VR19 COURSE OUTCOMES

	PARTIN A TO	TMENT OF ELECTE	ONICS	NFORMATION TECHNOLOGY (A) S AND COMMUNICATION ENGINEERING
	DEPAR	TMENT OF ELECTE	ONICS	URSE OUTCOMES
NO	COURSE CODE	Course Name	2001	Course Outcomes (COs):Upon completion of the course student will be able to
1	2070191100	Digital System Design	C101.2	Understand the basic concepts of a Karnaugh Map ("K-map") for a 2-, 3-, 4-, or 5- Perform the minimization of PLA using IISc algorithm and folding using Design a digital circuit by steps involving ASM chart and understand the digital Rectify a single fault and multiple faults in combinational circuits using Path
2	2070191101	Digital Data Communication	C102.1	Model digital communication system using appropriate mathematical techniques Understanding the basic concepts of how digital data is transferred across Understand and explain Data Communications System and its components and Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of
3	2070191150	Transform Techniques	C103.1 C103.2 C103.3 C103.4	learn basics of two-dimensional transforms. Understand the definition, properties and applications of various two-dimensional Understandthebasicconceptsofwavelettransform. Understandthespecialtopicssuchaswaveletpackets,Bi-orthogonalwaveletse.t.c.
4	2070191151	VLSI Technology and Design	C104.1 C104.2 C104.3 C104.4	ReviewofFET fundamentalsforVLSIdesign. Toacquiresknowledgeaboutstickdiagramsandlayouts. EnabletodesignthesubsystemsbasedonVLSIconcepts Analyse the floor planning methods
5	2070191152	Radar Signal Processing	C105.1	UnderstandtheoperationofRadarandcharacteristicsofMatchedfilter fornon-
6	2070191153	Statistical Signal Processing	C106.1 C106.2 C106.3 C106.4	Generalize the properties of statistical models in the analysis of signals using Stochastic processes. Differentiate the prominence of various spectral estimation techniques for Outline various parametric estimation methods to accomplish the signal modeling Design and development of optimum filters using classical and adaptive
7	2070191154	Optical Communication Technology	C107.1 C107.2 C107.3 C107.4	Abletoanalyzecharacteristicsofopticalfiber Know the commonly used components and subsystems in optical communication and network systems .Working principle of optical communication components Analyze Transmission system model Understand the importance of wavelength division multiplexing (WDM) and de-
8	2070191155	Network Security & Cryptography	C108.1 C108.2 C108.3 C108.4	Identify and utilize different forms of cryptography techniques. Incorporate authentication and security in the network applications. Distinguish among different types of threats to the system and handle the same. Analyze and design hash and MAC algorithms, and digital signatures.
9	2070191110	System Design Using VHDL Lab	C119.3 C119.4	Identify, formulate, solve and implement problems in signal processing, Use EDA tools like Cadence, Mentor Graphics and Xilinx. Design different digital circuits and simulate using Xilinx Apply verilog programming tools to implement different applications.
10	2070191111	Data Communications Lab	C110.1 C110.2 C110.3 C110.4	Differentiate wired and wireless computer networks Analyse TCP/IP and their protocols.
11	2000191100	Research Methodology and IPR	C111.3 C111.4	Understand that today's world is controlled by Computer, Information UnderstandingthatwhenIPRwouldtakesuchimportantplaceingrowthofindividuals nation, it is needless to emphasis the need of information about Intellectual Understand that IPR protection provides an incentive to inventors for further
12	2 2000191130	Soft Skills (Audit course 1)	C112.1 C112.2 C112.3 C112.4	prepare project title. prepare a project report. Identify gaps in literature. Improve writing and presentation skills of the project.
1:	3 2070191200	Image and video processing	C112.	 Understand and analyze the image enhancement and image degradation, image Understand and analyze the detection of point, line and edges in images, edge linking and various segmentation techniques and the redundancy in images. Describe the video technology from analog color TV systems to digital video systems, how video signal is sampled and filtering operations in video process
1	4 2070191201	Wireless Communications and Networks	C114. C114. C114.	Studythemobileradiopropagation Studythewireless networkdifferent typeof MAC protocols

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Design Ci153 Use EDA tools like Collects, Menter Cinphics and other open source software Ci164 Design Analog and digital criterius sting CMOS			L-	C115.1	Analyze, design, optimize and simulate analog and digital circuits using CMOS
Advanced Computer	15	2070101250			Connect the individual gates to form the building blocks of asystem.
Advanced Computer Architecture	13	20/0191230	Design	C115.3	Use EDA tools like Cadence, Mentor Graphics and other open source software
Advanced Computing Architecture C117.1 2070191252 Soft Computing Techniques C117.1 2070191253 Soft Computing Techniques C117.3 C	- 1				Design Analog and digital circuits using CMOS
Architecture			_		Understand parallelism and pipelining concepts, the design aspects and chancinges
C116.4 Interpret the different architecture models Understand the basic concepts of Artificial neural network systems as well as understand the McCultoch-Pits neuron model, simple and multi-hype Perception Datas processing, Hopfield and self-organizing network and difference between crisp sets to fuzzy sets, fuzzy models, fuzzification, inference between crisp sets to fuzzy sets, fuzzy models, fuzzification, alterates, identification and company and an estimate of Central Agolithms teps. Tablu, and become processing (17.1 and politications) of processing the properties of the processing of the processing to processing to processing to processing the problem; the processing to processin	1,	2020101251		C116.2	Evaluate the issues in vector and array processors.
Understand the basic concepts of Antificial neural network systems as well as a children of the processing of the processing t	10	20/0191251	Architecture		Study and analyze the high performance scalable multithreaded and multiprocessor
2070191252 Soft Computing Techniques C117.3 Understand the McCulloch-Pitus neuron model, simple and multilayer Perception. Data processing, Hopfield and self-organizing network and participant percentage in the processing in the processing in processing in the processing				C116.4	Interpret the different architecture models
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2070191253 Soft Computing Techniques CIT12 Crisp sets to fuzzy sets, fuzzy models, fuzzification, inference, membership (CIT13 Understand the concept of Geneir Algorithms sepen. Those, and 2-oclony search (CIT13 CIT14	l			C117.1	understand the McCulloch-Pitts neuron model, simple and multilayer Perception.
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Cilia Cili	1		l F		GA applications to power system optimization problems, identification and control
Cyber Security Cyber Security Cilia. Conduct a cyber security needs of an organization. Cilia. Cilia. Conduct a cyber security in eccles of an organization. Cilia. Cilia. Cilia. Conduct a cyber security in conduction Cilia. Ci	l		1 1	C117.4	of linear and nonlinear dynamic systems using MATLAB-Neural network toolbox
2070191253 Cyber Security Cills.2 Conduct a cyber security risk assessment. Cills.3 Cills.4 Cills.3 Cills.4 Cills.5 Cills.4 Cills.5					Analyze and evaluate the cyber security needs of an organization.
2070191254 Cyber Security Cilisa Measure the performance and troubleshoot cyber security systems. Cilisa Cil	- 1		1 1		Conduct a cyber security risk assessment.
C119.4 Understand the architectures of Digital Signal Processing (DSP) and transforms.	18	2070191253	Cyber Security		Measure the performance and troubleshoot cyber security systems.
19 2070191254 DSP Processors and Architectures 20 2070191255 EMI/EMC 2070191255 EMI/EMC 2070191256 EMI/EMC 2070191256 EMI/EMC 2070191256 EMI/EMC 2070191256 Processors and Interfacing various devices to DSP Processors and Black fin Processor and interfacing various devices to DSP Processors as well as able to write simple. Understand the electromagnetic environment the definitions of EM1 and interfacing various devices to DSP Processors as well as able to write simple. Understand the electromagnetic environment the definitions of EM1 and interfacing various devices to DSP Processors as well as able to write simple. Understand the electromagnetic environment the definitions of EM1 and interfacing end their effects, the charge accumulation and Understand the methods to measure RE and RS in the open accumulation and Understand the methods to measure RE and RS in the open accumulation and Understand the methods to measure RE and RS in the open accumulation and PM on to take the statement of a business problem and procedures using anechoic C119.3 Understand the methods to measure RE and RS in the open accumulation and PM on to take the statement of a business problem and procedures using anechoic C119.3 Understand the statement of a business problem and procedures using an echoic C119.3 Understand and business problem and from this determine suitable logic or solving the problem; then be able to proceed in code that logic as a logic or solving the problem; then be able to proceed in code that logic as a logic or solving the problem; then be able to proceed in code that logic as a logic or solving the problem; then be able to proceed in code that logic as a logic or solving the problem; then be able to proceed in code that logic as a logic or solving the problem; then be able to proceed in code that logic as a logic or solving the problem; then be able to proceed in code that logic as a logic or solving the problem; then be able to proceed in code that logic as a logic or solving the problem; then be able	ì				Implement cyber security solutions.
20 2070191254 DSP Processors and Architectures C119.2 Distinguish between the architectural features of General purpose processors and Architectures C119.4 Understand the architectures of ADSP 2100 DSP devices and Black fin Processing C119.4 Understand the architectures of ADSP 2100 DSP devices and Black fin Processing C119.4 Understand the electromagnetic environment the definitions of EMI and EMC, history of EMI some examples of practical experiences due to EMI such Understand the celestral detectromagnetic noise the occurrence of Understand the enclosts to measure RE and RS in the open are test sites C119.4 Understand the measurement facilities and procedures using anechoic to the programming devices on the programming of the programming of the propagation of the propagat			1		Understand the basics concepts of Digital Signal Processing (DSP) and transforms.
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29 2070192160 MOOCs 2 C119.2 Devetop nign quarry reaming using mutumedia piantom	1	Į.			1 Connect openly on a ground scare, with ground scarners and instructors
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1 49 1	2010132100	MICOCS-2	C119.3	Self assesment of their performance and learning process.
			C119.4	Adapt a life long learning culture and updating the knowledge according with emerging
			C119.1	Apply knowledge of Electronics and communication engineering fundamentals to solve
33	2070192170	Dissertation Phase -I	C119.2	Design prototypes and solutions to solve the specific needs related with public health, safety, society and environment leading to sustainable development following ethical
} !			C119.3	Adapt appropriate techniques, resources and modern engineering tools during the
			C119.4	Develop a multidisciplinary project leading to the ability of engagement in lifelong
			C119.1	Apply knowledge of Electronics and communication engineering fundamentals to solve
1				Design prototypes and solutions to solve the specific needs related with public health.
34	2070192270	Dissertation Phase -II	C119.2	safety, society and environment leading to sustainable development following ethical
			C119.3	Adapt appropriate techniques, resources and modern engineering tools during the
			C119.4	Develop a multidisciplinary project leading to the ability of engagement in lifelong



	E	INTERIOR OF F	OF TRACE	TE OF INFORMATION TECHNOLOGY (A)
	DEPART	IMENT OF E		RONICS AND COMMUNICATION ENGINEERING
			VI	R19 - COURSE OUTCOMES
NO	COURSE	Course Name		Course Outcomes (COs):Upon completion of the course student will be able to
			COI	Understand the basic concepts of a Karnaugh Map ("K-map") for a 2-, 3-, 4-, or 5-variable
1	2038191100	Digital System	CO2	Perform the minimization of PLA using IISc algorithm and folding using COMPACT
٠ ا	2000171100	Design	CO3	Design a digital circuit by steps involving ASM chart and understand the digital system Rectify a single fault and multiple faults in combinational circuits using Path sensitization
			CO4	Model digital communication system using appropriate mathematical techniques (error
2	ļ	Digital Data	CO2	Understanding the basic concepts of how digital data is transferred across computer
	2038191101	Communication	CO3	Understand and explain Data Communications System and its components and
	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Communication	CO4	Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer.
			COI	learn basics of two-dimensional transforms.
		Transform	CO2	Understand the definition, properties and applications of various two-dimensional
3	2038191150	Techniques	CO3	Understandthebasicconceptsofwavelettransform.
	1		CO4	Understandthespecialtopicssuchaswaveletpackets.Bi-orthogonalwaveletse.t.c.
		VLSI	COI	ReviewofFET fundamentalsforVLSIdesign.
	2020101151		CO2	Toacquiresknowledgeaboutstickdiagramsandlayouts.
4	2038191151	Technology and	CO3	EnabletodesignthesubsystemsbasedonVLSIconcepts
		Design	CO4	Analyse the floor planning methods
5	2038191152	Radar Signal	COI	UnderstandtheoperationofRadarandcharacteristicsofMatchedfilter fornon-whitenoise.
	2030171132	Processing	CO4	Knowthesignificanceandtypes ofpulsecompression techniquesforanalogand digitalsignals
	1		CO1	Generalize the properties of statistical models in the analysis of signals using Stochastic
6	2038191153	Statistical Signal	CO2	Differentiate the prominence of various spectral estimation techniques for Achieving
0 -	2030131133	Processing	CO3	Outline various parametric estimation methods to accomplish the signal modeling even at
			CO4	Design and development of optimum filters using classical and adaptive algorithms.
	\ \ \		CO1	Abletoanalyzecharacteristicsofopticalfiber and signal propagation throughoptical fibers
7		Optical Communication Technology		Know the commonly used components and subsystems in optical communication and
	2038191154		CO2	network systems , Working principle of optical communication components , amplifiers,
			CO3	Analyze Transmission system model
			CO4	Understand the importance of wavelength division multiplexing (WDM) and de-
	2038191155	Network Security &	COI	Identify and utilize different forms of cryptography techniques.
8			CO2	Incorporate authentication and security in the network applications.
		Cryptography	CO3	Distinguish among different types of threats to the system and handle the same.
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	CO4	Analyze and design hash and MAC algorithms, and digital signatures. Identify, formulate, solve and implement problems in signal processing, communication
		System Design	COL	Use EDA tools like Cadence, Mentor Graphics and Xilinx.
9	2038191110	Using VHDL	CO2	Design different digital circuits and simulate using Xilinx
	1	Lab	CO3	Apply verilog programming tools to implement different applications.
	 		CO4	Understand the basics of data communication, networking, internet and their importance
	1	Data	CO1	Analyze the services and features of various protocol layers in data networks.
10	2038191111	Communications	CO2	Differentiate wired and wireless computer networks
		Lab	CO3	Analyse TCP/IP and their protocols.
	<u> </u>		CO4	Understandresearchproblemformulation and analyzeresearch
	1	}	CO1	Understand that today's world is controlled by Computer, Information Technology,
	\	Research	<u> </u>	Understand that today's world is conducted by Computer, information recentlogy, UnderstandingthatwhenIPRwouldtakesuchimportantplaceingrowthofindividuals& nation
11	2000191100	Methodology and	CO2	
		1PR	CO3	Understand that IPR protection provides an incentive to inventors for further
			60.	
			CO4	
			CO1	
12	2000191130	Soft Skills (Audit		
		course ()	CO3	
			CO4	Improve writing and presentation skills of the project. Know digital image, representation of digital image, importance of image resolution,
		1		Know digital image, representation of digital image, importance of image resonation,
			COL	
		Image and video	CO2	Understand and analyze the image enhancement and image degradation, image restoration
13	2038191200	processing	1	Understand and analyze the detection of point, line and edges in images, edge linking at
		p. 23000B	CO3	various segmentation techniques and the redundancy in images, various image
	1			Describe the video technology from analog color TV systems to digital video systems, h
<u>L</u>			CO4	
		Wireless	COI	
1		1	CO:	
14	2038191201	Communications and Networks	CO	

- {		CMOS Analog	COL	Analyze, design, optimize and simulate analog and digital circuits using CMOS Connect the individual gates to form the building blocks of asystem.
15	2038191250	& Digital IC —	CO2	Use EDA tools like Cadence, Mentor Graphics and other open source software tools like
-		Design	CO3 CO4	Design Analog and digital circuits using CMOS
\dashv			CO1	Understand parallelism and pipelining concepts, the design aspects and challenges.
1		Advanced	CO2	Evaluate the issues in vector and array processors.
16	2038191251	Computer	CO3	Study and analyze the high performance scalable multithreaded and multiprocessor
		Architecture -	CO4	Interpret the different architecture models
				Understand the basic concepts of Artificial neural network systems as well as understand
	8	Ì	COI	the McCulloch-Pitts neuron model, simple and multilayer Perception, Adeline and
- 1	ì	-		Data processing, Hopfield and self-organizing network and difference between crisp sets t
17	2038191252	Soft Computing	CO2	fuzzy sets, fuzzy models, fuzzification, inference, membership functions, rule based
`		Techniques	CO3	Understand the concept of Genetic Algorithm steps. Tabu, anD-colony search techniques
			-	GA applications to power system optimization problems, identification and control of
i	ĺ	1.	CO4	linear and nonlinear dynamic systems using MATLAB-Neural network toolbox and also
			CO1	Analyze and evaluate the cyber security needs of an organization.
18	2038191253	Cyber Security	CO2	Conduct a cyber security risk assessment.
10	2030171223	Cyber Security	CO3	Measure the performance and troubleshoot cyber security systems.
			CO4	Implement cyber security solutions.
		<u> </u>	CO1	Understand the basics concepts of Digital Signal Processing (DSP) and transforms.
		DSP Processors	CO2	Distinguish between the architectural features of General purpose processors and
19	2038191254	and	CO3	Understand the architectures of TMS320C54xx devices. Understand the architectures of ADSP 2100 DSP devices and Black fin Processor and
		Architectures	~~.	Understand the architectures of ADSP 2100 DSP devices and Black till Processor and
			CO4	interfacing various devices to DSP Processors as well as able to write simple assembly Understand the electromagnetic environment the definitions of EMI and
			CO1	EMC, history of EMI some examples of practical experiences due to EMI such as
]	-	CO1	Understand the celestial electromagnetic noise the occurrence of lightning
20	2038191255	EMI/EMC	CO2	discharge and their effects, the charge accumulation and discharge in an
	ļ		CO3	Understand the methods to measure RE and RS in the open are test sites
	ļ		CO4	Understand the measurement facilities and procedures using anechoic
_			COI	The model of object oriented programming: abstract data types, encapsulation, inheritant
		l	CO2	Fundamental features of an object oriented language like Java: object classes and
21	2038191256	Object Oriented Programming		How to take the statement of a business problem and from this determine suitable logic
			CO3	solving the problem; then be able to proceed to code that logic as a program written in
			CO4	How to test, document and prepare a professional looking package for each business
		Advanced	COI	Identify the different types of network devices and their functions within anetwork.
		Communications	CO2	Understand and build the skills of sub-netting and routingmechanisms.
		Lab	CO3	Understand basic protocols of computer networks, and how they can be used to assist in
		Lato	CO4	Implement the digital filters using DSP Trainer kit
		1	CO1	Perform and analyze image and video enhancement and restoration
23	2038191211	Advanced Image	CO2	Perform and analyze image and video segmentation and compression
23	2030171211	Processing Lab	CO3	work and process viz., detection, extraction on the image/video
			CO4	Extract the information from the image using boundary and regional features.
	1		COI	Identify, discuss and justify the technical aspects of the chosen project with a Reproduce, improve and refine technical aspects for engineering projects.
24	2038191238	Mini	CO2	Work as an individual or in a team in development of technical projects.
		Project(Seminar)	CO3	Communicate and report effectively project related activities and findings.
_			CO4	Have general knowledge and legal literacy and thereby to take up competitive
		Constitution of	CO1 CO2	Understand state and central policies, fundamental duties.
25	2000191230	India (Audit	CO3	Understand Electoral Process, special provisions.
		course)	CO4	Understand powers and functions of Municipalities, Panchayats and Cooperative Society
		-	COI	Understand the mathematical background of signal detection an destination
		Detection &	CO2	Use classical and Bayesian approaches to formulate and solve problems for signal detec
26	2038192150	Estimation	CO3	Derive and apply filtering methods for parameter estimation.
		Theory	CO4	Estimate the Parameters of Random Processes from Data
			COI	Understand theory of different filters and algorithms
		Advanced	CO2	Understand theory of multirate DSP, solve numerical problems and writealgorithms
27	2038192151	Digital Signal	CO3	Understand theory of prediction and solution of normalequations
		Processing	CO4	Estimate the Parametric Methods of Power Spectrum
		+	COI	Learning the measurement of information and errors.
		Coding Theory		Obtain knowledge in designing Linear Block Codes and Cyclic codes.
28	2038192152	and Applications		Construct tree and trellies diagrams for convolution codes
			CO4	Design the Turbo codes and Space time codes and also their applications
	-		COI	Connect openly on a global scale, with global learners and Instructors

	2070122100	14100003-5	CO3	Self assesment of their performance and learning process.
	Ì		CO4	Adapt a life long learning culture and updating the knowledge according with emerging trends
\vdash			COI	Apply knowledge of Electronics and communication engineering fundamentals to solve the
	33 2038192138 Dissertation		Design prototypes and solutions to solve the specific needs related with public health, safety,	
33			CO2	society and environment leading to sustainable development following ethical values
33	2030172130	Phase -I	CO3	Adapt appropriate techniques, resources and modern engineering tools during the implementation
			CO4	Develop a multidisciplinary project leading to the ability of engagement in lifelong learning and
			COI	Apply knowledge of Electronics and communication engineering fundamentals to solve the
1	\		-	Design prototypes and solutions to solve the specific needs related with public health, safety.
34	2038192238	Dissertation Phase -II	CO2	society and environment leading to sustainable development following ethical values
34	2030192230		CO3	Adapt appropriate techniques, resources and modern engineering tools during the implementation
			C04	Develop a multidisciplinary project leading to the ability of engagement in lifelong learning and
	1		U-0-7	Periods a manufacture of the second s



	DE	PARTMENT (OF COMPUTER	SCIENC	ON TECHNOLOGY (A) CE AND ENGINEERING
			VR19 - COURSI	OUTC	OMES
rogramme Code	Programme Name	Course Code	Course Name	со	Course Outcome: After the completion of the course student will be able to
58	M.Tech- Computer Science and	2058191100	Mathematical Foundations of	CO1 se	o apply the basic rules and theorems of probability theory uch as Baye's Theorem, to determine probabilities that help to olve engineering problems and to determine the expectation while to perform and analyze of sampling, means, proportions, ariances and estimates the maximum likelihood based on
	Engineering	ľ	Computer Science	CO3 n	o learn how to formulate and test hypotheses about sample neans, variances and proportions and to draw conclusions
				CO1	Apply graph theory for real time problems like network routing Ability to write and analyze algorithms for algorithm Master a variety of advanced abstract data type (ADT) and data
58	M.Tech- Computer	2058191101	Advanced Data Structures &	CO2 s	structures and their Implementation. Demonstrate various searching, sorting and hash techniques
36	Science and Engineering	2000171101	Algorithms	CO3	and be able to apply and solve problems of real life. Design and implement variety of data structures including
				i	linked lists, binary trees, heaps, graphs and search trees. Identify classes, objects, members of a class and relationships among them needed for a specific problem.
58	M.Tech- Computer Science and	2058191110	Advanced Data Structures &	CO2	Organize and apply to solve the complex problems using advanced data structures (like arrays, stacks, queues, linked
	Engineering		Algorithms Lab	CO3	Apply and analyze functions of Dictionary. Implement Programs on Hashing.
	M.Tech-		4.3	- 1	The student should have hands on experience in using various sensors like temperature, humidity, smoke, light, etc. and should be able to use control web camera, network, and relays
58	Computer Science and Engineering	2058191111	Advanced Computing Lab	CO2	Development and use of s IoT technology in Societal and Skills to undertake high quality academic and industrial
	Engineering			CO4	To classify Real World IoT Design Constraints, Industrial
58	M.Tech- Computer Science and Engineering	2058191150	Artificial Intelligence	CO2	Analyze the basic issues of different types of knowledge representation techniques to build intelligent system. Build Expert systems for real time applications.
				CO3	Determination of uncertainty of data using different probability approaches for real time applications.
	M.Tech- Computer	2058191151	Digital	CO1	Demonstrate the components of image processing. Explain various filtration techniques.
58	Science and Engineering	2029131121	ImageProcessing	CO3 CO4	Apply image compression techniques. Discuss the concepts of wavelet transforms. Illustrate on the fundamental concepts of distributed operating
	M.Tech- Computer		Advanced	CO1_	systems, its architecture and distributed mutual exclusion. Analyze on deadlock detection algorithms and agreement
58	Science and Engineering	2058191152	OperatingSystems		Make use of algorithms for implementing DSM and its scheduling for protection and security in distributed operating
				CO4	Elaborate on concurrency control mechanisms in distributed lilustrate reference models with layers, protocols and
58	M.Tech- Computer Science and	2058191153	Advanced ComputerNetwor	CO2	Describe the routing algorithms, Sub netting and Addressing of Describe and Analysis of basic protocols of computer networks, and how they can be used to assist in network design
	Engineering		ks	CO4	Describe the concepts Wireless LANS, WIMAX, IEEE 802.11 Cellular telephony and Satellite networks.
58	M.Tech- Computer	2058191154	Internet of Things	CO1	Summarize on the term 'internet of things' in different contexts Design a PoC of an IoT system using Rasperry Pi/Arduino.
56	Science and Engineering	2000171104	The state of the s	CO3	Apply data analytics and use cloud offerings related to IoT. Analyze applications of IoT in real time scenario. Apply the Object Oriented Software-Development Process to
	M.Tech-			CO1	design software. Analyze and Specify software requirements through a SRS
58	Computer Science and	2058191155	Object Oriented SoftwareEngineer ng	i C02	documents. Design and Plan software solutions to problems using an obje
	Engineering		l ng	CO3	Model the object oriented software systems using Unified Modeling Language (UML).
	M.Tech-		Research	C04	Discuss the process used for research Problem selection at Research Paper Writing.
58	Computer Science and	1	Methodology and IPR	CO2	Interpret the Patent writing and Development. Describe the Procedure for Grant of Patents.
-	Engineering			CO4	Teamwork - learning to connect and work with others to
58	M.Tech- Computer Science and	I	Soft skills (Audi	CO1	Leadership - assessing the requirements of a task, identifyin
	Engineering	3		CO2	the strengths within the team, utilizing the diverse skills of the group to achieve the set objective, awareness of risk/safety.

