✓	✓		✓	✓						
19150C45	OPERATING SYSTEMS	Analyze various scheduling algorithms.	✓	✓	✓	✓	✓	✓						
		Understand deadlock, prevention and avoidance algorithms.	✓	✓	✓	✓	✓							
		Compare and contrast various memory management schemes.	✓	✓	✓	✓	✓							
		Understand the functionality of file systems.	✓	✓	✓	✓	✓							
		Perform administrative tasks on Linux Servers.	✓	✓	✓	✓	✓	✓	✓				✓	✓
		Compare iOS and Android Operating Systems.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
19150C46	SOFTWARE ENGINEERING	Identify the key activities in managing a software project.	✓	✓	✓	✓					✓	✓	✓	✓

		Compare different process models	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Concepts of requirements engineering and Analysis Modeling.	✓	✓	✓	✓	✓	✓	✓	✓		✓			
		Apply systematic procedure for software design and deployment.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Compare and contrast the various testing and maintenance	✓	✓	✓	✓	✓	✓	✓	✓					
		Manage project schedule, estimate project cost and effort required.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
19150L47	DATABASE MANAGEMENT SYSTEMS LABORATORY	Use typical data definitions and manipulation commands	✓	✓	✓						✓	✓	✓	✓	
		Design applications to test Nested and Join Queries	✓	✓	✓						✓	✓	✓	✓	
		Implement simple applications that use Views	✓	✓	✓							✓	✓	✓	✓
		Implement applications that require a Front-end Tool	✓	✓	✓							✓	✓	✓	✓
		Critically analyze the use of Tables, Views, Functions and Procedures	✓	✓	✓							✓	✓	✓	✓
19150L48	OPERATING SYSTEMS LABORATORY	Compare the performance of various CPU Scheduling Algorithms	✓	✓	✓		✓			✓	✓	✓		✓	
		Implement Deadlock avoidance and Detection Algorithms	✓	✓	✓		✓			✓	✓	✓		✓	
		Implement Semaphores	✓	✓	✓		✓			✓	✓	✓		✓	

		Create processes and implement IPC	✓	✓	✓		✓			✓	✓	✓		✓
		Analyze the performance of the various Page Replacement Algorithms	✓	✓	✓		✓			✓	✓	✓		✓
		Implement File Organization and File Allocation Strategies	✓	✓	✓		✓			✓	✓	✓		✓
19150L49	ADVANCED READING AND WRITING	Write winning job applications.	✓								✓	✓		✓
		Read and evaluate texts critically.	✓								✓	✓		✓
		Display critical thinking in various professional contexts	✓								✓	✓		✓
		Write different types of essays.	✓					✓	✓	✓	✓	✓		✓
19150CR S	RESEARCH LED SEMINAR	Exposure to various research domains	✓	✓	✓	✓	✓							✓
		Acquaintance with languages of research	✓	✓	✓	✓								✓
		Development of research aptitude			✓	✓	✓							✓
19148S51 A	ALGEBRA AND NUMBER THEORY	Apply the basic notions of groups, rings, fields which will then be used to solve related problems.	✓	✓	✓									
		Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.	✓	✓	✓									
		Demonstrate accurate and efficient use of advanced algebraic techniques.	✓	✓	✓	✓	✓							

19150CRM	Research methodology	Experience in scientific writings	✓	✓	✓	✓								
		Practice in various aspects of scientific publications	✓	✓	✓	✓								
			Inculcation of research ethics	✓	✓	✓	✓				✓			
19150L57	MICROPROCESSORS AND MICROCONTROLLERS LABORATORY	Write ALP Programmes for fixed and Floating Point and Arithmetic operations						✓						
		Interface different I/Os with processor								✓				✓
		Generate waveforms using Microprocessors	✓			✓					✓			
		Execute Programs in 8051			✓							✓		
		Explain the difference between simulator and Emulator	✓					✓		✓			✓	
19150L58	OBJECT ORIENTED ANALYSIS AND DESIGN LABORATORY	Perform OO analysis and design for a given problem specification.	✓	✓	✓	✓					✓			
		Identify and map basic software requirements in UML mapping.		✓	✓	✓					✓		✓	✓
		Improve the software quality using design patterns and to explain the rationale behind applying specific design patterns		✓	✓	✓			✓		✓	✓	✓	✓
		Test the compliance of the software with the SRS		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
19150L59	NETWORKS LABORATORY	Implement various protocols using TCP and UDP.	✓	✓	✓			✓					✓	

		Learn to implement code optimization techniques and a simple code generator.	✓	✓	✓	✓	✓	✓	✓						
		Design and implement a scanner and a parser using LEX and YACC tools.	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	
19150C65	DISTRIBUTED SYSTEMS	Elucidate the foundations and issues of distributed systems	✓	✓	✓										
		Understand the various synchronization issues and global state for distributed systems.	✓	✓	✓	✓									
		Understand the Mutual Exclusion and Deadlock detection algorithms in distributed systems	✓	✓	✓	✓	✓								
		Describe the agreement protocols and fault tolerance mechanisms in distributed systems.		✓	✓	✓	✓	✓							
		Describe the features of peer-to-peer and distributed shared memory systems		✓	✓	✓	✓	✓							
19150L61	INTERNET PROGRAMMING LABORATORY	Construct Web pages using HTML/XML and style sheets.	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	
		Build dynamic web pages with validation using Java Script objects and by applying different event handling mechanisms.	✓	✓	✓	✓	✓		✓	✓	✓			✓	
		Develop dynamic web pages using server side scripting.	✓	✓	✓	✓	✓		✓	✓	✓			✓	

