

Sr.No.	Sem	Subject	Subject Code	Course Code (NBA)	CO No	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	Co attainment					
1		Applied Mathematics - I	FEC11	C211	CO1	Students will be able to formulate computer engineering problems	2													1			0.6				
					CO2	Students will be able to apply theory of matrices to develop	2																1			0.6	
					CO3	Students will be able to analyse 'big data' using statistical tools such	2	1															2			0.6	
					CO4	Students will be able to relate the concepts of partial derivatives in	2	1															2			0.6	
					CO5	Students will be able to solve problems on signal and system electrical	2	1															2			0.6	
2		Applied Physics - I	FEC12	C212	CO1	Students will be able to identify different concepts related with	3	2	2											3	1		0.59				
					CO2	Students will be able to understand the physics behind the working of	3	2	2													3	1		0.54		
					CO3	Students will be able to illustrate basic concepts of fundamentals of	3	2	2														3	1		0.12	
					CO4	Students will be able to examine different methods to generate	3	2	2														3	1		0.12	
					CO5	Students will be able to evaluate various methods to design	3	2	2								2						3	1	1	0.5466667	
					CO6	Student will be able to analyse the concepts related to	3	2	2														3	1		0.36	
3		Applied Chemistry - I	FEC13	C213	CO1	i) Calculate the types & percentage of impurities in water ii) Calculate various reagents required to soften hard water iii) Understand methods of purification of water as per the standards.	3	2								2				3		1	0.34				
					CO2	Understand the chemistry of polymers along with their applications.	3	2											2			3			0.296		
					CO3	Understand mechanism of lubrication and its properties.	3	2															3		1	0.36	
					CO4	Understand thermodynamics of chemical processes.	3	1															3			0.6	
					CO5	Understand the process of manufacture of cement and Engineering materials.	3	1															3			0.12	
4		Engineering Mechanics	FEC14	C214	CO1	Construct free body diagram and calculate the reactions for static equilibrium.	3	2								1	2			3		1	0.6				
					CO2	Determine the centroid of plane lamina	3	3											1		2	3		1	0.6		
					CO3	Calculate internal forces, moments and distributed loads in members evaluate velocity, acceleration, time, force and energy of the particle as well as rigid body	3	3											1		2	3		1	0.6		
					CO4	Locate instantaneous centre of rotation for rigid bodies having plane motion.	3	3											1		2	3		1	0.5911111		
					CO5	To learn and analyse DC circuits through network theorems.	3	3	2	3	1	1							1	2			3		1	0.12	
5		Basic Electrical Engineering	FEC15	C215	CO1	To study and understand single phase AC circuits.	3	3	2	3	1	1				1			2	3	3	1	0.544				
					CO2	To study and understand three phase AC circuits.	3	3	2	3	1	1							1		2	3	3	1	0.52		
					CO3	To study and analyse three phase AC circuits.	3	3	1	3	1	1							1		3	2	1	1	0.536		
					CO4	To study and understand single phase transformer.	3	3	1	3	2	2							1		3	2	1	1	0.24		
					CO5	To study electrical machines.	3	3	2	3	1	2	2						1		2	3	3	1	1	0.24	
6		Environmental studies	FEC16	C216	CO1	Illustrate Depleting Nature or Environmental Resources, Global Environmental Policy, Ecotourism concept	3	1					1	1						1	3	1	1	0.4			
					CO2	Adapt to 3R (Reuse, Recovery, Recycle)	3	1	1													1	3	1	1	0.24	
					CO3	Study different control measures related to Environmental Pollution	3	1	1			1	1	1								1	3	1	1	0	
					CO4	Illustrate and analyse various case studies related to Environmental Pollution	3						1	1									1	2		1	0
					CO5	Demonstrate the working of Renewable energy sources & Equipments	3	1	1				1	1	1								1	3	1	1	0
					CO6	Illustrate the Techniques of Disaster Management and Green Building	3	1	1			1	1	1									1	3	1	1	0
7		Basic Workshop Practice - I	FEL11	C217	CO1	Develop Necessary skill required to handle fitting tools	3	2	3							2			1	3	1	1	11	3			
					CO2	Able to identify basic networking components	3	2	3											2			1	3	1	1	11
8		Applied Mathematics - II	FEC21	C221	CO1	Students will be able to formulate engineering problems such as beta and Gamma functions and its properties. Differentiation under sign with constant limits of integration.	2			1										1	1		0.5622857				
					CO2	Students will be able to apply theory of Linear Differential Equation of first order and second order.	2																1			0.12	
					CO3	Students will be able to analyse 'numerical solution' of ordinary differential equations.	2	1															2	2		0.44	
					CO4	Students will be able to relate the concepts of Multiple integrals to	2	1		2	3												2	2		0.52	
					CO5	Students will be able to identify different concepts related with interference and Diffraction. (Remember)	2	1	2		3													3	1	1	0.52
9		Applied Physics - II	FEC22	C222	CO1	Students will be able to understand the physics behind the working of Laser.	3	2	2											3	1						
					CO2	Students will be able to illustrate basic concepts of Laser.	3	2	2													3	1				
					CO3	Students will be able to understand the physics behind the working of	3	2	2														3	1			
					CO4	Student will be able to analyse the concepts related to quantum	3	2	2														3	1			
					CO5	Students will be able to evaluate methods to measure ac, dc voltage, power, capacitance and inductance of C&C	3	2	2								2							3	1	1	
					CO6	Students will be able to examine different methods to synthesise Nano-materials.	3	2	2															3	1		0.472
1		Applied Chemistry - II	FEC23	C223	CO1	Calculate the quantity of air and oxygen required for the complete combustion of fuels and carry out analysis of fuels.	3	2		2						2				3	1	1	0.4866667				
					CO2	Understand the mechanisms of corrosion, methods of preventing corrosion.	3	2															3		1	0.4533333	
					CO3	Understand the properties and uses of various alloys.	2	1															2			0.5666667	

11	2	Engineering Drawing	FEC24	C224	CO4	Calculate atom economy by various methods of synthesis. Incorporate the knowledge of green synthesis of various chemicals	3	2									3	1	0.52								
					CO5	Understand the chemistry of composite materials.		2												1	1						
					CO1	Understand the theory of projections, conventions and methods of projections	3	1													3	1	0.6				
					CO2	Analysis	3	3	3												3	1	0.6				
					CO3	Apply concepts and logic to get solutions of the problem (Apply). Judge the approximate views depends upon given conditions in the projections.	3	3	1													3	1	0.6			
12		Structured Programming Approach	FEC25	C225	CO4	Apply concepts and logic to get solutions of the problem (Apply). Judge the approximate views depends upon given conditions in the projections.	3	3	3									1	2	0.591111							
					CO1	To propose logical solution for given problem statement.	3	2	1												3	1	0.12				
					CO2	Understand concept of data types ,variables and operators in C .	3															2		0.54			
					CO3	Implement conditional statements and looping construct in C	3	2	1													3	1	0.48			
					CO4	Synthesize a complete program by decomposing a problem into functional concepts.	3	2	2													3	1	0.55			
					CO5	Demonstrate the use of arrays and strings in C language.	3	2														3		0.52			
13		Communication Skills	FEC26	C226	CO6	Explain the concepts of structures, files and pointers	3	1											3		2.4						
					CO1	A graduate will be able to determine the fundamental concepts of effective communication and its application for personal excellence and professional growth.	3	1													3	1	2.96				
					CO2	A graduate will be able to utilize the principles of effective business correspondence and the nuances of strategic letter writing for professional growth and personal excellence.	3															2	3	3			
					CO3	A graduate will be able to demonstrate a command over the art of comprehension, summarization and word power for successful presentation in classroom and communication.	3															2	3	3			
14		Basic Workshop Practice - II	FEL21	C227	CO4	A graduate will be able to formulate definitions, instructions, descriptions and explanations of technical writing.	2	1											3	1	2.88						
					CO1	Develop Necessary skill required to handle Carpentry tools	3	2	3												2	3	3				
					CO2	Demonstrate the wiring practices for the connection of simple wiring layout	3	2	3												2	3	3				
III	Applied Mathematics III				CO1	Students will be able to solve initial and boundary value problems involving ordinary differential equation(Institute)	2												1		0.6						