Programme Code	Programme Name	Course Code	Course Name	со	Course Outcome: After the completion of the course student will be able to
58	M.Tech- Computer Science and Engineering	2000191130	Disaster Management (Audit course)	CO2 CO3	learn to demonstrate a critical understanding of key concepts in disaster risk reduction and humanitarian response. critically evaluate disaster risk reduction and humanitarian response policy and practice from multiple perspectives. develop an understanding of standards of humanitarian response and practical relevance in specific types of disasters and conflict situations. critically understand the strengths and weaknesses of disaster management approaches, planning and programming in different countries.



rogramme Code	Programme Name	Course Code	Course Name	со	Course Outcome: After the completion of the course student will be able to
0				CO1	What pedagogical practices are being used by teachers in formal and informal classrooms in developing countries? What is the evidence on the effectiveness of these pedagogical
58	M.Tech- Computer Science and	2000191130	Pedagogy Studies (Audit course)	CO2	practices, in what conditions, and with what population of learners? How can teacher education (curriculum and practicum) and the
9	Engineering		-		school curriculum and guidance materials best support effective pedagogy?
	M.Tech-	2000191130	Stress		Develop healthy mind in a healthy body thus improving social
58	Computer	2000191130	Management By		health also.
	Science and		Yoga (Audit	CO2	Improve efficiency. Domain Knowledge for Productive use of Machine Learning
				COI	and Diversity of Data. Demonstrate on Supervised and Computational Learning.
58	M.Tech- Computer Science and	2058191200	Machine learning		Analyze on Statistics in learning techniques and Logistic Regression Illustrate on Support Vector Machines and Perceptron Algorithm.
	Engineering			CO3	Design a Multilayer Perceptron Networks and classification of decision tree.
				005	Demonstrate how to apply a variety of learning algorithms to
<u> </u>				CO4	data. Illustrate on big data and its use cases from selected
				CO1	businessdomains.
	M.Tech-			CO2	Interpret and summarize on No SQL, Cassandra.
- CR	Computer	 2058191201	Big DataAnalytics		Analyze the HADOOP and Map Reduce technologies
30	Science and Engineering	2038191201		CO3	associated with big data analytics and explore on Big Data applications UsingHive.
					applications osingrive.
				CO4	Make use of Apache Spark, RDDs etc. to work withdatasets.
				CO1	Implement procedures for the machine learning algorithms.
	M.Tech- Computer Science and Engineering	2058191210	Machine Learning with python lab	CO2	Design Python programs for various Learning algorithms. Apply appropriate data sets to the Machine Learning
58				CO3	algorithms.
					Identify and apply Machine Learning algorithms to solve real
		<u> </u>		CO4_	world problems.
	M.Tech- Computer Science and Engineering	2058191211	Big Data Lab	CO1	Illustrate on Bigdata and its usecases from selected business domains.
				COI	Analyse the Hadoop with Java and Map reduce techniques
58				CO2	associated with big data.
				CO3	analyze and explore on big data applications using HIVE.
	ļ		ļ <u> </u>	CO4	Access real time processing with Hadoop. Analyze on normalization techniques.
	M.Tech-				Elaborate on concurrency control techniques and query
	Computer	2058191250	Advanced Databases and Mining	CO2	optimization.
58	Science and			602	Summarize the concepts of data mining, data warehousing an
	Engineering			CO3	data preprocessing strategies. Apply data mining algorithms.
-60%	-		 		Explain the Fundamental Concepts and applications of ad hoc
	M.Tech-			CO1	and wireless sensor networks.
10/07/10/0	Computer		Ad Hoc & Senson	CO2	Discuss the MAC protocol issues of ad hocnetworks. Enumerate the concept of routing protocols for ad hoc wirele
58	Science and	2058191251	Networks	CO3	networks with respect to TCP design issues.
	Engineering				Analyze & Specify the concepts of network architecture and
				CO4	MAC layer protocol for WSN. Elaborate fuzzy logic and reasoning to handle uncertainty in
	M.Tech-			CO1	engineeringproblems. Make use of genetic algorithms to combinatorial
58	Computer	2058191252	SoftComputing	CO2	optimizationproblems.
30	Science and		Correombannis	CO3	Distinguish artificial intelligence techniques, including searcheuristics, knowledge representation, planning andreasoning
Ì	Engineering			<u>C03</u>	Formulate and apply the principles of self-adopting and self
	Į.		1	C04	organizing neuro fuzzy inference systems.
					Interpret the key dimensions of the challenge of
				COI	CloudComputing. Examine the economics, financial, and technological
	M.Tech-				implications for selecting cloud computing for
	Computer			CO2	ownorganization.
58	Science and	I	CloudComputin	R	Assessing the financial, technological, and organizational
	Engineering				capacity of employer's for actively initiating and installing
1		1		CO3	
			1		Evaluate own organizations' needs for capacity building and

Programme Code	Programme Name	Course Code	Course Name	со	Course Outcome: After the completion of the course student will be able to
58	M.Tech- Computer Science and Engineering	2058191254	Principles of Computer Security	CO2 CO3	Describe the key security requirements of confidentiality, integrity, and availability, types of security threats and attacks and summarize the functional requirements for computersecurity. Explain the basic operation of symmetric block encryption algorithms, use of secure hash functions for message authentication, digital signaturemechanism. Discuss the issues involved and the approaches for user authentication and explain how access control fits into the broader context that includes authentication, authorization, andaudit. Explain the basic concept of a denial-of-service attack, nature of flooding attacks, distributed denial- of-service attacks and describe how computer security vulnerabilities are a result of poor programming practices.
58	M.Tech- Computer Science and Engineering M.Tech- 2058191255 High Performance Computing		CO2 CO3	Design, formulate, solve and implement high performance versions of standard single threaded algorithms. Demonstrate the architectural features in the GPU and MIC hardware accelerators. Design programs to extract maximum performance in a multicore, shared memory execution environment processor. Develop and deploy large scale parallel programs on tightly coupled parallel systems using the message passing paradigm	

ogramme Code	Programme Name	Course Code	Course Name	со	Course Outcome: After the completion of the course student will be able to	
	Mr mark			CO1	Carryout literature survey, and choose a relevant topic reported in recent IEEE/CSI/ACM/ conference publications / transactions in the domain of computer science and engineering.	
58	M.Tech- Computer	2058191270	Mini Project with		Simulate and analyze the results reported in the chosen paper	
-	Science and Engineering		Seminar	CO2	for seminar topic. Communicate effectively before the expert panel and develop	
	. !			CO3	Respond to the queries raised by the evaluation committee and	
-				CO4	audience. Have general knowledge and legal literacy and thereby to take	
en.	M.Tech- Computer	2025191270	Constitution of India (Audit	CO1	up competitive examinations. Understand state and central policies, fundamental uties.	
58	Science and Engineering	2025191270	Course)	CO3	Understand Electoral Process, special provisions. Understand powers and functions of Municipalities,	
	M.Tech-		Sanskrit For	CO4	Panchayats and Cooperative Societies. Understanding basic Sanskrit language.	
58	Computer Science and	2025191270	Technical Knowledge (Audit		Ancient Sanskrit literature about science & technology can be understood Being a logical language will help to develop logic	
-	Engineering		Course)	CO2	in. Knowledge of self-development.	
58	M.Tech- Computer	2025191270	Value Education (Audit Course)		Learn the importance of Human values 3.Developing the	
	Science and M.Tech-		Personality	CO2	overall personality. Study of Shrimad-Bhagwad-Geeta will help the student in	
3	Computer Science and	2025191270	Development Through Life	CO1	developing his personality and achieve the highest goal in life. The person who has studied Geeta will lead the nation and	
	Engineering		Enlightenment Skills (Audit	CO2	mankind to peace and prosperity Study of Neetishatakam will help in developing versatile personality of students.	
	M.Tech-			CO1	Demonstrate the basic concepts fundamental learning techniques and layers.	
58	Computer Science and	2058192150	Deep Learning	CO2 CO3	Discuss the Neural Network training, various random models. Explain different types of deep learning network models.	
	Engineering			CO4	Classify the Probabilistic Neural Networks. Demonstrate social network analysis and measures.	
	M.Tech-	er 2058192151	Social Network Analysis		Analyze random graph models and navigate social networks	
58	Computer Science and			CO2 CO3	data. Apply the network topology and Visualization tools.	
	Engineering			CO4_	Analyze the experiment with small world models and clustering models.	
	M.Tech- Computer Science and Engineering	2058192152	MOOCs-1	C01	Connect openly on a global scale, with global learners and instructors.	
58				CO ₂	Develop high quality learning using multimedia platform. Self assessment of their performance and learning process.	
				CO4	Develop a life long learning culture and updating the knowledge according with emerging trends.	
	M.Tech-	1	MOOCs-2	CO1	Connect openly on a global scale, with global learners and instructors.	
58	Computer			CO2 CO3	Develop high quality learning using multimedia platform. Self assessment of their performance and learning process.	
	Science and Engineering				Develop a life long learning culture and updating the	
	1			CO4	knowledge according with emerging trends. apply the software engineering principles in planning,	
					formulating an innovative design/ approach and computing the requirements appropriate to chosen topic within the context of	
	M.Tech-		Dissertation-I/	CO1	legal, societal and environment constraint. Ability to perform individually accepting responsibility, taking	
58	Computer Science and	2058192170	Industrial Project	CO2		
	Engineering		#	CO3	Ability to use formal and informal communications with guide,	
					Develop/implement the solutions with appropriate techniques, resources and contemporary tools for social relavent	
	93			CO4	issues/problems.	
					apply the software engineering principles in planning, formulating an innovative design/approach and computing the	
				CO1		
	M.Tech- Computer	20,004,004	This		Ability to perform individually accepting responsibility, taking initiative, and providing leadership, necessary to ensure project	
58	Science and Engineering	2058192270	Dissertation-II	CO2		
	ingineering			CO3	make presentations and prepare technical document.	0
				60.5	Develop/imp resources tions with appropriate techniques, resources in the ontemporal color social relavent issues/professor	15
				CO4	PRINCIPLE INC. N. P. C. L. P. L. P. C. L. P. C. L. P. C. L. P. C. L. P. L.	STITUTE
			3		VIGNAN'S II Information Randa: VSF7 Dury	Technology

	V	IGNAN'S IN		FORMATION TECHNOLOGY
				MENT OF IT SEOUTCOMES
rogram e Code	Programme Name	Course Code		Course Outcome: After the completion of the course student will be able to
40	M.Tech- Information Technology	2040191100	Discrete (Mathematical Structures	To understand the basic notions of discrete and continuous To understand the methods of statistical inference, and the role that sampling distributions play in those methods. To be able to perform correct and meaningful statistical analyses of simple to moderate complexity. Illustrate properties and characteristics of various graphs and optimization techniques
40	M.Tech- Information Technology	2040191101	Advanced Data Structures	Understand the implementation of symbol table using hashing Develop and analyze algorithms for red-black trees. B-trees and Develop algorithms for text processing applications. Identify suitable data structures and develop algorithms for computational geometry problems.
40	M.Tech- Information Technology	2040191150	Artificial Intelligence	Demonstrate knowledge of the building blocks of AI as presented in terms of intelligent agents. Analyze and formalize the problem as a state space, graph, design heuristics and select amongst different search or game based Develop intelligent algorithms for constraint satisfaction problems and also design intelligent systems for Game Playing. Solve problems with uncertain information using Bayesian
40	M.Tech- Information Technology	ion 2040191151 Architectures and		Understand the basics of XML. Learn the concepts of SOA and Web services. find different approaches for providing security for XML documents as well as messages exchanged among Web Services. determine some of the prevailing standards and technologies of
40	M.Tech- Information 2040191152 Internet of Things Technology		Internet of Things	Summarize on the term 'internet of things' in different contexts. Design a PoC of an IoT system using Rasperry Pi/Arduino. Apply data analytics and use cloud offerings related to IoT. Analyze applications of IoT in real time scenario.
40	M.Tech- Information Technology	2040191153	Optimization Techniques	Students should able to apply the dynamic programming to solve problems of discreet and continuous variables. Students should able to apply the concept of non-linear Students should able to carry out sensitivity analysis. Student should able to model the real world problem and simulate
40	M.Tech- Information Technology	1	Parallel Computer Architecture	Students accustomed with the representation of data, addressing modes, and instructions sets. Students able to understand parallelism both in terms of a single processor and multiple processors. Technical knowhow of parallel hardware constructs to include instruction-level parallelism for multi core processor design. Use different performance metrics for analysis of parallel
40	M.Tech- Information Technology	h	Big Data Analytics	Understand the programming requirements viz., generic types and methods to perform data analysis. Formulate an effective strategy to implement a successful Data To understand and analyze Map-Reduce programming model for better optimization. Identify the need based tools, viz., Pig and Hive and to handle.
M.Tecl 40 Informat Technol			Principles of Cryptography	Building a new unbreakable cryptosystem. Blending the existing cryptographic algorithms with the existing communication protocols. Analyzing and application of cryptography for secure eCommerce and other secret transactions. Clasify various cryptographic protocols, hash functions, digital signature schemes.
40	M.Tech- Informatio Technolog	n 2040191157	Cluster and Grid Computing	and Cluster Computing. student will have knowledge of process scheduling and load
M.Te		on 2040191158	Imaging and Multimedia System	Technical know to develop new compression standards. Acquire skill set to handle all multimedia components efficiently ms Develop Integrated and Collaborative multimedia systems. Execute various algorithms require for image and multimedia Demonstrate basic concepts in graph theory: coloring, planar

40	M.Tech- Information Technology	2040191159	Advanced Graph Theory	Evaluate precise and accurate mathematical definitions of objects n graph theory. Build some classical graph algorithms in order to find sub graphs with desirable properties. Compile and deduce properties of chromatic numbers and polynomials and identify certain problems as graph colouring
40	M.Tech- Information Technology	2000191100	Research Methodology and	Understand the research problem, process and ethics. Prepare a well-structured research paper and scientific Explore on various IPR components and process of filing. Understand the adequate knowledge on patent and rights
40	M.Tech- Information Technology	2040191110	Advanced Data Structures Lab	Implement List ADTs and their operations. Develop programs for implementing trees algorithms. Implement graph algorithms. Apply algorithm design techniques.
40	M.Tech- Information Technology	2040191111	Computing Lab	Implement real time problems using python. Develop programs for AI Techniques using Python. Implement big data problems using Hadoop. Apply algorithm design techniques on cryptography.
40	M.Tech- Information Technology	2000191130	English for Research Paper Writing	Understand that how to improve your writing skills. readability Learn about what to write in each section. Understand the skills needed when writing a Title Ensure the good quality of paper at very first- time submission. applying the knowledge in writing a technical paper and process of submission in qualititative journals.
40	M.Tech- Information 2000191131 Technology		Disaster Management	Understanding foundations of hazards, disasters and associated natural/social phenomena. Familiarity with disaster management theory (cycle, phases). Methods of community involvement as an essential part of successful DRR and Analyze Risk Assessment and Strategies for Technological innovations in Disaster Risk Reduction: Advantages and problems.
40	M.Tech- Information Technology	2000191132	Sanskrit for Technical Knowledge	Understanding basic Sanskrit language. Ancient Sanskrit literature about science & technology can be Being a logical language will help to develop logic in students. Learning Sanskrit Grammar, History of Sanskrit Literature, Drama.
40	M.Tech- Information Technology	Information 2000191133		Knowledge of self-development. Learn the importance of Human values. Developing the overall personality. Learn the importance of value education towards personal, national and global development.
40	M.Tech- Information Technology	2040191200	Advanced Algorithm	Introduce students to the advanced methods of designing and analyzing algorithms. The student should be able to choose appropriate algorithms and use it for a specific problem.
40	M.Tech- Information Technology	2040191201	Full Stack Technologies	Identify the Basic Concepts of Web & Markup Languages. Creating & Running Applications using JSP libraries. Creating Our First Controller Working with and Displaying in Angular Js and Nested Forms with ng-form. Working with the Files in React JS and Constructing Elements
40	M.Tech- Information Technology		Machine Learning	Domain Knowledge for Productive use of Machine Learning and Diversity of Data. Demonstrate on Supervised and Computational Learning. Analyze on Statistics in learning techniques and Logistic Illustrate on Support Vector Machines and Perceptron Algorithm and Design a Multilayer Perceptron Networks and classification of
40		M.Tech- Information Technology		Understand the principles of continuous development and deployment, automation of configuration management, inter-team collaboration, and IT service agility Describe DevOps & DevSecOps methodologies and their key Explain the types of version control systems, continuous integration tools, continuous monitoring tools, and cloud models. Set up complete private infrastructure using version control systems and Cl/CD tools.
40	M.Tech-	2040101257	Advanced Networ	Familiarization of the different layers of TCP/IP protocol stack. Analyze the Concepts of Network media and topologies, Network security concepts and Network management.

	Technology	40-0131434	Protocols	Understanding of the working principle of different protocols at Plan the interworking of distributed application basing on
1				Semantic Web technology.
-				Elucidate the foundations and issues of distributed systems.
				Describe the features of peer-to-peer and distributed shared
ļ	1]		memory systems and Understand the various synchronization
	M.Tech-		l;	issues and global state for distributed systems.
40	Information	2040191253	Distributed Computing	Understand the Mutual Exclusion and Deadlock detection
	Technology			algorithms in distributed systems.
	1	1	 	Describe the agreement protocols and fault tolerance mechanisms
ľ		l		in distributed systems.
				Demonstrate social network analysis and measures and
- 1	8.6.00 L	191		components of virtual communities.
40	M.Tech-	2040404554		Analyze random graph models and navigate social networks data.
40	Information	2040191254	ociai Network Analytiq	Apply the network topology and Visualization tools.
	Technology	- 1		Analyze the experiment with small world models and clustering
				Analyze the experiment with small world models and clustering
				Demonstrate the components of image processing and usage of
- 1	M.Tech-			various filteration techniques.
40	Information	2040191255	igital Image Processin	Apply image compression techniques.
ŀ	Technology			Discuss the concepts of wavelet transforms.
				Analyze the concept of morphological image processing,
				Demonstrate the foundation of the Block chain technology and
]				understand the processes in payment and funding.
	M.Tech-			Identify the risks involved in building Block chain applications
40	Information	2040191256	lock Chain Technologi	and how to earn profit from trading cryptocurrencies.
40	Technology	2040131230	lock Chain Technologi	Review of legal implications using smart contracts.
-	l rechnology	1		Choose the present landscape of Blockchain implementations and
				Understand Crypto currency markets.
				Explain how data is collected, managed and stored for data
				Explain now data is collected, managed and stored for data
	M.Tech- Information	2040191257	Data Science	Understand the key concepts in data science, including their real-
40				world applications.
	Technology			Implement data collection and management scripts using
	1			Evaluate toolkits used by various data scientist on real world
				Comprehend the fuzzy logic and the concept of fuzziness involve
	1			in various systems and fuzzy set theory.
				Understand the concepts of fuzzy sets, knowledge representation
	M.Tech-	2040191258	Soft Computing	using fuzzy rules, approximate reasoning, fuzzy inference system
40				
		20/0101758	Soft Computing	To understand the fundamental theory and concepts of neural
40	Information	2040191258	Soft Computing	To understand the fundamental theory and concepts of neural
40		2040191258	Soft Computing	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures,
40	Information	2040191258	Soft Computing	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations.
40	Information	2040191258	Soft Computing	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. Understand appropriate learning rules for each of the architecture
40	Information	2040191258	Soft Computing	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. Understand appropriate learning rules for each of the architecture and learn several neural network paradigms and its applications.
40	Information	2040191258	Soft Computing	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. Understand appropriate learning rules for each of the architecture and learn several neural network paradigms and its applications. Explain approaches to syntax and semantics in NLP.
40	Information	2040191258	Soft Computing	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. Understand appropriate learning rules for each of the architecture and learn several neural network paradigms and its applications. Explain approaches to syntax and semantics in NLP. Demonstrate approaches to discourse, generation, dialogue and
40	Information	2040191258		To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. Understand appropriate learning rules for each of the architecture and learn several neural network paradigms and its applications. Explain approaches to syntax and semantics in NLP. Demonstrate approaches to discourse, generation, dialogue and summarization within NLP.
40	Information Technology	2040191258	Natural Language	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. Understand appropriate learning rules for each of the architecture and learn several neural network paradigms and its applications. Explain approaches to syntax and semantics in NLP. Demonstrate approaches to discourse, generation, dialogue and summarization within NLP. Identify machine learning techniques used in NLP, including
	Information Technology M.Tech- Information		Natural Language	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. Understand appropriate learning rules for each of the architecture and learn several neural network paradigms and its applications. Explain approaches to syntax and semantics in NLP. Demonstrate approaches to discourse, generation, dialogue and summarization within NLP. Identify machine learning techniques used in NLP, including hidden Markov models and probabilistic.
	Information Technology M.Tech-		Natural Language	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. Understand appropriate learning rules for each of the architecture and learn several neural network paradigms and its applications. Explain approaches to syntax and semantics in NLP. Demonstrate approaches to discourse, generation, dialogue and summarization within NLP. Identify machine learning techniques used in NLP, including
	Information Technology M.Tech- Information		Natural Language	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. Understand appropriate learning rules for each of the architecture and learn several neural network paradigms and its applications. Explain approaches to syntax and semantics in NLP. Demonstrate approaches to discourse, generation, dialogue and summarization within NLP. Identify machine learning techniques used in NLP, including hidden Markov models and probabilistic.
	Information Technology M.Tech- Information		Natural Language	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. Understand appropriate learning rules for each of the architecture and learn several neural network paradigms and its applications. Explain approaches to syntax and semantics in NLP. Demonstrate approaches to discourse, generation, dialogue and summarization within NLP. Identify machine learning techniques used in NLP, including hidden Markov models and probabilistic. Explain context-free grammars, clustering and unsupervised methods, log-linear and discriminative models, and the EM
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	Information Technology M.Tech- Information Technology	2040191259	Natural Language Processing	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. Understand appropriate learning rules for each of the architecture and learn several neural network paradigms and its applications. Explain approaches to syntax and semantics in NLP. Demonstrate approaches to discourse, generation, dialogue and summarization within NLP. Identify machine learning techniques used in NLP, including hidden Markov models and probabilistic. Explain context-free grammars, clustering and unsupervised methods, log-linear and discriminative models, and the EM Identify classes, objects, members of a class and relationships among them needed for a specific problem. Examine algorithms performance using Prior analysis and
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40	M.Tech-Information Technology M.Tech-Information Technology	2040191259	Natural Language Processing	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. Understand appropriate learning rules for each of the architecture and learn several neural network paradigms and its applications. Explain approaches to syntax and semantics in NLP. Demonstrate approaches to discourse, generation, dialogue and summarization within NLP. Identify machine learning techniques used in NLP, including hidden Markov models and probabilistic. Explain context-free grammars, clustering and unsupervised methods, log-linear and discriminative models, and the EM Identify classes, objects, members of a class and relationships among them needed for a specific problem. Examine algorithms performance using Prior analysis and Organize and apply to solve the complex problems using advance data structures (like arrays, stacks, queues, linked lists, graphs and property and property and property and property and property and property and prior analysis and organize and apply to solve the complex problems using advance data structures (like arrays, stacks, queues, linked lists, graphs and property are property and
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40	M.Tech-Information Technology M.Tech-Information Technology M.Tech-Information Technology M.Tech-Information Technology	2040191259 2040191210 2040191211	Natural Language Processing Advance Algorithms I	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. Understand appropriate learning rules for each of the architecture and learn several neural network paradigms and its applications. Explain approaches to syntax and semantics in NLP. Demonstrate approaches to discourse, generation, dialogue and summarization within NLP. Identify machine learning techniques used in NLP, including hidden Markov models and probabilistic. Explain context-free grammars, clustering and unsupervised methods, log-linear and discriminative models, and the EM Identify classes, objects, members of a class and relationships among them needed for a specific problem. Examine algorithms performance using Prior analysis and Organize and apply to solve the complex problems using advance data structures (like arrays, stacks, queues, linked lists, graphs and Apply and analyze functions of Dictionary. Develop web Applications using Scripting Languages & Creating & Running Applications using JSP libraries. Creating Our First Controller Working with and Displaying in Angular Js and Nested Forms with ng- form. Working with the Files in React JS and Constructing Elements Carryout literature survey, and choose a relevant topic reported recent IEEE/CSI/ACM/ conference publications / transactions in the domain of computer science and engineering.
40	M.Tech-Information Technology M.Tech-Information Technology M.Tech-Information Technology M.Tech-Information Technology	2040191259 2040191210 2040191211	Natural Language Processing	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. Understand appropriate learning rules for each of the architecture and learn several neural network paradigms and its applications. Explain approaches to syntax and semantics in NLP. Demonstrate approaches to discourse, generation, dialogue and summarization within NLP. Identify machine learning techniques used in NLP, including hidden Markov models and probabilistic. Explain context-free grammars, clustering and unsupervised methods, log-linear and discriminative models, and the EM Identify classes, objects, members of a class and relationships among them needed for a specific problem. Examine algorithms performance using Prior analysis and Organize and apply to solve the complex problems using advance data structures (like arrays, stacks, queues, linked lists, graphs and Apply and analyze functions of Dictionary. Develop web Applications using Scripting Languages & Creating & Running Applications using JSP libraries. Creating Our First Controller Working with and Displaying in Angular Js and Nested Forms with ng- form. Working with the Files in React JS and Constructing Elements Carryout literature survey, and choose a relevant topic reported in the domain of computer science and engineering. Simulate and analyze the results reported in the chosen paper for
40	M.Tech-Information Technology M.Tech-Information Technology M.Tech-Information Technology M.Tech-Information Technology	2040191259 2040191210 2040191211	Natural Language Processing Advance Algorithms I	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. Understand appropriate learning rules for each of the architecture and learn several neural network paradigms and its applications. Explain approaches to syntax and semantics in NLP. Demonstrate approaches to discourse, generation, dialogue and summarization within NLP. Identify machine learning techniques used in NLP, including hidden Markov models and probabilistic. Explain context-free grammars, clustering and unsupervised methods, log-linear and discriminative models, and the EM Identify classes, objects, members of a class and relationships among them needed for a specific problem. Examine algorithms performance using Prior analysis and Organize and apply to solve the complex problems using advance data structures (like arrays, stacks, queues, linked lists, graphs and Apply and analyze functions of Dictionary. Develop web Applications using Scripting Languages & Creating & Running Applications using JSP libraries. Creating Our First Controller Working with and Displaying in Angular Js and Nested Forms with ng- form. Working with the Files in React JS and Constructing Elements Carryout literature survey, and choose a relevant topic reported in the domain of computer science and engineering. Simulate and analyze the results reported in the chosen paper for Communicate effectively before the expert panel and develop
40	M.Tech-Information Technology M.Tech-Information Technology M.Tech-Information Technology M.Tech-Information Technology	2040191259 2040191210 2040191211	Natural Language Processing Advance Algorithms I	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations. Understand appropriate learning rules for each of the architecture and learn several neural network paradigms and its applications. Explain approaches to syntax and semantics in NLP. Demonstrate approaches to discourse, generation, dialogue and summarization within NLP. Identify machine learning techniques used in NLP, including hidden Markov models and probabilistic. Explain context-free grammars, clustering and unsupervised methods, log-linear and discriminative models, and the EM Identify classes, objects, members of a class and relationships among them needed for a specific problem. Examine algorithms performance using Prior analysis and Organize and apply to solve the complex problems using advance data structures (like arrays, stacks, queues, linked lists, graphs and Apply and analyze functions of Dictionary. Develop web Applications using Scripting Languages & Creating & Running Applications using JSP libraries. Creating Our First Controller Working with and Displaying in Angular Js and Nested Forms with ng- form. Working with the Files in React JS and Constructing Elements Carryout literature survey, and choose a relevant topic reported in the domain of computer science and engineering. Simulate and analyze the results reported in the chosen paper for Communicate effectively before the expert panel and develop
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40	Information Technology	2000191230	onstitution of india	Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections
40	M.Tech- Information Technology	2000191231	Pedagogy Studies	Discuss the passage of the Hindu Code Bill of 1956. What pedagogical practices are being used by teachers in formal What is the evidence on the effectiveness of these pedagogical practices, in what conditions, and with what population of How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective Encourage Cooperative Learning Environment.
40	M.Tech- Information Technology	2000191232	s Management by Y	Develop healthy mind in a healthy body thus improving social Improve efficiency. Reduces Stress and Anxiety. Identify and apply injury prevention principles related to yoga
40	M.Tech- Information Technology	2000191233	Personality Development through Life Enlightenemnt Skills	Study of Shrimad-Bhagwad-Geeta will help the student in developing his personality and achieve the highest goal in life. The person who has studied Geeta will lead the nation and mankind to peace and prosperity. Study of Neetishatakam will help in developing versatile To re-engineer attitude and understand its influence on behavior.
40	M.Tech- Information Technology	2040192150	Deep Learning	Demonstrate the basic concepts fundamental learning techniques Discuss the Neural Network training, various random models. Explain different types of deep learning network models. Classify the Probabilistic Neural Networks and deep learning
40	M.Tech- Information Technology	formation 2040192151 Embedded		Knowledge and understanding of Embedded Linux OS Architecture, Linux Kernel Modules. Describes the differences between the general computing system and the embedded computing system. Write client server program using TCP sockets. Knowledge on IPv4 and IPV6 addresses.
40	M.Tech- Information Technology	2040192152	Ethical Hacking	Learn various hacking methods. Perform system security vulnerability testing. Perform system vulnerability exploit attacks. Produce a security assessment report and issues related to hacking.
40	M.Tech- Information Technology	2040192153	Digital Marketing	Explain about web pages with basic HTML5, DHTML tags using CSS and XML, the overview of W3C DOM. Demonstrate advanced practical skills in common digital marketing tools such as SEO, SEM, Social media and Blogs and discuss the key elements of a digital Java Scripts. Apply search engine optimization techniques to a website. Illustrate how the effectiveness of a digital marketing campaign
40	M.Tech- Information Technology	2040192160	Python Programming	Understand and comprehend the basics of python programming. Demonstrate the principles of structured programming and be able to describe, design, implement, and test structured programs using currently accepted methodology. Explain the use of the built-in data structures list, sets, tuples and Identify real-world applications using oops, files and exception handling provided by python.
40	M.Tech- Information Technology	2040192161	Web Technologies	Understand the concepts of Java Script and develop a dynamic webpage by the use of Java Script. Write a well formed / valid XML document and describe the Creating & Running PHP script and also to connect & working with DBMS such as MySql. Understand the concepts PERL & RUBY and develop the web applications by using PERL & RUBY.
40	M.Tech- Information 2040192162 Artificial Intelligence Technology		Artificial Intelligent	Demonstrate knowledge of the building blocks of AI as presented in terms of intelligent agents. Analyze and formalize the problem as a state space, graph, design heuristics and select amongst different search or game based Develop intelligent algorithms for constraint satisfaction problems and also design intelligent systems for Game Playing. Attain the capability to represent various real life problem domains using logic based techniques and use this to perform inference or
40	M.Tech- Information Technology		Internet of Things	Summarize on the term 'internet of things' in different contexts. Analyze various protocols for IoT. Design a PoC of an IoT system using Rasperry Pi/Arduino and Apply data analytics and use cloud offerings related to IoT. Analyze applications of IoT in real time scenario.
	M Toch	٦		Domain Knowledge for Productive use of Machine Learning and Diversity of Data.