		Use PHP programming to develop web applications.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Construct web applications using AJAX and web services.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
19150L62	MOBILE APPLICATION DEVELOPMENT LABORATORY	Develop mobile applications using GUI and Layouts.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Develop mobile applications using Event Listener.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Develop mobile applications using Databases.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Develop mobile applications using RSS Feed, Internal/External Storage, SMS, Multi-threading and GPS.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Analyze and discover own mobile app for simple needs.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		take up any challenging practical problems and find solution by formulating proper methodology	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
19150L63	MINI PROJECT	apply the knowledge of all related courses in providing hardware/software solutions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
19150L64	PROFESSIONAL COMMUNICATION	Make effective presentations	✓						✓		✓	✓	✓	✓	
		Participate confidently in Group Discussions.	✓						✓	✓	✓	✓	✓	✓	
		Attend job interviews and be successful in them.	✓						✓	✓	✓	✓	✓	✓	
		Develop adequate Soft Skills required for the workplace	✓		✓				✓	✓	✓	✓	✓	✓	

19150C73	CLOUD COMPUTING	Articulate the main concepts, key technologies, strengths and limitations of cloud computing.	✓		✓									
		Learn the key and enabling technologies that help in the development of cloud.	✓	✓	✓									
		Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models.	✓	✓	✓	✓					✓			
		Explain the core issues of cloud computing such as resource management and security.	✓	✓	✓		✓	✓			✓			✓
		Be able to install and use current cloud technologies.	✓	✓	✓	✓	✓	✓			✓			✓
		Evaluate and choose the appropriate technologies, algorithms and approaches for implementation and use of cloud.	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
19150L77	CLOUD COMPUTING LABORATORY	Configure various virtualization tools such as Virtual Box, VMware workstation.	✓	✓	✓	✓	✓							
		Design and deploy a web application in a PaaS environment.	✓	✓	✓	✓	✓							

		Learn how to simulate a cloud environment to implement new schedulers.	✓	✓	✓	✓	✓				✓		✓	
		Install and use a generic cloud environment that can be used as a private cloud.	✓	✓	✓	✓	✓							✓
		Manipulate large data sets in a parallel environment.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
19150L78	SECURITY LABORATORY	Develop code for classical Encryption Techniques to solve the problems.	✓	✓	✓		✓							
		Build cryptosystems by applying symmetric and public key encryption algorithms.	✓	✓	✓	✓	✓							
		Construct code for authentication algorithms.	✓	✓	✓	✓	✓	✓						✓
		Develop a signature scheme using Digital signature standard.	✓	✓	✓	✓	✓	✓				✓		✓
		Demonstrate the network security system using open source tools	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
19150P83	Project Work	Identify the problem by applying acquired knowledge.	✓	✓		1			✓	✓	✓			
		Analyze and categorize executable project modules after considering risks.		✓	✓	✓		✓	✓		✓	✓		✓
		Choose efficient tools for designing project modules.			✓	✓	✓			✓	✓	✓	✓	✓
		Combine all the modules through effective team work after efficient testing.							✓	✓	✓	✓	✓	✓

19150E66 A	DATA WAREHOUSING AND DATA MINING	Design a Data warehouse system and perform business analysis with OLAP tools.	✓	✓	✓										
		Apply suitable pre-processing and visualization techniques for data analysis	✓	✓	✓		✓								
		Apply frequent pattern and association rule mining techniques for data analysis	✓	✓	✓	✓	✓				✓				
		Apply appropriate classification and clustering techniques for data analysis	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
19150E66 B	SOFTWARE TESTING	Design test cases suitable for a software development for different domains.	✓	✓	✓					✓				✓	
		Identify suitable tests to be carried out.	✓	✓	✓	✓				✓				✓	
		Prepare test planning based on the document.	✓	✓	✓	✓			✓	✓	✓			✓	
		Document test plans and test cases designed	✓	✓	✓	✓	✓			✓	✓	✓		✓	
		Use automatic testing tools. · Develop and validate a test plan.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
19150E66 C	COMPUTER GRAPHICS AND MULTIMEDIA	Design two dimensional graphics.	✓	✓	✓										
		Apply two dimensional transformations.	✓	✓	✓	✓	✓								
		Design three dimensional graphics.	✓	✓	✓	✓	✓								
		Apply three dimensional transformations.	✓	✓	✓	✓	✓		✓			✓		✓	

	S AND PROGRAMMING	Identify the issues in programming Parallel Processors.	✓		✓									✓
		Write programs using OpenMP and MPI.	✓	✓	✓	✓					✓			✓
		Design parallel programming solutions to common problems.	✓	✓	✓		✓				✓			✓
		Compare and contrast programming for serial processors and programming for parallel processors.	✓	✓		✓	✓	✓			✓			✓
19150E76 C	HUMAN COMPUTER INTERACTION	Design effective dialog for HCI	✓											
		Design effective HCI for individuals and persons with disabilities.	✓	✓										
		Assess the importance of user feedback.	✓		✓	✓	✓				✓			
		Explain the HCI implications for designing multimedia/ e-commerce/ e-learning Web sites.	✓	✓	✓	✓	✓				✓			✓
		Develop meaningful user interface.	✓		✓	✓	✓							
19150E76 D	WIRELESS ADHOC AND SENSOR NETWORKS	To identify and understand security issues in ad hoc and sensor networks	✓											
		To analyze protocols developed for ad hoc and sensor networks	✓	✓	✓	✓	✓							✓

