

Dept: COMPUTER SCIENCE AND ENGINEERING

BTECH (PT)- 2022R

Mapping of COs and POs

Course Code	Title of the Course	COs]	POS					
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
		Expand a function in terms of Fourier Series and apply it for solving engineering problems.	1	1	1	1								
	Transforms and Partial	Gain knowledge on Fourier Transforms	1	1	-	1								
22148S11P	Differential Equations	Model and solve higher order partial differential equations	1	3	1	1								
		Apply the methods of solving PDE in practical problems	1	1	2	1								
		Handle problems in Z transforms and apply it to solve difference equations	2	1	1	1								
		Simplify Boolean functions using KMap	1	1	2									
221528120	Digital Systems	Design and Analyze Combinational and Sequential Circuits	1	2	1						1	2	1	1
221525121	Digital Systems	Implement designs using Programmable Logic Devices	1	1	2	1								
		Write HDL code for combinational and Sequential Circuits	1	2	1	1	2			1	2	1	1	2
22150H13P	Data Structures and	Implement abstract data types for linear data structures	1	2	1									
	argorithms	Apply the different linear and non-	1	1	2							1	2	1

		linear data structures to problem solutions.												
		Critically analyze the various sorting algorithms	1	-	1	1	2							
		Understand the basics structure of computers, operations and instructions	1	2	1						1	2	1	1
22150H14P	Computer Architecture	Design arithmetic and logic unit.	1	1	2									
2213011141	and Organization	Understand pipelined execution and design control unit.	1	2	1									
		Understand parallel processing architectures.	1	-	1	1	2	1					1	3
		Write, test, and debug simple Python programs.	1	2	1									
		Implement Python programs with conditionals and loops.	2	1	1						1			
22150H15P	Problem Solving And PythonProgramming	Develop Python programs step-wise by defining functions and calling them					1	2	3					
		Read and write data from/to files in Python.									2	1	1	
22148S21P	Numerical Methods	Determine the solution of algebraic and transcentendal system of linear equations	1	1										
		To interpolate the values of unknown functions using Newton's Formula	2	1	-	2				1	2	1	1	2

		Estimate the numerical values of the derivatives and integrals of Unknown function	2	1	1	2							
		Solve first and second order initial value problem	1	2	1	1							
		Solve Numerically boundary value problem	2	1	-	2							
		Understand and execute programs based on 8086/8085 microprocessor.	1	1	2					1	2	1	1
22150H22P	Microprocessors and	Classify the instructions with the help of Addressing modes of 8085 with necessary programs	1	1	1								
	Interfacing	Design Memory Interfacing circuits.	1	-	1	1	2	1					
		Design and interface I/O circuits.	1	1	1	1							
		Design and implement 8051 microcontroller based systems.	1	1	-	1							
		Classify the modern and futuristic database applications based on size and complexity	1	3	1	1				1	2	1	1
		Map ER model to Relational model to perform database design effectively	1	1	2	1							
22150H23P	Database Management Systems	Write queries using normalization criteria and optimize queries	2	1	1	1							
		Compare and contrast various indexing strategies in different database systems	1	1	2					1	2	1	1
		Appraise how advanced databases differ from traditional databases.	1	2	1								
22150H24P	Design and Analysis Of Algorithms	Design algorithms for various computing problems. Analyze the time and space complexity of algorithms.	1	1	2	1							

		Critically analyze the different algorithm design techniques for a given problem	1	2	1	1	2				1	2	1	1
		Modify existing algorithms to improve efficiency	1	2	1									
		Identify the key activities in managing a software project.	1	1	2						1	2	1	1
		Compare different process models	1	-	1	1	2							
22150H25P	Programming in C	Understand Concepts of requirements engineering and Analysis Modeling.	1	2	1									
		Apply systematic procedure for software design and deployment	1	1	2						1	2	1	1
		Compare and contrast the various testing and maintenance	1	2	1									
		Manage project schedule, estimate project cost and effort requir	1	-	1	1	2	1				-	1	3
		Have an understanding in identifying structures on many levels.	1	1	1	1								
22148S31P	Discrete Mathematics	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.	1	1	-	1					1	2	1	1
		Be aware of the counting principles.	1	3	1	1								
		Be exposed to concepts and properties of algebraic structures such as groups, rings and fields.	1	1	2	1			1	2	1	1	2	
		Have knowledge of the concepts needed to test the logic of a program.	2	1	1	1					1	2	1	1
		Analyze various scheduling algorithms.	1	1	2									
22150H32P	Operating System	Understand deadlock, prevention and avoidance algorithms.	1	2	1					1	2	1	1	2
		Perform administrative tasks on Linux Servers.	1	1	2	1								