					CO2	Students will be able to calculate both real and complex form of Fourier series for standard periodic waveform and Fourier Integrals(Institute)	2														1		0.6				
					CO3	Students will be able to determine the derivative of a complex function, state and prove properties of derivatives, Dirichlet's Theorem	2	1														2		0.6			
					CO4	Students will be able to solve the line integrals using Stoke's Theorem	3	1														3	1	0.6			
					CO1	Understand the concepts of various components to design stable analog circuits.	3																2		1.187		
					CO2	Represent numbers and perform arithmetic operations.		2															1		1.22		
	ANALOG AND DIGITAL CIRCUITS	CO3	Minimize the Boolean expression using Boolean algebra and design it using logic gates.		2															1		1.22					
		CO4	Analyze and design combinational circuit.			2															1	1.32					
		CO5	Design and develop sequential circuits			2															1	1.18					
		CO6	Translate real world problems into digital logic formulations using VHDL. Select appropriate data structures as applied to specified problem	3																2	1	1					
		CO1	Define different searching, insertion, deletion and traversing operations.			1															1	0.8					
		CO2	Learning different searching, insertion, deletion and traversing operations.	2		3															1	1	0.8				
	Data Structures & Analysis	ITC33	CO3	Understanding different Linear data structures.	2		2														1	1	0.8				
		CO4	Apply			2															1	1	0.8				
		CO5	Implement different Non-Linear data structures like Trees and Graphs.	2		2															1	1	0.8				
		CO6	Determine and analyse the complexity of given Algorithms.		3			2													2	1	0.8				
		CO1	Understand the fundamentals of a database systems	3																	2		0.44				
		CO2	Design and draw ER and EER diagram for the real life problem	3	3	3															3	1	0.547				
	Database Management System					CO3	Convert conceptual model to relational model and formulate relational database schema.	2	3	3												3	1	0.6			
						CO4	Apply the knowledge to advanced SQL topics like embedded SQL, stored procedures, triggers, DBC.	3	3	3													3	2	0.6		
						CO5	Formulation and retrieval of data from database using SQL	3	3	3														3	1	0.453	
						CO6	To demonstrate the advanced concepts in DBMS (like transaction management, concurrency control, recovery and isolation).	2																	1		0.52
						CO1	Students will be able to analyze Analog Communication System (Analyze)	2	2																3		0.328
						CO2	Students will be able to evaluate the influence of noise in communication systems and on the properties of Fourier transforms (Evaluate)	2	2																3		0.36
Principles of Analog and Digital Communication	SEITC36				CO3	Students will be able to design AM & FM systems (Design)	2	2	3												3	1	0.533				
					CO4	Students will be able to analyze different pulse modulation techniques	2	2	2														3	1	0.52		
					CO5	Students will be able to understand digital modulation and multiplexing systems (Understand)	3		1															2	1	0.56	
					CO6	Students will be able to describe various demodulation schemes (Describe)	3																	2		0.6	
					CO1	Identify classes, objects, members of a class and relationships among them	3	2	2																3	1	2.2
					CO2	Students will be able to write Java application programs using OOP	3	2	2																3	1	1.84
Object Oriented Programming Methodology	SEITC33				CO3	Students will be able to solve computational problems using basic constructs like if else, switch, do-while, arrays, strings	2	1	1													2	1	2.8			
					CO4	Students will be able to apply concepts of inheritance and for code	3	2	2															3	1	2.2	
					CO5	The students will be able to demonstrate programs on abstract classes.	2																	1		2.8	
					CO6	Students will be able to develop various GUI applications using swings	3	2	2																3	1	1.96
					CO1	Students will be able to calculate eigen value and eigen vector, and function of square matrix, Cayley Hamilton theorem and theorem of inverse matrix.	2																		1		3
					CO2	Student will be evaluate Complex integrals using Cauchy's theorem and Cauchy's integral formula, residue theorem and residue series.	1																			1	

IV	Computer Networks	ITC 42	CO3	Student will able to determine appropriate sample test and sample	2											1			3				
			CO4	Student will able to develop critical thinking and problem solving	3	1		2		3								3	2		2.4		
			CO1	Understand principles of LAN design such as topology and configuration	3					3								2	1		1.32		
			CO2	Describe various design performance issues like different type of network	2													1			1		
			CO3	Ability to understand network industry standards such as the OSI & TCP		2		3										1	1		1.336		
			CO4	Ability to work with network tools and analyze the performance						2									1			1.347	
	Computer Organization and Architecture			CO1	Ability to understand basic organization of computer	2												1			1.2		
				CO2	Ability to apply computer arithmetic operations on integer and real	3	2												3			2.118	
				CO3	Ability to understand processor organization and compare performance	1	2	2											2	1		1.96	
				CO4	Ability to understand memory organization of computer	1	2	2											2	1		2.16	
				CO5	Ability	2													1			1.96	
				CO6	Ability to analyze the performance of parallel computing systems	1	2													2			1.96
	Automata Theory	SEITC44		CO1	To learn fundamentals of Regular and Context Free Grammars and	3												2			1.4		
				CO2	To understand the relation between Regular Language and Finite	3													2			1.286	
				CO3	To design Automata's and machines as Acceptors, Verifiers and	3	1													3			1.4
				CO4	To understand the relation between Contexts free Languages, PDA and	2	1	3												2	1		1.32
				CO5	To design PDA as acceptor and TM as Calculators.	2	2	2												3	1		1.24
				CO6	To learn how to co-relate Automata's with Programs and Functions.	1	1										1			1			1.4
	WEB PROGRAMMING			CO1	Student will be able to learn basics of web application development.	2	2	1										3	1		2.947		
				CO2	Student will be able to learn various client side and server side web	2	2	3											3	1		2.956	
				CO3	Student will be able to create the web application using technologies	2	3	3											3	1		2.967	
				CO4	Student will be able to create database connectivity with various server	1	2	3											2	1		2.92	
	ITC			CO1	Ability of students to understand true meaning of information and	1	1											1			0.566		
				CO2	Ability of students to understand and apply compression technique in	2	1												2			0.6	
CO3				Ability of students to understand and apply error correction techniques	2	1												2			0.54		
CO4				Ability of student to understand how unique code is generated using	3	1													3			0.6	
CO5				Ability of student to understand how to implement secure	2														1			0.52	
Computer Graphics and Virtual Reality	TEITC51		CO1	Understood basic concepts of computer graphics	2														1		1.96		
			CO2	Choose appropriate algorithm for line drawing, line clipping, polygon	3	2													3			2.2	
			CO3	Solve 2D and 3D Transformation problems.	3	2													3			2.2	
			CO4	To design and implement an application with the principles of virtual	1	2	3												2	1		2.2	
OPERATING SYSTEM	TEITC52		CO1	Students will be able to describe the main objectives and functions of	3												2			3			
			CO2	Students will be able to determine the organization of PC components	3	2		2										3	1		3		
			CO3	Students will be able to determine how the operating system is responsible	3	2		2											3	1		3	
			CO4	Students will be able to analyze the performance of various memory	3	2		2											3	1		3	
MICROCONTROLLER AND EMBEDDED SYSTEMS	ITC 55		CO1	Students will be able to learn the concepts and architecture of	2														1		1.8		
			CO2	Students will be able to understand the basics of microcontroller 851.	3														2			1.32	
			CO3	Students will be able to apply the concepts of microcontroller	1	2													2			1.16	
			CO4	Students will be able to learn the concepts of ARM7 architecture.	2															1			1.133
			CO5	Students will be able to analyse various real-time operating system	1															1			1.16
			CO6	Students will be able to learn different design platforms used for an	1															1			1.24
ADBMS	ITC54		CO1	On the completion of the course, students will be able to construct	3	2				1								3	1		1.1		
			CO2	On the completion of the course, students will be able to design and	2														1			1.2	