		Identify different issues in wireless ad hoc and sensor networks	✓	✓	✓							✓	✓	
19150E81 A	DIGITAL IMAGE PROCESSING	Know and understand the basics and fundamentals of digital image processing, such as digitization, sampling, quantization, and 2D-transforms.	✓											
		Operate on images using the techniques of smoothing, sharpening and enhancement	✓	✓	✓				✓					
		Understand the restoration concepts and filtering techniques.	✓	✓	✓	✓								✓
		Learn the basics of segmentation, features extraction, compression and recognition methods for color models.	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓
19150E81 B	SOCIAL NETWORK ANALYSIS	Represent knowledge using ontology.	✓		✓			✓	✓	✓	✓			
		Develop semantic web related applications.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
		Predict human behaviour in social web and related communities	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
		Visualize social networks	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
19150E81 C	INFORMATION SECURITY	Discuss the basics of information security	✓				✓		✓		✓			

		Illustrate the legal, ethical and professional issues in information security	✓	✓	✓						✓		✓	✓	
		Demonstrate the aspects of risk management	✓	✓	✓	✓	✓	✓			✓	✓		✓	
		Become aware of various standards in the Information Security System	✓	✓	✓		✓		✓		✓	✓	✓	✓	
		Design and implementation of Security Techniques.	✓	✓	✓	✓	✓				✓	✓	✓	✓	
19150E81 D	CYBER FORENSICS	Understand the basics of computer forensics	✓							✓			✓		
		Apply a number of different computer forensic tools to a given scenario	✓	✓	✓								✓		✓
		Analyze and validate forensics data	✓	✓	✓	✓		✓		✓	✓	✓	✓		✓
		Identify the vulnerabilities in a given network infrastructure	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓
		Implement real-world hacking techniques to test system security.	✓	✓	✓		✓	✓		✓	✓	✓	✓		✓
19150E82 A	INFORMATION RETRIEVAL TECHNIQUES	Use an open source search engine framework and explore its capabilities	✓												
		Apply appropriate method of classification or clustering.	✓	✓	✓										
		Design and implement innovative features in a search engine.	✓	✓	✓		✓					✓			
		Design and implement a recommender system.	✓	✓	✓	✓	✓								

19150E82 CB	GPU ARCHITECTURE AND PROGRAMMING	Implement efficient algorithms in GPUs for common application kernels, such as matrix multiplication	✓		✓									
		Write simple programs using OpenCL	✓	✓	✓			✓				✓		
		Identify efficient parallel programming patterns to solve problems	✓	✓	✓	✓	✓							
		Describe GPU Architecture	✓	✓	✓	✓	✓					✓		✓
		Write programs using CUDA, identify issues and debug them	✓	✓	✓	✓	✓	✓		✓	✓			✓
19150E82 C	NATURAL LANGUAGE PROCESSING	To tag a given text with basic Language features	✓				✓							
		To design an innovative application using NLP components	✓	✓	✓					✓			✓	
		To implement a rule based system to tackle morphology/syntax of a language	✓	✓	✓	✓		✓			✓		✓	
		To design a tag set to be used for statistical processing for real-time applications	✓	✓	✓	✓		✓					✓	
		To compare and contrast the use of different statistical approaches for different types of NLP applications	✓	✓				✓						✓
19150E82 D	SPEECH PROCESSING	Create new algorithms with speech processing	✓											
		Derive new speech models	✓	✓	✓	✓				✓				

		Perform various language phonetic analysis	✓	✓	✓	✓	✓				✓	✓	✓	
		Create a new speech identification system	✓	✓	✓	✓	✓	✓			✓			✓
		Generate a new speech recognition system	✓	✓	✓	✓				✓				✓
1910P83	PROJECT WORK	Identify the problem by applying acquired knowledge	✓	✓		✓			✓	✓	✓			
		Analyze and categorize executable project modules after considering risks		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
		Choose efficient tools for designing project modules								✓	✓	✓	✓	✓
		Combine all the modules through effective team work after efficient testing							✓	✓	✓	✓	✓	✓
		Elaborate the completed task and compile the project report									✓	✓		✓
19150FE5 4A	CLOUD COMPUTING	Articulate the main concepts, key technologies, strengths and limitations of cloud computing.	✓						✓					
		Learn the key and enabling technologies that help in the development of cloud.	✓	✓	✓	✓	✓							
		Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models.	✓	✓	✓	✓					✓			
		Explain the core issues of cloud computing such as	✓	✓	✓	✓		✓			✓			✓

		resource management and security.											
		Be able to install and use current cloud technologies.	✓	✓	✓		✓				✓		✓
		Choose the appropriate technologies, algorithms and approaches for implementation and use of cloud.	✓	✓	✓		✓						✓
19150FE5 4B	DATABASE MANAGEMENT SYSTEMS	understand relational data model, evolve conceptual model of a given problem, its mapping to relational model and Normalization	✓										
		query the relational database and write programs with database connectivity	✓	✓	✓								✓
		understand the concepts of database security and information retrieval systems	✓	✓	✓	✓	✓				✓		✓
19152FE5 4A	BASICS OF BIO MEDICAL INSTRUMENTA TION	To learn the different bio potential and its propagation	✓										
		To get Familiarize the different electrode placement for various physiological recording	✓	✓	✓								
		Students will be able design bio amplifier for various physiological recording	✓	✓	✓	✓				✓			✓
		Students will understand various technique non electrical physiological measurements	✓	✓	✓	✓	✓	✓					✓