		Compare and contrast various memory management schemes.	1	2	1	1	2						
		Understand the functionality of file systems.	1	2	1					1	2	1	1
		Compare iOS and Android Operating Systems	1	1	2								
		Identify problems that are amenable to solution by AI methods.	1	-	1	1	2		1	2	1	1	
		Identify appropriate AI methods to solve a given problem.	1	2	1								
22150H33P	Artificial Intelligence	Formalise a given problem in the language/framework of different AI methods.	1	1	2								
	i i uniona interingenee	Implement basic AI algorithms.	1	2	1				1	2	1	1	2
		Design and carry out an empirical evaluation of different algorithms on a problem formalisation, and state the conclusions that the evaluation supports.	1	1	1	1							
		Identify the components required to build different types of networks	1	1	-	1			1	2	1	1	2
		Choose the required functionality at each layer for given application	1	3	1	1							
22150H34P	Computer Networks	Identify solution for each functionality at each layer	1	1	2	1			1	2	1	1	2
		Trace the flow of information from one node to another node in the network	2	1	1	1							
		Analyze various scheduling algorithms.	1	1	2				1	2	1	1	2
22150L35P	Operating Systems and Networking Lab	Understand deadlock, prevention and avoidance algorithms.	1	2	1								
		Identify the components required to build different types of networks	1	1	2	1							

		Choose the required functionality at each layer for given application	1	2	1	1	2			1	2	1	1
		Apply cryptographic algorithms for encrypting and decryption for secure data transmission	1	2	1								
22150H41P	Software Engineering	Understand the importance of Digital signature for secure edocuments exchange	1	1	2					1	2	1	1
	Fundamentals	Understand the program threats and apply good programming practice	1	-	1	1	2						
		Get the knowledge about the security services available for internet and web applications	1	2	1								
		Understand data vulnerability and sql injection Gain the knowledge of security models and published standards	1	1	2				1	2	1	1	2
		Write various applications using C# Language in the .NET Framework.	1	2	1								
22150H43P	C# And .Net Framework	Create mobile applications using .NET compact Framework.	1	1	2	1			1	2	1	1	2
		Develop distributed applications using .NET Framework	1	2	1	1	2						
22150E44AP	Theory of Computation	Design Finite State Machine, Pushdown Automata, and Turing Machine.	1	2	1				1	2	1	1	2
		Explain the Decidability or Undecidability of various problems	1	1	2								
22150E44BP	Data Warehousing	Explain the basic concepts of real time Operating system design	1	-	1	1	2						
	and DataMining	Use the system design techniques to develop software for embedded systems	1	2	1				1	2	1	1	
		Differentiate between the general purpose operating system and the real time operating system	1	1	2								

		Design Web pages using HTML/XML and style sheets	1	2	1					1	2	1	1
22150E44CP	Professional Ethics in	Create user interfaces using Java frames and applets.	1	1	1	1					1	2	1
	Engineering	Create dynamic web pages using server side scripting.	1	1	-	1							
		Write Client Server applications.	1	3	1	1							
		Use the frameworks JSP Strut, Hibernate, Spring	1	1	2	1			1	2	1	1	2
		design a database using ER diagrams and map ER intoRelations and normalize the relations	2	1	1	1							
22150E44DP	Advanced Databases	Acquire the knowledge of query evaluation to monitor the performance of the DBMS	1	1	2					1	2	1	1
		Acquire the knowledge about different special purpose databases and to critique how they differ from traditional database systems.	1	2	1								
		Create 3D graphical scenes using open graphics library suits	1	1	2	1			1	2	1	1	2
22150L45P	Internet Programming Lab	Implement image manipulation and enhancement	1	2	1	1	2						
		Create 2D animations using tools	1	2	1								
		Design and implement projects using OO concepts.	1	1	2								
22150H51P	Object Oriented	Use the UML analysis and design diagrams.	1	-	1	1	2						
	Analysis and	Apply appropriate design patterns.	1	2	1					1	2	1	1
		Create code from design.	1	1	2								
		Compare and contrast various testing techniques.	1	2	1								
22150H52P	Software Quality Management	Perform functional and nonfunctional tests in the life cycle of the software	1	-	1	1	2	1				1	3

		product											
		Understand system testing and test execution process.	1	1	1	1							
		Identify defect prevention techniques and software quality assurance metrics.	1	1	1	1							
		Apply techniques of quality assurance for typical applications.	1	1	-	1							
		Gain proficiency in 3D computer graphics API programming	1	3	1	1			1	2	1	1	2
		Able to understand different realizations of multimedia tools	1	1	2	1							
	Graphics and	Able to develop interactive animations using multimedia tools	2	1	1	1			1	2	1	1	2
22150H53P	Multimedia	Gain the knowledge of different media streams in multimedia transmission	1	1	2								
		Enhance the perspective of modern computer system with modeling, analysis and interpretation of 2D and 3D visual information.	1	2	1			1	2	1	1	2	1
22150E54AP		Apply suitable soft computing techniques for various applications.	1	1	2	1							
	Ad hoc and Sensor Networks	Integrate various soft computing techniques for complex problems.	1	2	1	1	2						
		Design and implement a prototype compiler.	1	2	1				1	2	1	1	2
22150E54BP	Principles of Compiler Design	Apply the various optimization techniques.	1	1	2								
		Use the different compiler construction tools.	1	-	1	1	2		1	2	1	1	2
		Discuss trends in Distributed Systems.	1	2	1								
22150E54CP	Distributed Systems	Apply network virtualization.	1	1	2								
		Apply remote method invocation and	1	2	1								