			CO3	Clearly understand how databases are actually stored and accessed; How	2				2										1	1		1.167	
			CO4	On the completion of the course, students will be able to Apply security	3				1										2	1		1.24	
			CO5	On the completion of the course, students will be able to Design		2														1			1.2
			CO6	Understand the importance of enterprise data and be able to organize	1															1			1.187
BUSINESS COMMUNICATION AND ETHICS	TEITC56		CO1	Design a technical document using precise language, suitable vocabulary	3	1								3		1			3	1	2.4		
			CO2		2							1	2	3					1		1	2.4	
			CO3	Demonstrate awareness of contemporary issues knowledge of	3								3	1	3					2		1	2.4
			CO4	Apply	3								2	3		1				2		1	2.4
			CO5	Deliver formal presentations effectively implementing the verbal and non-	3					2			1	3						2	1	1	3
OBT	TEITC55		CO1	Understand the fundamental concepts of open-source operating system	3				2										2	1	0.16		
			CO2	Learn and execute the basic set of commands and editors in Linux	3															2		0.22	
			CO3	Implement user and system administration in Linux	3															2		0.4	

			CO4	Use the features of the Linux Server Applications.	2	3	2										3	1			0.364		
			CO5	Write, test and debug the shell scripts to perform various tasks using conditional constructs, while and for loops.					2		2								1	1		0.3	
			CO6	Describe Android platform, architecture and features.		3											2					0.32	
			CO1	Define various software application domains and remember different process model used in software development	3												2					0.17	
			CO2	Explain needs for software specifications also they can classify different types of software requirements and their gathering techniques.		2											1					0.48	
			CO3	Convert the requirements model into the design model and demonstrate use of software and user-interface design principles.							3									1		0.44	
			CO4	Distinguish among SCM and SQA and can classify different testing strategies and tactics and compare them					1										1			0.48	
			CO5	Justify role of SDLC in Software Project Development and they can evaluate importance of Software Engineering in PLC		2											1					0.6	
			CO6	Generate project schedule and can construct, design and develop network diagram for different type of Projects. They can also organize											3						1		0.6
			CO1	Student will gains clear understanding of fundamental principles of Distributed Systems	2	1												2					0.531
			CO2	Student will understands the message communication, remote procedure call and Remote method invocation (RPC and RMI) along	2					3								1	1				0.488
			CO3	Student will understands importance of consistency and replication in Distributed Operation	2													1					0.44
			CO4	Students are emphasized on developing applications using current distributed computing technologies like EJB, CORBA and .NET.		1				3								1	1				0.3
			CO5	Students		1				3								1	1				0.34
			CO6	Student will able to explain design and implementation of key mechanisms, Clock Synchronization, Election Algorithms, Mutual	3	1												3					0.487
			CO1	Understand the key concepts and goals of security	3													2					2.88
			CO2	Explain the basic idea behind access control and compare the various access control policies and models.	3													2					2.872
			CO3	Explain the need for security protocols and use them on Internet-based applications;	2													1					2.92
			CO4	Build firewalls and intrusion detection systems and demonstrate their working.	2					2								1	1				3
			CO5	Explain malicious software and typical software solutions used in dealing with viruses and worms;	1													1					3
			CO6	Understand and explain various issues related to program security and web security	2													1					2.76
			CO1	Demonstrate an understanding of the importance of data mining and the principles of business intelligence	2	2												3					3
			CO2	Organize and Prepare the data needed for data mining using pre-processing techniques and perform exploratory analysis on it	2													1					2.943
			CO3	Design and Implement the appropriate classification data mining techniques and apply metrics of measures on it	3	3	1		3									3	2				2.99
			CO4	Apply the appropriate clustering data mining techniques and perform outlier analysis	3	3	1		3									3	2				2.92
			CO5	Implement the appropriate Association mining data mining techniques	3	3	1		3									3	2				2.867
			CO1	Student is able to develop Keyword Generation, Using Google Analytics etc.	3		2		3									2	2				0.6
			CO2	Student is able to apply Responsive Web Design.	3	2	3											3	1				0.44
			CO3	Student	3	2	2											3	1				0.52
			CO4	Student is able to understand concepts in SEO.	3													2					0.52
			CO5	Student	3		3											2	1				0.6
			CO6	Student is able to demonstrate advanced topics of HTML5, CSS3.	3		3											2	1				0.564
			CO1	student will be able to recall the reasons for Software Project failures. Remember	3						2	2				2		2			1		2.12
			CO2	Students will be able to initiate new software project. Apply		3	3						2		3			2	1	1			2.2
			CO3	Students will be able to develop work break down structure. Analyze					3											1			2.8
			CO4	Students will be able to produce software project management Plan. Create			3						2	3	2					1	1		2.8
			CO5	Students will be able to Prepare project Estimate			2			2		2						2			2	1	2.8
			CO6	Students will be able to identify need of project	3	3	3									3		3	1	1			2.8
			CO1	Students should be able to define Cloud Computing and memorize the different Cloud service and deployment models	2	2	1											3	1				2.16
			CO2	Students should be able to describe importance of virtualization along with their technologies.	2	2	2	1										3	1				2.13

VII	Cloud Computing	ITC72	CO3	Students should be able to use different cloud computing and mobile computing services	2	1												2							1.92				
			CO4	Students should be able to analyze the components of open stack & Google Cloud platform	2	1	1													2	1						2.8		
			CO5	Students should be able to describe components of Amazon web Services and the Architecture	2	1	3	1													2	2						1.96	
			CO6	Students should be able to Design & develop backup strategies for cloud with security protection	2	1	1														2	1						1.92	
	Intelligence System	ITC73	CO1	Students will develop a basic understanding of the building blocks of AI as presented in terms of intelligent agents.	3				2											2	1						2.14		
			CO2	Students will be able to examine and choose an appropriate problem-solving method and knowledge-representation scheme.	3																2							2.733	
			CO3	Student will able to understand and design solution for games	3																2							2	
			CO4	Students will develop an ability to plan and formalize the problem	2	3	2														3	1						2.667	
			CO5	Student will able to understand importance of uncertainty in AI					2		2												1	1				2.12	
			CO6	Students		3																2						2.16	
	WIRELESS TECHNOLOGY	ITL71	CO1	Describe	3															2							2.973		
			CO2	Explain the multiple radio access techniques and multiuser detection techniques				2															1					2.68	
			CO3	Understand various wireless networks and their technologies	2																	1						2.82	
			CO4	Understand the multiuser detection techniques																								2.973	
			CO5	Simulate methods for real world problems in implementing wireless solution				2																1				3	
			CO6	Understand need of securities and economies in wireless systems					1	1															1			2.88	
	E-COMMERCE AND - BUSINESS	BEITC753	CO1	Students	3	2	3														3	1					2.12		
			CO2	Students will be able to apply the knowledge gained and modern engineering tools in their application domain		3	3															2	1					2.12	
			CO3	Students will be able to identify the e-business model	3	2	3															3	1					2.2	
			CO4	Students will be able to compare e-payment and e-marketing along with promotional strategies.	3		3															2	1					2.184	
			CO5	Students will be able to understand navigation flow , information flow to develop e-commerce and e-business website	3		3																2	1					2.8
			CO6	Students will able to learn the various E-business strategies	3		2																2	1					2.16
	Image Processing	BEITC751	CO1	To understand the fundamental concepts of a digital image processing system	3																2						2.88		
			CO2	To understand and apply the concepts of image enhancement Techniques		2																1						3	
			CO3	To understand and apply various image Transforms				2																1				2.88	