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40	Information	2040192164	Machine Learning	Demonstrate on Supervised and Computational Learning and		
	Technology	300	2	Analyze on Statistics in learning techniques and Logistic		
İ	recinidiogy	1		Illustrate on Support Vector Machines and Perceptron Algorithm.		
		F		Design a Multilayer Perceptron Networks and classification of		
	1			Understand the implementation of symbol table using hashing		
	M.Tech-		Advanced Data	Develop and analyze algorithms for red-black trees, B-trees and		
40	Information	2040192165	Structures	Develop algorithms for text processing applications.		
	Technology		Structures	Identify suitable data structures and develop algorithms for		
L	'			computational geometry problems.		
	ļ	·		Apply the software engineering principles in planning, formulating		
ļ				an innovative design/ approach and computing the requirements		
		2040192170	Dissertation- UIndustrial Project	appropriate to chosen topic within the context of legal, societal and		
	M.Tech-			Perform individually as well as in a team, accepting responsibility,		
40	Information			taking initiative, and providing leadership, necessary to ensure		
	Technology			Use formal and informal communications with team members and		
	1			guide, make presentations and prepare technical document.		
 				Develop/implement the solutions with appropriate techniques,		
				resources and contemporary tools for social relavent		
				Apply the software engineering principles in planning, formulating		
1				an innovative design/ approach and computing the requirements		
			1	appropriate to chosen topic within the context of legal, societal and		
	M.Tech-			Perform individually as well as in a team, accepting responsibility,		
40	Information	2040192270	Dissertation-II	taking initiative, and providing leadership, necessary to ensure		
	Technology			Use formal and informal communications with team members and		
				guide, make presentations and prepare technical document.		
				Develop/implement the solutions with appropriate techniques,		
			1	resources and contemporary tools for social relavent		



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	_	DE			ICAL ENGINEERING
Programme	Programme				UTCOMES Course Outcome: After the completion of the course student
Code	Name	Course Code	Course Name	CO	will be able to
	M.Tech-		Research		Discuss the process used for research Problem selection and
15	Muchine	2000191100	Methodology and		Interpret the Patent writing and Development
	Design		IPR -		Describe the Procedure for Grant of Patents Illustrate new Developments in IPR
			2		Solve stress, strain calculatins
	M.Tech-		Advanced		Examine different failure criteria for different members
15	Machine	2015191100	Mechanics of		Evaluate the various parameters to stop unsymmetrical bending
	Design		Solids		Compile the torsion coming on to the machine components
					Understand the basic concepts of Acoustics and Noise, noise
					measuring instruments and control the noise using diffrent noise
	M.Tech-]	Mechanical		Determine vibratory responses of SDOF systems to different
15	Machine	2015191101	Vibrations and	CO2	excitations like harmonic, periodic and non-periodic excitation
	Design		Acoustics	CO3	Obtain eigen values and eigen vectors of MDOF systems using theoretical and numerical methods
			}		Analyze for frequency and amplitudes of continuous systems like
	-				Calculate the damped and undamped natural frequency and
	M.Tech-			CO1	amplitude of the vibrating system from experiment
15	Machine	2015191110	Machine	CO2	Test for the balancing of masses in static and dynamic cases
	Design		Dynamics Lab	CO3	Evaluate the magnitude of gyroscopic couple, angular velocity of
700 30000			<u> </u>	C04	Explain the Direct and Inverse kinematic of a robot
	M.Tech-			CO1	Classify the various types of load applications
15	Machine	2015191111	Design Practice	CO2	Decide the correct profile of the components
	Design		Lab-I	CO3	Create the final dimensions of the components
				CO4	Constuct the final component in all the parameters
	M.Tech-			CO1	Understand the safety and conseptual design of Automobiles.
				COI	design of structural elements and load analysis for different Identify the Basic design, performance of Electric vehicles (EV),
			Design of Modern	CO2	and Hybridness of vehicles and their performance.
15	Machine	2015191150	Vehicle Systems		Understand Working Principle and Design of UAVs/Drones and
	Design	ļ		CO3	their Applications, Flight controller, Remote Controller and
					Analyze Safety aspects of automobiles and energy absorbing
				CO4	systems through testing(lab, field testing.
	M.Tech-			CO1	To understand the basic concept a product design based on the
15	Machine	2015191151	Product Design	CO2	Generate the concept of new product and different fabrication
10	Design			CO3	Make the solid model in virtual platform and evaluate the produc
				CO4	Selecting the correct process of fabrication to optimze the cost an
	M.Tech-	1	Design for	CO1	Understand to relate design rules for manufacturability. Apply design rules for ease of machining.
15	Machine	2015191152	Manufacturing &	CO2	Enumerate the general design considerations for casting, casting
	Design		Assembly	CO4	Apply design guidelines to assembly.
-		 			Identify the prediction of mechanical failure and discuss various
	NATURAL DESIGNATION OF THE PARTY OF THE PART				Employ the concept of griffith's analysis for energy release rate
15	M.Tech- Machine	2015191153	Fracture	CO2	and describe the concept of stress intensity factor in linear elastic
15	Design		Mechanics		Analyze failure prediction parameters and crack tip opening
	Design		1	C03	displacement in Elastic-Plastic fracture mechanics.
	2			CO4	Assess the fatigue damage and creep damage and illustrate the
	M.Tech-		1	CO1	Understand the various degreesof freedom in various linkages of
15	Machine	2015191154	Advanced	CO2	Analyze the synthesis of mechanism using analytical methods Analyze the plane motion in mechanism graphically
	Design	Į	Mechanisms	CO3	Evaluate the maipulator kinematics with D-H notation
	+	1	-		Identify various surface flaws by using Liquid penetrant inspecti
	M.Tech-			CO1	and Magnetic particle inspection.
15	Machine	2015191155	Non-Destructive	CO2	Apply the systematic understanding of knowledge on radiograph
	Design		Evaluation	CO3	
				CO4	
			***-	COL	Summarize robot components, configurations and different end
					Select a robot for a given application and illustrate the working
	M.Tech-	1			principles of various actuators and sensors that can be used in the
15	Machine	2015191156	Robotics	CO2	manipulator, control system that can be used as well as the meth
	Design			CO3	Analyze a given manipulator kinematically and dynamically
		Į.			Derive as well as analyze the equation of trajectory that the end-
				C04	
	M.Tech-			CO1	Use various mathematical equation to represent curves.
15	Machine	2015191157	Geometric	CO2	Apply the cubic splines in modeling of a product.
	Design		Modeling	CO3	
		 	+	C01	
	M.Tech-		Multi Body	CO2	
15	Machine	2015191158	i "	CO3	
1.5	Design	1	Dynamics	1 4 9 9 4	

rogramme Code	Programme Name	Course Code	Course Name	со	Course Outcome: After the completion of the course student will be able to
	M.Tech-		Vision Systems		Suggest and explain the physical requriements for developing a
15	Machine	2015191159			Explain various image represention techniques and image
15		2015191159	and Image Processing	CO3	Select and Explain a suitable image enhancement technique for a
	Design		Processing	CO4	Summarize various image compression techniques
					Understand the concepts of potential energy, Raleigh Ritz method
- 4	ļ			CO1	and weighted residual methods.
	M.Tech-		4 3 3 Et74		Identify the suitable FEA elements such as bars, truss, beams,
15	Machine	2015191200	Advanced Finite	CO2	constant strain triangle and isoparametric elements to create Finite
	Design		Element Methods		Apply suitable boundary conditions to the finite element model
) !			and solve the engineering problems
					Solve problems involving dynamics and heat transfer.
	-				Design mechanical components by selecting a suitable material
	M.Tech-			CO2	Evaluate fatigue life of mechanical components for ductile and
15	Machine	2015191201	Advanced	COZ	
15		2015191201	Machine Design	CO3	Analyze and predict the fracture strength of mechanical components under different fracture modes
	Design				
				CO4	Design mechanical components involving contacts avoiding the
	1				Apply MATLAB and Python code for solving a system of linear
	M.Tech-			CO1	equationusing using Gauss Elimination Method.
15	Machine	2015191210	Computational	!	Apply MATLAB and Python code for Iterative methods to solve
10	Design	2015171210	Mathematics Lab	CO2	equations using Jacobil teration.
	Design	1		CO3	Apply MATLAB and Python code for Matrices and Eigenvalues
				CO4	Apply MATLAB and Python code for Partial Differentialequation
	2500 1			CO1	Classify the various types of load applications
	M.Tech-	201010101	Design Practice	CO2	Decide the correct profile of the components
15	Machine	2015191211	Lab-II	CO3	Create the final dimensions of the components
	Design			CO4	Constuct the final component in all the parameters
h.	 	 		CO1	Understand the importance of yield point in the stress analysis.
15	M.Tech-		Theory of	CO2	Analyze the governing equations of plasticity
	Machine	2015191250	Plasticity	CO3	
	Design)	Plasticity		Apply principles of plasticity in the design analysis
	-			CO4	Develop constitutive models based on experimental results on
	M.Tech-		Signal Analysis	CO1	Understand basic concepts of Fourier analysis, Bandwidth. Signa
15	Machine	2015191251	and Condition Monitoring	CO2	Analysis of stationary signals.
15	Design			CO3	Analysis of continuous non-stationary signals.
	Design		1710mkorang	CO4	Apply condition monitoring in real systems.
				COI	Understand the fundamental of finite element method.
	M.Tech- Machine Design	2015191252	Computational Fluid Dynamics	CO2	Use the finite element method to solve fluid dynamics problems.
15					Formulation the equations for incompressible and compressible
				CO3	flows using various avaible metyhod
				CO4	Implement finite volume method and Standard variational metho
				CO1	Understand the importance of composite materials
	M.Tech-		Composite	CO2	Distinguish various materials used for matrix and reinforcement
15	Machine	2015191253	Materials	CO3	Recommend the composite material according to the application
	Design			CO4	Modify the material according to the types of loads coming on to
	1	+		COI	Learn about soft computing techniques and their applications
	M.Tech-	2015191254	Soft Computing	CO2	Define the fuzzy systems
15	Machine				
	Design			CO3	Analyze the genetic algorithms and their applications.
	,	1		CO4	Analyze various neural network architectures
				COI	Clean and manipulate raw data sets so they are ready for analysis
	M.Tech-		Experimental		Determine and carry out the appropriate statistical test for a varie
15	Machine	2015191255	Techniques and	CO2	of experimental questions about different data sets
	Design		data Analysis	CO3	Draw conclusions about whether research hypotheses have been
		1		CO4	Plan the statistical analysis of an independent research project
	-		1	T	Understand the concepts such as elasticity in materials, plastic
	8			CO1	deformation, and advanced concepts like solid solution and
			1 _		Select the material based on cost, service, and mechanical
	M.Tech-	1	Design with	CO2	properties using material property charts
15	Machine	2015191256	advanced		Analyze material characteristics of various modern metallic
	Design		Materials	COL	I '
	1			CO3	materials such as sual phase steels, intermetallics, and alloys.
				1 000	Evaluate the porcessing and properties of polymer based
	-		ļ	C04	compsoite materials, smart materials, shape memory alloys.
					Understand the basic concepts behind design considerations of
	M.Tech-			CO1	mechatronics systems, various actuators, and drive systems.
15	Machine	2015191257	Mechatronics	CO2	Develop motion control algorithms using fuzzy logic
	Design			CO3	Analyze sensor interfacing and architecture of intelligent
	4			CO4	Assess the machine vision concept and various micro
	1.	1	1	COI	Illustrate the fundamentals of tribology and the tribological
	M.Tech-	1		CO2	Explain about various Lubrication Technquies
15	Machine	2015191258	Tribology	CO3	
	Design				Demonstrate about bearing propeties and analyze about bearing
			<u> </u>	C04	Classify different types of seals and its uses
	M.Tech-		1	CO1	Understand different modal analysis: Vibrations of single and
15	Machine	2015101250	Experimental	CO2	Analyse Frequency response functions measurement.
		2015191259			
15	Design	2013171237	Modal Analysis	CO3	Understand Inverse Method, Residuals MDOF, curve-fitting

Programme Code	Programme Name	Course Code	Course Name	со	Course Outcome: After the completion of the course student will be able to
	M.Tech-			COI	Carryout literature survey, and choose a relevant topic reported in recent SCI / IEEE/ Scopus / conference publications / transactions
15	Machine	2015191270	Mini Project with	CO2	Simulate and analyze the results reported in the chosen paper for
1.0	Design	2013171270	Seminar	CO3	Communicate effectively before the expert panel and develop
	Design		}	CO4	Respond to the queries raised by the evaluation committee and
				COI	Summarize robot components, configurations and different end
	M.Tech-		Industria!	CO2	Fourmulate the kinematics and dynamics of a mainpulator
15	Machine	2015192150	Robotics	CO3	Write a program to manipluate the end effector of a robot to move
	Design		Robottes	CO4	Select a robot for a given industrial application and Design its cell
_				004	Explain the fundamental knowledge of Linear Programming and
				COI	Dynamic Programming problems
	M.Tech-		Advanced	CO2	Use classical optimization techniques and numerical methods of
15	Machine	2015192151	Optimization	CO3	Describe the basics of different evolutionary algorithms
	Design	1	Techniques		Enumerate fundamentals of Integer programming technique and
				CO4	apply different techniques to solve various optimization problems
				C04	Recognize the development of Additive Manufacturing technology
	M.Tech-			COI	and opportunities for transforming a concept into product
15	Machine	2015192152	Additive Manufacturing	CO2	Apply the suitable rapid prototyping process for a given product.
15				CO3	Apply the suitable rapid tooling process for a given product. Apply the suitable rapid tooling process for a given product.
	Design			CO4	Explore the applications of AM processes.
	-			COI	Understand the importance of composite materials
	M.Tech- Machine Design	2015192153	Mechanics of Composite Materials	CO2	Distinguish various materials used for matrix and reinforcement
15				CO2	
				CO4	Recommend the composite material according to the application
	-			CO1	Modify the material according to the types of loads coming on to
	M.Tech- Machine Design	2015192154	Vehicle Dynamics		Identify the dynamic forces acting on different parts of the vehicle
15				CO2	Understand the behaviour of pneumatic tyres and stability of
				CO3	Correlate the course materials to the daily driving experience of a
	-			CO4	Apply the mechanical theories on the vehicle dynamics design.
	M.Tech-	2015192160		COI	Develop the different linear programming and assignment models
15	Machine Design		Operations	CO2	Analyze the different transportation models.
			Research	CO3	Design inventory and queueing theory models for optimal
	-	-		CO4	Apply optimal strategy to real time applications using dynamic
					Analyze a complex engineering problem and to apply principles o
	M.Tech-		Project Phase -I/	CO1	mechanical engineering and relevant disciplines to identify
15	Machine	2015192170	Industrial Project	CO2	Determine suitable methodology to attain at a sustainable solution
	Design		# -	CO3	Design, implement, and optimize the solution to meet all the
		1			Recognize professional responsibilities and make informed
	-			CO4	judgments in mechanical domain based on legal and ethical
					apply the mechanical engineering principles in planning,
	1			COL	formulating an innovative design/ approach to chosen topic within
	M.Tech-				Ability to perform individually accepting responsibility, taking
15	Machine	2015192270	Project Phase -II	CO2	initiative, and providing leadership, necessary to ensure project
"	Design				Ability to use formal and informal communications with guide,
			100	CO3	
			1. //		Develop/implement the solutions with appropriate techniques,
				CO4	resources and contemporary tools for social relavent



		DEPAR	TMENT OF EL	ECT	OF INFORMATION TECHNOLOGY (A) RICAL AND ELECTRONICS ENGINEERING
Programme	Programme		<u></u>	R - 19	COURSE OUTCOMES
Code	Name	Course Code	Course Name	CO	Course Outcome: After the completion of the course student will be able to
	M.Tech-Power		Electrical		Understand the behavior of DC motors and also model the different Dc motors. Apply the knowledge of reference frame theory for AC machines to model the induction and Synchronous machine
42	and Industrial Drives	2042191100	MachineModel in g andAnalysis	COS	Evaluate the steady state and transient behaviour of induction and synchronous machines to Propose the suitability of drives for different industrial application Analyze the characteristics of different types of DC motors and 2-Phase induction machines using voltage and torque equations to differentiate the behaviour and to propose their
42	M.Tech-Power and Industrial	2042191101	Analysis of PowerElectronic	CO1	applications in real world Examine the operation of phase controlled converters and AC voltage converters Determine the requirements of power factor correction in converter circuits Analyze the operation of 3-phase inverters with and without PWM techniques
42	Drives M.Tech-Power and Industrial	2042191110	PowerElectronics	CO1	Describe principles of operation and features of multilevel inverters. Examine power semiconductor device properties via simulation Analyze and implementing the speed controlling techniques for AC machines in simulation
	Drives M.Tech-Power	2042191110	SimulationLabor atory	C04 C01	Explain the operation of various power electronic converters in simulation. Implement the PWM techniques in simulation Experimentally understand the different converters
42	and Industrial Drives	2042191111	PowerConverters Laboratory	CO2 CO3 CO4	Experimentally understand the dual converter application experimentally understand inverters for single and three phase loads Design of gate drive circuits for IGBT & MOSFET's.
42	M.Tech-Power and Industrial Drives	2042191150	ModernControiT heory	C02	Understand the state variable approach's which are suitable for higher order systems Analyze the concepts of controllability and observability. Examine the stability and instability problems in continuous time invariant systems, various non-linearities using phase plane analysis and descriptive functions an
)	M.Tech-Power		PowerQualityand	CO1	Solve the optimal control problems for any continuous time invariant system Identify the issues related to power quality in power systems and also address the problems o transient and long duration voltage variations in power systems.
42	and Industrial Drives	2042191151	CustomPowerDe vices	C03	Analyze the effects of harmonics and study of different mitigation techniques. Understand the importance of custom power devices and their applications. Acquire knowledge on different compensation techniques to minimize power quality disturbances
42	M.Tech-Power and Industrial Drives	2042191152	ProgrammableLo gicControllers& Applications	CO2	Understand the PLCs and their I/O modules. Develop control algorithms to PLC using ladder logic etc. Manage PLC registers for effective utilization in different applications and also and functions & control of two axis, their axis robots with PLC.
42	M.Tech-Power and Industrial Drives	2042191153	ArtificialIntellige	CO4 CO1 CO2	Design PID controller with PLC Understand the concept of genetic algorithm and its application in optimization. Differentiate between Algorithmic based methods and knowledge based methods Use appropriate AI framework for solving of power system problems. Design the fuzzy logic controllers for power engineering applications.
42	M.Tech-Power and Industrial Drives	2042191154	RenewableEnerg yTechnologies	CO2	Understand various general aspects of renewable energy systems Analyze and design induction generator for power generation from wind Design MPPT controller for solar power utilization
	M.Tech-Power		HVDCTransmiss ionandFlexibleA	CO ₁	Utilize fuel cell systems for power generation. Evaluate the HVDC converter configurations and assess the performance metrics. Understand controllers for controlling the power flow through a dc link and compute filter Parameters
42	and Industrial Drives	2042191155	CTransmissionSy stems	CO3	Apply impedance, phase angle and voltage control for real and reactive power flow in ac transmission systems with FACTS controller. Analyze and select a suitable FACTS controller for a given power flow condition.
42	M.Tech-Power and Industrial Drives	2042191200	Switched Mode Power Conversion	CO1 CO3	Analyze operation and control of non-isolated and isolated switch mode converters. Design of non-isolated and isolated switch mode converters Understand the operation and control of resonant converters Create the switch mode converters based on linearized models
42	M.Tech-Power and Industrial Drives	2042191201	Power Electronic Control of Electrical Drives	CO1 CO2	Understand the concepts of scalar and vector control methods for drive systems. Design controllers and converters for induction motor, PMSM and BLDC drives. Select and implement proper control techniques for induction motor and PMSM for specific applications
42	M.Tech-Power and Industrial Drives	2042191210	Electric Drives Simulation Laboratory	CO1	Analyze the control techniques and converters for SRM drives. Simulation of Buck converter, Boost converter, single-phase square wave inverter and PWN inverter. Design controllers and converters for induction motor, PMSM and BLDC drives Simulate D.C separately excited motor and transmission line by incorporating line, load and transformer models.
42	M.Tech-Power and Industrial Drives	2042191211	Electric Drives Laboratory	CO4 CO1	Simulation of single phase AC voltage regulator with different loads. Explain about characteristics of various power semiconductor devices and firing circuits. Analyze the performance of single-phase and three-phase full-wave bridge converters with both resistive, inductive and motor loads. Illustrate the working of Buck converter, Boost converter, single-phase square wave inverted.
42	M.Tech-Power	2042191250	Control & Integration of	CO4 CO1	and PWM inverter. Describe the operation of single phase AC voltage regulator with different loads. Gain knowledge on different renewable energy sources and storage devices Recognize, model and simulate different renewable energy sources