		objects												
		Design process and resource management systems.	1	-	1	1	2	1					1	3
		Explain the basics of mobile telecommunication system	1	1	1	1								
		Choose the required functionality at each layer for given application	1	1	1	1								
22150E54DP	Mobile Computing	Identify solution for each functionality at each layer	1	1	-	1			1	2	1	1	2	1
		Use simulator tools and design Ad hoc networks	1	3	1	1								
		Develop a mobile application.	1	1	2	1								
22150I 55D	Software Development	Design and Implement various mobile applications using emulators.	2	1	1	1								
22130L33F	Lab	Deploy applications to hand-held devices	1	1	2				1	2	1	1	2	
		Able to design and control real time control systems	1	2	1									
		Able to understand the functionality of 8085 microprocessor	1	1	2	1				1	2	1	1	2
22150H61P	Cryptography and Network Security	Able incorporate enhanced features in the embedded systems through software	1	2	1	1	2							
		Able to rectify minor problems by troubleshooting	1	2	1						1	2	1	1
		Acquire the knowledge of real time operating system and implement real time functions	1	1	2									
		Develop Java programs using OOP principles	1	-	1	1	2				1	2	1	1
22150H62P	Advanced Java programming	Develop Java programs with the concepts inheritance and interfaces	1	2	1									
		Build Java applications using exceptions and I/O streams	1	1	2						1	2	1	1
		Develop Java applications with	1	2	1									

		threads and generics classes											
		Develop interactive Java programs using swings	1	-	1	1	2	1				1	3
		Design test cases suitable for a software development for different domains.	1	1	1	1							
		Identify suitable tests to be carried out	1	1	1	1							
22150H63P	Software Testing	Prepare test planning based on the document.	1	1	-	1							
		Document test plans and test cases designed.	1	3	1	1							
		Use automatic testing tools.	1	1	2	1				1	2	1	1
		Develop and validate a test plan.	2	1	1	1							
22160E64AP	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	1	1	2								
		Explain UNIX Operating system and usage of file system.	1	2	1					1	2	1	1
		Apply Shell Commands for a given task using filter and pipe commands.	1	1	2	1							
22150E64BP	Unix Internals	Develop and implement the Shell scripts in VI editor.	1	2	1	1	2						
		Discuss the various techniques used for optimising the cache performance	1	2	1					1	2	1	1
		Design hierarchal memory system	1	1	2								
2215064CP	Graph Theory And Applications	optimize sequential code for fastest possible execution	1	-	1	1	2			1	2	1	1
	- T F montons	Develop, analyze and implement algorithms for parallel computers	1	2	1								

	Programming	Identify and discuss the design principles of a given language or paradigms	1	1	2				1	2	1	1	
22150E64DP	paradigms	compare different programming languages from the point of view underlying design principles	1	2	1								
		Create 3D graphical scenes using open graphics library suits	1	-	1	1	2	1				1	3
22150L65P	Java Programming Lab	Implement image manipulation and enhancement	1	1	1	1							
		Create 2D animations using tools	1	1	-	1							
22160S71P	Total Quality Management	The student would be able to apply the tools and techniques of quality management to manufacturing and services processes.	1	3	1	1							
		Apply grid computing techniques to solve large scale scientific problems.	1	1	2	1				1	2	1	1
2215011720	Crid and Cloud	Apply the concept of virtualization.	2	1	1	1							
22130H72P	Computing	Use the grid and cloud tool kits.	1	1	2								
	1 0	Apply the security models in the grid and the cloud environment.	1	2	1								
		To understand how middleware facilitates the development of distributed applications in heterogenous environments	1	1	2	1				1	2	1	1
22150H73P	Middleware Technologies	to learn the object oriented middleware basics through the example of cobra objects	1	2	1	1	2						
		To understand the basics of web services that is the most often used middleare techniques	1	2	1								
	High Speed Networks	Will be able to analyze the various parameters of networking	1	1	2								
22150E74AP	Ingh Speed Networks	Will be able to understand the algorithm and technologies involved	1	-	1	1	2						