			CO4	To analyse and compare various compression techniques in Image Processing.				3																1				2.86	
			CO5	To apply various segmentation and object description techniques		2																	1					2.617	
			CO6	To study Color Models and various applications of image processing			2																		1			2.52	
SNMR	BEITC81	CO1	to understand logical and physical components of a storage infrastructure and identify components of managing & monitoring the	2		2															1	1				3			
		CO2	to evaluate storage architectures, including storage subsystems, san, nas, and ip-san, also define backup, recovery.		2																	1					3		
		CO3	to examine emerging technologies including IP-SAN		2																	1					3		
		CO4	to define information retrieval in storage network and identify different storage virtualization technologies.			3																		1			3		
		CO5	to understand the backup and recovery techniques	2																		1					3		
		CO6	to understand algorithms of information retrieval in storage network		2																	1					2.88		
BIG DATA ANALYTICS	ITC81	CO1	Student will be able to: Explain the motivation for big data systems and identify the main sources of Big Data in the real world.	2	2																3					3			
		CO2	Demonstrate an ability to use frameworks like Hadoop, NOSQL to efficiently store retrieve and process Big Data for Analytics.	1	2																	2					2.92		
		CO3	Implement several Data Intensive tasks using the Map Reduce Paradigm		2	2																1	1				2.84		
		CO4	Apply several newer algorithms for Clustering, Classifying and finding associations in Big Data		2	2																1	1				2.714		
		CO5	Apply algorithms to analyze Big data like streams, Web Graphs and Social Media data.		2	2																1	1				2.947		
		CO6	Design and implement successful Recommendation engines for enterprises.	1	2	3																2	1				2.88		

Sr.No.	Sem	Subject	Subject Code	CO No	Course Outcomes	CO Attainment using CIE					CO Weightage			Final CO attainment			Overall Att
						IA1	IA2	IA Avg	EXPT	Assign	IA	EXPT	Assign	Internal	External	Final	
											20	80	100				
1	1	Applied Mathematics - I	FEC101	CO1	Students will be able to formulate Computer engineering problems such as linear system of equations, non linear system of equations using numerical methods		3	3		3	80	0	20	3	0	0.6	0.6
				CO2	Students will be able to apply theory of matrices to develop algorithms for many engineering applications		3	3		3	80	0	20	3	0	0.6	
				CO3	Students will be able to analyse Big data using statistical tools such as fitting of curves	3		3		3	80	0	20	3	0	0.6	
				CO4	Students will be able to relate the concepts of partial derivatives in partial differential equations, optimization		3	3		3	80	0	20	3	0	0.6	
				CO5	Students will be able to solve problems signal and system electrical networks, control systems using complex numbers	3		3		3	80	0	20	3	0	0.6	
2	1	Applied Physics - I	FEC102	CO1	Students will be able to identify different concepts related with crystallography, and x rays. (Remember)	2.875		2.875	3	3	40	40	20	2.95	0	0.59	0.38
				CO2	Students will be able to understand the Physics behind the working of semiconductor based devices and technology. (Understand)		2.25	2.25	3	3	40	40	20	2.7	0	0.54	
				CO3	Students will be able to illustrate basic concepts of Fundamentals of Quantum Mechanics in engineering					3	40	40	20	0.6	0	0.12	
				CO4	Students will be able to examine different methods to generate ultrasonic waves					3	40	40	20	0.6	0	0.12	
				CO5	Students will be able to evaluate various methods to design acoustically correct auditorium.		2.33333333	2.33333333	3	3	40	40	20	2.73333333	0	0.54666667	
				CO6	Student will be able to analyse the concepts related to superconductors.		3	3		3	40	40	20	1.8	0	0.36	
3	1	Applied Chemistry - I	FEC103	CO1	i) Calculate the types & percentage of impurities in water ii) Calculate various reagents required to soften hard water iii) Understand methods of purification of water as per the standards.	2.75		2.75	0	3	40	40	20	1.7	0	0.34	0.34
				CO2	Understand the chemistry of polymers along with their applications.		2.2	2.2	0	3	40	40	20	1.48	0	0.296	
				CO3	Understand mechanism of lubrication and its properties.	3		3	0	3	40	40	20	1.8	0	0.36	
				CO4	Understand thermodynamics of chemical processes.		3	3		3	80		20	3	0	0.6	
				CO5	Understand the process of manufacture of cement and Engineering materials.				0	3		80	20	0.6	0	0.12	
4	1	Engineering Mechanics	FEC104	CO1	Construct free body diagram and calculate the reactions for static equilibrium	3		3	3	3	40	40	20	3	0	0.6	0.5
				CO2	Determine the centroid of plane lamina	3		3	3	3	40	40	20	3	0	0.6	
				CO3	Calculate internal forces, moments and distributed loads in members	3		3	3	3	40	40	20	3	0	0.6	
				CO4	Evaluate velocity, acceleration, time, force and energy of the particle as well as rigid body		2.88888889	2.88888889	3	3	40	40	20	2.95555556	0	0.59111111	
				CO5	Locate instantaneous centre of rotation for rigid bodies having plane motion					3	40	40	20	0.6	0	0.12	
5	1	Basic Electrical Engineering	FEC105	CO1	To learn and analyse DC circuits through network theorems.	2.3		2.3	3	3	40	40	20	2.72	0	0.544	0.42
				CO2	To study and understand single phase AC circuits.		2	2	3	3	40	40	20	2.6	0	0.52	
				CO3	To study and analyse three phase AC circuits.		2.2	2.2	3	3	40	40	20	2.68	0	0.536	
				CO4	To study and understand single phase transformer.				3		40	40	20	1.2	0	0.24	
				CO5	To study electrical machines.				3		40	40	20	1.2	0	0.24	
6	1	Environmental studies	FEC106	CO1	Illustrate Depleting Nature of Environmental Resources, Global Environmental Crisis, Ecosystem concept	2.5		2.5			80	0	20	2	0	0.4	0.11
				CO2	Adapt to 3R (Reuse, Recovery, Recycle)	1.5		1.5			80	0	20	1.2	0	0.24	
				CO3	Study different control measures related to Environmental Pollution		0	0			80	0	20	0	0	0	
				CO4	Illustrate and analyse various Case Studies related to Environmental Legislation								20	0	0	0	
				CO5	Demonstrate the working of Renewable energy sources & Equipments		0	0			80	0	20	0	0	0	
				CO6	Illustrate the Techniques of Disaster Management and Green Building		0	0			80	0	20	0	0	0	
7	1	Basic Workshop Practice - I	FEL101	CO1	Develop Necessary skill required to handle fitting tools				3			100		3	0	3	3
				CO2	Able to identify basic networking components				3			100		3	0	3	
		Applied		CO1	Students will be able to formulate engineering problems such as Beta and Gamma functions and its properties. Differentiation under integral	2.5		2.5		3	80	0	20	2.6	0	0.52	
				CO2	sign with constant limits of integration.	2.8		2.8		2.85714286	80	0	20	2.81142857	0	0.56228571	

8	Applied Mathematics - II	FEC201	CO3	Students will be able to apply theory of Linear Differential Equation of first order and second order to develop algorithms for many engineering applications.					3	80	0	20	0.6	0	0.12	0.43		
			CO4	Students will be able to analyse Numerical solution of ordinary differential equations of first order and first degree.		2	2			3	80	0	20	2.2	0		0.44	
			CO5	Students will be able to relate the concepts of Multiple Integrals to Evaluation of double integrals by changing the order		2.5	2.5			3	80	0	20	2.6	0		0.52	
9	Applied Physics - II	FEC202	CO1	Students will be able to identify different concepts related with Interference and Diffraction.(Remember)														
			CO2	Students will be able to illustrate basic concepts of Laser.														
			CO3	Students will be able to understand the Physics behind the working of Fiber Optics (Understand)														
			CO4	Student will be able to analyse the concepts related to quantum mechanics														
			CO5	Students will be able to evaluate methods to measure ac, dc voltage, frequency measurement and working of CRO.														
			CO6	Students will be able to examine different methods to synthesise Nano materials.		2.5		2.5	3	0.8	40	40	20	2.36	0	0.472		
10	Applied Chemistry - II	FEC203	CO1	Calculate the quantity of air and oxygen required for the complete combustion of fuels and carry out analysis of fuels.		2.75	2.75	3	0.66666667	40	40	20	2.43333333	0	0.48666667	0.49		
			CO2	Understand the mechanisms of corrosion, methods of preventing corrosion.		2.5	2.5	3	0.33333333	40	40	20	2.26666667	0	0.45333333			
			CO3	Understand the properties and uses of various alloys.	3		3	3	0.66666667	40	40	20	2.53333333	0	0.50666667			
			CO4	Calculate atom economy by various methods of synthesis. Incorporate the knowledge of green synthesis of various chemicals				3	1		80	20	2.6	0	0.52			
			CO5	Understand the chemistry of composite materials.														