Programme	Programme	Course Code	Course Name	СО	Course Outcome: After the completion of the course student will be able to
Code	Name				
	M.Tech-Power		Hybrid Electric	CO2	Analyze the concept of electric vehicles and hybrid electric vehicles Discover the different motors used for hybrid electric vehicles
42	and Industrial	2042191251	Vehicles	CO3	Understand the power converters used in hybrid electric vehicles
	Drives			CO4	Know the different batteries and other energy storage systems.
				C01	Analyze digital control systems using Z-transforms and Inverse Z-Transforms
	M.Tech-Power				Evaluate the state transition matrix and solve state equation for discrete model for continuous
42	and Industrial	2042191252	Digital	CO2	time systems, investigate the controllability and observability.
	Drives		ControlSystems	CO3	Determine the stability, design state feedback controller.
	<u></u>			C04	Solve a given optimal control problem
	M.Tech-Power			CO1	Design digital filters with different techniques and also describe structure of digital filter
42	and Industrial	2042191253	Advanced Digital	CO2	Understand the implementation aspects of signal processing algorithms.
7-	Drives	20-2171233	Signal Processing	CO3	Know the effect of finite word length in signal processing.
	Dilles			CO4	Analyze different power spectrum estimation techniques
				CO1	Analyze power electronic application requirements
	M.Tech-Power		Applications of	CO ₂	Identify suitable power converter from the available configurations
42	and Industrial	2042191254	PowerConverters	CO3	Develop improved power converters for any stringent application requirements.
	Drives		T GIVET CONTENTED IN		Improvise the existing control techniques to suit the application. Design of Bi-directional
				C04	converters for charge/discharge applications
	147 1 2			CO1	Understand about DSP architecture and assembly programming for DSP processors.
- 43	M.Tech-Power				Design the interfacing circuits for input and output to PIC micro controllers and DSP
42	and Industrial	2042191255	Microcontrollers		processors
1	Drives			CO3	Create ALP for DSP processing devices
				CO4	Design PWM controller for power electronic circuits using FPGA
					Carryout literature survey, and choose a relevant topic reported in recent IEEE/IET/Elsevier/
	M.Tech-Power		Add to the second		Springer/Taylor and Francis/conference publications / transactions in the domain of Electrical
42	and Industrial	2042191270	Mini Project with	COI	and Electronics Engineering.
	Drives		Seminar	CO2	Simulate and analyze the results reported in the chosen paper for seminar topic.
				CO3	Communicate effectively before the expert panel and develop technical reports.
				CO1	Respond to the queries raised by the evaluation committee and audience
				COI	Interface the DSP platform with sensors such as hall-effect voltage sensors,
	M.Tech-Power	2042192150	Digital Signal Processing Controlled Drives		Understand the hall-effect current sensors, shaft encoder for data acquisition for motor drive
42	and Industrial			COL	applications and also use algorithms for the realization of controllers, Pulse Width Modulators and observers.
	Drives			CO2	and observers.
				CO3	Scale and normalize the data to suit the requirements of the drive system
				COL	Exploit the architectural features of the DSP platform to design and implement Explain about the micro grids and distributed generation systems.
		2042192151	Smart Grid Technologies	CO2	Develop concepts of smart grid technologies in hybrid electrical vehicles etc.
	M.Tech-Power and Industrial Drives				Understand smart substations, feeder automation, GIS, smart grids, smart grid policies and
42				CO3	developments in smart grids
					Analyze the effect of power quality in smart grid and to understand latest developments in ICT
				C04	for smart grid.
	MT-L D-		Modeling &	COI	Understand the back ground activities i.e. numerical solution used in the simulation software
42	M.Tech-Power	2042102152	Simulation of	CO2	Choose the required numerical solver to be used for analysis
72	and Industrial Drives	2042192152	PowerElectronic	CO3	Debug the convergence problems occurring during simulation
	Drives	<u></u>	Systems	C04	Investigate different switching function technique and their properties of the switching
	M.Tech-Power			CO1	Analyze operation and control of different switch mode converters.
42	and Industrial	2042192160	MOOCs	CO ₂	Design of switch mode converters
72	Drives	2044172100	MOOCS	CO3	Understand the operation and control of resonant converters
				CO4	Create the switch mode converters based on linearized models
	M.Tech-Power			CO1	Gain knowledge on different renewable energy sources and storage devices
42	and Industrial	2042192161	Renewable	CO2	Recognize, model and simulate different renewable energy sources
	Drives		Energy Systems	CO3	Analyze, model and simulate basic control strategies required for grid connection
	-			C04	Implement a complete system for standalone/grid connected system
3	M Trail P				Define an objective function and constraint functions in terms of design variables, and then
42	M.Tech-Power	20.42100111	Optimization	COI	state the optimization problem
42	and Industrial	2042192162	Techniques	COZ	Solve single variable and multi variable optimization problems, without and with constraints.
	Drives			CO3	Apply linear and non-linear programming technique to an optimization problem.
			<u> </u>	CO1	Explain basic principles of Genetic Algorithms and Particle Swarm Optimization methods
	M.Tech-Power		Programmable	COL	Understand the PLCs and their I/Omodules.
42	and Industrial	2042192163	47	CO2	Develop control algorithms to PLC using ladderlogic.
	Drives		Logic Controller	COA	Manage PLC registers for effective utilization in different applications.
				CU4	Design Hardware configuration and develop logic for different Industrial Applications.
				COL	Apply knowledge of Electrical and Electronics engineering fundamentals to solve the complex
				COI	Engineering problems
	M.Tech-Power		Dissertation-I/	CO2	Design prototypes and solutions to solve the specific needs related with public health, safety,
42	and Industrial	2042192170	Industrial	CUZ	society and environment leading to sustainable development following ethical values
72	Drives		Project #	CO3	Adapt appropriate techniques, resources and modern engineering tools during the
72	Drives		r roject #	COS	implementation of project
72	Drives		'		
72	Drives			COA	Develop a multidisciplinary project leading to the ability of engagement in lifelong learning
72	Drives			CO4	and self-development
72	Drives				and self-development Apply knowledge of Electrical and Electronics engineering fundamentals to solve the complete
72	Drives				and self-development Apply knowledge of Electrical and Electronics engineering fundamentals to solve the complete Engineering problems
72	Drives M.Tech-Power			COI	and self-development Apply knowledge of Electrical and Electronics engineering fundamentals to solve the complete Engineering problems Design prototypes and solutions to solve the specific needs related with public health, safety.
42		2042192270	Dissertation-II	COI	and self-development Apply knowledge of Electrical and Electronics engineering fundamentals to solve the complete Engineering problems Design prototypes and solutions to solve the specific needs related with public health, safety, society and environment leading to sustainable development following ethical values
	M.Tech-Power	2042192270	Dissertation-II	CO1	and self-development Apply knowledge of Electrical and Electronics engineering fundamentals to solve the complex Engineering problems Design prototypes and solutions to solve the specific needs related with public health, safety, society and environment leading to sustainable development following ethical values Adapt appropriate techniques, resources and modern engineering tools during the
	M.Tech-Power	2042192270	Dissertation-II	CO1	and self-development Apply knowledge of Electrical and Electronics engineering fundamentals to solve the complex Engineering problems Design prototypes and solutions to solve the specific needs related with public health, safety, society and environment leading to sustainable development following ethical values Adapt appropriate techniques, resources and modern engineering tools during the implementation of project
	M.Tech-Power	2042192270	Dissertation-II	CO1 CO2 CO3	and self-development Apply knowledge of Electrical and Electronics engineering fundamentals to solve the complex Engineering problems Design prototypes and solutions to solve the specific needs related with public health, safety, society and environment leading to sustainable development following ethical values Adapt appropriate techniques, resources and modern engineering tools during the

			VIGNAN'S INS	TITUT	E OF INFORMATION TECHNOLOGY (A)
			EPARTMENT	OF CO	OMPUTER SCIENCE AND ENGINEERING
Programme	Programme			VR19	- COURSE OUTCOMES
Code	Name	Course Code	Course Name	COL	Course Outcome: After the completion of the course student will be able to
25	M.Tech- Software	2075104100	Software	CO2	Analyze software development process models and their suitability to industrial applications. Develop SRS document for software design.
23	Engineering	2025191100	Engineering	CO3	Employ software architectural styles to design user interface.
	Lagineering			CO4	Compare software testing approaches and aspects.
	M.Tech-		1	CO1	Compare linear and non linear data structures
25	Software	2025191101	Advanced Data	CO2	Implement searching, sorting and traversing methods
	Engineering		Structures		Implement priority queues using Binary heap Analyze algorithms for Height balanced trees like AVL trees, red-black trees, B-trees and Splay
				C04	trees.
	M.Tech-		Software	CO1	To understand the basic concepts and issues of software project management
25	Software	2025191150	Project and Process	CO3	To conduct activities necessary to successfully complete and close the Software projects
	Engineering		Management	CO4	To implement the project plans through managing people, communications and change To develop the skills for tracking and controlling software deliverables
	M.Tech-			COI	Demonstrate on Supervised and Computational Learning
25	Software	2025191151	Machine	CO2	Analyze on Statistics in learning techniques and Logistic Regression
	Engineering		Learning	CO3	Illustrate on Support Vector Machines and Perceptron Algorithm
				COI	Design a Multilayer Perceptron Networks and classification of decision tree Understand the basic concepts of E-commerce
	M.Tech-			CO2	Demonstrate an retailing in E-commerce by using the effectiveness of market research
25	Software	2025191152	E-Commerce		Describe Internet trading relationships including Business to Consumer, Business to-Business Intra
	Engineering			CO3	organizational
				COI	Describe about Consumer Search and Resource Discovery Describe various standards used for Software Quality Assurance
	M.Tech-		Software Quality		Explain fundamental concepts in software quality (e.g., internal / external quality, as well as quality
25	Software	2025191153	Assurance and	CO2	[in use) and quality assurance models.
	Engineering		Testing	CO3	Name and describe different testing techniques and approaches
	M.Tech-			CO1	Compare various Automation tools used for Software Testing
25	Software		Cloud	CO2	Differentiate among various cloud offerings, cloud environments, distributed technologies Analyze various cloud platforms and cloud applications.
	Engineering	2025191154	Computing	CO3	Survey the policies and mechanisms for resource management, performance, scheduling
	M.Tech-			COI	Choose among different storage technologies for cloud like DFS, GFS, HDFS, S#, Big Table. Enumerate the list of IoT Applications
25	Software		Internet of	CO2	Evaluate different loT application architectures
	Engineering	2025191155	Things	CO ₃	Construct IoT applications with Cloud for data analytics
	M.Tech-		Research	COI	Chose a real world commercial platform for deploying IoT Applications Discuss the process used for research Problem selection and Research Paper Writing
25	Software	2000191100	Methodology	CO2	Interpret the Patent writing and Development
	Engineering		and IPR	CO3	Describe the Procedure for Grant of Patents Illustrate new Developments in IPR
	M.Tech-			COI	Identify classes, objects, members of a class and relationships among them needed for a specific
25	Software	2025191110	Advanced Data	CO2	Organize and apply to solve the complex problems using advanced data structures (like across
	Engineering		Structures Lab	CO3	Apply and analyze functions of Dictionary Implement Programs on Hashing
	M.Tech-			CO1	Demonstrate the constructs of Ruby scripting Language, use of Perl language elements
25	Software	2025191111	SE LAB-I	CO2	Implement PERL program to connect to MySOL database
	Engineering			CO4	Implement Map Reduce Program for weather data Implement PHP program for cotactuspage.
25	M.Tech-	2000191130	Soft skills	CO1	Teamwork - learning to connect and work with others to achieve a set task
	Software		(Audit course)	CO2	Leadership - assessing the requirements of a task, identifying the strengths within the team
				COI	learn to demonstrate a critical understanding of key concepts in disaster risk reduction and
	M.Tech-				critically evaluate disaster risk reduction and humanitarian response policy and practice from
25	Software	2000191130	Disaster Management	CO2	multiple perspectives.
	Engineering		(Audit course)	_	develop an understanding of standards of humanitarian response and practical relevance in specific
				_CO3	types of disasters and conflict situations.
				CO4	critically understand the strengths and weaknesses of disaster management approaches, planning and programming in different countries
7 7					What pedagogical practices are being used by teachers in formal and informal classrooms in
	M.Tech-		Padana	CO1	Ideveloping countries?
25	Software	2000191130	Pedagogy Studies (Audit	CO2	What is the evidence on the effectiveness of these pedagogical practices, in what conditions, and with what population of learners?
	Engineering		course)		How can teacher education (curriculum and practicum) and the school curriculum and quidance
				CO3	materials best support effective pedagogy?
25	M.Tech-	2000191130	Stress	CO4 CO1	Develop healthy mind in a basithy body thus imposition and the last
25	Software		Management	CO2	Develop healthy mind in a healthy body thus improving social health also Improve efficiency
	M.Tech-		Service	COI	Creation of SOA compliant web service using various technologies
25	Software	2025191200	Oriented	CO2_	Make use of variousservice oriented analysis techniques also understand the technology underlying Demonstrate on basic concepts of SOA and it differs with other architectures
	Engineering		Architecture	CO4	Organize advanced concepts of service composition, Orchestration and Choreography
	M.Tech-		Mathematical	COL	Design mathematical logic with Propositional Calculus and Predicate Calculus
25	Software	2025191201	Foundations of	CO2	Assume mathematical principles and logics to solve real time problems
	Engineering	-v=21/14V1	Computer	203	Apply graph theory for real time problems like network routing problem. Examine Principles of Inclusion-Exclusion, Pigeonhole Principle and its Application and Apply
	_		Science	CO4	In the state of th
					Recurrence Relations by Substitution and Generating Functions.
15	M.Tech-	2025101250	Software .		Recurrence Relations by Substitution and Generating Functions. Examine Taxonomy of Bugs, Basics Concepts of Path Testing and theme of testing. Illustrate Domain testing and Interface Testing.

rogramme Code	Programme Name	Course Code	Course Name	СО	Course Outcome: After the completion of the course student will be able to
AU	Name		resting	CO3	Organize Logic Based Testing, Graph Matrices and apply node reduction algorithm
	Engineering		Methodologies	CO4	Identify the needs of software test automation and develop a test tool to support test automation.
	A C Trank			CO1	Summarize the agile methodologies: extreme programming, scrum, and feature driven programmin
	M.Tech-		Agile Software	CO2	Apply The Twelve XP Practices and Illustrate pair programming and its characteristics
25	Software	2025191251	Development	CO3	Apply XP to a small project.
	Engineering		-	CO4	Examine Feature-Driven Development and Regaining Control
					Construct a model to generate forecasts for a company's products.
	M.Tech-		ERP & Supply -	CO2	Develop a Business Modules by using fundamentals Supply chain Management.
25	Software	2025191252	Chain -	CO3	Apply Supply chain strategies and list the performance Metrics.
	Engineering		Management -	CO4	Develop on a compart modulation also with relevant determinists and state an
	0 0			CO1	Develop an aggregate production plan with relevant deterministic and stochastic inventory models
	M.Tech-		Secure -	CO2	Explain the Properties of Secure Software and Specify Desired Security Properties.
25	Software	2025191253	Software -	CO3	Incorporate requirements into secured software development process
	Engineering		Engineering	C04	Apply secure design principles for developing attack resistant software
					Analyze the Security and complexity of system drivers.
	M.Tech-		, F	COI	Illustrate on big data and its use cases from selected business domains.
25	Software	2025191254	Big Data	CO2 CO3	Interpret and summarize on No SQL, Cassandra
	Engineering		Analytics	CO4	Analyze the HADOOP and Map Reduce technologies associated with big data analytics and explo
					Make use of Apache Spark, RDDs etc. to work with datasets.
	M.Tech-			CO1	Identify the appropriate design patterns to solve object oriented design problems.
25	Software		Design patterns	CO2	Develop design solutions using creational patterns.
-	Engineering			CO3	Apply structural patterns to solve design problems.
	Zingilicetting	2025191255		CO4	Construct design solutions by using behavioural patterns.
	M.Tech-			COI	Demonstrate a wide range of techniques including testing, test case coverage determination and
25	Software	2025191210	Software	CO2	Choose the existing testing techniques are most effective for vulnerability detection.
~	Engineering		Testing Lab	CO3	Design test planning and Examine the test process
	ragmeering		<u> </u>	CO4	Prepare test plan and develop test case hierarchy
	M.Tech-			CO1	Creating applications for Big Data analytics
25	Software	2025191211	SE Lab-II	CO2	Building a complete business data analytic solution
تن	l .	4043171411	SE PHO-II	CO3	Understand how design patterns solve design problems
	Engineering			CO4	Develop design solutions using creational patterns, structural and behavioural patterns
	M.Tech-		Constituti	COI	Have general knowledge and legal literacy and thereby to take up competitive examinations.
35	1	2025101555	Constitution of	CO2	Understand state and central policies, fundamental uties.
25	Software	2025191270	India (Audit	CO3	Understand Electoral Process, special provisions.
	Engineering	1	Course)	CO4	Understand powers and functions of Municipalities, Panchayats and Cooperative Societies
	M.Tech-		Sanskrit For	COI	Understanding basic Sanskrit language
25	Software	2025191270	Technical		Ancient Sanskrit literature about science & technology can be understood Being a logical language
20		2020171210	1 1	CO2	
	Engineering M.Tech-		Knowledge	COI	will help to develop logic in
25		2025191270	Value	CO2	Knowledge of self-development
	Software		Education	COI	Learn the importance of Human values 3.Developing the overall personality
25	M.Tech-	2025191270	Personality		Study of Shrimad-Bhagwad-Geeta will help the student in developing his personality and achieve
	Software	-	Development	CO2	The person who has studied Geeta will lead the nation and mankind to peace and prosperity Study
					Carryout literature survey, and choose a relevant topic reported in recent IEEE/CSI/ACM/
	M.Tech- Software Engineering	2000191230	Mini Project with Seminar	CO1	conference publications / transactions in the domain of computer science and engineering.
25				CO2	
				CO3	Simulate and analyze the results reported in the chosen paper for seminar topic.
				CO4	Communicate effectively before the expert panel and develop technical reports.
	1		211	COI	Respond to the queries raised by the evaluation committee and audience
	M.Tech-	1	Object	CO2	Analyze of a formally specified problem statement with Modeling Concepts.
25	Software		Oriented	CO3	Examine Project Organization, Communication and analysis Concepts.
	Engineering	2025192150	Software	CO3	Produce appropriate System Design, object design of reusable Activities
	Engineering		Engineering	CO4	Apply skills relevant for Mapping Models to Code, Configuration and project Management
			-	COI	Select a search algorithm for a problem and characterize its time and space complexities.
	M.Tech-	1	Artificial	CO2	Experiment with knowledge using the appropriate techniques for Logic concepts
25	Software	2025192151	Intelligence	CO3	Develop knowledge representation using semantic network, semantic web and List advanced
	Engineering	2023172131	miemgenee	CO4	Apply Al techniques to solve problems of Expert Systems
				COI	
	M.Tech-	Į.		CO2	Connect openly on a global scale, with global learners and instructors.
25	Software	38354854	MOOCS		Develop high quality learning using multimedia platform.
	Engineering	2025192160		CO3	Self assessment of their performance and learning process.
		-		CO4	Develop a lifelong learning culture and updating the knowledge according with emerging trends.
				COI	Analyze a user interface from a communication perspective with graphical user interface.
25		1.	User Interface	CO2	Discuss the nature of the design process,
		2025192152	Design	CO3	Select an appropriate interaction design pattern for Screen Designing.
	1	1		CO4	Demonstrate on selection of window and Components.
					apply the software engineering principles in planning, formulating an innovative design/approach
					and computing the requirements appropriate to chosen topic within the context of legal, societal a
					environment constraint.
				CO1	CHAROUNGER COURTHE
	M.Tech-				Ability to perform individually accepting responsibility, taking initiative, and providing leadershi
25	Software	2025192170	Dissertation-I	CO2	necessary to ensure project success
	Engineering				
					Ability to use formal and informal communications with guide, make presentations and prepare
				CO3	technical document.
					Develop/implement the solutions with appropriate techniques, resources and contemporary tools
	1			CO4	social relavent issues/problems
_	-	1	33 33 4	1 234	
		1			apply the software engineering principles in planning, formulating an innovative design/approach
					and computing the requirements appropriate to chosen topic within the context of legal, societal a
				CO1	environment constraint.
	M.Tech-				Ability to perform in the ally accepting responsibility, taking initiative, and providing leadership
35	Software	2025192270	Dissertation-II	CO2	necessary to see the seed of t
25		2023172270	Lanci millini		A billion con
43	Engineering				Ability to the strong line and orea communications with guide make presentations and prepare
23	Engineering			CO3	Ability to the Street I and Loren communications with guide make presentations and prepare technical form
23		1			IDentify (ICI)
43				1	Develop/ in tension is of a property to the appropriate techniques, uniques in the total troop and tools
43	ļ			CO4	social related to the series of the series o
#J		į		CO4	Develop/ 15 change of the happropriate techniques, page 17 pt 17 pools social relation. Technology (A) Beside: VSEZ, Duvvada, Visakhapatna E. 44

		VIGNA	AN'S INSTITU	TE OF INFORMA	TION TE	ECHNOLOGY (A)				
			DEPART	MENT OF CIVIL E	NGINE	ERING				
VR19 - COURSE OUTCOMES										
S.No	Program me Code	Programme Name	Course Code	Course Name	CO	Course Outcome: After the completion of the course student will be able to				
	22	M.Tech-Transportation Engineering			COI	Understand the sequential stages involved in the construction of flexible and bituminous pavements				
1	22	M.Tech-Transportation Engineering	2022191100	Pavement Materials and	_CO2	Determine the optimum bitumen content by applying the bitumen mix design methods				
	22	M.Tech-Transportation Engineering		Construction	CO3	Assess the suitability of aggregates used in various layers of pavement.				
	22	M.Tech-Transportation Engineering			CO4	Identify the suitable equipment for construction of different pavements.				
	22	M.Tech-Transportation Engineering			COI	Develop a basic Knowledge of the fundamental issues in traffic engineering and understanding of the factors influencing road vehicle performance				
2	22	M.Tech-Transportation Engineering	2022191101	Highway Traffic Analysis and	CO2	Understand Headways and Gap acceptance behavior				
	22	M.Tech-Transportation Engineering		Design	CO3	Define the critical procedures for highway capacity and level of service analysis				
	22	M.Tech-Transportation Engineering			CO4	Build knowledge on traffic signal theory and elements of traffic signal Operations and design the links and intersections				
	22	M.Tech-Transportation Engineering			COI	Decide the suiatable ground improvement method and their suitability to different field situations				
3	22	M.Tech-Transportation Engineering	2022191150	Ground Improvement	CO2	Design a reinforced earth embankment and check its stability.				
	22	M.Tech-Transportation Engineering	2022171100	Techniques	CO3	Analyze the various functions of Geosynthetics and their applications in Civil Engineering practice				
	22	M.Tech-Transportation Engineering			_CO4	Adapt the suiatable grouting techniques for various applications				
	22	M.Tech-Transportation Engineering			COI	Interpret various remotely sensed images with the help of acquired knowledge in remote sensing technology				
4	22	M.Tech-Transportation Engineering	2022101151	RS & GIS for Transportation Engineering	CO2	Apply the GPS instrument in field for various applications				
•	22	M.Tech-Transportation Engineering	2022191151		CO3	Make use of the techniques of RS, GIS and GPS techniques in different transportation engineering applications				
	22	M.Tech-Transportation Engineering			CO4	Extend knowledge on Intelligent Transportation systems				
	22	M.Tech-Transportation Engineering			COI	Apply the different numerical techniques to transportation problems.				
5	22	M.Tech-Transportation Engineering	202210115	Numerical	CO2	Understand applications of probability theory				
3	22	M.Tech-Transportation Engineering	2022191152	Methods and Applied Statistics	CO3	Use regression and correlation analysis to process transportation data				
	22	M.Tech-Transportation Engineering			CO4	Understand the concpets of sampling				
	22	M.Tech-Transportation Engineering			COI	Understand the sensor and communication technologies				
_	22	M.Tech-Transportation Engineering	20202022	Intelligent	CO2	Apply the various ITS methodologies for Indian Traffic Conditions,				
6	22	M.Tech-Transportation Engineering	2022191153	Transportation Systems	CO3	Evaluate the ITS User Needs and functional areas for Indian Conditions.				
	22	M.Tech-Transportation Engineering			CO4	Overview of ITS implementations in devloped countries				
	22	M.Tech-Transportation Engineering			COI	Develop an understanding of the fundamentals of pavement modelling processes				
7	22	M.Tech-Transportation Engineering	2022191154	Transportation	CO2	Extend knowledge on the Key Relationships and physical laws of models				
,	22	M.Tech-Transportation Engineering	4044191134	System Modeling and Simulation	CO3	Build knowledge on growth and decay processes				
	22	M.Tech-Transportation Engineering			CO4	Distinguish between virtual and real problems related to various simulation processes				

## A.Tech-Transportation Engineering ## A.Tech-Transportation Enginee							
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22 M.Tech-Transportation Engineering 22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering 27 M.Tech-Transportation Engineering 28 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 2000191131 200019113							Develon Knowledge on mix design of Flexible
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22 Engineering 22 M.Tech-Transportation Engineering 22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering 27 M.Tech-Transportation Engineering 28 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 20019131 200191	11	22		2000191130	***		Explore on various IPR components and process of
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22 Engineering 22 M.Tech-Transportation Engineering 22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering 27 M.Tech-Transportation Engineering 28 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 20022191200 Pavement Analysis 20022191200 20022191200 Pavement Analysis 20022191200 Pavement Ana		22	Engineering			COI	task
Soft Skills CO2 Identify the strengths within the team		22	M.Tech-Transportation				A grange that province grants of a table
22 M.Tech-Transportation Engineering 22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering 27 M.Tech-Transportation Engineering 28 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 20 M.Tech-Transportation Engineering 21 M.Tech-Transportation Engineering 22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering 27 M.Tech-Transportation Engineering 28 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 20 M.Tech-Transportation Engineer	12			2000191131	Soft Skills	CO2	Assess the requirements of a task
22 M.Tech-Transportation Engineering 22 M.Tech-Transportation Engineering 22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering 27 M.Tech-Transportation Engineering 28 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 20022191201 2002219120		22		2000171151	Soft Skills	CO3	Identify the strengths within the team
22 Engineering 22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering 27 M.Tech-Transportation Engineering 28 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 20022191201							
Engineering CO4 Objective, awareness of risk/safety		22	*				utilize the diverse skills of the group to achieve the set
13 22 M.Tech-Transportation Engineering 22 M.Tech-Transportation Engineering 22 M.Tech-Transportation Engineering 22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering 27 M.Tech-Transportation Engineering 28 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 20022191201 Transportation Engineering						<u>CO4</u>	
13 22 M.Tech-Transportation Engineering 2022191200 Pavement Analysis and Design 2022191200 Pavement Analysis and Design 2022191200 Pavement Analysis and Design 2022191201 CO2 CO3		22	·	!		COL	
Engineering 22 M.Tech-Transportation Engineering 2022191201 Pavement Analysis and Design CO2 flexible pavements CO3 Co3 Co3 Co4 Co4 Co4 Co4 Co4 Co4 Co4 Co4 Co4 Co5 Co							
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22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering 27 M.Tech-Transportation Engineering 28 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 20022191250 Traffic Flow Theory 20022191250 2002219125		22	•		and Design	CO3	_
22 Engineering 22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering 27 M.Tech-Transportation Engineering 28 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 2022191250 Traffic Flow Theory Traffic Flow Theory CO2 CO3 Engineering CO3 Engineering CO4 Engineering CO5 Engineering CO5 Engineering CO6 Engineering CO7 E				1			The state of the s
14 22 M.Tech-Transportation Engineering 22 M.Tech-Transportation Engineering 22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering 27 M.Tech-Transportation Engineering 28 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 20022191250 Traffic Flow Theory 20022191250 CO2 CO2 CO2 CO2 CO2 CO3 CO4 CO3 CO		22		1		CO4	
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Engineering 22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering 27 M.Tech-Transportation Engineering 28 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 20 M.Tech-Transportation Engineering 20 M.Tech-Transportation Engineering 20 M.Tech-Transportation Engineering 21 M.Tech-Transportation Engineering 22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering 27 M.Tech-Transportation Engineering 28 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 20 M.Tech-Transportation Engineering 21 M.Tech-Transportation Engineering 22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering 27 M.Tech-Transportation Engineering 28 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 20 Engineering 20 Define the significance of ITS under Indian Engineering 20 Understand the construction of interlocking block Engineering 29 Define the significance of ITS under Indian Engineering 20 Define the significance of ITS under Indian Engineering 20 Define the significance of ITS under Indian Engineering 20 Define the significance of ITS under Indian Engineering 20 Define the significance of ITS under Indian Engineering 20 Define the significance of ITS under Indian Engineering 20 Define the significance of ITS under Indian Engineering 21 Define the significance	14			2022191201		002	
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22 M.Tech-Transportation Engineering 22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering 27 M.Tech-Transportation Engineering 28 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 20022191250 Traffic Flow Theory CO2 Analyze the traffic stream parameters CO2 Apply the queuing theory to find the cogestion problem. CO3 Define the significance of ITS under Indian conditionS CO4 Study macroscopic and microscopic modelling. CO4 Understand the construction of interlocking block pavements, quality control test, and construction of		22	1			CO4	
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15 Engineering 2022191250 Traffic Flow Theory CO2 problem. CO3 Define the significance of ITS under Indian conditionS CO4 Study macroscopic and microscopic modelling. CO4 Understand the construction of interlocking block pavements, quality control test, and construction of CO4 CO5 Define the significance of ITS under Indian conditionS CO4 Study macroscopic and microscopic modelling. CO6 CO7 Define the significance of ITS under Indian conditionS CO6 Study macroscopic and microscopic modelling. CO7 CO8 CO8 CO9		1		1			Apply the quening theory to find the conection
22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering 27 M.Tech-Transportation Engineering 28 M.Tech-Transportation Engineering 29 M.Tech-Transportation Engineering 20 M.Tech-Transportation Engineering 20 M.Tech-Transportation Engineering 20 M.Tech-Transportation Engineering 21 M.Tech-Transportation Engineering 22 M.Tech-Transportation Engineering 23 M.Tech-Transportation Engineering 24 M.Tech-Transportation Engineering 25 M.Tech-Transportation Engineering 26 M.Tech-Transportation Engineering			I M. Tech-Transportation	1	I	CO2	
Engineering M.Tech-Transportation Engineering	1.0	22	1		Traffic Flow		[Provietti
22 M.Tech-Transportation Engineering	15	<u> </u>	Engineering	2022191250			Define the significance of ITS under Indian
Engineering M.Tech-Transportation Engineering	15	<u> </u>	Engineering M.Tech-Transportation	2022191250		CO3	
M.Tech-Transportation Engineering M.Tech-Transportation CO1 Understand the construction of interlocking block paverments, quality control test, and construction of	15	22	Engineering M.Tech-Transportation Engineering			CO3	
22 Engineering CO1 pavements, quality control test, and construction of	15	22	Engineering M.Tech-Transportation Engineering M.Tech-Transportation			-	conditionS
Engineering Financial Control of the Control of t	15	22	Engineering M.Tech-Transportation Engineering M.Tech-Transportation Engineering			-	study macroscopic and microscopic modelling.
I DURING TIME OF TOING	15	22	Engineering M.Tech-Transportation Engineering M.Tech-Transportation Engineering M.Tech-Transportation			CO4	conditionS study macroscopic and microscopic modelling. Understand the construction of interlocking block