		in internet and associated networks											
22150E74BP	Information Retrieval	Knowledge and awareness of basic principles and concepts of biology, computer science and mathematics	1	2	1					1	2	1	1
	rechniques	Existing software effectively to extract information from large databases and to use this information in computer modeling	1	1	2								
		Identify the key activities in managing a software project.	1	1	1	1		1	2	1	1	2	
		Compare different process models.	1	1	-	1							
22150E74CP	Software Project Management	Concepts of requirements engineering and Analysis Modeling.	1	3	1	1			1	2	1	1	2
	er an	Apply systematic procedure for software design and deployment.	1	1	2	1							
		Compare and contrast the various testing and maintenance.	2	1	1	1							
		Know and understand the basics and fundamentals of digital image processing, such as digitization, sampling, quantization, and 2Dtransforms.	1	1	2			1	2	1	1	2	1
22150E74DP	Cyber Forensics	Operate on images using the techniques of smoothing, sharpening and enhancement	1	2	1				1	2	1	1	
		Understand the restoration concepts and filtering techniques.	1	1	2	1							
		Learn the basics of segmentation, features extraction, compression	1	2	1	1	2		1	2	1	1	2
		To independently carry out research	1	2	1								
		To write and present a report	1	1	2								
22150P75P	Project	To identify the problem in the existing power system and to develop software / hardware solution by doing research.	1	-	1	1	2		1	2	1	1	2



COMPUTER SCIENCE AND ENGINEERING

M.TECH (FT)- 2022R

Mapping of COs and POs

Course Code	Title of the Course	Course Objectives						P	OS					
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
		Have knowledge of the concepts needed to test the logic of a program	3	3	1	1	0	0	0	0	2	0	2	3
22248S11A	Higher Mathematics	Have gained knowledge which has application in expert system, in data base and a basic for the prolog language	3	3	1	1	0	0	0	0	2	0	2	3
		Have an understanding in identifying patterns on many levels	3	3	1	1	0	0	0	0	2	0	2	3
		To have an overview of different types of operating systems.	1	1	3	1	3	-	-	-	3	2	2	2
22250H12	Modern Operating System	To know the components of an operating system.	2	1	3	2	1	-	-	-	2	1	1	3
		To have a thorough knowledge of process management.	3	3	1	2	2	-	-	-	3	2	1	2
		Explain the basic concepts of machine learning	2	2	1	2	2	-	-	-	1	1	1	2
22250H13	MachineLearning	Construct unsupervised learning algorithms	2	1	-	1	1	-	-	-	2	1	1	2
	Techniques	Evaluate and compare different models	2	2	1	2	2	1	1	-	1	2	1	3
		Construct supervised learning models	3	3	1	2	2	-	-	-	3	2	1	2
	Adhaa and Canaan Naturala	A broad overview of the state of wireless and ad hoc networking.	3	1	2	2	2	-	-	-	1	2	1	3
22250H14	Adnoc and Sensor Network	The overview of the physical, networking and architectural issues of ad hoc networks	1	1	2	3	2	-	-	-	3	2	1	2
22250H15	Advanced Data Structures	The Different Heap Structures, Search Structures and Multimedia Structures.	1	1	3	1	3	-	-	-	3	2	2	2
	and Algorithms	The various coding scheduling and algorithms.	2	1	3	2	1	-	-	-	2	1	1	3

		The various multimedia structures.	3	3	1	2	2	-	-	-	3	2	1	2
		To study the graphics techniques and algorithms.	2	2	1	2	2	-	-	-	1	1	1	2
22250E16A	Multimedia Systems	To study the multimedia concepts and various I/O technologies	2	1	-	1	1	-	-	-	2	1	1	2
22250E16B	Web Engineering	Explain the characteristics of web applications.	2	2	1	2	2	1	1	-	1	2	1	3
	0 0	Model web applications	3	3	1	2	2	-	-	-	3	2	1	2
		Design and Test web applications.	3	1	2	2	2	-	-	-	1	2	1	3
22250E16C	Software Metrics	To introduce an integrated approach to software development incorporating quality management methodologies.	3	3	1	2	2	-	-	-	3	2	1	2
		To study about the quality improvements in software	2	2	1	2	2	-	-	-	1	1	1	2
		To understand the Software Quality software standards	2	1	-	1	1	-	-	-	2	1	1	2
22250L17	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	2	2	1	2	2	1	1	-	1	2	1	3
		To study the set of services that a middleware system constitutes of.	3	3	1	2	2	-	-	-	3	2	1	2
22250H21	Middleware Technologies	To understand how middleware facilitates the development of distributed applications in heterogeneous environments.	3	1	2	2	2	-	-	-	1	2	1	3
	5	To study how it helps to incorporate application portability, distributed application component interoperability and integration.	1	1	3	1	3	-	-	-	3	2	2	2
	Object Orjented	To learn about software prototyping, analysis and design.	2	1	3	2	1	-	-	-	2	1	1	3
22250H22	Software Engineering	To learn UML and its usage.	3	3	1	2	2	-	-	-	3	2	1	2
		Case studies to apply the principles	2	2	1	2	2	-	-	-	1	1	1	2
22250H23	Internet of Things	Define the infrastructure for supporting IoT deployments	2	1	-	1	1	-	-	-	2	1	1	2