11	Engineering Drawing	FEC204	CO1	Understand the theory of projections, conventions and methods of projections.	3		3	3	3	40	40	20	3	0	0.6	0.6		
			CO2	Analysis of exact position of point/line/solid object by visualization (Analyse).	3		3	3	3	40	40	20	3	0	0.6			
			CO3	Apply concepts and logic to get solutions of the problem (Apply).	3		3	3	3	40	40	20	3	0	0.6			
			CO4	Judge the approximate views depends upon given conditions in the question (Evaluate).		2.88888889	2.88888889	3	3		40	40	20	2.95555556	0		0.59111111	
12	Structured Programming Approach	FEC205	CO1	To propose logical solution for given problem statement.					3	40	40	20	0.6	0	0.12	0.77		
			CO2	Understand concept of data types ,variables and operators in C .	2.25		2.25	3	3	40	40	20	2.7	0	0.54			
			CO3	Implement conditional statements and looping construct in C	1	2	1.5	3	3	40	40	20	2.4	0	0.48			
			CO4	Synthesize a complete program by decomposing a problem into function.		2.4	2.4	3	3	40	40	20	2.76	0	0.55			
			CO5	Demonstrate the use of arrays and strings in C language.		2	2	3	3	40	40	20	2.6	0	0.52			
			CO6	Explain the concepts of structures, files and pointers		3	3	3	3				0	3	2.4			
13	Communication Skills	FEC206	CO1	A graduate will be able to determine the fundamental concepts of effective communication and its application for personal excellence and in professional and social situations.	3	2.5	2.75		3	8000%	0	2000%	2.8	3	2.96	2.96		
			CO2	A graduate will be able to utilize the principles of effective business correspondence and the nuances of strategic letter writing for meeting various organizational needs.		3	3		3	8000%	0	2000%	3	3	3			
			CO3	A graduate will be able to demonstrate a command over the art of comprehension, summarization and word power for successful participation in placements and competitive exams.		3	3		3	8000%	0	2000%	3	3	3			
			CO4	A graduate will be able to formulate definitions, instructions, descriptions and explanations of technical writing.		3	3			8000%	0	2000%	2.4	3	2.88			
14	Basic Workshop Practice - II	FEL201	CO1	Develop Necessary skill required to handle Carpentry tools					3		100		3	0	3	3		
			CO2	Demonstrate the wiring practices for the connection of simple wiring load					3		100		3	0	3			
1	Applied Mathematics III		CO1	Students will able to solve initial and boundary value problems involving ordinary differential equation(Institute)	3.00		3.00		3.00	80.00		20.00	3.00	0.00	0.60	0.60		
			CO2	Students will be able to calculate both real and complex form of Fourier series for standard periodic waveform and Fourier Integrals(Institute)	3.00		3.00		3.00	80.00		20.00	3.00	0.00	0.60			
			CO3	Students will be able determine the derivative of a complex function, state and prove properties of derivatives. Derive Cauchy's Riemann equations and identifying whether a complex function is complex differentiable at a point(Institute)		3.00	3.00		3.00	80.00		20.00	3.00	0.00	0.60			

			CO4	Students will be able to solve the line integrals using Stoke's Theorem and Greens Theorem and surface integral using Gauss divergence Theorem(Institute)		3.00	3.00			3.00	80.00		20.00	3.00	0.00	0.60		
2	ANALOG AND DIGITAL CIRCUITS		CO1	Understand the concepts of various components to design stable analog circuits.		0.33	0.33	3.00	3.00	40.00	40.00	20.00	1.93	1.00	1.19	1.19		
			CO2	Represent numbers and perform arithmetic operations.		0.75		0.75	3.00	3.00	40.00	40.00	20.00	2.10	1.00	1.22		
			CO3	Minimize the Boolean expression using Boolean algebra and design it using logic gates		2.25		2.25	3.00		40.00	40.00	20.00	2.10	1.00	1.22		
			CO4	Analyze and design combinational circuit.		2.00		2.00	3.00	3.00	40.00	40.00	20.00	2.60	1.00	1.32		
			CO5	Design and develop sequential circuits			1.75	1.75	3.00		40.00	40.00	20.00	1.90	1.00	1.18		
			CO6	Translate real world problems into digital logic formulations using VHDL.			1.00	1.00		3.00	40.00	40.00	20.00	1.00	1.00	1.00		
3	Data Structures & Analysis	ITC303	CO1	Select appropriate data structures as applied to specified problem definition.		2.67		2.67	3.00	3.00				0.00	1.00	0.80		
			CO2	Learning different searching, insertion,deletion and traversing mechanism.		3.00		3.00		3.00					0.00	1.00	0.80	
			CO3	Understanding different Linear data structures.			3.00	3.00		3.00					0.00	1.00	0.80	
			CO4	Apply appropriate sorting/searching technique for given problem.		2.50		3.00	2.75	3.00	3.00				0.00	1.00	0.80	
			CO5	Implement different Non-Linear data structures like Trees and Graphs.			3.00	3.00	3.00	3.00					0.00	1.00	0.80	
			CO6	Determine and analyse the complexity of given Algorithms.						3.00					0.00	1.00	0.80	
4	Database Management System		CO1	Understand the fundamentals of a database systems		1.00		1.00	3.00	3.00	40.00	40.00	20.00	2.20	0.00	0.44		
			CO2	Design and draw ER and EER diagram for the real life problem		2.33		2.33	3.00	3.00	40.00	40.00	20.00	2.73	0.00	0.55		
			CO3	Convert conceptual model to relational model and formulate relational algebra queries		3.00	3.00	3.00	3.00	3.00	40.00	40.00	20.00	3.00	0.00	0.60		
			CO4	To enhance knowledge to advanced SQL topics like embedded SQL, procedures,connectivity through JDBC		3.00		3.00	3.00	3.00	40.00	40.00	20.00	3.00	0.00	0.60		
			CO5	Formulation and retrieval of data from database using SQL			2.67	2.67	3.00		40.00	40.00	20.00	2.27	0.00	0.45		
			CO6	To demonstrate the advanced concepts in DBMS like transaction management, concurrency control, recovery and indexing)			2.00	2.00	3.00	3.00	40.00	40.00	20.00	2.60	0.00	0.52		
5	Principles of Analog and Digital Communication	SEITC306	CO1	Students will be able to analyze Analog Communication System (Analyze)		2.60		2.60		3.00	40.00	40.00	20.00	1.64	0.00	0.33		
			CO2	Students will be able to evaluate the influence of noise in communication systems and prove the superiority of Frequency Modulation (Explain)		3.00		3.00		3.00	40.00	40.00	20.00	1.80	0.00	0.36		
			CO3	Students will be able to design AM & FM systems (Design)		2.00	2.33	2.17	3.00	3.00	40.00	40.00	20.00	2.67	0.00	0.53		
			CO4	Students will be able to analyze different pulse modulation techniques (Analyze)			2.00	2.00	3.00	3.00	40.00	40.00	20.00	2.60	0.00	0.52		
			CO5	Students will be able to understand digital modulation and multiplexing system (Understand)			2.50	2.50	3.00	3.00	40.00	40.00	20.00	2.80	0.00	0.56		
			CO6	Students will be able to describe various bandpass modulation schemes (Describe)			3.00	3.00	3.00	3.00	40.00	40.00	20.00	3.00	0.00	0.60		
6	Object Oriented Programming Methodology	SEITC303	CO1	Identify classes, objects, members of a class and relationships among them needed for a specific problem		3.00		3.00	3.00	3.00	40.00	40.00	20.00	3.00	2.00	2.20		
			CO2	Students will be able to write Java application programs using OOP principles		3.00		3.00		3.00	40.00	40.00	20.00	1.20	2.00	1.84		
			CO3	Students will be able to solve computational problems using basic constructs like if-else, control structures, array, strings.		3.00	3.00	3.00	3.00		40.00	40.00	20.00	2.40	2.00	2.08		
			CO4	Students will be able to apply concepts of Inheritance and for code resulability			3.00	3.00	3.00	3.00	40.00	40.00	20.00	3.00	2.00	2.20		
			CO5	The students will be able to demonstrate programs on Abstract classes, exceptions,			3.00	3.00	3.00		40.00	40.00	20.00	2.40	2.00	2.08		
			CO6	Students will be able to develop various GUI applications usings Swings and AWT					3.00	3.00	40.00	40.00	20.00	1.80	2.00	1.96		
7	Applied Mathematics-IV	ITC401	CO1	Students will able to calculate Eigen value and Eigen vector, and function of a square matrix, C		3.00		3.00		3.00	80.00		20.00	3.00	3.00	3.00		
			CO2	Student will be evaluate Complex integrals using Cauchy's Theorem and Cauchy's integral forr			3.00	3.00		3.00	80.00		20.00	3.00	3.00	3.00		