	22	M.Tech-Transportation		Pavement		Understand mix design, construction control and
16		Engineering	2022191251	Construction	CO2	quality control checks of stabilised pavement layers.
	22	M.Tech-Transportation			CO3	Understand the structural and function failures and
	-	Engineering M.Tech-Transportation	-			evaluation of pavements
	22	Engineering			GO 4	Develop pavement management systems.
		M.Tech-Transportation			CO4	
	22	Engineering			CO1	Demonstrate the clear understanding of the airport
		M.Tech-Transportation	1			components Build knowledge on basic principles in airport
17	22	Engineering		Aviation	CO2	components, geometric design and delays
1/	22	M.Tech-Transportation	2022191252	Infrastructure and		Build knowledge on critical factors consideration in
		Engineering		Planning	CO3	airport grading and design.
	22	M.Tech-Transportation]			
		Engineering			CO4	Develop Knowledge on air traffic control aids.
	22	M.Tech-Transportation			CO1	Develop an understanding of overall Port and Harbour
		Engineering				Engineering and its impact.
	22	M.Tech-Transportation				Build knowledge on the Key design Characteristics for
18		Engineering	2022191253	Port and Harbour	CO2	design of Elements like Groins, Breakwaters
	22	M.Tech-Transportation		Engineering	CO3	Extend knowledge on flow regime, lift force
		Engineering M.Tech-Transportation	-			mechanism, bed load and suspended load and other
1	22	Engineering			GO4	Assess the design principles and construction of jetties
		M.Tech-Transportation			CO4	along with desing of off shore structures
	22	Engineering			COI	Understand the importance of sustainable urban and transport planning
		M.Tech-Transportation		<u> </u>		Understand the sustainable urban and transport
10	22	Engineering	***************************************	Sustainable Urban	CO2	planning techniques
19	22	M.Tech-Transportation	2022191254	and Transport		
	22	Engineering		Development	CO3	Understand the benefits of human community
	22	M.Tech-Transportation				Evaluate the economic, financial and pricing of
		Engineering			CO4	sustainiable transport
	22	M.Tech-Transportation			COI	
		Engineering			COI	Able to prepare and evaluate EIA reports
	22	M.Tech-Transportation				Identify risks and impacts of the projects
20		Engineering	2022191255	Environmental	CO2	recently make and impacts of the projects
	22	M.Tech-Transportation Engineering		Impact Assessment	CO3	Selection of an appropriate EIA methodology
		M.Tech-Transportation				7,
	22	Engineering			CO4	Estimate the cost benefit ratio of the project.
		M.Tech-Transportation				
	22	Engineering			CO1	Analyze the traffic flow and parking characteristics
	22	M.Tech-Transportation				Determine the capacity and saturation flow of the road
21		Engineering	2022191210	Traffic	CO2	network.
~	22	M.Tech-Transportation	2022191210	Engineering		Design traffic signal contral system for given
		Engineering		Laboratory	CO3	intersection.
	22	M.Tech-Transportation				Develop Knowledge on to solve complex traffic
\vdash		Engineering			CO4	problems with definite solutions.
	22	M.Tech-Transportation			COI	Build knowledge on quality behavior of hetrogenous
		Engineering M. Teach, Transportation				traffic flow,
	22	M.Tech-Transportation Engineering		T		Develop simulation models for various traffic and
22		M.Tech-Transportation	2022191211	Transportation Simulation Lab	CO2	geometric conditions in Indian conditions.
	22	Engineering		SIMUMUUI LAD	CO3	Interprit the simulation to find suitable solutions.
		M.Tech-Transportation				
	22	_ Engineering			CO4	Apply similulation results to plan and design complex transportation network.
	22	M.Tech-Transportation				Understand historical background of the constitution
	22	Engineering			CO1	making and its importance for building a democratic
	22	M.Tech-Transportation				Understand the functioning of three wings of the
23		Engineering	2000191230	Constitution of	CO2	government ie., executive, legislative and judiciary.
-	22	M.Tech-Transportation	20001712JU	India	CO3	Familiarise the value of the fundamental rights and
		Engineering				duties for becoming good citizen of India.
	22	M.Tech-Transportation				Analyze the decentralization of power between
		Engineering			_CO4	central, state and local self-government.
	22	M.Tech-Transportation				Analyze a complex engineering problem and to apply
	22	Engineering			COI	principles of civil engineering and relevant disciplines
						to idenitfy solutions
	22	M.Tech-Transportation		Mini D	600	Determine suitable methodology to attain at a
24		Engineering M.Tech-Transportation	2022191270	Mini Project with Seminar	CO2	sustainable solutions for the identified problems.
	22	Engineering		Seminar	CO3	Design, implement, and optimize the solution to meet
		Lagmoning		ı [all the feasible requirements.

			1			
	22	M.Tech-Transportation Engineering			CO4	Recognize professional responsibilities and make informed judgments in civil practice based on legal
	22	M.Tech-Transportation			100	and ethical principles. Understand the concepts of decision making
	22	Engineering M.Tech-Transportation	1	Finacial and		Calculate transportation demand and supply with
25		Engineering M.Tech-Transportation	2022192150	Ecoomic Analysis	CO2	estimation of vehicle operating cost and accident cost
	22	Engineering		of trnasportation Porjects	CO3	Perform economic analysis of transportation project
	22	M.Tech-Transportation Engineering			CO4	Applying varies financial methods in road projects.
	22	M.Tech-Transportation Engineering			CO1	Understand causes of accidents and carryout statistical analysis of accident data,
Ì	22	M.Tech-Transportation Engineering	1		CO2	Apply road safety technique in the construction of
26	22	M.Tech-Transportation	2022192151	Highway Safety Engineering	CO3	new roads. Explain road reconstruction principle and
		Engineering		is againett mg		improvement of road considering the different components of road and intersections.
	22	M.Tech-Transportation Engineering				Emphasize on road safety auditing principle and procedures; analyse the effectiveness of various
		M.Tech-Transportation			CO4	traffic management techniques.
	22	Engineering			CO1	Understand the introdcution to systems approach
27	22	M.Tech-Transportation Engineering	2022192152	Computational Techniques in	_CO2	A working knowledge of simulation and GPSS programming
	22	M.Tech-Transportation Engineering		Transportation Engineering	CO3	A good understanding of GA applications
	22	M.Tech-Transportation Engineering			CO4	The ability to apply ANN
	22	M.Tech-Transportation Engineering		Waste water Management	CO1	Distinguish between the quality of domestic and industrial water requirements and wastewater quantity
	22	M.Tech-Transportation Engineering	2022192160-		CO2	Impart knowledge on selection of treatment methods
28	22	M.Tech-Transportation Engineering	A		CO3	for industrial wastewater. Describe the common methods of treatment in
	22	M.Tech-Transportation				different industries Design of wastewater treatment plant for the given
\vdash		Engineering M. Tach, Transportation			CO4	sewage characteristics Understand evaluate and create the basic concept of
	22	M.Tech-Transportation Engineering			COI	environmental impact assessment, Flow of EIA, Types of environmental Impacts
29	22	M.Tech-Transportation Engineering	2022192160-	Environmental	G02	Implement different methods in preparing an
	22	M.Tech-Transportation	В	Impact Assessment	CO2	Environmental Impact Statement Identify various mitigation measures that can be used.
	22	Engineering M.Tech-Transportation				Access environmental impacts and indicate their
		Engineering			CO4	potential risks through environmental indices and
	22	M.Tech-Transportation Engineering			COI	Analyze a complex engineering problem and to apply principles of civil engineering and relevant disciplines to identify solutions
,	22	M.Tech-Transportation Engineering		Dissertation	CO2	Determine suitable methodology to attain at a
30	22	M.Tech-Transportation Engineering	2022192170	-I/Industrial Project	CO3	sustainable solutions for the identified problems. Design, implement, and optimize the solution to meet
	22	M.Tech-Transportation				all the feasible requirements. Recognize professional responsibilities and make
$\mid - \mid \mid$		Engineering			CO4	informed judgments in civil practice based on legal and ethical principles.
	22	M.Tech-Transportation Engineering			COI	Analyze a complex engineering problem and to apply principles of civil engineering and relevant disciplines to identify solutions
,,	22	M.Tech-Transportation Engineering		Dissertation Phase	CO2	Determine suitable methodology to attain at a
31	22	M.Tech-Transportation	2022192270	II	CO3	sustainable solutions for the identified problems. Design, implement, and optimize the solution to meet
		Engineering M.Tech-Transportation				all the feasible requirements. Recognize professional responsibilities and make
	22	Engineering			CO4	informed judgments in civil practice based on legal and ethical principles.



		VIGNA	N'S INSTI	TUTE OF IN	FORM	ATION TECHNOLOGY (A)
						SINESS ADMINISTRATION
				VR19- COUR		<u> </u>
S NO	Program me Code	Programme Name	Course Code		СО	Course Outcome: After the completion of the course student will be able to
					CO1	Extract Managerial skills of the students
		:			CO2	Identify the external and internal factors that influence
		MBA-Master			CO2	on organizational structure behaviors Analyze how an organization's leaders/managers utilize
1	1 E-00	of Business	3099191100	Principles of		job design, positional power, and goal
		Administration		Management		setting/performance management to motivate
				i	CO3	employees.
					CO4	Discuss leadership characteristics that produce high performing organizations.
						Identify the objectives, nature, scope, role &
					CO1	responsibilities of a manager of a business undertaking.
					-	Predict the demand for a product or product mix of a
					CO2	company & to analyze various factors influencing
		MBA-Master			<u> </u>	demand elasticity. Examine optimum production & cost functions with the
2	1 E-00	of Business	3099191101	Managerial		help of mathematical equations & by developing
		Administration		Economics		graphical solutions through linear programming
					CO3	applications.
						Discuss the concept of equilibrium price and output in different market situations i.e., perfect, monopoly,
1		:				monopolistic & Oligopoly competition with the help of
					CO4	graphs.
		MBA-Master			CO1	Identify the types of Accounts and Principles.
3	1 E-00	of Business	3099191102	Accounting for Managers	CO2	Prepare Financial Statement. Analyze the Financial Position of the Organization.
		Administration			CO4	Evaluate Cost and Cost behaviour,
		MBA-Master		Managerial	CO1	Discuss communication theories.
4	1 E-00	of Business	3099191103	Communicati	CO2	Display Verbal and Non-Verbal Communication
		Administration		on & Soft Skills	CO3	Develop Presentation Skills Design Business Report.
				Onlis	COI	Interpret business environment and its impact
		MBA-Master				
5	1 E-00	of Business	3099191104	Business Environment	CO ₂	Discuss the comprehensive structure of Indian economy
		Administration			COS	Debate on various Policies Analyze the legal Regulations pertaining to business
					CO4	environment
						Calculate descriptive statistical measures and appreciate
	ŀ				CO1	the uses and limitations of the measures.
						Formulate basic concepts of probability and theoretical probability (binomial, normal but not poisson)
				Operations	CO2	distributions.
	1.500	MBA-Master		Research for		To solve a simple ordinary least squares regression
6	1 E-00	of Business Administration	3099191105	Business		model with one explanatory variable, apply the model, and calculate the correlation coefficient between two
		Adiminstration		Decision	CO3	variables.
		1				Apply quantitative models (linear programming and
						network analysis) at an introductory level, with
				1	CO4	emphasis on relevant data and the limitations of the techniques.
		N670 A 2.5			CO1	Identify the softwares required for analysis.
7	1 E-00	MBA-Master of Business Administration	3099191110	Information Technology	CO2	Apply the Financial Modelling Techniques.
'			3099191110	Lab	CO3	Evaluate data using statistical techniques.
		!			CO4	Design the presentation using charts.
		NAD - 25				Application of consumer behavior in marketing Analyze Individual and group determinants of consumer
8	1 E-00	MBA-Muster of Business	3099191180	Employability	CO2	behavior
"	1 13-00	Administration	1	Skills-I		Evaluate Environmental influences on consumer
1		L'adiminati attoll		I	CO3	behavior

	1	1	1			
					CO4	Analyze Consumer decision making process
		1.00			COI	Identify the sources of Finance.
9	1 77 00	MBA-Master		Financial	CO2	Evaluate Profitable Investment Proposals.
9	1 E-00	of Business	3099191200	Management		Analyze proportions of Retention and Dividend Payout
		Administration			CO3	Ratio.
					CO4	Design Credit Policies for Business.
			ļ		CO1	Identify the roles of HR Manager.
4.5		MBA-Master		Human	CO2	Interpret current trends and practices in the field of HR
10	1 E-00	of Business	3099191201	Resource		Evaluate employee performance and organizational
		Administration		Management	CO3	effectiveness
					CO4	Design Compensation system for an organization.
						Identify core concepts of marketing and the role of
		MBA-Master			CO1	marketing in business and society
11	1 E-00	of Business	3099191202	Marketing	CO2	Apply the Segmentation, Targeting and Positioning.
**	1 12-00	Administration	3099191202	Management	CO3	Create an integrated marketing communications plan.
		Autumstrauon				Analyze marketing problems and implement marketing
					CO4	plans.
						Identify the core features of the operations and
					CO1	production management.
				Production		Interpret the various parts of the operations and
10	1	MBA-Master		and	CO2	production management processes.
12	1 E-00	of Business	3099191203	Operations		Develop an integrated framework for strategic thinking
		Administration		Management	CO3	and decision making.
	ŀ			····	003	
					CO4	Illustrate operational methodologies to assess and
					CO1	improve an organizations performance.
		MBA-Master		Business	CO2	Discuss the major types of Research and designs.
13	1 E-00	of Business	3099191204	Research	CO3	Formulate Research problems and measurements.
	1200	Administration	3099191204		COS	Interpret Research reports.
				Methodology	CO4	Caluculate Business Problems using appropriate
					CU4	methods.
					501	Identify the roles and responsibilities of Organizational
		MBA-Master			CO1	Behaviour.
14	1 E-00	of Business	3099191205	Organizationa	CO2	Display Leadership skills in an Organization.
		Administration		1 Behaviour	CO3	Analyze behavioural dimensions.
						Apply Interpersonal Communication skills for Team
					CO4	Building.
		3404 34 4				Conduct field survey on
15	1 12 00	MBA-Master	2000101050		CO1	society/corporate/business/government/NGO.
13	1 E-00	of Business	3099191270	Mini Project	CO2	Apply the theortical concept
		Administration			CO3	Analyze and interpret the data
					CO4	Prepare and present the report
						Identify the importance of Comprehension & Speech
		MBA-Master		Employability - Skills-II -	CO1	Fluency
16	1 E-00	of Business	3099191280		CO ₂	Display of Time Management Skills
		Administration			CO ₃	Interpret ideas and information
					CO4	Development of writen and oral communication
						Identify the practical and integrative model of strategic
		MBA-Master			CO1	management.
17	1 E-00	of Business	3099192100	Strategic	CO2	Apply the Environmental Scanning Techniques
- '	A 127-UU	Administration	3077174100	Management		Analyze the formulation and structure of Organizational
		Transfigue 1		"	CO3	Strategy.
_	L				CO4	Design the Organizational Strategy.
					CO1	Outline the Indian Contract Act.
		MBA-Master			CO2	Identify the rights of Unpaid Seller.
18	1 E-00	of Business	3099192101	Legal Aspects	202	
		Administration		Of Business	CO3	Discuss various aspects of Negotiable Instruments and Companies Act.
					CO4	
I						Debate on various Cyber Laws.
				Business	CO1	Identify the role of Ethical Values of an Organization.
		MDA M			CO2	
10	1 12 00	MBA-Master	200040645	Ethics &		Debate the global perspective of Unethical practices.
19	1 E-00	of Business	3099192102	Ethics & Corporate	CO3	Discuss the Ethical practices in Functional areas.
19	1 E-00		3099192102	Corporate	CO3	Discuss the Ethical practices in Functional areas. Relate the role of Corporate Governance practices in
19	1 E-00	of Business	3099192102	l .	CO3	Discuss the Ethical practices in Functional areas. Relate the role of Corporate Governance practices in Indian Industries.
19	1 E-00	of Business	3099192102	Corporate	CO3	Discuss the Ethical practices in Functional areas. Relate the role of Corporate Governance practices in

40	T 15-00	or manicas	JU771741JU	wanagement	655	
		Administration		(Marketing)	CO3	Build the brand positioning.
		-		67	CO4	Discuss the Channels of Distribution and Packaging.
				Promotion	CO1	List out the various concepts of Promotion and
1		MBA-Master		And	CO2	Distribution.
21	1 E-00	of Business	3099192151	Distribution	CO3	Outline the challenges of Distibution System.
		Administration		Management	- 03	Discuss the various Channels of Distribution.
				(Marketing)	CO4	Debate the various ethical and social issues in
				Investment	CO1	Distribution Management.
		MBA-Master		Analysis And	CO2	Identify different segments of Financial Markets. Evaluation of various Asset Valuation Models.
22	1 E-00	of Business	3099192152	Portfolio	CO3	Apply various Investment Analysis Tools.
		Administration		Management		Adopt and apply portfolio evaluation models for the
				(Fin)	CO4	realistic situations
				(5 511)		Identify the fundamental concepts of Banking System in
-		NATION NA		Banking And	COI	India.
23	1 E-00	MBA-Master of Business	2000102152	Insurance	CO2	Discuss the various types of Banking Funds.
23	1 E-00	Administration	3099192153	(Fin)		Evaluate the latest regulations and innovations in
1		Administration		(Elective)	CO3	Banking.
<u></u>					CO4	Analyze the LIC and GIC.
-				Commonation		Discuss concepts of compensation and designing of
		MBA-Master		Compensation And	CO1	effective compensation system.
24	1 E-00	of Business	3099192154	And Performance	CO2	List out various Wage payment systems.
-		Administration	5077174134	Management	CO3	Evaluate administration of wage and salary.
				(Hr) (Elective)		Analyze effectiveness of performance management in an
					CO4	organization.
		MBA-Master		Management	CO1	Identify the essential concepts of industrial relations.
25	1 E-00	of Business	3099192155	Of Industrial	CO2	Discuss the Trade Unions and Work-Life Balance.
		Administration		Relations (Hr)	CO3	Design the Wage and Salary Administration.
-				(Elective)	CO4	Interpret and Solve the Grievances in Industries.
		3604 36				Conduct field survey on
26	1 E-00	MBA-Master	200040444		CO1	society/corporate/business/government/NGO.
20	1 5.00	of Business Administration	3099192170	Case Study	CO2	Apply the theortical concept
		Administration			CO3	Analyze and interpret the data
					CO4	Prepare and present the report
					COL	Discuss and discover barriers to effective
		MBA-Master			COI	communication techniques.
27	1 E-00	of Business	3099192180	Employability	CO2	Develop effective writing skills in academic and
-	12 00	Administration	50//1/2100	Skills-III		professional contexts.
					COS	Make Use English language in business communication
					CO4	demostrate skills in listening comprehension, GDs and Interview.
						<u> </u>
						Acquires knowledge of the functional components within logistics to the interrelationships in the integrated
					CO1	supply chain.
						Analyze the difference between logistics and supply
		MBA-Master		Logistic and		chain management & gain knowledge on
28	1 E-00	of Business	3099192200	Supply Chain	CO2	Benchmarking.
		Administration		Management	302	Evaluate warehousing and transportation options and
						recommend appropriate solutions for business
					CO3	requirement
						Make use of technology in logistics and supply chain
					CO4	management.
					CO1	Discuss Growth and Importance of Entrepreneurship
		MBA-Master		Entrepreneur		Explain the concept of entrepreneurship and Women
29	1 E-00	of Business	3099192201	ship	CO ₂	entrepreneurship
		Administration		Development	CO3	Extract the essence of entrepreneurial motivation
				•	CO4	Elucidate the problems of women entrepreneurship
						Discuss concepts and components of Services
]		MBA-Master		Services	CO1	Marketing
30	1 E-00	of Business	3099192250	Marketing	CO2	Identify key dimensions of Services Marketing
50	I E-00	Administration	3077172250	(MARKETIN	CO3	Develop service marketing mix strategies
		สงเนเมรมสมอก		G)		Evaluate the behavior of the customer and the strategies
				·	CO4	to retain them.
	-					

					Γ	Discuss consumer behavior, models and learning
		(X			CO1	process.
		MBA-Master	1	Consumer		Analyze consumer attitude formation, change and
31	1 E-00	of Business	3099192251	Behavior	CO2	consumer communication.
"	1 12-00	Administration		(MARKETIN		Identify psychological factors affecting consumer
	1	Aummstration		G)	CO3	behavior and post purchase process.
						Create awareness about consumerism and consumer
	<u></u>				CO4	protection acts.
					-	Demonstrate the understanding of international
		ŀ			CO1	financial theory
	59			International		
		MBA-Master	1	Financial	CO2	Illustrate applications pertaining to exchange rate determinants.
32	1 E-00	of Business	3099192252	Management	-02	
	1	Administration		(FIN)	1	Develop a frame of reference through which to identify,
				(ELECTIVE)	CO3	evaluate, and solve problems pertaining to international
				(LIDECTIVE)	- 003	financial management.
1					CO4	Interpret the international taxation methods and
					C04	management of External Indebtness.
		MBA-Master		Financial Risk	CO1	Discuss risk management concepts in present business
33	1 E-00	of Business	3099192253			situations.
		Administration	3077174433	Management	CO2	Evaluate financial risk measurement methods
1		· · · · · · · · · · · · · · · · · · ·	`	(FIN)	CO3	Demonstrate financial risk measurement tools
		==			CO4	Apply advanced financial risk management techniques
1]	CI-E-1	ŀ	Demonstrate across a broad knowledge of HRM
1		MBA-Master		Global Human	001	strategies, Policies and practices across a range of
	ľ				CO1	cultural and nations.
34	1 E-00	of Business	3099192254	Resource		Differentiate intentional and domestic dimension of the
1		Administration		Management	CO2	operational aspects of HRM.
	İ	Ì		(HR)	CO3	Discuss the concepts of expatriation
				(ELECTIVE)	604	To analyze and apply international HRM concepts in
					CO4	relation to global ethical issues in the work place
.						Discuss the relevance of change management
	1					approaches and models to a variety of situations where
					CO1	appropriate
		MBA-Master		Management		Identify range of skills relevant to the change
35	1 E-00	of Business	3099192255	of Change and	CO2	management process
		Administration		Development		Articulate management competencies in Organizational
l i				(HR)	CO3	Development
						Apply tools and models to explore underlying
						organizational and behavioural issues that may affect
					CO4	the change process
						Connect openly on a global scale, with global learners
		MDAN			CO1	and Instructors
36	1 E-00	MBA-Master	20001001		CO2	platform
30	1 E-00	of Business	3099192256	MOOCs		Self assesment of their performance and learning
		Administration			CO3	process.
[Adapt a life long learning culture and updating the
					CO4	knowledge according with emerging trends
				Major Project		Conduct field survey on
		MBA-Master		wiajur Project	CO1	society/corporate/business/government/NGO.
37	1 E-00	of Business	3099192270	Comprehensiv	CO2	Apply the theortical concept
		Administration		e Viva	CO3	Analyze and interpret the data
				E A I AH	CO4	Prepare and present the report
						Develop value based leadership
		MBA-Master		ľ		Analyze and effective communication in the aspects of
38	1 E-00	of Business	1000102200	Employability	CO2	business.
"	1 43-00		3099192280	Skills-IV		Apply the knowledge of effective writing skills in
	i	Administration			CO3	business context.
				ŀ		Critical thinking abilities for decision making.
						united domines for decision making.