		Understand the different biochemical measurements	✓	✓	✓	✓						✓	✓	✓
19152FE5 4B	SENSORS AND TRANSDUCERS	Expertise in various calibration techniques and signal types for sensors	✓											
		Apply the various sensors in the Automotive and Mechatronics applications	✓	✓	✓									
		Study the basic principles of various smart sensors.	✓	✓	✓	✓	✓						✓	
		Implement the DAQ systems with different sensors for real time applications	✓	✓	✓	✓	✓							
19153FE5 4A	INDUSTRIAL NANO TECHNOLOGY	To elucidate on advantages of nanotechnology based applications in each industry	✓											
		To provide instances of contemporary industrial applications of nanotechnology	✓	✓	✓		✓	✓			✓			✓
		To provide an overview of future technological advancements and increasing role of nanotechnology in each industry	✓	✓	✓	✓	✓				✓			✓
19153FE5 4B	ENERGY CONSERVATION AND MANAGEMENT	To analyse the energy data of industries.	✓											✓
		Can carryout energy accounting and balancing	✓	✓	✓	✓		✓	✓		✓	✓		✓
		Can suggest methodologies for energy savings	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓

		Ability to understand the stand alone and grid connected renewable energy systems.	✓	✓	✓	✓									
		Ability to design of power converters for renewable energy applications.	✓	✓	✓	✓	✓								
		Ability to acquire knowledge on wind electrical generators and solar energy systems.	✓	✓	✓	✓									
		Ability to design power converters used for hybrid renewable energy systems.	✓	✓	✓	✓									
19154FE7 4A	INDUSTRIAL SAFETY	Illustrate and familiarize the basic concepts and scope of engineering safety.	✓	✓				✓	✓	✓					
		Understand the standards of professional conduct that are published by professional safety organizations and certification bodies.							✓	✓	✓				
		Illustrate the importance of safety of employees while working with machineries.							✓	✓	✓				
19154FE7 4B	TESTING OF MATERIALS	Reproduce the basic knowledge of mathematics and engineering in finding the strength in tension, compression, shear and torsion.	✓	✓	✓	✓									
		Identify, formulate and solve engineering problems of							✓	✓	✓				

	INTRODUCTION TO C PROGRAMMING	Develop applications using arrays and strings	✓	✓	✓	✓			✓		✓			✓
		Develop applications using functions and structures	✓	✓	✓	✓	✓			✓		✓	✓	
19150FE7 4B	DATA STRUCTURES AND ALGORITHMS	Implement linear data structures and solve problems using them	✓	✓	✓									
		Implement and apply trees and graphs to solve problems.	✓	✓	✓	✓				✓	✓			✓
		Implement the various searching and sorting algorithms.	✓	✓	✓	✓	✓	✓				✓		✓



PRIST
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THANJAVUR – 613403 - TAMILNADU

Dept: COMPUTER SCIENCE AND ENGINEERING

BTECH (PT)- 2019R

Mapping of COs and POs

		Have knowledge of the concepts needed to test the logic of a program.	✓	✓	✓													✓	
19150H32 P	Operating System	Analyze various scheduling algorithms.	✓	✓	✓														
		Understand deadlock, prevention and avoidance algorithms.	✓	✓	✓														
		Perform administrative tasks on Linux Servers.	✓	✓	✓	✓	✓												
		Compare and contrast various memory management schemes.	✓	✓	✓	✓	✓												
		Understand the functionality of file systems.	✓	✓	✓	✓	✓	✓											✓
		Compare iOS and Android Operating Systems	✓	✓	✓	✓	✓	✓											
19150H33 P	Artificial Intelligence	Identify problems that are amenable to solution by AI methods.	✓	✓	✓														
		Identify appropriate AI methods to solve a given problem.	✓	✓	✓	✓	✓												
		Formalise a given problem in the language/framework of different AI methods.	✓	✓	✓	✓	✓												
		Implement basic AI algorithms.	✓	✓	✓	✓	✓												✓
		Design and carry out an empirical evaluation of different algorithms on a problem formalisation, and state the conclusions that the evaluation supports.	✓	✓	✓	✓	✓												
19150H34 P	Computer Networks	Identify the components required to build different types of networks	✓	✓	✓														
		Choose the required functionality at each layer for given application	✓	✓	✓														
		Identify solution for each functionality at each layer	✓	✓	✓	✓	✓							✓					✓
		Trace the flow of information from one node to another node in the network	✓	✓	✓	✓	✓								✓				

19150L35 P	Operating Systems and Networking	Analyze various scheduling algorithms.	✓	✓	✓									
		Understand deadlock, prevention and avoidance algorithms.	✓	✓	✓									
		Identify the components required to build different types of networks	✓	✓	✓	✓	✓							✓
		Choose the required functionality at each layer for given application	✓	✓	✓	✓	✓		✓		✓			✓
19150H41 P	Principles Of Cryptography	Apply cryptographic algorithms for encrypting and decryption for secure data transmission	✓	✓	✓									
		Understand the importance of Digital signature for secure edocuments exchange	✓	✓	✓									
		Understand the program threats and apply good programming practice	✓	✓	✓			✓						
		Get the knowledge about the security services available for internet and web applications	✓	✓	✓	✓	✓							✓
		Understand data vulnerability and sql injection Gain the knowledge of security models and published standards	✓	✓	✓	✓	✓	✓						
19150H42 P	Web Technology	Design simple web pages using markup languages like HTML and XHTML	✓	✓	✓						✓			✓
		Design and implement 8051 microcontroller based systems.	✓	✓	✓									✓
		Create dynamic web pages using DHTML and java script that is easy to navigate and use.	✓	✓	✓		✓							✓
		Program server side web pages that have to process request from client side web pages	✓	✓	✓	✓	✓							✓
		Represent web data using XML and develop web pages using JSP	✓	✓	✓	✓	✓				✓		✓	✓