			CO3	Student will able to determine appropriate sample test and sample size for estimating unknow			3.00	3.00		3.00	80.00		20.00	3.00	3.00	3.00		
			CO4	Student will able to develop critical thinking and problem solving using Big-M Dualityyu, and D		3.00		3.00		3.00				0.00	3.00	2.40		
8	Computer Networks	ITC 402	CO1	Understand principles of LAN design such as topology and configuration depending on types of users accessing the network.		2.00		2.00	3.00	3.00	40.00	40.00	20.00	2.60	1.00	1.32		
			CO2	Describe various design performance issues like different type of network interfaces network components and choosing appropriate network type and media.		1.00		1.00		3.00	40.00	40.00	20.00	1.00	1.00	1.00		
			CO3	Ability to understand network industry standards such as: the OSI & TCP models, Routing Protocols, Address Resolution and Reverse Address Resolution Protocols, IP Addressing and Subnetting, MAC Addressing		2.20		2.20	3.00	3.00	40.00	40.00	20.00	2.68	1.00	1.34		
			CO4	Ability to work with network tools and analyze the performance			2.50	2.50	3.00	2.67	40.00	40.00	20.00	2.73	1.00	1.35		
			CO5	Ability to understand the working of network operating system.			2.00	2.00	3.00		40.00	40.00	20.00	2.00	1.00	1.20		
10	Computer Organization and Architecture	ITC404	CO1	Ability to understand basic organization of computer		3.00		3.00		3.00	40.00		20.00	1.80	2.00	1.96		
			CO2	Ability to apply computer arithmetic operations on integer and real numbers.		2.38		2.38	2.60	3.00	40.00	40.00	20.00	2.59	2.00	2.12		
			CO3	Ability to understand processor organization and compare performance of control unit operations .			3.00	3.00		3.00	40.00		20.00	1.80	2.00	1.96		
			CO4	Ability to understand memory organization of computer .			3.00	3.00	2.50	3.00	40.00	40.00	20.00	2.80	2.00	2.16		
			CO5	Ability to compare various I/O mechanisms in computer.			3.00	3.00		3.00	40.00		20.00	1.80	2.00	1.96		

			CO6	Ability to analyze the performance of parallel computing systems		3.00	3.00		3.00	40.00		20.00	1.80	2.00	1.96		
11	Automata Theory	SEITC404	CO1	To learn fundamentals of Regular and Context Free Grammars and Languages	3.00	3.00	3.00	3.00	80.00		20.00	3.00	1.00	1.40	1.33		
			CO2	To understand the relation between Regular Language and Finite Automata and machines.	1.86	1.75	1.80	3.00	80.00		20.00	2.04	1.00	1.21			
			CO3	To design Automata's and machines as Acceptors, Verifiers and Translators.	3.00		3.00	3.00	80.00		20.00	3.00	1.00	1.40			
			CO4	To understand the relation between Contexts free Languages, PDA and TM.		2.50	2.50	3.00	80.00		20.00	2.60	1.00	1.32			
			CO5	To design PDA as acceptor and TM as Calculators.		2.00	2.00	3.00	80.00		20.00	2.20	1.00	1.24			
			CO6	To learn how to co-relate Automata's with Programs and Functions.		3.00	3.00	3.00	80.00		20.00	3.00	1.00	1.40			
13	WEB PROGRAMMING		CO1	Student will be able to learn basics of web application development.	2.33		2.33	3.00	3.00	40.00	40.00	20.00	2.73	3.00	2.95	2.95	
			CO2	Student will be able to learn various client side and server side web application technologies.	2.50	2.40	2.45	3.00	3.00	40.00	40.00	20.00	2.78	3.00	2.96		
			CO3	Student will be able to create the web application using technologies learned.	2.67	2.50	2.58	3.00	3.00	40.00	40.00	20.00	2.83	3.00	2.97		
			CO4	Student will be able to create database connectivity with various server side technologies.		2.00	2.00	3.00	3.00	40.00	40.00	20.00	2.60	3.00	2.92		
14	ITC		CO1	Ability of students to understand true meaning of Information and Entropy	2.71		2.71	3.00		60.00	40.00		2.83	0.00	0.57	0.57	
			CO2	Ability of students to understand and apply compression technique in communication	3.00	3.00	3.00	3.00		60.00	40.00		3.00	0.00	0.60		
			CO3	Ability of students to understand and apply error correction techniques in communication	2.00	3.00	2.50	3.00		60.00	40.00		2.70	0.00	0.54		
			CO4	Ability of student to understand how unique code is generated using Number Theory concepts		3.00	3.00	3.00		60.00	40.00		3.00	0.00	0.60		
			CO5	Ability of student to understand how to implement secure communication		2.33	2.33	3.00		60.00	40.00		2.60	0.00	0.52		
15	Computer Graphics and Virtual Reality	TEITC501	CO1	Understood basic concepts of computer graphics.	3.00		3.00		3.00	40.00		20.00	1.80	2.00	1.96	2.14	
			CO2	Choose appropriate algorithm for line drawing, line clipping, polygon clipping and polygon fill.	3.00	3.00	3.00	3.00	3.00	40.00	40.00	20.00	3.00	2.00	2.20		
			CO3	Solve 2D and 3D Transformation problems.		3.00	3.00	3.00	3.00	40.00	40.00	20.00	3.00	2.00	2.20		
			CO4	To design and implement an application with the principles of virtual reality		3.00	3.00	3.00	3.00	40.00	40.00	20.00	3.00	2.00	2.20		
	OPERATING SYSTEM	TEITC502	CO1	Students will be able to describe the main objectives and functions of operating system.	3.00		3.00	3.00	3.00	40.00	40.00	20.00	3.00	3.00	3.00	3.00	
			CO2	Students will be able to determine the organization of PC components and various approaches		3.00	3.00	3.00	3.00	40.00	40.00	20.00	3.00	3.00	3.00		
			CO3	Students will be able to examine how the operating system is responsible for managing the	3.00		3.00	3.00	3.00	40.00	40.00	20.00	3.00	3.00	3.00		
			CO4	Students will be able to analyze the performance of various memory management policies.		3.00	3.00	3.00	3.00	40.00	40.00	20.00	3.00	3.00	3.00		
13	MICROCONTROLLER AND EMBEDDED SYSTEMS	ITC 505	CO1	Students will be able to learn the concepts and architecture of embedded systems	2.00		2.00		3.00	40.00		20.00	1.40	1.00	1.08	1.18	
			CO2	Students will be able to understand the basics of microcontroller 8051.	2.00		2.00	3.00	3.00	40.00	40.00	20.00	2.60	1.00	1.32		
			CO3	Students will be able to apply the concepts of microcontroller programming		3.00	3.00	3.00	3.00	40.00		20.00	1.80	1.00	1.16		
			CO4	Students will be able to learn the concepts of ARM7 architecture.		2.67	2.67	3.00	3.00	40.00		20.00	1.67	1.00	1.13		
			CO5	Students will be able to analyse various real-time operating system		3.00	3.00	3.00	3.00	40.00		20.00	1.80	1.00	1.16		
			CO6	Students will be able to learn different design platforms used for an embedded systems		1.00	1.00	3.00	3.00	40.00	40.00	20.00	2.20	1.00	1.24		
15	5	ADBMS	ITC504	CO1	On the completion of the course, students will be able to design and develop real time	1.50	0.00	0.75	3.00		40.00	40.00	20.00	1.50	1.00	1.10	1.17
				CO2	On the completion of the course, students will be able to design advanced data systems using	2.00		2.00	3.00		40.00	40.00	20.00	2.00	1.00	1.20	
				CO3	Clearly understand how databases are actually stored and accessed, how transaction ACID	0.67	1.00	0.83	3.00		40.00	40.00	20.00	1.53	1.00	1.11	
				CO4	On the completion of the course, students will be able to apply security controls to avoid any		1.00	1.00	3.00	3.00	40.00	40.00	20.00	2.20	1.00	1.24	
				CO5	Understand the importance of enterprise data and be able to organize data to perform analysis		0.50	0.50	3.00	3.00	40.00	40.00	20.00	2.00	1.00	1.20	
				CO6	Understand the importance of enterprise data and be able to organize data to perform analysis		0.33	0.33	3.00	3.00	40.00	40.00	20.00	1.93	1.00	1.19	
16	BUSINESS COMMUNICATION AND ETHICS	TEITC506	CO1	Design a technical document using precise language, suitable vocabulary and apt style.					3.00		20.00	80.00	2.40	0.00	2.40	2.52	
			CO2	Develop the 'me-skills' interpersonal skills to progress professionally by building stronger					3.00		20.00	80.00	2.40	0.00	2.40		
			CO3	Demonstrate awareness of contemporary issues knowledge of professional and ethical					3.00		20.00	80.00	2.40	0.00	2.40		