			VIGITIE	DEPA	RTMFN	ORMATION TECHNOLOGY NT OF MCA
			·			OUTCOMES
SNO	Programm e Code	Programme Name	Course Code		со	Course Outcome: After the completion of the course student will be able to
1	1F-00	MCA-Master of Computer Application	4010191101	C Programming and Data	CO1 CO2 CO3	Analyze problems and develop solutions by writing algorithms. Design various dynamic allocation memory programs. Develop simple real-time applications to get familiarity of the
2	1F-00	MCA-Master of Computer	4010191102	Structures Digital Computer	CO4 CO1 CO2 CO3	queue, tress and graphs Identify the logic gates and their functionality. Perform number conversions from one system to another system.
- 4		Application		Fundamentals Discrete	CO4 CO1	Design basic electronic circuits (combinational circuits). Perform a comparative analysis of the components of different verify the consistence of data.
3	1F-00	MCA-Master of Computer Application	4010191103	Mathematical	CO2 CO3 CO4	Construct Hasse diagram and Understand concept of recursive Understand different counting techniques. Apply different methods to solve homogeneous and non- Apply graph theory concepts in core subjects such as data structure
4	1F-00	MCA-Master of Computer Application	4010191104	Accounting and Financial Management	CO1 CO2 CO3 CO4	and network theory effectively. To identify the need and the role of accounting in present modern To have capabilities to preparation of trail balance – Final accounts Financial management role and objectives of the business. To explain the Importance of the cost behavior
5 1F-00	1F-00	MCA-Master of Computer	4010191105	Professional Communicatio	CO5 CO1	Use of the standard costing and budgeting in present business level The students will be able to read, understand and interpret materia on Environment, Science and Technology, tourism, Energy Source The students will be able to analyze the functions of language and present in analyze the functions of language and present in analyze the functions.
		Application		n English	CO2 CO3 CO4	grammar in spoken and written forms. The students will be able to write effectively on various domains. The students will be able to prepare and exhibit oral presentations skills by using ICT.(Individual/Team)
6	1F-00	MCA-Master of Computer Application	4010191121	Language Communicatio n Skills Lab	CO2 CO3 CO4	Use English language fluently, accurately and appropriately. Demonstrate skills in Reading, listening comprehension, GDs and I Read and answer questions (orally and in writing) based on passage Show effective writing skills in academic and professional contexts
7	1F-00	MCA-Master of Computer Application	4010191122	C Programming and Data Structures Lab	CO1 CO2 CO3 CO4	Able to write programs in C Language Develop logical and analytical thinking in C Knowledge in writing programs in various concepts like arrays, functions, pointer etc. How to read and write contents from or into a file
8	1F-00	MCA-Master of Computer	4010191123	IT Workshop	CO1 CO2	Identify the basic peripherals, assembling a Personal Computer, Installation of system software like MS Windows, device drivers. Troubleshoot Hardware and software. home and workplace effectively, Usage of the internet, web browsers, email, newsgroups and discussion forums.
		Application		Lab -	CO4	computer from getting infected with viruses), worms and other cyber-attacks. point presentations and personal web sites using the Microsoft suite of office tools.
9	1F-00	MCA-Master of Computer Application	4010191201	OOPS Through JAVA	CO1 CO2 CO3	Apply OOP concepts and basics of Java programming. Use the concepts of Java programming in problem solving. Extend the knowledge of Java programming in developing futuristic
10	1F-00	MCA-Master of Computer Application	4010191202	Operating Systems	CO1 CO2 CO3 CO4 CO5	Apply optimization techniques for the improvement of system Design and solve synchronization problems. Learn about minimization of turnaround time, waiting time an response time and also maximization of throughput by keeping CPI Change access controls to protect files. Analyze the different operating systems.
11	1F-00	MCA-Master of Computer Application	4010191203	Software Engineering	CO1	Prepare a Software Requirement Specification (SRS) document for Identify the importance of system analysis and design in solvin Distinguish between object-oriented approach and traditional approach in system analysis and design. Analyze various metrics to measure software product size an
12	1F-00	MCA-Master of Computer Application	4010191204	Operations Research	CO1 CO2 CO3 CO4	Analyze Various therres to measure software product size an Analyze Different transportation models Design inventory and queueing theroy models for optimal decisions programming and game theory understand the basic s of Computer Graphics

		9				
		1		[CO2	understand the applications of Databases and functions of DBA
	1E 00	MCA-Master of	401010101	Database	CO3	know the advantages and disadvantages of the different models
13	1F-00	Computer Application	4010191205	Management	CO4	compare relational model with the structured query language (SQL)
		Application		Systems	CO5	know the various constraints associated with relational database
- 1				V	CO7	know the rules guiding transaction ACID understand the concept of data planning and database design
					CO1	write simple programs in Java Language
		MCA-Master of		OOPS	CO2	Develop logical and analytical thinking in Java
14	1F-00	Computer	4010191221	Through		Knowledge in writing programs in various concepts like Exception
		Application		JAVA Lab	CO3	Handling, applets, swings etc.
					CO4	Design to read and write contents from or into a file
- 1						Demonstrate knowledge of artistic and design components that are
		MCA-Master of		Database	CO1	used in the creation of a web site
15	1F-00	Computer	4010191222	Management		Utilize and apply the technical, ethical and interpersonal skills
		Application		Systems Lab	CO2	needed to function in a cooperative environment
			ļ		CO3	Experiment Unix utilities and perform basic shell control of the
	,	MCA-Master of				Create effective file access control methods for handling Unix file
16	1F-00	Computer	4010191223	Operating System Lab	COI	for deadlock avoidance
-				System Lab	CO2	for deadlock prevention.
	MCA-Master of			CO1	Implement web based applications using features of HTML.	
17	1F-00	Computer	4010192101	Advanced Java & Web	CO3	Develop reusable component for Graphical User Interface
-	11-00	Application	4010192101	Technologies	CO3	Apply the concepts of server side technologies for dynamic web
		· - Prince control		recimologies	CO4	Implement the web based applications using effective data base access with rich client interaction.
						Possess an ability to practically apply knowledge software
					CO1	engineering methods, such as object-oriented analysis and design
						Have a working ability and grasping attitude to design and conduct
		MCA-Master of		Object Oriented	CO2	object-oriented analysis and design experiments using UML, as well
18	1F-00	Computer	4010192102	Analysis and		Display an ability to identify, formulate and solve software
		Application		Design		development problems: software requirements, specification
				240.6.1	CO3	(problem space), Software design, and implementation (solution
					~~ 1	Show an ability to use the graphical UML representation using
			-500		CO4	tools, such as IBM's Rational Rose or Microsoft's Vision.
		MCA-Master of Computer	4010192103	UNIX Programming	CO1	Understand Fundamental Network Design Principles
19	1F-00				CO3	Understand All the Unix Utilities, and Implement Shell Scripting
-	11 00	Application			CO4	Differentiate Connection Oriented and Connection less Network Understands the Concept of Process Threads and File Structure
					CO5	Design Various Client Server Applications Using TCP or UDP
					COI	Understand what is management and evolution of management though
		MCA-Master of		Principles and	CO2	Importance of planning and decision making in organizations
20	1F-00	Computer	4010192104	Practices of	CO3	Process of organizing and delegation of authority
		Application		Management	CO4	Theories of motivation and leadership styles
					CO5	Coordination and control process in the organizations
		MCA-Master of		Design and	CO1	Basic data structure and it working topological design.
1	1F-00	Computer	4010192105	Analysis of	CO2	Basic functionality of different type of algorithms and its usage
		Application		Algorithms	CO3	Analysis of different type of complexity and its applicable condition
		-			CO4	Able to design algorithm
					CO1	Implement sophisticated Java applications and well-organized, complex computer programs with both command line and graphical
		MCA-Master of	2	Advanced		Learn to access database through Java programs, using Java Data
22	1F-00	1	4010192121	Java & Web	CO2	to see con damouse intough Java programs, using Java Data
	,	Computer	4010172121	Technologies -		Base Connectivity (JDBC).
	,	Computer Application	4010172121	"		Base Connectivity (JDBC). Create dynamic web pages, using Servlets and JSP & make a
	1	•	4010172121	Technologies Lab	CO3	Create dynamic web pages, using Servlets and JSP & make a
		•	1010172121	Lab	CO3	Create dynamic web pages, using Servlets and JSP & make a reusable software component, using Java Bean. Understand the multi-tier architecture of web-based enterprise
		Application	1010172121	Lab Object	CO3 CO4 CO1	Create dynamic web pages, using Servlets and JSP & make a reusable software component, using Java Bean. Understand the multi-tier architecture of web-based enterprise Understand the Case studies and design the Model.
23	1F-00	Application MCA-Master of		Lab Object Oriented	CO3 CO4 CO1 CO2	Create dynamic web pages, using Servlets and JSP & make a reusable software component, using Java Bean. Understand the multi-tier architecture of web-based enterprise Understand the Case studies and design the Model. Understand how design patterns solve design problems.
23	ļ	Application	4010192122	Lab Object Oriented Analysis and	CO3 CO4 CO1 CO2 CO3	Create dynamic web pages, using Servlets and JSP & make a reusable software component, using Java Bean. Understand the multi-tier architecture of web-based enterprise Understand the Case studies and design the Model. Understand how design patterns solve design problems. Develop design solutions using creational patterns.
23	ļ	Application MCA-Master of Computer		Lab Object Oriented	CO3 CO4 CO1 CO2	Create dynamic web pages, using Servlets and JSP & make a reusable software component, using Java Bean. Understand the multi-tier architecture of web-based enterprise Understand the Case studies and design the Model. Understand how design patterns solve design problems. Develop design solutions using creational patterns. Construct design solutions by using structural and behavioral pattern
23	ļ	Application MCA-Master of Computer Application		Object Oriented Analysis and Design Lab	CO3 CO4 CO1 CO2 CO3 CO4	Create dynamic web pages, using Servlets and JSP & make a reusable software component, using Java Bean. Understand the multi-tier architecture of web-based enterprise Understand the Case studies and design the Model. Understand how design patterns solve design problems. Develop design solutions using creational patterns. Construct design solutions by using structural and behavioral pattern UNIX/LINUX Operating System (We will be using Ubuntu flavor
	1F-00	Application MCA-Master of Computer Application MCA-Master of	4010192122	Object Oriented Analysis and Design Lab	CO3 CO4 CO1 CO2 CO3 CO4	Create dynamic web pages, using Servlets and JSP & make a reusable software component, using Java Bean. Understand the multi-tier architecture of web-based enterprise Understand the Case studies and design the Model. Understand how design patterns solve design problems. Develop design solutions using creational patterns. Construct design solutions by using structural and behavioral pattern UNIX/LINUX Operating System (We will be using Ubuntu flavor of the Linux operating system).
23	ļ	Application MCA-Master of Computer Application MCA-Master of Computer		Object Oriented Analysis and Design Lab UNIX Programming	CO3 CO4 CO1 CO2 CO3 CO4	Create dynamic web pages, using Servlets and JSP & make a reusable software component, using Java Bean. Understand the multi-tier architecture of web-based enterprise Understand the Case studies and design the Model. Understand how design patterns solve design problems. Develop design solutions using creational patterns. Construct design solutions by using structural and behavioral pattern UNIX/LINUX Operating System (We will be using Ubuntu flavor of the Linux operating system). You will be able to run C / C++ programs on UNIX.
	1F-00	Application MCA-Master of Computer Application MCA-Master of	4010192122	Object Oriented Analysis and Design Lab	CO3 CO4 CO1 CO2 CO3 CO4 CO1 CO2 CO3	Create dynamic web pages, using Servlets and JSP & make a reusable software component, using Java Bean. Understand the multi-tier architecture of web-based enterprise Understand the Case studies and design the Model. Understand how design patterns solve design problems. Develop design solutions using creational patterns. Construct design solutions by using structural and behavioral pattern UNIX/LINUX Operating System (We will be using Ubuntu flavor of the Linux operating system). You will be able to run C / C++ programs on UNIX. You will be able to do shell programming on UNIX OS.
	1F-00	Application MCA-Master of Computer Application MCA-Master of Computer	4010192122	Object Oriented Analysis and Design Lab UNIX Programming	CO3 CO4 CO1 CO2 CO3 CO4 CO1 CO2 CO3 CO4	Create dynamic web pages, using Servlets and JSP & make a reusable software component, using Java Bean. Understand the multi-tier architecture of web-based enterprise Understand the Case studies and design the Model. Understand how design patterns solve design problems. Develop design solutions using creational patterns. Construct design solutions by using structural and behavioral pattern UNIX/LINUX Operating System (We will be using Ubuntu flavor of the Linux operating system). You will be able to run C / C++ programs on UNIX. You will be able to do shell programming on UNIX OS. You will be able to understand and handle UNIX system calls
	1F-00	Application MCA-Master of Computer Application MCA-Master of Computer Application	4010192122	Object Oriented Analysis and Design Lab UNIX Programming Lab	CO3 CO4 CO1 CO2 CO3 CO4 CO1 CO2 CO3 CO4 CO1	Create dynamic web pages, using Servlets and JSP & make a reusable software component, using Java Bean. Understand the multi-tier architecture of web-based enterprise Understand the Case studies and design the Model. Understand how design patterns solve design problems. Develop design solutions using creational patterns. Construct design solutions by using structural and behavioral pattern UNIX/LINUX Operating System (We will be using Ubuntu flavor of the Linux operating system). You will be able to run C / C++ programs on UNIX. You will be able to do shell programming on UNIX OS. You will be able to understand and handle UNIX system calls Students will able to understand the network topology and its
	1F-00	Application MCA-Master of Computer Application MCA-Master of Computer Application MCA-Master of	4010192122	Object Oriented Analysis and Design Lab UNIX Programming Lab Computer	CO3 CO4 CO1 CO2 CO3 CO4 CO1 CO2 CO3 CO4 CO1 CO2 CO3	Create dynamic web pages, using Servlets and JSP & make a reusable software component, using Java Bean. Understand the multi-tier architecture of web-based enterprise Understand the Case studies and design the Model. Understand how design patterns solve design problems. Develop design solutions using creational patterns. Construct design solutions by using structural and behavioral pattern UNIX/LINUX Operating System (We will be using Ubuntu flavor of the Linux operating system). You will be able to run C / C++ programs on UNIX. You will be able to do shell programming on UNIX OS. You will be able to understand and handle UNIX system calls Students will able to understand different types of network
24	1F-00	Application MCA-Master of Computer Application MCA-Master of Computer Application MCA-Master of Computer Computer Application	4010192122	Object Oriented Analysis and Design Lab UNIX Programming Lab	CO3 CO4 CO1 CO2 CO3 CO4 CO1 CO2 CO3 CO4 CO1	Create dynamic web pages, using Servlets and JSP & make a reusable software component, using Java Bean. Understand the multi-tier architecture of web-based enterprise Understand the Case studies and design the Model. Understand how design patterns solve design problems. Develop design solutions using creational patterns. Construct design solutions by using structural and behavioral pattern UNIX/LINUX Operating System (We will be using Ubuntu flavor of the Linux operating system). You will be able to run C / C++ programs on UNIX. You will be able to do shell programming on UNIX OS. You will be able to understand and handle UNIX system calls Students will able to understand different types of network Students will able design new routing technique base on exiting
24	1F-00	Application MCA-Master of Computer Application MCA-Master of Computer Application MCA-Master of	4010192122	Object Oriented Analysis and Design Lab UNIX Programming Lab Computer	CO3 CO4 CO1 CO2 CO3 CO4 CO1 CO2 CO3 CO4 CO1 CO2 CO3	Create dynamic web pages, using Servlets and JSP & make a reusable software component, using Java Bean. Understand the multi-tier architecture of web-based enterprise Understand the Case studies and design the Model. Understand how design patterns solve design problems. Develop design solutions using creational patterns. Construct design solutions by using structural and behavioral pattern UNIX/LINUX Operating System (We will be using Ubuntu flavor of the Linux operating system). You will be able to run C / C++ programs on UNIX. You will be able to do shell programming on UNIX os. You will be able to understand and handle UNIX system calls Students will able to understand different types of network

		V				
26	1F-00	Computer	4010192202	Python	CO2	Experiment with an interpreted Language
-	** 00	Application	4010172202	Programming	CO3	Build software for real needs
-		- TPP Called			CO4	Explain to testing Orielly
						Ability to identify, understand and investigate various patterns that
		MCA-Master of		Data	CO1	can be extracted from different types of data.
27	1F-00	Computer	4010192203	warehousing		Apply various pre-processing techniques and classification
		Application		and Mining	CO2	algorithms on different domains of data
					CO3	Build decision making systems using data mining algorithms for a
-					CO4	Construct models using modern tools such as WEKA, R and python
		MCA-Master of		Statistical	CO2	Understand the basics of R programming
28	1F-00	Computer	4010172404	Programming	CO3	Knowledge on R programming control statements
		Application		with R	CO4	Knowledge on Graphics Awareness on statistical concepts
					CO1	Ability to understand and reason out the working of network Systems
					CO2	To teach students the use of basic socket programming Utilities.
20	177.00	MCA-Master of		Network	CO3	To teach students the use of oasic socket programming offines. To teach students the principles of socket programming
29	1F-00	Computer	4010172405	Programming		To familiarize students with the concepts, design, and structure of
		Application			CO4	the TCP/UDP programming.
	200				CO5	To be able to build an application of UNIX programming in socket.
		MCA-Master of			CO1	Understand the systems, protocols and mechanisms to support cloud
30	1F-00	Computer	4010172406	Cloud	CO2	Develop applications for cloud computing by using platforms and
30	1100	Application	4010172406	Computing	CO3	Understand the hardware requirements for cloud computing.
	A	Application			CO4	Understand the cloud security risks
		MCA-Master of		Software	CO1	Basic Knowledge on software Engineering
-31	1F-00	Computer	4010172407	Project	CO2	Basic knowledge on project goals
		Application		Management	CO3	Implement basic Al algorithms
				76-1855		Describe the modern view of AI as the study of agents that receive
					CO1	percepts and perform Actions
		MCA-Master of Computer Application	4010172408	Artificial Intelligence	CO2	Apply AI search Models and Generic Search strategies
						Inspect and analyze Logic for representing Knowledge and
	32 1F-00				CO3	Reasoning of AI systems.
32						Evaluate the searching strategies for given situation to achieve the
				2	CO4	goal,
						Design different learning algorithms for improving the performance
					CO5	of AI systems.
						Conduct investigation and implement projects using different AI
	1927				CO6	learning techniques
		MCA-Master of		Mobile Application Development	001	Get familiarity with the Android operating system development
33	1F-00	Computer	4010172409		CO1	environment.
		Application			CO ₂	Create user-friendly mobile user interfaces and views.
					CO1	Develop basic Android applications for mobiles.
		MCA-Master of		Python	CO2	understand and reason out the working of network Systems
34	1F-00	Computer	4010192221	Programming	CO3	Implement basic socket programming Utilities
entire.		Application		Lab	CO4	familiarize students with the concepts, design, and structure of the build an application of UNIX programming in socket
		1400		Data	COI	Construct Software easily right out of the box
	177.00	MCA-Master of		Warehousing	CO2	Experiment with an interpreted Language
35	1F-00	Computer	4010192222	and Mining	CO3	Build software for real needs
		Application		Lab	CO4	develop database applications in Python
					CO1	Use English language fluently, accurately and appropriately.
		MCA-Master of			CO2	Discuss and discover barriers to effective communication.
36	1F-00	Computer	4010192223	Soft Skills Lab	CO3	Demonstrate skills in listening comprehension, GDs and Interview.
		Application			CO4	Read and answer questions (orally and in writing) based on
\vdash					CO5	Show effective writing skills in academic and professional contexts
		MCA-Master of		Mini Project/	CO1	Develop skills in distinguishing various types of computer crimes
37	1F-00	Computer	4010192231	Online	CO2	Illustrate how to apply different forensic analysis tools to recover
		Application		Certification	CO3	Explain about threats and compare various threats.
-	-9103			Course form	CO4	Summarize the need for surveillance and list the tools used
		MCA-Master of			CO1	Preparing for data summarization, query, and analysis.
38	1F-00	Computer	4010193101	Big Data	CO2	Applying data modeling techniques to large data sets
		Application		Analytics	CO3	Creating applications for Big Data analytics
					CO4	Building a complete business data analytic Solution
		MCA-Master of		,	CO1	Understand the IOT connectivity principles and application areas.
39	39 1F-00	Computer	4010193102	Internet of	~~-	Conceptually identify revolution of IOT in cloud, wireless sensors
		Application	4010193102	Things	CO2	including recent attacks involving the Internet of Things.
		-			CO3	Build a real time IOT application.
				I _	CO1	Understand the concepts of need of security in real time applications
		MCA-Master of		Cryptography	000	
40	1F-00	MCA-Master of Computer	4010193103	Cryptography and Network	CO2	To analyze the use of different security techniques in diverse applications
40	1F-00	1	4010193103		CO2 CO3	

			_		CO1	
		MCA-Master of		Cyber	CO1	Understand the basics Concepts of Cyber threats and security with
41	1F-00	Computer	4010173504	Security	CO2	Students will get the Knowledge of Cyber forensic standard procedures
		Application		Security	CO4	To get the knowledge the cyber threats and cyber law To understand the specific circumstances of cyber threats
	14-				CO1	Create Image Gallery for online Shopping in Grid view.
					CO2	Create menus for any one standard mobile application.
				Advanced Mobile Application	CO3	Database.
42	177.00	MCA-Master of	4010173505		CO4	Implement an Android program for HTTP Connection
42	1F-00	Computer				Design and develop simple charting mobile app using socker
		Application		Development	CO5	programming
			}			Create the APK file for all the above mobile experiments and create
	-229]	CO6	signature certificates
		MCA-Master of			CO1	To know and understand the critical success factors in implementing
43	1F-00	Computer	4010173506	E-Commerce	CO2	To know how to plan and how to manage e-commerce solutions.
		Application	4010175500	E-Commerce	CO3	To apply processes of e-commerce.
		· · · · · · · · · · · · · · · · · · ·			CO4	environment associated with e-commerce.
		2504.25			COI	To know how to use technologies to build e-commerce websites.
44	1F-00	MCA-Master of	4040450	Web Scripting	CO2	Work with HTML forms and handling HTML forms using PHP
***	16-00	Computer	4010173507	Through PHP	CO3	Familiar with MYSQL database and perform insert, update and
		Application		& MYSQL		Implement and debug programs in PHP and MYSQL for a specific
-					CO4	application.
					CO1	To learn and understand technical aspect of Multimedia Systems.
					COS	To understand the standards available for different audio, video and
]		CO2	text applications.
	45 IF-00	MCA-Master of		Multimedia	CO3	To Design and develop various Multimedia Systems applicable in
45		Computer	4010173508	Application Development	CO4	real time.
		Application			- 004	To learn various multimedia authoring systems.
.]					CO5	To understand various networking aspects used for multimedia applications.
					003	
					CO6	To develop multimedia application and analyze the performance of the same.
						Design and Development processes and life cycle of Human
					CO1	Computer Interaction
		MCA-Master of Computer Application		Human	CO2	Analyze product usability evaluations and testing methods.
46	1F-00		4010173509	Computer		Apply the interface design standards/guidelines for cross cultural
				Interaction	CO3	and disabled users.
					CO4	Categorize, Design and Develop Human Computer Interaction in
			200		CO4	
- 1					CO1	To understand the basic principles, concepts of Big Data Analyze
					COI	and interpret data using an ethically responsible approach.
4.5	45.00	MCA-Master of	l .	Big Data	CO2	Collect, manage, store, query, and analyze various form of big data
47	1F-00	Computer	4010193121	Analytics Lab		Gain hands-on experience on large-scale analytics tools to solve
		Application		Transfered Edg	CO3	some open big data problems
						Understand the impact of big data for business decisions and
					CO4	strategy.
	100				CO1	and which different methods may be suited to solving a given
						The state of the the the state of the state
						Formalize a given problem in the language/framework of different
		MCA-Master of	3			methods (e.g., as a search problem, as a constraint satisfaction
48	1F-00	Computer	4010193122	IOT Lab	CO2	problem as a planning problem as a Markov decision process, etc.)
		Application	4010193122	IOI Lau		problem, as a planning problem, as a Markov decision process, etc).
		· · · pp. · · · · · · · · · · · · · · ·			CO3	dynamic programming).
						Design and carry out an empirical evaluation of different algorithms
					-	on problem formalization, and state the conclusions that the
-					CO4	evaluation supports.
		MCA-Master of		Network	CO1	Develop solutions for encryption and decryption algorithms
49	1F-00	Computer	4010193123	Security &	CO2	Develop solutions for public key encryption techniques
		Application		Cryptography	CO3	Develop solutions for private key encryption techniques
			l	Lab	CO4	Develop a solutions for real time cryptographic problems.
				Technical	001	Identify and understand assumptions, theses, and arguments that
		MCA-Master of		Seminar on	CO1	exist in the work of authors.
50	1F-00	Computer	4010193232	Latest	CO2	Extend intellectual discovery and unravel complexities of thought.
		Application		Technologies/	~~-	Evaluate initial hypotheses in light of evidence and collaborative
				Certification	CO3	discussion with the goal of making considered judgments.
			20	Course	CO4	Improve reflective listening and inclusive, respectful conversation
-			La Caracteria		CO1	Apply domain knowledge during the course of internship
\neg				·		
					CO2	Develop/implement the solutions with appropriate techniques, resources and contemporary tools.

51	1F-00	MCA-Master of Computer Application	4010193237	Internship	CO3	Work independently and in a collaboration in multidisciplinary environment and to allocate time effectively and manage to complete the work allotted within stipulated time.
					CO4	Exhibit integrity and ethical behavior while carrying out the internship and for the preparation of internship report and to demonstrate effective oral and written communication skills
52	1F-00	MCA-Master of Computer Application	4010193238	Internship /Major Project	CO1	Analyze a complex computing problem and to apply software Investigate and develop computing-based solution using mordern tools that help in sustaining environment and society. Use formal and informal discussions with team members and guide, make presentations and prepare technical document. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.



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			VIGNAN'S	INSTITUE O	F INFORMA	ATION T	ECHNOLOGY (A)
			DEPA	RTMENT OF	MECHANI	CAL EN	GINEERING
				C	OURSE OU	TCOME:	S
S.No	Regula tion	Program me Code	Programme Name	Course Code	Course Name	CO	Course Outcome: After the completion of the course student will be able to
	VR19	03	B.Tech-Mechanical Engineering		Mathematic s-I	COI	Executing mean value theorems and evaluate maxima and minima of functions of two vari without constraints
1	VR19	03	B.Tech-Mechanical Engineering	1000191100		CO2	Apply the analytical methods to solve higher order linear differential equations.
	VR19	03	B.Tech-Mechanical Engineering			CO3	Evaluate of solution of Ordinary differential equations by using Laplace Transform techni
	VR19	03	B.Tech-Mechanical Engineering			CO4	Identify and solve partial differential equations.
	VR19	03	B.Tech-Mechanical Engineering			COI	Apply the knowledge of crystal systems and X-ray diffraction techniques, to identify the crystal structure of materials.
2	VR19	03	B.Tech-Mechanical Engineering	1000191120	ENGINEER ING	CO2	Use the knowledge of acoustics and ultra sonics for characterization of acoustics design and non- destructive testing.
	VR19	03	B.Tech-Mechanical Engineering		PHYSICS	CO3	Describe the wave phenomena and apply these concepts for construction of Lasers and optical fibers.
	VR19	03	B.Tech-Mechanical Engineering			CQ4	Discuss the properties and synthesis techniques of nano materials.
	VR19	03	B.Tech-Mechanical Engineering		TECHNIC:	COI	Read, understand and interpret material on Environment, Science and Technology, tourism, Energy Sources, Social Awareness
3	VR19	03	B.Tech-Mechanical Engineering	1000191121	AL ENGLISH COMMUNI CATION	CO2	Read, understand and interpret material on Environment, Science and Technology, tourism, Energy Sources, Social Awareness
	VR19	03	B.Tech-Mechanical Engineering			CO3	Write effectively on various domains.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Prepare and exhibit oral presentation skills by using ICT(Individual/Team)
	VR19	03	B.Tech-Mechanical Engineering			CO1	Analyze the force systems for equilibrium conditions and able to draw free body diagram.
4	VR19	03	B.Tech-Mechanical Engineering	1003191100	ENGINEER:	CO2	Measure the frictional forces between contact surfaces.
	VR19	03	B.Tech-Mechanical Engineering B.Tech-Mechanical		MECHANI CS	CO3	Determine Centroid, centre of gravity and second moment of area for composite sections.
	VR19	03	Engineering B.Tech-Mechanical			CO4	Analyse the motion and calculate trajectory characteristics.
	VR19	03	Engineering B.Tech-Mechanical		PROBLEM SOLVING	COI	Write compile and debug Programs in C language Use operators, data types and write programs
5	VR19	03	Engineering B.Tech-Mechanical	1005191120	AND PROGRAM	CO2	Select the best loop construct for a given problem
	VR19 VR19	03	Engineering B.Tech-Mechanical		MING USING C	CO3	Design and implement C programs
_	VR19	03	Engineering B.Tech-Mechanical			CO4	Realize the purpose/Role of Engineer for solving
	VR19	03	Engineering B.Tech-Mechanical		ENGINEER ING		problems Learn to Design a component/system in an
6	VR19	03	Engineering B.Tech-Mechanical	1000191110	EXPLORA TION	CO2	engineering way
	VR19	03	Engineering B.Tech-Mechanical		11011		Learn to use mechanisms, Arduino, sensors, motors. Integrating different systems
	VR19	03	Engineering B.Tech-Mechanical Engineering	D2		CO4	(mechanical/Electrical/computer) to work as a unit Solve approximate roots of an equation by using different numerical methods.