		Acquire the knowledge about different special purpose databases and to critique how they differ from traditional database systems.	✓	✓	✓	✓	✓	✓						
19150L45 P	Internet Programming Lab	Create 3D graphical scenes using open graphics library suits	✓	✓	✓									✓
		Implement image manipulation and enhancement	✓	✓	✓	✓	✓				✓			✓
		Create 2D animations using tools	✓	✓	✓	✓	✓				✓		✓	✓
19150H51 P	Object Oriented Analysis and	Design and implement projects using OO concepts.	✓	✓	✓	✓					✓			
		Use the UML analysis and design diagrams.	✓	✓	✓	✓	✓				✓		✓	✓
		Apply appropriate design patterns.	✓	✓	✓	✓	✓				✓		✓	✓
		Create code from design.	✓	✓	✓	✓	✓				✓			
		Compare and contrast various testing techniques.	✓	✓	✓	✓	✓				✓		✓	✓
19150H52 P	Software Quality Management	Perform functional and nonfunctional tests in the life cycle of the software product	✓	✓	✓						✓			
		Understand system testing and test execution process.	✓	✓	✓	✓	✓				✓		✓	✓
		Identify defect prevention techniques and software quality assurance metrics.	✓	✓	✓	✓	✓				✓		✓	✓
		Apply techniques of quality assurance for typical applications.	✓	✓	✓	✓	✓				✓		✓	✓
19150H53 P	Graphics and Multimedia	Gain proficiency in 3D computer graphics API programming	✓	✓	✓	✓	✓							
		Able to understand different realizations of multimedia tools	✓	✓	✓	✓	✓							
		Able to develop interactive animations using multimedia tools	✓	✓	✓	✓	✓							✓
		Gain the knowledge of different media streams in multimedia transmission	✓	✓	✓	✓	✓				✓			✓


19150H61 P	Embedded Systems	Able to understand the functionality of 8085 microprocessor	✓	✓	✓										
		Able incorporate enhanced features in the embedded systems through software	✓	✓	✓	✓	✓								
		Able to rectify minor problems by troubleshooting	✓	✓	✓	✓	✓								
		Acquire the knowledge of real time operating system and implement real time functions	✓	✓	✓	✓	✓								
19150H62 P	Advanced Java programming	Develop Java programs using OOP principles	✓	✓	✓										
		Develop Java programs with the concepts inheritance and interfaces	✓	✓	✓	✓	✓								
		Build Java applications using exceptions and I/O streams	✓	✓	✓	✓	✓								
		Develop Java applications with threads and generics classes	✓	✓	✓	✓	✓								
		Develop interactive Java programs using swings	✓	✓	✓	✓	✓								
19150H63 P	Software Testing	Design test cases suitable for a software development for different domains.	✓	✓	✓										
		Identify suitable tests to be carried out	✓	✓	✓	✓					✓		✓	✓	
		Prepare test planning based on the document.	✓	✓	✓	✓					✓		✓	✓	
		Document test plans and test cases designed.	✓	✓	✓	✓	✓				✓		✓	✓	
		Use automatic testing tools.	✓	✓	✓	✓	✓				✓		✓	✓	
		Develop and validate a test plan.	✓	✓	✓	✓	✓				✓		✓	✓	

19160E64 AP	Principles of Management	Upon completion of the course, students will be able to have clear understanding of managerial functions like planning, organizing, staffing, leading & controlling and have same basic knowledge on international aspect of management	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓
19150E64 BP	Unix Internals	Explain UNIX Operating system and usage of file system.	✓	✓	✓									
		Apply Shell Commands for a given task using filter and pipe commands.	✓	✓	✓	✓	✓							
		Develop and implement the Shell scripts in VI editor.	✓	✓	✓	✓	✓	✓						
		Discuss the various techniques used for optimising the cache performance	✓	✓	✓	✓	✓	✓			✓			✓
		Design hierarchal memory system	✓	✓	✓	✓	✓				✓		✓	✓
19150E64 CP	Parallel Computing	optimize sequential code for fastest possible execution	✓	✓	✓			✓					✓	✓
		Develop, analyze and implement algorithms for parallel computers	✓	✓	✓	✓	✓				✓		✓	✓
19150E64 DP	Programming paradigms	Identify and discuss the design principles of a given language or paradigms	✓	✓	✓	✓	✓							
		compare different programming languages from the point of view underlying design principles	✓	✓	✓	✓	✓			✓			✓	✓
19150L65 P	Java Programming Lab	Create 3D graphical scenes using open graphics library suits	✓	✓	✓	✓	✓							
		Implement image manipulation and enhancement	✓	✓	✓	✓	✓							✓
		Create 2D animations using tools	✓	✓	✓	✓	✓							✓
19160S71 P	Total Quality Management	The student would be able to apply the tools and techniques of quality management to manufacturing and services processes.	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓

19150H72 P	Grid Computing	Apply grid computing techniques to solve large scale scientific problems.	✓	✓	✓									
		Apply the concept of virtualization.	✓	✓	✓									
		Use the grid and cloud tool kits.	✓	✓	✓		✓							✓
		Apply the security models in the grid and the cloud environment.	✓	✓	✓	✓	✓				✓	✓		✓
19150H73 P	Middleware Technologies	To understand how middleware facilitates the development of distributed applications in heterogenous environments	✓	✓	✓									
		to learn the object oriented middleware basics through the example of cobra objects	✓	✓	✓									
		To understand the basics of web services that is the most often used middleare techniques	✓	✓	✓	✓	✓							✓
19150E74 AP	High Speed Networks	Will be able to analyze the various parameters of networking	✓	✓	✓	✓								
		Will be able to understand the algorithm and technologies involved in internet and associated networks	✓	✓	✓	✓	✓				✓		✓	✓
19150E74 BP	Bio Informatics	Knowledge and awareness of basic principles and concepts of biology, computer science and mathematics	✓	✓	✓			✓			✓		✓	✓
		Existing software effectively to extract information from large databases and to use this information in computer modeling	✓	✓	✓	✓	✓	✓			✓		✓	✓
	Software Project Management	Identify the key activities in managing a software project.	✓	✓	✓						✓			✓

19150E74 CP	Compare different process models.		✓	✓	✓							✓		✓	✓		
	Concepts of requirements engineering and Analysis Modeling.		✓	✓	✓							✓		✓	✓		
	Apply systematic procedure for software design and deployment.		✓	✓	✓	✓	✓					✓		✓	✓		
	Compare and contrast the various testing and maintenance.		✓	✓	✓	✓	✓					✓		✓	✓		
19150E74 DP	Digital Image Processing		Know and understand the basics and fundamentals of digital image processing, such as digitization, sampling, quantization, and 2Dtransforms.		✓	✓	✓										
			Operate on images using the techniques of smoothing, sharpening and enhancement		✓	✓	✓										
			Understand the restoration concepts and filtering techniques.		✓	✓	✓										✓
			Learn the basics of segmentation, features extraction, compression and recognition methods for color models		✓	✓	✓	✓	✓								✓
19150P75 P	Project	To independently carry out research /investigation to identify and solve practical problems	✓	✓	✓	✓					✓		✓	✓			
		To write and present a report	✓	✓	✓	✓	✓				✓		✓	✓			
		To identify the problem in the existing power system and to	✓	✓	✓	✓	✓	✓			✓		✓	✓			

		develop software / hardware solution by doing research .												
		To write and present a substantial technical report	✓	✓	✓	✓	✓	✓			✓		✓	✓


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COMPUTER SCIENCE AND ENGINEERING

M.TECH (FT)- 2019R

Mapping of COs and POs

Course Code	Title of the Course	Course Objectives	POS											
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
19248S11A	Higher Mathematics	Have knowledge of the concepts needed to test the logic of a program	✓		✓	✓								
		Have gained knowledge which has application in expert system, in data base and a basic for the prolog language	✓	✓	✓	✓	✓				✓			
		Have an understanding in identifying patterns on many levels		✓		✓	✓	✓	✓	✓				

19250H12	Modern Operating System	To have an overview of different types of operating systems.	✓		✓									
		To know the components of an operating system.	✓	✓	✓	✓		✓		✓		✓		
		To have a thorough knowledge of process management.	✓	✓	✓	✓		✓		✓	✓			
19250H13	Parallel and High Performance Computing	To understand the models and parameters used.	✓		✓	✓	✓				✓			
		To understand the Matrix Algorithms and Design Issues		✓	✓	✓		✓	✓			✓		
19250H14	Adhoc and Sensor Network	A broad overview of the state of wireless and ad hoc networking.	✓			✓	✓				✓	✓		
		The overview of the physical, networking and architectural issues of ad hoc networks		✓	✓		✓		✓	✓				
19250H15	Advanced Data Structures and Algorithms	The Different Heap Structures, Search Structures and Multimedia Structures.	✓	✓			✓			✓		✓		
		The various coding scheduling and algorithms.	✓	✓	✓		✓							
		The various multimedia structures.	✓		✓	✓	✓	✓	✓		✓	✓		
19250E16 A	Multimedia Systems	To study the graphics techniques and algorithms.	✓	✓	✓		✓							
		To study the multimedia concepts and various I/O technologies				✓	✓		✓		✓	✓		
19250E16 B	Genetic Algorithms	Understand and be able to apply fundamental GA theory	✓	✓	✓				✓			✓		
		be able to implement or modify simple genetic algorithms.	✓				✓	✓		✓				
		be able to apply GAs to problems in the student's field.					✓	✓			✓	✓		
19250E16 C	Software Metrics	To introduce an integrated approach to software development incorporating quality management methodologies.	✓	✓	✓		✓							
		To study about the quality improvements in software					✓				✓	✓		
		To understand the Software Quality software standards	✓	✓			✓		✓			✓		