			CO4	Apply the traits of a suitable candidate for a job/higher education, upon being trained in the techniques of holding a group discussion, facing interviews and writing resume/SOP.					3.00		20.00	80.00	2.40	0.00	2.40		
			CO5	Deliver formal presentations effectively implementing the verbal and non-verbal skills.				3.00	3.00		20.00	80.00	3.00	0.00	3.00		
17	OST	TEITC505	CO1	Understand the fundamental concepts of open-source operating system Linux	0.75		0.75		2.50	40.00	40.00	20.00	0.80	0.00	0.16	0.29	
			CO2	Learn and execute the basic set of commands and editors in Linux operating system.	0.25		0.25	2.50		40.00	40.00	20.00	1.10	0.00	0.22		
			CO3	Implement user and system administration in Linux	0.75		0.75	3.00	2.50	40.00	40.00	20.00	2.00	0.00	0.40		
			CO4	Use the features of the Linux Server Applications.		0.50	0.50	2.80	2.50	40.00	40.00	20.00	1.82	0.00	0.36		
			CO5	Write, test and debug the shell scripts to perform various tasks using conditional constructs, wildcards and functions.		0.25	0.25	2.00	3.00	40.00	40.00	20.00	1.50	0.00	0.30		
			CO6	Describe Android platform, architecture and features.		0.50	0.50	2.00	3.00	40.00	40.00	20.00	1.60	0.00	0.32		
Software			CO1	Define various software application domains and remember different process model used in software development	2.10		2.10			40.00	40.00	20.00	0.84	0.00	0.17	0.46	
			CO2	Explain needs for software specifications also they can classify different types of software requirements and their gathering techniques.	3.00		3.00	3.00		40.00	40.00	20.00	2.40	0.00	0.48		
			CO3	Convert the requirements model into the design model and demonstrate use of software and user-interface design principles.		1.00	1.00	3.00	3.00	40.00	40.00	20.00	2.20	0.00	0.44		

22	6	Software Engineering	ITC601	CO4	Distinguish among SCM and SQA and can classify different testing strategies and tactics and compare them			3.00	3.00	3.00			40.00	40.00	20.00	2.40	0.00	0.48	
				CO5	Justify role of SDLC in Software Project Development and they can evaluate importance of Software Engineering in PLC			3.00	3.00	3.00	3.00		40.00	40.00	20.00	3.00	0.00	0.60	
				CO6	Generate project schedule and can construct, design and develop network diagram for different type of Projects. They can also organize different activities of project as per Risk impact factor.			3.00	3.00	3.00	3.00		40.00	40.00	20.00	3.00	0.00	0.60	
23	6	Distributed Systems	TEITC602	CO1	Student will gains clear understanding of fundamental principles of Distributed Systems	2.14			2.14	3.00	3.00		40.00	40.00	20.00	2.66	0.00	0.53	
				CO2	Student will understand the message communication, remote procedure call and remote file sharing, RPC and RMI with communication.	1.60			1.60	3.00	3.00		40.00	40.00	20.00	2.44	0.00	0.49	
				CO3	Student will understand importance of consistency and replication in Distributed Operation		1.00			1.00	3.00	3.00		40.00	40.00	20.00	2.20	0.00	0.44
				CO4	Students are emphasized on developing applications using current distributed computing		2.25			2.25	3.00	3.00		40.00	40.00	20.00	1.50	0.00	0.30
				CO5	Students will able to develop design distributed system/applications for an enterprise using		1.00			1.00	3.00	0.50		40.00	40.00	20.00	1.70	0.00	0.34
				CO6	Student will able to explain design and implementation of key mechanisms, Clock synchronization, Deadlock, Mutual Exclusion, Message Communication, Resource		2.33			2.33	3.00	1.50		40.00	40.00	20.00	2.43	0.00	0.49
24	6	System and Web Security	TEITC603	CO1	Understand the key concepts and goals of security	2.00			2.00	3.00	2.00		40.00	40.00	20.00	2.40	3.00	2.88	
				CO2	Explain the basic idea behind access control and compare the various access control policies and models.	2.40			2.40	3.00	1.00		40.00	40.00	20.00	2.36	3.00	2.87	
				CO3	Explain the need for security protocols and use them on Internet-based applications;	2.00			2.00	3.00	3.00		40.00	40.00	20.00	2.60	3.00	2.92	
				CO4	Build firewalls and intrusion detection systems and demonstrate their working.		3.00			3.00	3.00	3.00		40.00	40.00	20.00	3.00	3.00	3.00
				CO5	Explain malicious software and typical software solutions used in dealing with viruses and worms;		3.00			3.00	3.00	3.00		40.00	40.00	20.00	3.00	3.00	3.00
				CO6	Understand and explain various issues related to program security and web security		3.00			3.00	3.00	3.00		40.00	40.00	20.00	1.80	3.00	2.76
25	6	DATA MINING AND BUSINESS INTELLIGENCE	ITC604	CO1	Demonstrate an understanding of the importance of data mining and the principles of business intelligence	3.00			3.00	3.00	3.00		40.00	40.00	20.00	3.00	3.00	3.00	
				CO2	Organize and Prepare the data needed for data mining using pre pre-processing techniques and perform exploratory analysis on it	2.29			2.29	3.00	3.00		40.00	40.00	20.00	2.71	3.00	2.94	
				CO3	Design and Implement the appropriate classification data mining techniques and apply metrics of measures on it	3.00	2.75	2.88	3.00	3.00		40.00	40.00	20.00	2.95	3.00	2.99		
				CO4	Apply the appropriate clustering data mining techniques and perform outlier analysis	2.00	2.00	2.00	3.00	3.00		40.00	40.00	20.00	2.60	3.00	2.92		
				CO5	Implement the appropriate Association mining data mining techniques		1.33	1.33	3.00	3.00		40.00	40.00	20.00	2.33	3.00	2.87		
26	6	ADVANCED INTERNET TECHNOLOGY	TEITT605	CO1	Student is able to develop Keyword Generation, Using Google Analytics etc.	3.00			3.00	3.00	3.00		40.00	40.00	20.00	3.00	0.00	0.60	
				CO2	Student is able to apply Responsive Web Design.		3.00	3.00	1.00	3.00		40.00	40.00	20.00	2.20	0.00	0.44		
				CO3	Student is able to elaborate Amazon/Google or yahoo mashup.		3.00	3.00	2.00	3.00		40.00	40.00	20.00	2.60	0.00	0.52		
				CO4	Student is able to understand concepts in SEO.	3.00			3.00	2.00	3.00		40.00	40.00	20.00	2.60	0.00	0.52	
				CO5	Student is able to design RIA using various technologies using JavaScript, REST/WS, etc.		3.00	3.00	3.00	3.00		40.00	40.00	20.00	3.00	0.00	0.60		
				CO6	Student is able to demonstrate advanced topics of HTML5, CSS3.		2.80	2.80	2.75	3.00		40.00	40.00	20.00	2.82	0.00	0.56		
28	6	SOFTWARE PROJECT MANAGEMENT	BEITC701	CO1	student will be able to recall the reasons for Software Project failures. Remember	3.00			3.00	3.00	1.00		40.00	40.00	20.00	2.60	2.00	2.12	
				CO2	Students will be able to initiate new software project. Apply	3.00	3.00	3.00	3.00	3.00		40.00	40.00	20.00	3.00	2.00	2.20		
				CO3	Students will be able to develop work break down structure. Analyze	3.00	3.00	3.00	3.00			40.00	40.00	20.00	2.40	2.00	2.08		
				CO4	Students will be able to produce software project management Plan. Create		3.00	3.00	3.00			40.00	40.00	20.00	2.40	2.00	2.08		
				CO5	Students will be able to Prepare project Estimate		3.00	3.00	3.00			40.00	40.00	20.00	2.40	2.00	2.08		
				CO6	Students will be able to identify need of project		3.00	3.00	3.00			40.00	40.00	20.00	2.40	2.00	2.08		
29	6	Cloud Computing	ITC702	CO1	Students should be able to define Cloud Computing and memorize the different Cloud service and deployment models	2.00	3.00	2.50	3.00	3.00		40.00	40.00	20.00	2.80	2.00	2.16	2.03	
				CO2	Students should be able to describe importance of virtualization along with their technologies.	2.25	3.00	2.63	3.00	2.00		40.00	40.00	20.00	2.65	2.00	2.13		
				CO3	Students should be able to use different cloud computing and mobile computing services	3.00	3.00	3.00		2.00		40.00	40.00	20.00	1.60	2.00	1.92		
				CO4	Students should be able to analyze the components of open stack & Google Cloud platform	3.00	3.00	3.00	3.00			40.00	40.00	20.00	2.40	2.00	2.08		
				CO5	Students should be able to describe components of Amazon web Services and the Architecture	1.00	2.00	1.50	3.00			40.00	40.00	20.00	1.80	2.00	1.96		

				CO6	Students should be able to Design & develop backup strategies for cloud with security protection	3.00	2.00	2.50		3.00	40.00	40.00	20.00	1.60	2.00	1.92	