	VR19	03	Engineering B.Tech-Mechanical Engineering		WORKSH OP -	CO4	sheet metal. Apply basic electrical engineering knowledge for house wiring practice like stair case wiring, series and parallel connections
13	VR19	03	Engineering B.Tech-Mechanical	1003191210	ENGINEER ING WORKSH	CO2	Perform the fitting and carpentry operations. Develop simple objects like funnel, elbow etc. using
	VR19 VR19	03	Engineering B.Tech-Mechanical		Paris	CO1	Understand different operations: Fitting, smithy, carpentry and Electrical wiring.
	VR19	03	Engineering B.Tech-Mechanical			CO4	views and vice-versa
	VR19	03	Engineering B.Tech-Mechanical		DRAWING	CO3	Apply the knowledge of orthographic projection to draw the views of both planes and solids. Analyse orthographic projections to develop isometric
12	VR19	03	Engineering B.Tech-Mechanical	1003191101	ENGINEER ING	CO2	Develop the orthographic projections of points and lines.
	VR19	03	Engineering B.Tech-Mechanical			COI	construct the polygons and curves
_	VR19	03	B.Tech-Mechanical Engineering B.Tech-Mechanical			CO4	Identify the structure, operation and characteristics and applications of measuring instruments and semiconductor devices. Understand the use of drawing instruments to
11	VRI9	03	B.Tech-Mechanical Engineering	1002191220	AL AND ELECTRO NICS ENGINEER ING	CO3	Outline the constructional details and operating principles of AC machines and calculate the efficiency identify the characteristics, losses and efficiency of a three phase induction motor.
	VR19	03	B.Tech-Mechanical Engineering		BASIC ELECTRIC	CO2	Describe the constructional features of DC machines, select suitable starters for DC motors estimate losses and efficiency of DC motor.
Ī	VR19	03	B.Tech-Mechanical Engineering			COI	Apply Ohms Law and Kirchhoff's Laws and solve electrical circuits
	VR19	03	B.Tech-Mechanical Engineering			CO4	Learn safety rules in the practice of laboratory investigation.
	VR19	03	B.Tech-Mechanical Engineering		ENGINEER ING CHEMIST - RY LAB	CO3	Learn and apply basic techniques used in chemistry laboratory for preparation of Organic compounds.
10	VR19	03	B.Tech-Mechanical Engineering	1000191220		CO2	Enhance the thinking capabilities in the modern trends of engineering & technology.
İ	VR19	03	B.Tech-Mechanical Engineering			COI	Analyze& generate experimental skills.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Identify different polymers and their functionalities, acquire knowledge on vari Engineering materials
-	VR19	03	B.Tech-Mechanical Engineering	1000131440	CHEMIST RY	CO3	Inspect corrosive environments and protection of precious metal.
9	VR19	03	B.Tech-Mechanical Engineering	1000191220	ENGINEER ING	CO2	Acquire the knowledge on advanced materials
	VR19	03	B.Tech-Mechanical Engineering			COI	Measure water quality parameters, corrosive environment and protection of pre metal
	VR19	03	B.Tech-Mechanical Engineering		S	CO4	Explain Gradient, divergence and curl operations in vector and scalar fields and apply Green's, Gauss and Stokes theorem as the generalisation of fundamental theorem of integral calculus.
8	VR19	03	B.Tech-Mechanical Engineering	1000191200	VECTOR CALCULU	CO3	Apply multiple integration techniques in evaluating areas and volume bounded by region.
	VR19	03	B.Tech-Mechanical Engineering		TRANSFO RMS AND	CO2	Simplify a non periodic function as integral representation
	VR19	03	B.Tech-Mechanical Engineering			COI	Formulate any period function in terms of sine and cosine
	VR19	03	B.Tech-Mechanical Engineering			CO4	Evaluate simultaneous linear equations numerically using rank of a matrix and also Eigen values and Eigen vectors of a square matrix.
	VR19	03	B.Tech-Mechanical Engineering		s-II	CO3	Compute Numerical Solution of ODE and Numerical Integration.
7	VR19	03	B.Tech-Mechanical Engineering	1000191101	Mathematic	CO2	Compute Interpolating polynomial for the given data.

1	VR19	03	B.Tech-Mechanical Engineering			COI	Have general knowledge and legal literacy and thereby to take up competitive examinations.
	VR19	03	B.Tech-Mechanical				Distinguish the power of state and central
15			Engineering		CONSTITU	CO2	centralgovernment.
15	VR19	03	B.Tech-Mechanical Engineering	1000191130	TION OF INDIA	CO3	Summarize theelection procedure in India before and after independence
	VR19	03	B.Tech-Mechanical				
	41(19)	03	Engineering			201	Association with the powers and functions of
_			B.Tech-Mechanical			CO4	Municipalities, Panchayats and Cooperative Societies.
	VR19	03	Engineering			CO1	Analyse the complex functions with reference to their
			Langineering				analyticity. Analyse the complex integration by using Cauchy's
			B.Tech-Mechanical				integral formula and find Taylor's, Maclaurin's series
	VR19	03	Engineering				and Laurent
						CO2	series expansion of complex function.
				1	Complex		Evaluate contour integrals by using Residue theorem
16			B.Tech-Mechanical	1000102100	Variables		andExplain the notation of random variables and
10	VR19	03		1000192100	&Statistic	CO3	Evaluate theexpected value and probability of random
			Engineering		al		variables
					Methods		
	[Evaluate the confidence levels and maximum errors
			B.Tech-Mechanical				forlarge and small samplings and Apply the concept of
	VR19	03	Engineering				hypothesis testing for large and small samples in real.
							Lifesituations
						CO4	
	V510	0.3	B.Tech-Mechanical	-			Categorize the properties of metals/alloys with respect
	VR19	03	Engineering			COL	to crystal structure, grain size
							andunderstandthe necessity of alloying
	VR19	03	B.Tech-Mechanical				Explainthe concept of phase & phase diagram
	AKIS	03	Engineering	1003192120	MATERIA LS ENGINEER ING		&understand the basic terminologies associated with
17						CO2	metallurgy.
. ,			B.Tech-Mechanical	1003192120			Understand and suggest the
	VR19	03		-		CO3	heattreatmentprocess&strengthening
		03	Engineering				mechanisms.
							Significance of properties Vs microstructure.
	VRI9	03	B.Tech-Mechanical	}			Identify the features and recommend appropriate materials viz. Ferrous alloys, non-ferrous alloys and
			Engineering			CO4	composite materials for suitable application.
			Di Transa Alexandra de la contracta de la cont				Identify the various stresses and strains that structural
	VRI9	03	B.Tech-Mechanical			COI	Identify the various stresses and strains that structural
	VR19	03	B.Tech-Mechanical Engineering			COI	Identify the various stresses and strains that structural members experience
			Engineering		:	COI	Identify the various stresses and strains that structural members experience under varied loading circumstances.
	VRI9	03	Engineering B.Tech-Mechanical		МЕСПУИ	COI	Identify the various stresses and strains that structural members experience
81			Engineering	1003197171	MECHANI CS OF	CO1	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions.
81	VR19	03	Engineering B.Tech-Mechanical Engineering	1003192121	CS OF	CO2	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of
81			Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical	1003192121		_	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of various beams and
18	VR19	03	Engineering B.Tech-Mechanical Engineering	1003192121	CS OF	CO2	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of various beams and columns under various loads and support conditions
81	VR19 VR19	03	Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical	1003192121	CS OF	CO2	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of various beams and columns under various loads and support conditions. Analyze the stresses in thin and thick pressure vessels
81	VR19	03	Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical	1003192121	CS OF	CO2 CO3	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of various beams and columns under various loads and support conditions. Analyze the stresses in thin and thick pressure vessels to arrive an optimum
81	VR19 VR19	03	Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering	1003192121	CS OF	CO2	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of various beams and columns under various loads and support conditions. Analyze the stresses in thin and thick pressure vessels to arrive an optimum section to withstand the internal pressure.
81	VR19 VR19	03	Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering	1003192121	CS OF	CO2 CO3	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of various beams and columns under various loads and support conditions. Analyze the stresses in thin and thick pressure vessels to arrive an optimum section to withstand the internal pressure. Acquire knowledge related to energy interactions in
81	VR19 VR19 VR19	03	Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering	1003192121	CS OF	CO2 CO3	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of various beams and columns under various loads and support conditions. Analyze the stresses in thin and thick pressure vessels to arrive an optimum section to withstand the internal pressure. Acquire knowledge related to energy interactions in various fields of thermal engineering
81	VR19 VR19 VR19 VR19	03 03 03	Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering	1003192121	CS OF	CO2 CO3	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of various beams and columns under various loads and support conditions. Analyze the stresses in thin and thick pressure vessels to arrive an optimum section to withstand the internal pressure. Acquire knowledge related to energy interactions in various fields of thermal engineering Importance of hidden governing laws behind various
	VR19 VR19 VR19	03	Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering		CS OF	CO2 CO3	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of various beams and columns under various loads and support conditions. Analyze the stresses in thin and thick pressure vessels to arrive an optimum section to withstand the internal pressure. Acquire knowledge related to energy interactions in various fields of thermal engineering Importance of hidden governing laws behind various engineering systems specially used in power
	VR19 VR19 VR19 VR19	03 03 03	Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering	1003192121	CS OF SOLIDS	CO2 CO3	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of various beams and columns under various loads and support conditions. Analyze the stresses in thin and thick pressure vessels to arrive an optimum section to withstand the internal pressure. Acquire knowledge related to energy interactions in various fields of thermal engineering Importance of hidden governing laws behind various engineering systems specially used in power generation
	VR19 VR19 VR19 VR19	03 03 03	Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical		CS OF SOLIDS	CO2 CO3	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of various beams and columns under various loads and support conditions. Analyze the stresses in thin and thick pressure vessels to arrive an optimum section to withstand the internal pressure. Acquire knowledge related to energy interactions in various fields of thermal engineering Importance of hidden governing laws behind various engineering systems specially used in power generation Outline the degree of disorder and its associated
	VRI9 VRI9 VRI9 VRI9 VRI9	03 03 03 03 03	Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering		CS OF SOLIDS	CO2 CO3 CO4 CO1	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of various beams and columns under various loads and support conditions. Analyze the stresses in thin and thick pressure vessels to arrive an optimum section to withstand the internal pressure. Acquire knowledge related to energy interactions in various fields of thermal engineering Importance of hidden governing laws behind various engineering systems specially used in power generation Outline the degree of disorder and its associated changes in the system as well as surroundings
	VRI9 VRI9 VRI9 VRI9 VRI9	03 03 03 03	Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering		CS OF SOLIDS	CO2 CO3 CO4 CO1	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of various beams and columns under various loads and support conditions. Analyze the stresses in thin and thick pressure vessels to arrive an optimum section to withstand the internal pressure. Acquire knowledge related to energy interactions in various fields of thermal engineering Importance of hidden governing laws behind various engineering systems specially used in power generation Outline the degree of disorder and its associated changes in the system as well as surroundings Evaluate the properties of air, pure substances and
	VR19 VR19 VR19 VR19 VR19 VR19 VR19	03 03 03 03 03 03	Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering		CS OF SOLIDS	CO2 CO3 CO4 CO1	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of various beams and columns under various loads and support conditions. Analyze the stresses in thin and thick pressure vessels to arrive an optimum section to withstand the internal pressure. Acquire knowledge related to energy interactions in various fields of thermal engineering Importance of hidden governing laws behind various engineering systems specially used in power generation Outline the degree of disorder and its associated changes in the system as well as surroundings Evaluate the properties of air, pure substances and perfect gases with respect to temperature change.
19	VR19 VR19 VR19 VR19 VR19 VR19	03 03 03 03 03	Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering		CS OF SOLIDS	CO2 CO3 CO4 CO1	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of various beams and columns under various loads and support conditions. Analyze the stresses in thin and thick pressure vessels to arrive an optimum section to withstand the internal pressure. Acquire knowledge related to energy interactions in various fields of thermal engineering Importance of hidden governing laws behind various engineering systems specially used in power generation Outline the degree of disorder and its associated changes in the system as well as surroundings Evaluate the properties of air, pure substances and perfect gases with respect to temperature change. Understand the properties of fluids and the
19	VR19 VR19 VR19 VR19 VR19 VR19 VR19	03 03 03 03 03 03	Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering B.Tech-Mechanical Engineering		CS OF SOLIDS	CO2 CO3 CO4 CO1 CO2 CO3	Identify the various stresses and strains that structural members experience under varied loading circumstances. Evaluate the shear force, bending moment, deflection of beams, and torsional stresses for different loading and support conditions. Assess societal issues by analysing the behaviour of various beams and columns under various loads and support conditions. Analyze the stresses in thin and thick pressure vessels to arrive an optimum section to withstand the internal pressure. Acquire knowledge related to energy interactions in various fields of thermal engineering Importance of hidden governing laws behind various engineering systems specially used in power generation Outline the degree of disorder and its associated changes in the system as well as surroundings Evaluate the properties of air, pure substances and perfect gases with respect to temperature change.

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20	VR19	03	B.Tech-Mechanical Engineering	1003192122	FLUID MACHINE	CO3	Relate the concept of the boundary layer in resolving continuity, momentum, and energy equations on an activity basis
	VR19	03	B.Tech-Mechanical Engineering		S	CO4	Apply the principles of hydraulic pumpsfor domestic, agricultural and industrial applications
	VR19	03	B.Tech-Mechanical Engineering			COI	Examine introspect on individual strengths and weaknesses, and emerge as a balanced personality
21	VR19	03	B.Tech-Mechanical Engineering	1000102110	COMMUNI CATION	CO2	with improved self-awareness and self-worth Write a resume and gain the confidence to face an interview
	VR19	03	B.Tech-Mechanical Engineering	1000192110 E	SKILLS LABORAT ORY	CO3	Develop the interpersonal skills to conduct himself/herself effectively in everyday professional and social contexts.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Communicate in a group with confidence.
	VR19	03	B.Tech-Mechanical Engineering		Mini	CO1	Understand the need of optimum design of a mechanical component or an assembly and Study the procedure to bring cost effective manufacturing process with proper material selection and technical procedure of planning the work.
22	VR19	03	B.Tech-Mechanical Engineering	1005192170	Project – 1 EPICS/Soci etal relevant project	CO2	Apply the engineering knowledge, mathematics, design thinking and project management to develop a community project.
	VR19	03	B.Tech-Mechanical Engineering		ļ,	CO3	Realize the significance of real time applications, energy management and environmental affects.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Obtain the skill of data collection and technical report writing.
	VR19	03	B.Tech-Mechanical Engineering			CO1	Describe different kinematic inversions of four bar mechanisms and process of finding and applying velocity and accelerations to Agriculture and mechanical
23	VR19	03	B.Tech-Mechanical Engineering	1003192200	Kinematics of	500	machine components. Produce different straight-line mechanisms and their applications in Automobile
	VR19	03	B.Tech-Mechanical Engineering		Machinery	CO2 CO3	Engines and steering mechanism. Examine different cam and follower motions and their applications in IC engines.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Solve different operating problems in transmission of power by belt, gear and gear trains.
	VR19	03	B.Tech-Mechanical Engineering			COI	Differentiate the basic combustion cycles and working of various IC engines along with engine systems and losses associated with engines.
24	VR19	03	B.Tech-Mechanical Engineering	1003192220	APPLIED THERMOD	CO2	Learn the combustion physics involved in spark ignition and compression ignition engines and discuss the affects on environment
	VRI9	03	B.Tech-Mechanical Engineering		YNAMICS- I	CO3	Familiarize with the testing methods involved in determining and measurement of various performance parameters in SI and CI engines.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Discuss the working principles of reciprocating air compressors and apply the principles in carrying out performance analysis.
	VR19	03	B.Tech-Mechanical Engineering			COI	Understand the casting, welding, sheet metal and powder metallurgy processess.
25	VR19	03	B.Tech-Mechanical Engineering	1003192221	MANUFA CTURING	CO2	Analyze the force requirements for various bulk and sheet metal forming
	VR19	03	B.Tech-Mechanical Engineering	1003192221	PROCESSE S	CO3	operations,
	VR19	03	B.Tech-Mechanical Engineering			CO4	Importance of powder metallurgy process and processing of plastics

	VR19	03	B.Tech-Mechanical Engineering			COI	Understand and apply the knowledge of machine drawing as a system of communication in which ideas are expressed clearly and all information fully conveyed
26	VR19	03	B.Tech-Mechanical Engineering	1003192222	MACHINE DRAWING	CO2	Identify and classify the functionalities of various machine elements such as vices, bearings, screw jacks, shafts, fasteners, keys, cotters, pins and their assembly with respect to design Standardization.
	VR19	03	B.Tech-Mechanical Engineering			CO3	Construct an assembly drawing from the given part drawings of machine components.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Improve the 2D model components of various machine components using AUTOCAD software
	VR19	03	B.Tech-Mechanical Engineering			COI	Elucidate the natural resource & their importance for the sustenance of life and recognises the need to conserve natural resource
	VR19	03	B.Tech-Mechanical Engineering		ENVIRON	CO2	Gives the broad view on the various attributes of pollution & and their impact & measure to reduce he pollution along with waste management
27	VR19	03	B.Tech-Mechanical Engineering	1000192230	MENTAL SCIENCE	CO3	Debates on social issues both rural and urban environment possible means to combat the challenges and trace the legislation of India towards sustainability
	VR19	03	B.Tech-Mechanical Engineering			CO4	Educates about Environmental Impact Assessment, Environmental Impact Statement & Environmental Audit
	VR19	03	B.Tech-Mechanical Engineering			CO1	Students have the adequate writing skills that are needed in an organization
	VR19	03	B.Tech-Mechanical Engineering	1020192100	EMPLOYA BILITY READINES S PROGRAM- 1	CO2	Understand the core competencies to succeed in professional and personal life
28	VR19	03	B.Tech-Mechanical Engineering			CO3	Solve various Basic Mathematics problems by following different methods and to perform well in various competitive exams and placementdrives.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Follow strategies in minimizing time consumption in problem solving Apply shortcut methods to solve problems and confidently solve any mathematical problems and utilize these mathematical skills both in their professional as well as personal life.
	VR19	03	B.Tech-Mechanical Engineering	-		COI	Apply the design procedure to engineering problems, including the consideration of technical and manufacturing constraints.
29	VR19	03	B.Tech-Mechanical Engineering	1000100100	Design of	CO2	Select suitable materials and significance of tolerances and fits in critical design applications.
	VR19	03	B.Tech-Mechanical Engineering	1003193100	Machine Elements -I	CO3	Design various mechanical elements as per design procedure for strength, stiffness and fatigue
	VR19	03	B.Tech-Mechanical Engineering			CO4	Identify the loads, the machine members subjected and calculate static and dynamic stresses to ensure safe design
	VR19	03	B.Tech-Mechanical Engineering			COI	Understand the Gyroscopic effect on sea , air and surface transport vehicles to establish safety.
30	VR19	03	B.Tech-Mechanical Engineering	1000	DYNAMIC S OF	CO2	Analyze the torque and effect of friction in mechanical systems
30	VR19	03	B.Tech-Mechanical Engineering	1003193120	MACHINE RY	CO3	Examine the energy fluctuation in the flywheels and governors.
	VR19	03	B.Tech-Mechanical Engineering		""	CO4	Evaluate balancing of rotary and reciprocating masses to curb the failure
	VR19	03	B.Tech-Mechanical Engineering			CO1	Understand the working principle of all components and their types in a steam power plant such as boilers, nozzles, turbines and condensers.

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31	VR19	03	B.Tech-Mechanical Engineering	1003193101	APPLIED THERMOD	CO2	Apply the conceptual theories in solving problems on all components employed in the steam power plant.
	VR19	03	B.Tech-Mechanical Engineering		YNAMICS- II	CO3	Evaluate the performance of impulse and reaction turbines by applying the theory of compounding.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Apply the principle of Newton's laws to Jet Propulsion systems such as gas turbines and rockets.
	VR19	03	B.Tech-Mechanical Engineering			COI	Understand the metal cutting mechanisms and different machining processes.
32	VR19	03	B.Tech-Mechanical Engineering	1002102101	MANUFA CTURING	CO2	Select the suitable cutting tool material for various machining operations.
J.	VR19	03	B.Tech-Mechanical Engineering	1003193121	TECHNOL OGY	CO3	Choose the type of machine based on the geometry of the final component.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Importance of CNC machiningprocesses for inductrial needs.
	VR19	03	B.Tech-Mechanical Engineering			COI	Relate data structure concepts with real time applications.
	VR19	03	B.Tech-Mechanical Engineering		DATA	CO2	Apply linear and non-linear data structures by
33	VR19	03	B.Tech-Mechanical Engineering	1005193161	STRUCTU RES	CO3	identifying the appropriate need. Analyze searching and sorting techniques for effective
	VR19	03	B.Tech-Mechanical Engineering			- CO1	management of data Design and implement operations of linear and
	VR19	03	B.Tech-Mechanical Engineering			CO ₄	nonlinear data structures Write the professional documents that are needed in an organization and To perform well during Campus
	VR19	03	B.Tech-Mechanical Engineering		EMPLOYA BILITY		Drives and different Interviews Understand the core competencies to succeed in professional and personal life and Students will develop knowledge and experience with the use of the
34	VR19	03	B.Tech-Mechanical Engineering	1020193160	READINES S PROGRAM II	CO2	standard C programming language, Solve various Basic Mathematics problems by following different methods and analyses, summarize and present information in quantitative forms including table, graphs and formulas
	VR19	03	B.Tech-Mechanical Engineering			CO4	Apply shortcut methods to solve problems and confidently solve any mathematical problems and utilize these mathematical skills both in their professional as well as personal life.
_	VRI9	03	B.Tech-Mechanical Engineering		INDUSTRI AL WASTE	COI	Distinguish between the quality of domestic and industrial water requirements and wastewater quantity generation
35	VR19	03	B.Tech-Mechanical Engineering	1001193161	AND WASTE	CO2	Impart knowledge on selection of treatment methods for industrial wastewater.
	VR19	03	B.Tech-Mechanical Engineering		WATER ENGINEER	CO3	Describe the common methods of treatment in different industries
	VR19	03	B.Tech-Mechanical Engineering		ING	CO4	Explain operational problems of common effluent
	VR19	03	B.Tech-Mechanical Engineering			COI	Explain the fundamentals of solar photovoltaic (PV)
	VR19	03	B.Tech-Mechanical Engineering		SOLAR PHOTOVO	COI	energy systems Analyze the characteristics of solar radiation, PV cells,
36	VR19	03	B.Tech-Mechanical Engineering	1002193160	LTAIC ENERGY	CO2 CO3	modules and arrays Analyze the characteristics of solar radiation, PV cells,
	VR19	03	B.Tech-Mechanical Engineering		SYSTEMS -		modules and arrays Analyze the system level issues related to PV energy systems
	VR19	03	B.Tech-Mechanical Engineering		PROFESSI	CO1	Understood the core values that shape the ethical behavior of an engineer
37	VR19	03	B.Tech-Mechanical Engineering	1099193130	ONAL ETHICS	CO2	Define importance of human values, harmony and ethical behavior in real life situations
	VR19	03	B.Tech-Mechanical Engineering		AND HUMAN	CO3	Apply the professional ethics and human values in real life situations

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	VR19	03	B.Tech-Mechanical Engineering		YALULS	CO4	Understand practically the importance of trust, mutually satisfying human behavior and enriching interaction with nature.
	VR19	03	B.Tech-Mechanical Engineering			COI	Carryout literature survey, and choose a relevant topic reported in recent IEEE/CSI/ACM/ conference publications / transactions in the domain of computer science and engineering.
38	VR19	03	B.Tech-Mechanical Engineering	1003193180	TECHNIC AL	CO2	Simulate and analyze the results reported in the
	VR19	03	B.Tech-Mechanical Engineering		SEMINAR	CO3	chosen paper for seminar topic. Communicate effectively before the expert panel and
	VR19	03	B.Tech-Mechanical Engineering				develop technical reports. Respond to the queries raised by the evaluation
						CO4	Describe the economic activities performed by the
;	VR19	03	B.Tech-Mechanical Engineering			CO1	businessmen in the business for profit earning. Understand the significance of demand, its analysis, measurement of demand and its Forecasting
	VR19	03	B.Tech-Mechanical Engineering		Managerial Economics	CO2	Evaluate the production theories and pricing policies of various enterprises
39	VR19	03	B.Tech-Mechanical Engineering	1099192100	& Financial Analysis	CO3	Design and implement different structures of market covering how price is determined under different market structures. Also can able to take decisions using business cycles
	VR19	03	B.Tech-Mechanical Engineering			CO4	Analyze different forms of business organizations existing in the modern business and able to choose suitable form of business.
	VR19	03	B.Tech-Mechanical Engineering		DESIGN OF	COI	Understand the different types of machine elements behaviour under various working condition
	VR19	03	B.Tech-Mechanical Engineering	i		CO2	Design different types of machine elements like bearings, curved beams, power screws, differential
40	VR19	03	B.Tech-Mechanical Engineering	1003193200	MACHINE ELEMENT S-II	CO3	and compounds screws. Design various power transmission elements such as belts, ropes, chains, pulleys, gear and machine tool elements of levers.
	VR19	03	B.Tech-Mechanical Engineering		:	CO4	Design various LC engine parts like piston, connecting rod, crank shaft and cylinder.
	VR19	03	B.Tech-Mechanical Engineering			COI	Understand basic concepts and governing equations of three modes of heat transfer
	VR19	03	B.Tech-Mechanical Engineering		HEAT	CO2	Evaluate heat transfer coefficients for natural convection and forced convection.
41	VR19	03	B.Tech-Mechanical Engineering	1003193220	TRANSFE R	CO3	Design and develop a heat exchanger for the basic engineering applications by analyzing its performance
	VR19	03	B.Tech-Mechanical Engineering			CO4	Construct electrical analogy networks through basic principles of radiation to estimate the radiative heat exchange between the bodies.
	VR19	03	B.Tech-Mechanical Engineering			CO1	Classify different instruments used for measurement of mechanical quantities
	VR19	03	B.Tech-Mechanical Engineering		ĺ	CO2	Apply the various principles of working used in measurement systems

42	VR19	03	B.Tech-Mechanical Engineering	1003193221	INSTRUM ENTATIO N & METROLO GY	CO3	Develop the measuring instruments for measurement of displacement, speed, temparature, pressure, strain, linear and angular measurements
	VR19	03	B.Tech-Mechanical Engineering			- CO4	Categorize the instruments for checking various elements of fits, surface roughness, screw thread and gear tooth parameters
	VR19	03	B.Tech-Mechanical Engineering			COI	Create the environment and run basic programs by make use of fundamental concepts
43	VR19	03	B.Tech-Mechanical Engineering	1012193161	FUNDAME NTALS OF PYTHON		Define and demonstrate the use of built-in data structures.
	VR19	03	B.Tech-Mechanical Engineering	1012193101	PROGRAM MING	CO3	Import packages to the current working environment and create user defined modules.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Implement object-oriented concepts and handle exceptions and files
	VR19	03	B.Tech-Mechanical Engineering B.Tech-Mechanical			coı	Understand the basic terminology used in object- oriented programming
44	VR19	03	Engineering B.Tech-Mechanical	1005193160	PROGRAM MING IN	CO2	Describe the object-oriented programming approach in connection with C++
	VR19	03	Engineering B.Tech-Mechanical		C++	CO3	Apply the concepts of object- oriented programming
	VR19	03	Engineering			CO4	Apply virtual and pure virtual function & complex programming situations
	VR19	03	B.Tech-Mechanical Engineering		ENVIRON MENTAL	COI	Understand evaluate and create the basic concept of environmental impact assessment, environmental impacts. Flow of EIA, types of
45	VR19	03	B.Tech-Mechanical Engineering	1001193260	IMPACT ASSESSM	CO2	Implement different methods in preparing an Environmental Impact Statement.
	VR19	03	B.Tech-Mechanical Engineering		ENT AND MANAGE	CO3	Identify various mitigation measures that can be used.
	VR19	03	B.Tech-Mechanical Engineering		MENT	CO4	Choose methodology for identification of environmental impacts, environmental indices and indicator.
	VR19	03	B.Tech-Mechanical Engineering			COI	Understand the concepts and drive train configurations of electric drive vehicles.
	VR19	03	B.Tech-Mechanical Engineering			CO2	Describe different electric propulsion systems and energy storage devices
46	VR19	03	B.Tech-Mechanical Engineering	1002193260	ELECTRIC VEHICLES	CO3	Discuss the technology, design methodologies and control strategy of electric vehicles.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Explain battery charger topologies for electric vehicles and discuss how the sizing of the drive system is done and energy management strategies used in electric.
	VR19	03	B.Tech-Mechanical Engineering			COI	Understand the basic vibration problems and develop mathematical models using Mass, spring and damper concepts
	VR19	03	B.Tech-Mechanical Engineering		CONDITIO	CO2	Evaluate the vibrating system response and analyse the behavior of vibrating systems
47	VR19	03	B.Tech-Mechanical Engineering	1003193250	N MONITORI NG	CO3	Apply the knowledge of vibration analysis, thermography techniques, oil and wear debris analysis for identifying faults in machine components
	VR19	03	B.Tech-Mechanical Engineering			CO4	Analyse the defects in components using the knowledge of ultrasonic monitoring methods
	VR19	03	B.Tech-Mechanical Engineering		CAS	CO1	Illustrate fluid flow systems.
,se	VR19	03	B.Tech-Mechanical Engineering		GAS - DYNAMIC	CO2	Analyze the isotropic flow of an ideal gas and its parameter.