		Understand the usage of IoT protocols for communication between various IoT devices	2	2	1	2	2	1	1	-	1	2	1	3
		Design portable IoT using Arduino/Raspberry Pi /equivalent boards.	3	3	1	2	2	-	-	-	3	2	1	2
		Understand the basic concepts of security and governance as applied to IoT	3	1	2	2	2	-	-	-	1	2	1	3
		Analyze and illustrate applications of IoT in real time scenarios	3	3	1	2	2	-	-	-	3	2	1	2
	Advanced Distributed	processing, distributed systems, operating system issues.	2	2	1	2	2	-	-	-	1	1	1	2
22250E24A	Computing	learn about distributed transaction	2	2	1	2	2	-	-	-	1	1	1	2
	1 0	study about the distributed databases	2	1	-	1	1	-	-	-	2	1	1	2
22250E24B	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.	2	2	1	2	2	1	1	-	1	2	1	3
	6	To introduce the concept of data warehousing with special emphasis on architecture and design	3	3	1	2	2	-	-	-	3	2	1	2
		Build an Information Retrieval system using the available tools.	3	1	2	2	2	-	-	-	1	2	1	3
22250E24C	Information Retrieval Techniques	Identify and design the various components of an Information Retrieval system	3	3	1	2	2	-	-	-	3	2	1	2
	1	Model an information retrieval system	2	2	1	2	2	-	-	-	1	1	1	2
		Design an efficient search engine and analyze the Web content structure.	2	1	3	2	1	-	-	-	2	1	1	3
		Understand SOA, service orientation and web services	3	3	1	2	2	-	-	-	3	2	1	2
22250E25A	Service Oriented Architecture	Analyzing and designing business based on SOA principles.	2	2	1	2	2	-	-	-	1	1	1	2
		Learning the concepts of XML	2	1	-	1	1	-	-	-	2	1	1	2
22250E25B	High Speed Networks	Describe and interpret the basics of high speed networking technologies.	2	2	1	2	2	1	1	-	1	2	1	3

		Apply the concept learnt in this course to optimize and troubleshoot high-speed network.	3	3	1	2	2	-	-	-	3	2	1	2
		Demonstrate the knowledge of network planning and optimization	3	1	2	2	2	-	-	-	1	2	1	3
		To tag a given text with basic Language features	3	3	1	2	2	-	-	-	3	2	1	2
		To design an innovative application using NLP components.	3	3	1	2	2	-	-	-	3	2	1	2
	Language	To implement a rule based system to tackle morphology/syntax of a language	3	1	2	2	2	-	-	-	1	2	1	3
22250E25C	rechnologies	To design a tag set to be used for statistical processing for real-time applications	3	3	1	2	2	-	-	-	3	2	1	2
		Create Simple application using web controls	2	2	1	2	2	-	-	-	1	1	1	2
22250L26	.NET Technologies Lab	Work with States of ASP.NET Pages & Adrotator Control Use of calendar control, Treeview control & Validation controls	1	1	3	1	3	-	-	-	3	2	2	2
222TECWR	Technical Writing /Seminars	Understand professional writing by studying management communication	2	1	3	2	1	-	-	-	2	1	1	3
	C - fterre ve Durais et	Understand Project planning and management.	3	3	1	2	2	-	-	-	3	2	1	2
22250H31	Software Project	Identify Client management and project definition.	2	2	1	2	2	-	-	-	1	1	1	2
	Wanagement	Understand testing based approach to development.	2	1	-	1	1	-	-	-	2	1	1	2
		Identify cloud computing models, characteristics, and technologies.	3	3	1	2	2	-	-	-	3	2	1	2
22250E32A	Cloud Computing	Get knowledge about the different architectures in cloud.	3	1	2	2	2	-	-	-	1	2	1	3
		Identify the information about service management and cloud securities	3	3	1	2	2	-	-	-	3	2	1	2
		Identify the various temporal, spectral and cepstral features required for identifying speech units – phoneme, syllable and wor	2	2	1	2	2	-	-	-	1	1	1	2