30	Intelligence System	ITC703	CO1	Students will develop a basic understanding of the building blocks of AI as presented in terms of its components.	2.25		2.25	3.00	3.00	40.00	40.00	20.00	2.70	2.00	2.14	2.09	
			CO2	Students will be able to examine and choose an appropriate problem-solving method and justify the choice.	1.83	3.00	2.42	2.00	3.00	40.00	40.00	20.00	2.37	2.00	2.07		
			CO3	Student will able to understand and design solution for games	0.50		0.50	3.00	3.00	40.00	40.00	20.00	2.00	2.00	2.00		
			CO4	Students will develop an ability to plan and formalize the problem		1.33	1.33	3.00	3.00	40.00	40.00	20.00	2.33	2.00	2.07		
			CO5	Student will able to understand importance of uncertainty in AI		3.00	3.00	2.00	3.00	40.00	40.00	20.00	2.60	2.00	2.12		
			CO6	Students will be able to develop/demonstrate/ build simple intelligent systems or classical toy		2.50	2.50	3.00	3.00	40.00	40.00	20.00	2.80	2.00	2.16		
31	WIRELESS TECHNOLOGY	ITL701	CO1	Describe the new trends and characteristics of mobile/wireless communications networks	2.67		2.67	3.00	3.00	40.00	40.00	20.00	2.87	3.00	2.97	2.89	
			CO2	Explain the multiple radio access techniques and multiuser detection techniques	0.50		0.50	3.00		40.00	40.00	20.00	1.40	3.00	2.68		
			CO3	Understand various wireless networks and their technologies	1.00		1.00	3.00	2.50	40.00	40.00	20.00	2.10	3.00	2.82		
			CO4	Understand the multiuser detection techniques		2.67	2.67	3.00	3.00	40.00	40.00	20.00	2.87	3.00	2.97		
			CO5	Simulate methods for real world problems in implementing wireless solution		3.00	3.00	3.00	3.00	40.00	40.00	20.00	3.00	3.00	3.00		
			CO6	Understand need of securities and economies in wireless systems		3.00	3.00	3.00		40.00	40.00	20.00	2.40	3.00	2.88		
32	E-COMMERCE AND -BUSINESS	BEITC7053	CO1	Students will be able to analyse and interpret the technological, user, network requirements	3		3	2	3	40	40	20	2.60	2	2.12	2.14	
			CO2	Students will be able to apply the knowledge gained and modern engineering tools in their projects.	3		3	2	3	40	40	20	2.60	2	2.12		
			CO3	Students will be able to Identify the e-business model		3	3	3	3	40	40	20	3.00	2	2.20		
			CO4	Students will be able to compare e-payment and e-marketing along with promotional strategies.		2.8	2.8	3	3	40	40	20	2.92	2	2.18		
			CO5	Students will be able to understand navigation flow, information flow to develop e-commerce web business website.		3	3	1.5	3	40	40	20	2.40	2	2.08		
			CO6	Students will able to learn the various E-business strategies		3	3	2.5	3	40	40	20	2.80	2	2.16		
33	Image Processing	BEITC7051	CO1	To understand the fundamental concepts of a digital image processing system	3.00		3.00	3.00		40.00	40.00		2.40	3.00	2.88	2.79	
			CO2	To understand and apply the concepts of image enhancement Techniques	3.00		3.00	3.00	3.00	40.00	40.00	20.00	3.00	3.00	3.00		
			CO3	To understand and apply various image Transforms	3.00	3.00	3.00	3.00		40.00	40.00		2.40	3.00	2.88		
			CO4	To analyse and compare various compression techniques in Image Processing.		2.75	2.75	3.00		40.00	40.00		2.30	3.00	2.86		
			CO5	To apply various segmentation and object description techniques		2.71	2.71			40.00			1.09	3.00	2.62		
			CO6	To study Color Models and various applications of image processing					3.00			20.00	0.60	3.00	2.52		
36	SNMR	BEITC801	CO1	to understand logical and physical components of a storage infrastructure and identify	3.00		3.00	3.00	3.00	40.00	40.00	20.00	3.00	3.00	3.00	2.98	
			CO2	to evaluate storage architectures, including storage subsystems, san, nas, and ip-san, also define backup strategies.	3.00	3.00	3.00	3.00	3.00	40.00	40.00	20.00	3.00	3.00	3.00		
			CO3	to examine emerging technologies including IP-SAN	3.00	3.00	3.00	3.00	3.00	40.00	40.00	20.00	3.00	3.00	3.00		
			CO4	to define information retrieval in storage network and identify different storage virtualization technologies.		3.00	3.00	3.00	3.00	40.00	40.00	20.00	3.00	3.00	3.00		
			CO5	to understand the backup and recovery techniques		3.00	3.00	3.00	3.00	40.00	40.00	20.00	3.00	3.00	3.00		
			CO6	to understand algorithms of information retrieval in storage network		3.00	3.00	3.00		40.00	40.00	20.00	2.40	3.00	2.88		
37	BIG DATA ANALYTICS	ITC801	CO1	student will be able to explain the motivation for big data systems and identify the main	3.00		3.00	3.00	3.00	40.00	40.00	20.00	3.00	3.00	3.00	2.88	
			CO2	Demonstrate an ability to use frameworks like Hadoop, HSQLC to efficiently store retrieve and process Big Data for Analytics.	2.00		2.00	3.00	3.00	40.00	40.00	20.00	2.60	3.00	2.92		
			CO3	Implement several Data Intensive tasks using the Map Reduce Paradigm	1.00		1.00	3.00	3.00	40.00	40.00	20.00	2.20	3.00	2.84		
			CO4	Apply several newer algorithms for Clustering, Classifying and finding associations in Big Data	2.25	2.60	2.43		3.00	40.00	40.00	20.00	1.57	3.00	2.71		
			CO5	Apply algorithms to analyze Big data like streams, Web Graphs and Social Media data.		2.33	2.33	3.00	3.00	40.00	40.00	20.00	2.73	3.00	2.95		
			CO6	Design and implement successful Recommendation engines for enterprises.		3.00	3.00	3.00		40.00	40.00	20.00	2.40	3.00	2.88		
38	Computer Simulation and Modeling	BEITC803	CO1	Students will be able to understand the meaning of simulation and its importance in business, science, engineering, industry and services.	3.00		3.00	3.00	3.00	40.00	40.00	20.00	3.00	2.00	2.20	2.08	
			CO2	Students will be able to identify the common applications of discrete-event system simulation.	3.00	3.00	3.00	2.00	3.00	40.00	40.00	20.00	2.60	2.00	2.12		
			CO3	Students will be able to analyze events and inter-arrival time, arrival process, queuing strategies, resources and disposal of entities.		3.00	3.00	2.14	3.00	40.00	40.00	20.00	2.66	2.00	2.13		
			CO4	Students will be able to define random variate generators for finite random variables .	3.00	3.00	3.00		3.00	40.00		20.00	1.80	2.00	1.96		
			CO5	Students will be able to analyze and fit the collected data to different distributions.		3.00	3.00	2.00	3.00	40.00	40.00	20.00	2.60	2.00	2.12		
			CO6	Students will be able to perform simulation using spreadsheets as well as simulation language/packages.	3.00		3.00		3.00	40.00		20.00	1.80	2.00			
39	Soft Computing	BEITC8045	CO1	Learn about soft computing techniques and their applications.	3.00		3.00	3.00	3.00	40.00	40.00	20.00	3.00	3.00	3.00	2.92	
			CO2	Analyze various neural network architectures.	2.30		2.30	3.00	3.00	40.00	40.00	20.00	2.72	3.00	2.94		
			CO3	Define the fuzzy systems and analyze the working of controllers.		2.88	2.88	3.00	3.00	40.00	40.00	20.00	2.95	3.00	2.99		
			CO4	Demonstrate the efficiency of neuro-fuzzy hybrid system.		3.00	3.00		3.00	40.00	40.00	20.00	1.80	3.00	2.76		
			CO5	Examine the genetic algorithms and their applications.		3.00	3.00	3.00	1.00	40.00	40.00	20.00	2.60	3.00	2.92		
			CO1	Identify the reasons for bugs and analyse the principles in software testing to prevent and	2.50		2.50	3.00	3.00	40.00	40.00	20.00	2.80	2.00	2.16	2.17	
			CO2	Implement various test processes for quality improvement	3.00	2.67	2.83	3.00	2.50	40.00	40.00	20.00	2.83	2.00			

40	8	STQA	BEITC8046	CO3	Apply the software testing techniques in commercial environments	3.00	3.00	3.00	3.00	2.00	40.00	40.00	20.00	2.80	2.00	2.16	2.18
				CO4	Provides practical knowledge of a variety of ways to test software and an understanding of		3.00	3.00	3.00	3.00	40.00	40.00	20.00	3.00	2.00	2.20	
				CO5	Familiar with the open source testing tools.		3.00	3.00	3.00	3.00	40.00	40.00	20.00	3.00	2.00	2.20	
				CO6	The students will be able to discuss different software quality models to understand different		3.00	3.00	3.00	3.00	40.00	40.00	20.00	3.00	2.00	2.20	