19250E25 C		To introduce devices and buses used for embedded networking.		✓	✓	✓									
		To explain programming concepts and embedded programming in C and C++.			✓	✓	✓	✓	✓	✓					
		To explain real time operating systems, inter-task communication and an exemplary case of MUCOS – IRTOS			✓	✓	✓	✓							
19250L26	.NET Technologies Lab	Create Simple application using web controls	✓	✓	✓	✓	✓				✓	✓	✓	✓	
		Work with States of ASP.NET Pages & Adrotator Control Use of calendar control, Treeview control & Validation controls	✓	✓	✓	✓	✓				✓	✓	✓	✓	
192TECW R	Technical Writing /Seminars	Understand professional writing by studying management communication	✓	✓	✓	✓	✓				✓	✓	✓	✓	
19250CR M	Research Methodology	Understanding research questions and tools	✓	✓	✓	✓	✓		✓						
		Experience in scientific writings	✓	✓	✓	✓	✓	✓	✓						
		Practice in various aspects of scientific publications	✓	✓	✓			✓	✓						
		Inculcation of research ethics	✓	✓		✓	✓			✓		✓			
19250CBR	Participation in Bounded Research	Knowledge and awareness of basic principles and concepts of biology, computer science and mathematics	✓	✓	✓	✓			✓	✓	✓	✓			
19250H31	Software Project Management	Understand Project planning and management.	✓	✓											
		Identify Client management and project definition.		✓	✓										
		Understand testing based approach to development.				✓	✓								
19250E32 A	Cloud Computing	Identify cloud computing models, characteristics, and technologies.	✓	✓											
		Get knowledge about the different architectures in cloud.			✓	✓									

		Identify the information about service management and cloud securities				✓	✓	✓						
19250E32 B	Information Security	To understand the basics of Information Security.	✓	✓										
		To know the legal, ethical and professional issues in Information Security.			✓	✓								
		To become aware of various standards in this area.				✓								
		To know the technological aspects of Information Security.				✓	✓							
19250E32 C	Soft Computing	To introduce the ideas of Neural networks, fuzzy logic and use of heuristics base on human experience.	✓	✓										
		To have a general understanding of soft computing methodologies, including artificial neural networks, fuzzy sets, fuzzy logic, fuzzy clustering techniques and genetic algorithms;			✓	✓								
		To Design and development of certain scientific and commercial application using computational neural network models, fuzzy models, fuzzy clustering applications and genetic algorithms in specified applications				✓	✓	✓						
19250E33 A	Advanced Database Technology	Know the operations of parallel and distributed databases.	✓	✓										
		Understand the structure s and standards of object relational databases.			✓	✓	✓							
		Get familiar with the concepts of XML, Mobile and Multimedia Databases				✓	✓	✓						
19250E33 B		Learning the basics of Wireless voice and data communications technologies.	✓	✓	✓	✓								

		Understand fundamental trends of technological evolution of Wireless technology.			✓	✓								
		Have hands-on knowledge in developing simple and comprehensive WAP contents.				✓	✓							
		Be able to create simple Wireless applications					✓							
19250P35	Project Work- Phase I	To independently carry out research /investigation to identify and solve practical problems	✓				✓			✓				✓
		To write and present a report												
19250CSR	Design/Socio Technical Project	To write and present a report	✓			✓			✓					
		To identify the problem in the existing power system and to develop software / hardware solution by doing research.	✓		✓			✓			✓			✓
		To write and present a substantial technical report	✓			✓			✓	✓			✓	
19250P41	Project Work- Phase II	To independently carry out research /investigation to identify and solve practical problems			✓	✓					✓			✓
		To write and present a report	✓	✓	✓	✓	✓				✓		✓	✓
		To identify the problem in the existing power system and to develop software / hardware solution by doing research.	✓	✓	✓	✓	✓	✓			✓		✓	✓

		Have gained knowledge which has application in expert system, in data base and a basic for the prolog language	✓	✓	✓	✓	✓				✓			
		Have an understanding in identifying patterns on many levels		✓		✓	✓	✓	✓	✓				
19250H12P	Adhoc and Sensor Network	A broad overview of the state of wireless and ad hoc networking.	✓			✓	✓				✓	✓		
		The overview of the physical, networking and architectural issues of ad hoc networks		✓	✓		✓		✓	✓				
19250H13P	Advanced Data Structures and Algorithms	The Different Heap Structures, Search Structures and Multimedia Structures.	✓	✓			✓			✓		✓		
		The various coding scheduling and algorithms.	✓	✓	✓		✓							
		The various multimedia structures.	✓	✓	✓	✓	✓	✓	✓		✓	✓		
19250L14P	Advanced Web Technologies Lab	On completion of this course, a student will be familiar with client server architecture and able to develop a web application using java technologies To create fully functional website/web application with MVC architecture	✓	✓	✓	✓	✓	✓	✓					
19250HRSP	Research Led Seminar	Exposure to various research domains	✓	✓	✓		✓	✓		✓	✓			✓
		Acquaintance with languages of research	✓	✓	✓	✓		✓		✓		✓	✓	✓

		Development of research aptitude	✓	✓		✓						✓	✓	✓	
19250H21P	Middleware Technologies	To study the set of services that a middleware system constitutes of.	✓	✓	✓	✓	✓			✓	✓				
		To understand how middleware facilitates the development of distributed applications in heterogeneous environments.	✓	✓			✓	✓			✓	✓	✓		
		To study how it helps to incorporate application portability, distributed application component interoperability and integration.	✓	✓		✓	✓	✓			✓	✓			
19250H22P	Digital Image Processing	To study the image fundamentals and mathematical transforms necessary for image processing.	✓	✓	✓		✓		✓		✓	✓			
		To study the image enhancement techniques		✓		✓			✓	✓		✓			
		To study image restoration procedures.		✓	✓										
		To study the image compression procedures.	✓		✓	✓									
		To study the image segmentation and representation techniques													
19250E23AP	Advanced Distributed Computing	processing, distributed systems, operating system issues.	✓	✓		✓		✓							
		learn about distributed transaction	✓	✓	✓		✓	✓	✓						
		study about the distributed databases	✓	✓	✓	✓									
19250E23BP	Data Warehousing & Data Mining	To introduce the concept of data mining with in detail coverage of basic tasks, metrics, issues, and implication. Core topics like	✓	✓	✓										