22250E32B	Speech Processing and Synthesis	Determine and apply Mel-frequency cepstral coefficients for processing all types of signals	1	1	3	1	3	-	-	-	3	2	2	2
		Identify the apt approach of speech synthesis depending	3	3	1	2	2	-	-	-	3	2	1	2
		To introduce the ideas of Neural networks, fuzzy logic and use of heuristics base on human experience.	2	2	1	2	2	-	-	-	1	1	1	2
22250E32C	Soft Computing	To have a general understanding of soft computing methodologies, including artificial neural networks, fuzzy sets, fuzzy logic, fuzzy clustering techniques and genetic algorithms;	2	1	-	1	1	-	-	-	2	1	1	2
		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	3	3	1	2	2	-	-	-	3	2	1	2
		Know the operations of parallel and distributed databases.	3	1	2	2	2	-	-	-	1	2	1	3
22250E33A	Advanced Database Technology	Understand the structure s and standards of object relational databases.	3	3	1	2	2	-	-	-	3	2	1	2
		Get familiar with the concepts of XML, Mobile and Multimedia Databases	2	2	1	2	2	-	-	-	1	1	1	2
		Identify the need for reconfigurable architectures.	1	1	3	1	3	-	-	-	3	2	2	2
22250E33B	Reconfigurable Computing	Discuss the architecture of FPGAs	2	1	3	2	1	-	-	-	2	1	1	3
		Point out the salient features of different reconfigurable architectures.	3	3	1	2	2	-	-	-	3	2	1	2
		Develop applications using any HDL and appropriate tools.	2	2	1	2	2	-	-	-	1	1	1	2
		Understanding scientific and social environment.	2	1	-	1	1	-	-	-	2	1	1	2
22250E33C	Green Computing	Minimizing energy consumption from the IT estate.	3	3	1	2	2	-	-	-	3	2	1	2
		Purchasing green energy and using green suppliers.	2	2	1	2	2	-	-	-	1	1	1	2

		Reducing the paper and other consumables used.	1		1			1	3			2		2
		Minimizing equipment disposal requirements	1	1	3	1	3	-	-	-	3	2	2	2
222505244	Software Quality	To introduce an integrated approach to software development incorporating quality management methodologies.	2	1	3	2	1	-	-	-	2	1	1	3
22250E34A	Assurance	To study about the quality improvements in software	3	3	1	2	2	-	-	-	3	2	1	2
		To understand the Software Quality software standards	2	2	1	2	2	-	-	-	1	1	1	2
	Bio-inspired	Implement and apply bio-inspired algorithms	2	1	-	1	1	-	-	-	2	1	1	2
22250E34B	Computing	Explain random walk and simulated annealing	2	2	1	2	2	-	-	-	1	1	1	2
		Explain swarm intelligence and ant colony for feature selection	2	1	-	1	1	-	-	-	2	1	1	2
		Apply bio-inspired techniques in image processing.	3	3	1	2	2	-	-	-	3	2	1	2
		Be able to discuss current and emerging technology in Wireless technology.	2	2	1	2	2	-	-	-	1	1	1	2
22250E34C	Wireless Application Protocols	Understand fundamental trends of technological evolution of Wireless technology. Have hands-on knowledge in developing simple and	1 1	1	1 3	1	3	1 -	3 -	_	3	2 2	2	2 2
		Be able to create simple Wireless applications	2	1	3	2	1	-	_	-	2	1	1	3
22250P35	Project Work- Phase I	To independently carry out research /investigation to identify and solve practical problems	3	3	1	2	2	-	-	-	3	2	1	2
22250P41	Project Work- Phase II	To identify the problem in the existing power system and to develop software / hardware solution by doing research.	2	2	1	2	2	-	-	-	1	1	1	2

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COMPUTER SCIENCE AND ENGINEERING

M.TECH (PT)- 2022R

Mapping of COs and POs

Course Code	Title of the Course	Course Objectives						I	POS					
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
		Have knowledge of the concepts needed to test the logic of a program	3	3	1	1	0	0	0	0	2	0	2	3
22248S11AP	Higher Mathematics	Have gained knowledge which has application in expert system, in data base and a basic for the prolog language	3	3	1	1	0	0	0	0	2	0	2	3
		Have an understanding in identifying patterns on many levels	3	3	1	1	0	0	0	0	2	0	2	3
22250H12P	Adhoc & Sensor Networks	A broad overview of the state of wireless and ad hoc networking.	1	1	3	1	3	-	-	-	3	2	2	2
		The overview of the physical, networking and architectural issues of ad hoc networks	2	1	3	2	1	-	-	-	2	1	1	3
22250H13P	Advanced Data Structures	The Different Heap Structures, Search Structures and Multimedia Structures.	3	3	1	2	2	-	-	-	3	2	1	2
		The various coding scheduling and algorithms.	2	2	1	2	2	-	-	-	1	1	1	2
		The various multimedia structures.	2	1	-	1	1	-	-	-	2	1	1	2
22250L14P	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	2	2	1	2	2	1	1	-	1	2	1	3

22250H21P	Middleware Technologies	To study the set of services that a middleware system constitutes of.	3	3	1	2	2	-	-	-	3	2	1	2
		To understand how middleware facilitates the development of distributed applications in heterogeneous environments.	3	1	2	2	2	-	-	-	1	2	1	3
		To study how it helps to incorporate application portability, distributed application component interoperability and integration.	1	1	2	3	2	-	-	-	3	2	1	2
		Define the infrastructure for supporting IoT deployments	1	1	3	1	3	-	-	-	3	2	2	2
2225011220		Understand the usage of IoT protocols for communication between various IoT devices	2	1	3	2	1	-	-	-	2	1	1	3
22250H22P	Internet of Things	Design portable IoT using Arduino/Raspberry Pi /equivalent boards.	3	3	1	2	2	-	-	-	3	2	1	2
		Understand the basic concepts of security and governance as applied to IoT	2	2	1	2	2	-	-	-	1	1	1	2
		Analyze and illustrate applications of IoT in real time scenarios	2	1	-	1	1	-	-	-	2	1	1	2
		processing, distributed systems, operating system issues.	2	2	1	2	2	1	1	-	1	2	1	3
22250F23AP	Advanced Distributed	learn about distributed transaction	3	3	1	2	2	-	-	-	3	2	1	2
22250L257M	Computing	study about the distributed databases	3	1	2	2	2	-	-	-	1	2	1	3
22250E23BP	Data Warehousing & Data	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.	3	3	1	2	2	-	-	-	3	2	1	2
	Mining	To introduce the concept of data warehousing with special emphasis on architecture and design	2	2	1	2	2	-	-	-	1	1	1	2
		Build an Information Retrieval system using the available tools.	2	1	-	1	1	-	-	-	2	1	1	2
22250E23CP	Information Retrieval	Identify and design the various components of an Information Retrieval system	2	2	1	2	2	1	1	-	1	2	1	3
	Techniques	Model an information retrieval system	3	3	1	2	2	-	-	-	3	2	1	2

		Apply machine learning techniques to text classification and clustering which is used for efficient Information Retrieval.	3	1	2	2	2	-	-	-	1	2	1	3
		Design an efficient search engine and analyze the Web content structure.	1	1	3	1	3	-	-	-	3	2	2	2
22250L24P	.NET Technologies Lab	Create Simple application using web controls	2	1	3	2	1	-	-	-	2	1	1	3
		Work with States of ASP.NET Pages & Adrotator Control Use of calendar control, Treeview control & Validation controls	3	3	1	2	2	-	-	-	3	2	1	2
222TECWRP	Technical Writing /Seminars	Understand professional writing by studying management communication	2	2	1	2	2	-	-	-	1	1	1	2
22250H31P	Modern Operating System	To have an overview of different types of operating systems.	2	1	-	1	1	-	-	-	2	1	1	2
		To know the components of an operating system.	2	2	1	2	2	1	1	-	1	2	1	3
		To have a thorough knowledge of process management.	3	3	1	2	2	-	-	-	3	2	1	2
22250F32P	Machine Learning	Explain the basic concepts of machine learning	3	1	2	2	2	-	-	-	1	2	1	3
222302321	Techniques	Construct unsupervised learning algorithms	3	3	1	2	2	-	-	-	3	2	1	2
		Evaluate and compare different models	2	2	1	2	2	-	-	-	1	1	1	2
		Construct supervised learning models	2	2	1	2	2	-	-	-	1	1	1	2
		To study the graphics techniques and algorithms.	2	1	-	1	1	-	-	-	2	1	1	2
22250E33AP	Multimedia Systems	To study the multimedia concepts and various I/O technologies	2	2	1	2	2	1	1	-	1	2	1	3
		Explain the characteristics of web applications.	3	3	1	2	2	-	-	-	3	2	1	2
22250E33BP	Web Engineering	Model web applications	3	1	2	2	2	-	-	-	1	2	1	3
		Design and Test web applications.	3	3	1	2	2	-	-	-	3	2	1	2
		To introduce an integrated approach to software development incorporating quality management methodologies.	2	2	1	2	2	-	-	-	1	1	1	2
22250E33CP	Software Metrics	To study about the quality improvements in software	1	1	3	1	3	-	-	-	3	2	2	2
		To understand the Software Quality software standards	2	1	3	2	1	-	-	-	2	1	1	3
	Object Oriented Software	To learn about software prototyping, analysis and design.	3	3	1	2	2	-	-	-	3	2	1	2