		classification, clustering and association rules are exhaustively dealt with.												
		To introduce the concept of data warehousing with special emphasis on architecture and design			✓	✓								
19250E23CP	Artificial Neural Networks	To introduce the concepts of artificial neural networks such as biological neural networks, clustering and structures	✓	✓	✓									
		To study the linear models for regression, classification, kernel methods and feed forward neural networks			✓	✓	✓							
19250L24P	.NET Technologies Lab	Create Simple application using web controls	✓	✓	✓	✓	✓				✓	✓	✓	✓
		Work with States of ASP.NET Pages & Adrotator Control Use of calendar control, Treeview control & Validation controls	✓	✓	✓	✓	✓				✓	✓	✓	✓
192TECWRP	Technical Writing /Seminars	Understand professional writing by studying management communication	✓	✓	✓	✓	✓				✓	✓	✓	✓
19250CRMP	Research Methodology	Understanding research questions and tools	✓	✓	✓	✓	✓		✓					
		Experience in scientific writings	✓	✓	✓	✓	✓	✓	✓					
		Inculcation of research ethics	✓	✓		✓	✓			✓		✓		
19250CBRP	Participation in Bounded Research	Knowledge and awareness of basic principles and concepts of biology, computer science and mathematics	✓	✓	✓	✓		✓	✓	✓	✓			

19250H31P	Modern Operating System	To have an overview of different types of operating systems.	✓		✓									
		To know the components of an operating system.	✓	✓	✓	✓		✓		✓		✓		
		To have a thorough knowledge of process management.	✓	✓	✓	✓		✓		✓	✓			
19250E32P	Parallel and High Performance Computing	To understand the models and parameters used.	✓		✓	✓	✓				✓			
		To understand the Matrix Algorithms and Design Issues		✓	✓	✓		✓	✓			✓		
19250E33AP	Multimedia Systems	To study the graphics techniques and algorithms.	✓	✓	✓		✓							
		To study the multimedia concepts and various I/O technologies				✓	✓		✓		✓	✓		
19250E33BP	Genetic Algorithms	Understand and be able to apply fundamental GA theory	✓	✓	✓				✓			✓		
		be able to implement or modify simple genetic algorithms.	✓				✓	✓		✓				
		be able to apply GAs to problems in the student's field.					✓	✓			✓	✓		
19250E33CP	Software Metrics	To introduce an integrated approach to software development incorporating quality management methodologies.	✓	✓	✓		✓							
		To study about the quality improvements in software					✓				✓	✓		
		To understand the Software Quality software standards	✓	✓			✓		✓			✓		
19250CSR	Design/Socio Technical Project	To identify the problem in the existing power system and to develop software / hardware solution by doing research.	✓	✓			✓		✓			✓		
		To write and present a substantial technical report	✓			✓	✓			✓	✓			✓
19250H41P		To learn about software prototyping, analysis and design.	✓	✓		✓	✓			✓		✓		

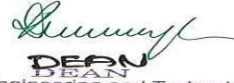
	Object Oriented Software Engineering	To learn UML and its usage.	✓	✓	✓	✓		✓		✓				
		Case studies to apply the principles												
19250H42P	Software Project Management	Understand Project planning and management.	✓	✓										
		Identify Client management and project definition.		✓	✓									
		Understand testing based approach to development.				✓	✓							
19250E43AP	Service Oriented Architecture	Understand SOA, service orientation and web services	✓	✓	✓									
		Analyzing and designing business based on SOA principles.			✓	✓								
		Learning the concepts of XML				✓	✓	✓						
19250E43BP	High Speed Networks	Describe and interpret the basics of high speed networking technologies.	✓	✓										
		Apply the concept learnt in this course to optimize and troubleshoot high-speed network.		✓	✓	✓								
		Demonstrate the knowledge of network planning and optimization				✓	✓	✓		✓				
19250E43CP	Embedded Systems	To introduce students to the embedded systems, its hardware and software.	✓	✓										
		To introduce devices and buses used for embedded networking.		✓	✓	✓								
		To explain programming concepts and embedded programming in C and C++.			✓	✓	✓	✓	✓	✓				
		To explain real time operating systems, inter-task communication and an exemplary case of MUCOS – IIRTOS			✓	✓	✓	✓						

19250E53BP	Bio-Informatics	Build a solid foundation and acquire the vocabulary you need to supervise or to communicate with others who use these tools.	✓	✓											
		To have ability to design drugs.		✓	✓	✓									
		To understand Evolutionary Trees and Phylogeny.				✓	✓		✓						
		Learn the key methods and tools used in bioinformatics							✓	✓					
19250E53CP	Wireless Application Protocols	Be able to discuss current and emerging technology in Wireless technology.	✓	✓	✓										
		Understand fundamental trends of technological evolution of Wireless technology.			✓	✓									
		Have hands-on knowledge in developing simple and comprehensive WAP contents.				✓	✓								
		Be able to create simple Wireless applications					✓								
19250P61P	Project Work-Phase II	To write and present a report	✓	✓	✓	✓	✓				✓		✓	✓	
		To identify the problem in the existing power system and to develop software / hardware solution by doing research.	✓	✓	✓	✓	✓	✓				✓		✓	✓
		To write and present a substantial technical report	✓	✓	✓	✓	✓	✓				✓		✓	✓



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