22250H41P	Engineering	To learn UML and its usage.	2	2	1	2	2	-	-	-	1	1	1	2
		Case studies to apply the principles	2	1	-	1	1	-	-	-	2	1	1	2
		Understand Project planning and management.	2	2	1	2	2	1	1	-	1	2	1	3
	Software Project	Identify Client management and project definition.	3	3	1	2	2	-	-	-	3	2	1	2
2250H42P	Management	Understand testing based approach to development.	3	1	2	2	2	-	-	-	1	2	1	3
		Understand SOA, service orientation and web services	3	3	1	2	2	-	-	-	3	2	1	2
22250E43AP	Service Oriented	Analyzing and designing business based on SOA principles.	3	3	1	2	2	-	-	-	3	2	1	2
	Themteeture	Learning the concepts of XML	3	1	2	2	2	-	-	-	1	2	1	3
22250E42DD	High Speed Natworks	Describe and interpret the basics of high speed networking technologies.	3	3	1	2	2	-	-	-	3	2	1	2
22230E43BP	High Speed Networks	Apply the concept learnt in this course to optimize and troubleshoot high-speed network.	2	2	1	2	2	-	-	-	1	1	1	2
		Demonstrate the knowledge of network planning and optimization	1	1	3	1	3	-	-	-	3	2	2	2
		To tag a given text with basic Language features	2	1	3	2	1	-	-	-	2	1	1	3
22250E43CP	Language Technologies	To design an innovative application using NLP components.	3	3	1	2	2	-	-	-	3	2	1	2
		To implement a rule based system to tackle morphology/syntax of a language	2	2	1	2	2	-	-	-	1	1	1	2
		To design a tag set to be used for statistical processing for real-time applications	2	1	-	1	1	-	-	-	2	1	1	2
22250P44P	Project Work- Phase I	To independently carry out research /investigation to identify and solve practical problems	3	3	1	2	2	-	-	-	3	2	1	2
22250E51AP	Cloud Computing	Identify cloud computing models, characteristics, and technologies.	3	1	2	2	2	-	-	-	1	2	1	3
	1 0	Get knowledge about the different architectures in cloud.	3	3	1	2	2	-	-	-	3	2	1	2
		Identify the information about service management and cloud securities	2	2	1	2	2	-	-	-	1	1	1	2
		Identify the various temporal, spectral and cepstral features required for identifying speech units – phoneme, syllable	1	1	3	1	3	-	-	-	3	2	2	2

2225055100	Speech Processing and	and wor												
22250E51BP	Synthesis	Determine and apply Mel-frequency cepstral coefficients for processing all types of signals	2	1	3	2	1	-	-	-	2	1	1	3
		Justify the use of formant and concatenative approaches to speech synthesis	3	3	1	2	2	-	-	-	3	2	1	2
		Identify the apt approach of speech synthesis depending	2	2	1	2	2	-	-	-	1	1	1	2
		To introduce the ideas of Neural networks, fuzzy logic and use of heuristics base on human experience.	2	1	-	1	1	-	-	-	2	1	1	2
22250E51CP	Soft Computing	To have a general understanding of soft computing methodologies, including artificial neural networks, fuzzy sets, fuzzy logic, fuzzy clustering techniques and genetic algorithms;	3	3	1	2	2	-	-	-	3	2	1	2
		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	3	1	2	2	2	-	-	-	1	2	1	3
		Know the operations of parallel and distributed databases.	3	3	1	2	2	-	-	-	3	2	1	2
22250E52AP	Advanced Database Technology	Understand the structure s and standards of object relational databases.	2	2	1	2	2	-	-	-	1	1	1	2
		Get familiar with the concepts of XML, Mobile and Multimedia Databases	1	1	3	1	3	-	-	-	3	2	2	2
2225055200	Paconfigurable	Identify the need for reconfigurable architectures.	2	1	3	2	1	-	-	-	2	1	1	3
22250E52BP	Computing	Discuss the architecture of FPGAs	3	3	1	2	2	-	-	-	3	2	1	2
		Point out the salient features of different reconfigurable architectures.	2	2	1	2	2	-	-	-	1	1	1	2
		Develop applications using any HDL and appropriate tools.	2	1	-	1	1	-	-	-	2	1	1	2
		Understanding scientific and social environment.	3	3	1	2	2	-	-	-	3	2	1	2
22250E52CP	Green Computing	Minimizing energy consumption from the IT estate.	2	2	1	2	2	-	-	-	1	1	1	2
		Purchasing green energy and using green suppliers.	1		1			1	3			2		2

		Reducing the paper and other consumables used.	1	1	3	1	3	-	-	-	3	2	2	2
		Minimizing equipment disposal requirements	2	1	3	2	1	-	-	-	2	1	1	3
22250E53AP		To introduce an integrated approach to software development incorporating quality management methodologies.	3	3	1	2	2	-	-	-	3	2	1	2
	Software Quality	To study about the quality improvements in software	2	2	1	2	2	-	-	-	1	1	1	2
	Assurance	To understand the Software Quality software standards	2	1	-	1	1	-	-	-	2	1	1	2
22250552000		Implement and apply bio-inspired algorithms	2	2	1	2	2	-	-	-	1	1	1	2
22250E53BP	Bio-inspired Computing	Explain random walk and simulated annealing	2	1	-	1	1	-	-	-	2	1	1	2
		Apply bio-inspired techniques in image processing.	2	2	1	2	2	-	-	-	1	1	1	2
		Be able to discuss current and emerging technology in Wireless technology.	1		1			1	3			2		2
22250E53CP	Wireless Application Protocols	Understand fundamental trends of technological evolution of Wireless technology.	1	1	3	1	3	-	-	-	3	2	2	2
		Have hands-on knowledge in developing simple and comprehensive WAP contents.	2	1	3	2	1	-	-	-	2	1	1	3
		Be able to create simple Wireless applications	3	3	1	2	2	-	-	-	3	2	1	2
22250P61P	Project Work- Phase II	To identify the problem in the existing power system and to develop software / hardware solution by doing research.	2	2	1	2	2	-	-	-	1	1	1	2

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