40	VR19	03	B.Tech-Mechanical Engineering	1003173231	PROPULSI	CO3	Explain frictional flow with heat transfer problems.
	VR19	03	B.Tech-Mechanical Engineering		ON	CO4	Analyze the impact of heat transfer on flow parameters.
	VR19	03	B.Tech-Mechanical Engineering			COI	Understand the various robot configuration and components
	VR19	03	B.Tech-Mechanical Engineering		INDUSTRI	CO2	Choose appropriate actuators and sensors for a robot based on specific application
49	VR19	03	B.Tech-Mechanical Engineering	1003193160	AL ROBOTICS	CO3	Analyze the kinematic and dynamic analysis for simple serial kinematic chains
	VR19	03	B.Tech-Mechanical Engineering			CO4	Explain trajectory planning for a manipulator by avoiding obstacles.
	VR19	03	B.Tech-Mechanical Engineering			COI	Develop the different linear programming and assignment models for domain specific situations.
	VR19	03	B.Tech-Mechanical Engineering		OPERATIO NS	CO2	Analyze the different transportation models.
50	VR19	03	B.Tech-Mechanical Engineering	1003193252	RESEARC H	CO3	Design inventory and queueing theory models for optimal decisions.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Apply optimal strategy to real time applications using dynamic programming and game theory.
	VR19	03	B.Tech-Mechanical Engineering			CO1	Understand the concepts of potential energy, variational methods and weighted residual methods.
52	VR19	03	B.Tech-Mechanical Engineering	1003194100	FINITE ELEMENT	CO2	Identify the suitable FEA elements such as bars, truss, beams, constant strain triangle and isoparametric elements to create Finite Element Model with respect to the application
	VR19	03	B.Tech-Mechanical Engineering		METHODS	CO3	Apply the suitable boundary conditions to the finite element model and solve the engineering problems
	VR19	03	B.Tech-Mechanical Engineering			CO4	Identify the finite element concept expands beyond the structural domain, for problems involving dynamics and heat transfer.
	VR19	03	B.Tech-Mechanical Engineering			CO1	Describe basic structure of CAD workstation, Memory types, input/output devices and display devices and computer graphics
53	VR19	03	B.Tech-Mechanical Engineering	1003194101	CAD/CAM	CO2	Apply knowledge of mathematical concept for geometry manipulation and modelling of curves, surfaces and solids
	VR19	03	B.Tech-Mechanical Engineering			CO3	Develop a programming for NC operations using various methods available
	VR19	03	B.Tech-Mechanical Engineering			CO4	Define the use of GT and CAPP for the product development.
	VR19	03	B.Tech-Mechanical Engineering			COI	Illustrate the insights of management principles.
	VR19	03	B.Tech-Mechanical Engineering		MANAGE	CO2	Summerize production process, quality control and inventory techniques.
54	VR19	03	B.Tech-Mechanical Engineering	1099192200	MENT SCIENCE	CO3	Identify strategies and policies to functional areas.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Apply contemporary management polocies.
	VR19	03	B.Tech-Mechanical Engineering			COI	Identify Methods in AI that may be suited to solve a given problem and Game Playing

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55	VR19	03	B.Tech-Mechanical Engineering	1005193261	ARTIFICIA L INTELLIG	CO2	Make use of AI search algorithms and formalizations on real world problems
	VR19	03	B.Tech-Mechanical Engineering		ENCE	CO3	Analyze the basic issues of different types of knowledge representation techniques to build intelligent system
	VR19	03	B.Tech-Mechanical Engineering			CO4	Apply probabilistic and fuzzy models to solve problems with uncertainty
	VR19	03	B.Tech-Mechanical Engineering		b Tropu	COI	Appraise the importance of data and choose an appropriate algorithm to create a models
56	VR19	03	B.Tech-Mechanical Engineering	1005194160	CTION TO	CO2	Characterize machine learning algorithms as supervised, semi-supervised, and Unsupervised
0	VR19	03	B.Tech-Mechanical Engineering	1003194160	LEARNIN	CO3	Relate various machine learning and deep learning algorithms with real world applications
	VR19	03	B.Tech-Mechanical Engineering		G	CO4	Analyze how to evaluate models build from the sample datasets on web
	VR19	03	B.Tech-Mechanical Engineering			CO1	To know the basic concepts in Disasters and its triggering factures
57	VR19	03	B.Tech-Mechanical Engineering	100110110	DISASTER	CO2	To understand stages of hydrological disaster
,	VR19	03	B.Tech-Mechanical Engineering	1001194160	MANAGE MENT	CO3	To analysis the causes, effects, impacts and of hydrological, geological and coastal hazards.
	VR19	03	B.Tech-Mechanical Engineering			CO4	To understand the mitigation procedure of uncertain events
	VR19	03	B.Tech-Mechanical Engineering			CO1	Describe the need and importance of non-traditional machining methods and Apply the basic principle, equipment, process variables and mechanics of metal removal rate
58	VR19	03	B.Tech-Mechanical Engineering	1002104140	UNCONVE NTIONAL MACHINI NG PROCESSE S	CO2	Design and analyze the surface finish and material removal in Chemical machining, electro chemical machining, electro chemical grinding,
36				1003194150		C03	Estimate the material removal rate and effect of process parameters in EDM, Electric discharge grinding and wire cut EDM process.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Analyze the material removal rate in Electron Beam Machining and Laser Beam Machining processes and identify the effect of process parameters.
	VR19	03	B.Tech-Mechanical Engineering			COI	Understand the various mechatronics systems and their levels including the fundamental principles of different sensors and transducers
59	VR19	03	B.Tech-Mechanical Engineering	1003194151	MECHATR	CO2	Develop the model containing solid state electronic devices and make use of signal processing and conditioning theories
	VR19	03	B.Tech-Mechanical Engineering		ONICS	CO3	Analyze various actuating systems to design mechatronic motion logic control system
	VR19	03	B.Tech-Mechanical Engineering			CO4	Assess PLC programming techniques and data acquisition systems for implementation of micro mechatronics systems

	VR19	03	B.Tech-Mechanical Engineering			COI	Estimate the error for any two successive iterations for a simple laplacian equation using any numerical method
60	VR19	03	B.Tech-Mechanical Engineering	1003194152	COMPUTA TIONAL	CO2	Applying various numerical techniques to solve PDE's associated with governing equations applied in various engineering problems
	VR19	03	B.Tech-Mechanical Engineering	1003134132	FLUID DYNAMIC S	CO3	Determine momentum, energy, conservation laws and principles that are applied to conduction and convection problems using FDM approach
	VR19	03	B.Tech-Mechanical Engineering		:	CO4	Assess PLC programming techniques and data acquisition systems for implementation of micro mechatronics
	VR19	03	B.Tech-Mechanical Engineering			COI	Recognize the development of Additive Manufacturing technology and opportunities for transforming a concept into product development.
61	VR19	03	B.Tech-Mechanical Engineering	1003194153	ADDITIVE MANUFA	CO2	Apply the suitable rapid prototyping process for a given product
	VR19	03	B.Tech-Mechanical Engineering		CTURING	CO3	Analyze STL file problems, find solution and repair
27	VR19	03	B.Tech-Mechanical Engineering			CO4	Explore the applications of AM processes in various fields
	VR19	03	B.Tech-Mechanical Engineering			CO1	Understand the basic functional requirements of the elements of Steam power plant.
	VR19	03	B.Tech-Mechanical Engineering	1003194154	POWER PLANT ENGINEER ING	CO2	Itlustrate the working of various power plants viz Diesel, gas, hydro and nuclear.
62	VRI9	03	B.Tech-Mechanical Engineering			CO3	Analyze economics of power plants and interpret the performance of power plants based on load variations
	VR19	03	B.Tech-Mechanical Engineering			CO4	Elucidate the impact of power plant emissions on global warming and their preventive measures.
	VR19	03	B.Tech-Mechanical Engineering			COI	Acquire knowledge of various air refrigeration cycles and their analysis.
	VR19	03	B.Tech-Mechanical Engineering		REFRIGER ATION	CO2	Illustrate the performance improvement methods in VCR systems.
63	VR19	03	B.Tech-Mechanical Engineering	1003194155	AND AIR CONDITIO	CO3	Outline the refrigerant characteristics & components of the VCR system.
	VR19	03	B.Tech-Mechanical Engineering		NING	CO4	Apply the working principles of vapour absorption & Discuss the various non-conventional methods of refrigeration.
	VR19	03	B.Tech-Mechanical Engineering		QUALITY	COI	Understand the concepts of quality and the
	VR19	03	B.Tech-Mechanical Engineering		AND	CO2	fundamentals of science of quality engineering Draw and construct control charts
64	VR19	03	B.Tech-Mechanical	1003194156	RELIABILI TY	CO2 CO3	Infer from sampling plans and determine the quality
	VR19	03	Engineering B.Tech-Mechanical		ENGINEER ING		Define a house of quality for a given scenario
	VR19	03	Engineering B.Tech-Mechanical			CO4 CO1	Understand the different parts of the automobile
	VR19	03	Engineering B.Tech-Mechanical Engineering		AUTOMO BILE		Illustrate the working of various parts like engine, transmission, clutch, brakes, gearboxes, differential
65	VR19	03	B.Tech-Mechanical	1003194157	ENGINEER	CO2	axle Describe the steering and the suspension system
			Engineering B.Tech-Mechanical		ING	CO3	operation Identify the environmental implications of automobile
	VR19	03	Engineering			C04	emissions environmental implications of automobile

_							
1			D Took Master-inst				Understand the basic knowledge of different NDE
	VR19	03	B.Tech-Mechanical Engineering			CO1	techniques which
			Lighteeting				enables to carry out the various inspection.
				1	- 9		Relate the ultrasonic testing method in various
	VR19	03	B.Tech-Mechanical	-	NON-		applications with other
66			Engineering	100310410	DESTRUC		methods.
00				100319418	TIVE EVALUATI	CO2	
	VR19	03	B.Tech-Mechanical		ON	CO3	Aquire the knowledge of liquid penetrant, eddy
			Engineering		014	COS	current, magnetic particle testing methods and discuss the advantages and shortcomings
				ĺ			differentiate various defect types and select
	VR19	03	B.Tech-Mechanical				appropriate testing method for
	[Engineering				better evaluation
 		·				CO4	
	1,,,,,,,		B.Tech-Mechanical				Understand the properties of constituents, classification of composites
	VR19	03	Engineering			COI	and their suitability for the structural applications.
							and their straightfy for the structural applications.
					ADVANCE		Categorize and process of different PMC, MMC &
67	VR19	03	B.Tech-Mechanical	1003194159	D		CCC with their
			Engineering		MATERIA LS	CON	applications
	VIDAO	02	B.Tech-Mechanical		W	_CO2	
	VR19	03	Engineering			CO3	Compute micromechanical analysis of Lamina.
	VR19	03	B.Tech-Mechanical				Compare Nano materials with bulk materials.
_			Engineering			CO4	<u></u>
	VR19	03	B.Tech-Mechanical			GO.	Apply of CAD computational analysisi tools to
		0,5	Engineering			CO1	engineering desing and create a compute CAD documenttation for an engineering design
68	VR19	03	B.Tech-Mechanical	1003194101	CAD/CAM		Model complex shapes including freeform curves and
	VKIS	03	Engineering		LAB	CO2	surfaces
	VR19	03	B.Tech-Mechanical			CO3	Explain basic concepts of NCN programming
			Engineering				machining
	VR19	03	B.Tech-Mechanical			COI	Identify the basic concepts and various data model used in database design, design ER model for a given
			Engineering				problem and formulate SQL queries.
			B.Tech-Mechanical		Introduction		Apply relational database theory and be able to
69	VR19	03	Engineering		to Database		describe relational algebra expression, tuple and
03				1005193260	Managemen	CO2	domain relation expression from queries.
	VR19	03	B.Tech-Mechanical		t Systems	CO3	Intrepret the use of normalization and functional
	''	0,5	Engineering			COS	dependency, indexing and hashing technique used in database design.
	VR19	03	B.Tech-Mechanical				Apply and relate the concept of transaction.
	AKIA		Engineering			CO4	concurrency control and recovery in database.
							Categorize and assess various types of operating
	VR19	03	B.Tech-Mechanical			COI	systems and execution of system
			Engineering				calls at each phase.
	UDIO		B.Tech-Mechanical				Analyza various process calculation and many
70	VR19	03	Engineering	1005103100	OPERATIN	CO2	Analyze various process scheduling and memory management techniques to develop better solutions.
′′				1005193102	G SYSTEMS		Formulation of dead lock management, resource
	VR19	03	B.Tech-Mechanical		2131EM2	CO3	management techniques and IPC
.			Engineering			200	abstraction.
		-	B.Tech-Mechanical				Abiliana
	VR19	03	Engineering			CO4	Ability to perform tasks in Windows/ UNIX / Linux /Android and other environments.
	VR19	03	B.Tech-Mechanical				Create visualizations in accordance with static UI
	4 1/13	···	Engineering		FUNDAME	CO1	using HTML tags
	VR19	03	B.Tech-Mechanical		NTALS OF		Apply intermediate and advanced web development
71			Engineering	1005193161	WEB	CO2	practices
	VR19	03	B.Tech-Mechanical Engineering		TECHNOL	CO3	Develop a fully functioning website using PHP and
			B.Tech-Mechanical		OGY		Anglyra information for a late of the late
	VR19	03	Engineering			CO4	Analyze information from data and implement the same into web applications
							Ismue uno weo applications

	4						
	VR19	03	B.Tech-Mechanical Engineering			COI	CO1 Understand the current scenario of alternative fuels and reserve status of fossil fuels.
72	VR19	03	B.Tech-Mechanical Engineering	1003194250	ALTERNA TIVE	CO2	CO2 Elucidate the important properties, production and storage of hydrogen and other gaseous fuels and address the implications during their use in IC engines.
	VR19	03	B.Tech-Mechanical Engineering		FUELS	CO3	CO3 Evaluate the performance of clean propulsion technologies.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Analyse the behavior of engines during the usage of alternative fuels
	VR19	03	B.Tech-Mechanical Engineering	1003194251		COI	Distinguish various types of solar thermal collectors
73	VR19	03	B.Tech-Mechanical Engineering		GREEN ENGINEER	CO2	Describe the working of a photovoltaic system and wind energy conversion system
	VR19	03	B.Tech-Mechanical Engineering	1003134231	ING SYSTEMS	CO3	Analyze the operation of fuel cells and biomass conversion technologies
	VR19	03	B.Tech-Mechanical Engineering			CO4	Elaborate on ocean, geothermal, electrical and Mechanical systems
	VR19	03	B.Tech-Mechanical Engineering			CO1	Understanding basic design rules for manufacturing and material selection
74	VR19	03	B.Tech-Mechanical Engineering	1003194252	DESIGN FOR MANUFA CTURE	CO2	Applying the production process for ease of manufacturing
	VR19	03	B.Tech-Mechanical Engineering			CO3	Analyze factors for selection of metals and alloys and relationship to manufacturing processes
	VR19	03	B.Tech-Mechanical Engineering			CO4	Apply the concepts of design for manufacturing for product development
	VR19	03	B.Tech-Mechanical Engineering			CO1	Understand the basics of workflow and becomes well acquainted with line balancing and mixed model production theories.
75	VR19	03	B.Tech-Mechanical Engineering	1003194253	PRODUCT ION PLANNIN	CO2	Comprehend the concepts of demand forecasting and the quantitative methods to meet the market demand.
	VR19	03	B.Tech-Mechanical Engineering		G AND CONTROL	CO3	Differentiate EOQ, ABC and VED models.
	VR19	03	B.Tech-Mechanical Engineering			CO4	Apply the concepts of demand, supply to the production planning across all industries.
	VR19	03	B.Tech-Mechanical Engineering			COI	Analyze the entrepreneurship design and the business environment
76	VR19	03	B.Tech-Mechanical Engineering	1003194270	MAIN PROJECT	CO2	Difine industrial policies
	VR19	03	B.Tech-Mechanical Engineering	1003137210	/INTERNS HIP	CO3	Explain the business preparation
	VR19	03	B.Tech-Mechanical Engineering			CO4	Integrate the knowledge of various courses and their applications in industry





			DEPARTMENT C	F ELECTRO	NICS AND CO	MPHTE	INOLOGY (A) R ENGINEERING
					JRSE OUTCO		A ENGINEERING
S.No	Regula tion	Program me Code	Programme Name	Course Code	Course Name	CO	Course Outcome: After the completion of the course student will be able to
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Executing mean value theorems and evaluate maxima and minima of functions of two variables without constraints
	VR19	19	B.Tech-Electronics and Computer Engineering		Mathematics-I	CO2	Apply the analytical methods to solve higher order linear differential equations.
1	VR19	19	B.Tech-Electronics and Computer Engineering	1000191100		CO3	Evaluate of solution of Ordinary differential equations by using Laplace Transform
	VR19	19	B.Tech-Electronics and Computer			CO4	technique. Identify and solve partial differential equations
	VR19	19	Engineering B.Tech-Electronics and Computer Engineering			COI	Identification of different polymers and their functionalities
	VR19	19	B.Tech-Electronics and Computer		APPLIED	CO2	Determination of structure to many compounds and apply the basic knowledge in
2	VR19	19	Engineering B.Tech-Electronics and Computer Engineering	1000191123	CHEMISTR Y	CO3	Analysis of corrosive environments and
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	protection of precious metal Adoption of different green methodologies and acquire knowledge on different advanced materials
	VR19	19	B.Tech-Electronics and Computer Engineering		MATHEMA TICS – II	CO1	Solve approximate roots of an equation by using different numerical methods.
	VR19	19	B.Tech-Electronics and Computer Engineering	1000191101		CO2	Compute Interpolating polynomial for the given data
3	VR19	19	B.Tech-Electronics and Computer Engineering			CO3	Compute Numerical Solution of ODE and Numerical Integration.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Evaluate simultaneous linear equations numerically using rank of a matrix and also Eigen values and Eigen vectors of a square matrix.
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Understand the use of drawing instruments to construct the polygons and curves
4	VR19	19	B.Tech-Electronics and Computer Engineering	1002181101	ENGINEERI	CO2	Learn the principle of orthographic projections. Draw Orthographic projections o points, lines.
*	VR19	19	B.Tech-Electronics and Computer Engineering	1003191101	NG DRAWING	CO3	Draw the various types of planes and solids its views in different Positions
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Draw isometric views of simple objects
	VR19	19	B.Tech-Electronics and Computer Engineering		DDOD! EV	COI	Write compile and debug Programs in C language
5	VR19	19	B.Tech-Electronics and Computer Engineering	1005101100	SOLVING AND	CO2	Use operators, data types and write programs
J	VR19	19	B.Tech-Electronics and Computer Engineering	1005191120	PROGRAM MING USING C	CO3	Select the best loop construct for a given problem
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Design and implement C programs
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Realize the purpose/Role of Engineer for solving social problems

			B.Tech-Electronics	1	1		
	VR19	19	and Computer	i	ENGINEERI	CO2	Lagra to Daging a service
6	1	-	Engineering		NG	CO2	Learn to Design a component/system in an
0			B.Tech-Electronics	1000191110	EXPLORATI		engineering way
	VR19	19	and Computer		ON	CO2	Lange to use see the state of
			Engineering		014	CO3	Learn to use mechanisms, Arduino, sensors,
			B.Tech-Electronics	1			motors.
	VR19	19	and Computer			CO4	Integrating different systems
			Engineering			CU4	(mechanical/Electrical/computer) to work as a
			B.Tech-Electronics		 		unit
	VR19	19	and Computer			60.	Formulate any period function in terms of sine
		.,	Engineering			CO1	and cosine
			B.Tech-Electronics	1			
	VR19	19	and Computer		1	-	Simplify a non periodic function as integral
	1111		Engineering		1	CO2	representation
_			B.Tech-Electronics	1	Transforms		<u> </u>
7	VR19	19	and Computer	1000191200	and Vector	200	Apply multiple integration techniques in
	'/	.,	Engineering	}	Calculus	CO3	evaluating areas and volume bounded by
			Engineering	-			region.
			B.Tech-Electronics				Explain Gradient, divergence and curl
	VR19	19					operations in vector and scalar fields and
	VKIS	19	and Computer		1	CO4	apply Green's, Gauss and Stokes theorem as
			Engineering				the generalisation of fundamental theorem of
	-		 				integral calculus.
			B.Tech-Electronics				Discuss the wave phenomena of light and
	VR19	19	and Computer			COI	apply these principles to describe
			Engineering			COI	electromagnetic wave propagation.
			B.Tech-Electronics		WAVE		Apply the knowledge of basic quantum
	VR19	19	and Computer		OPTICS	COS	mechanics, to set up one-dimensional
			Engineering		AND	CO2	Schrodinger's wave equation
8				1000191222	SEMICOND		
	[]		B.Tech-Electronics		UCTOR		Identify the importance of classical and
	VR 19	19	and Computer		PHYSICS	CO3	quantum mechanical treatment of materials.
	\longrightarrow		Engineering		ļ.		· · · · · · · · · · · · · · · · · · ·
			B.Tech-Electronics				Make use of the basic concepts of energy
	VR19	19	and Computer				bands in crystalline solids to understand
	````	.,	Engineering			CO4	semiconductor physics.
							ļ
	l f		B.Tech-Electronics				
	VR19	19	and Computer			COL	
			Engineering				Outline the need for data structure techniques
			B.Tech-Electronics		1 1		and the state of data describe techniques
	VR19	19	and Computer		D	CO2	
9			Engineering	1005101001	DATA		Implement standard data
			B.Tech-Electronics	1005191221	STRUCTUR		
	VR19	19	and Computer		ES	CO3	structures like stack, queue, list, tree and
			Engineering				graph
	i T		B.Tech-Electronics				10 10.
	VR19	19	and Computer			CO4	structures like stack, queue, list, tree and
	<u> </u>		Engineering	İ		204	graph
			B.Tech-Electronics				
	VR19	19	and Computer			COI	Apply the basic circuit analysis techniques, in
			Engineering			COI	DC circuits and To know the performance of the circuits
			B.Tech-Electronics				
	VR19	19	and Computer			COS	Analyze steady state analysis of AC circuits
	''''	• • •	Engineering			CO2	
10			B.Tech-Electronics	1002191201	NETWORK		
	VR 19	19	and Computer	1002191201	ANALYSIS		Analyze steady state analysis of electrical
	````'	17				CO3	circuits using theorems
			Engineering				
			B.Tech-Electronics	i			Gain the knowledge in characteristics of two
	VR19	19	and Computer			CO4	port networks using parameters (Z, Y,
	'		Engineering]	CU4	ABCD, h) and Analyze Transient state
	<u> </u>						analysis of Accircuits
			B.Tech-Electronics				Read, understand and interpret material on
	VR19	19	and Computer			COL	Environment, Science and Technology,
			Engineering	1		·	tourism. Energy Sources, Social Awareness
			B.Tech-Electronics	l			Analyze the functions of the
ı	i	10	1 1		TECHNICAL		Analyze the functions of language and
	VR19	19	J and Committee 1			COS	I
	VR19	19	and Computer Engineering	ורוופותחתו	ENGLISH	CO2	grammar in spoken and written forms.

1.6			B.Tech-Electronics	1000191121	COMMUNIC		White of Continue
	VR19	19	and Computer	1	ATION	CO3	Write effectively on various domains.
		L	Engineering			603	
			B.Tech-Electronics	1		<u> </u>	
	VR19	19	and Computer	1		COL	Prepare and exhibit oral presentation skills b
			Engineering	ľ		CO4	using ICT(Individual/Team)
			B.Tech-Electronics				
	VR19	19	and Computer		1		
		1 .			ľ	COI	Understand the basic components and
			Engineering B.Tech-Electronics	-			peripherals of a computer.
	VR19	19					
	YICIS	19	and Computer	i		CO2	
12			Engineering	1005191210	IT Workshop		To become familiar in configuring a system.
	VDIA		B.Tech-Electronics	1000171210	11 Workshop		
	VR19	19	and Computer			CO3	
			Engineering]	1		Learn the usage of productivity tools.
			B.Tech-Electronics				Acquire knowledge about the netiquette and
	VR19	19	and Computer			CO4	cyber hygiene.
			Engineering	1	1	-0.	cyber mygiche.
			B.Tech-Electronics				Mayo garant la mail la del
	VR19	19	and Computer			COI	Have general knowledge and legal literacy
			Engineering			-	and thereby to take up competitive
			B.Tech-Electronics	1	CONSTITUT		examinations.
	VR19	19	and Computer		ION OF	000	Discount to the
	"		Engineering		1	CO2	Distinguish the power of state and central
13			B.Tech-Electronics	1000191130	INDIA		central government
	VR19	19			(Audit		
	1113	13	and Computer		Course)	CO3	Summarize the election procedure in India
	 		Engineering	1			before and after independence
	L/D.o.	4.00	B.Tech-Electronics				Association with the powers and functions o
	VR19	19	and Computer			CO4	Municipalities, Panchayats and Cooperative
_			Engineering			_	Societies.
			B.Tech-Electronics				Societies.
	VR19	19	and Computer		[COI	1
			Engineering			COI	Applying the Day of the
			B.Tech-Electronics	İ			Analyze the Demand, Price and Cost.
	VR19	19	and Computer		Managerial	COA	Identify the Nature of different markets to
15			Engineering		Economics	CO2	determine Price Output for different Business
13			B.Tech-Electronics	1099192100	and Financial		Units
	VR 19	19	and Computer				
		• •	Engineering		Analysis	CO3	
			B. Tech-Electronics				Interpret various forms of businesses
	VR19	19					
	'''''	17	and Computer		1 1	CO4	Evaluate and Prepare investment project
	 		Engineering				proposals and Financial Statements
			B.Tech-Electronics		7		Explain the notion of random variable and
	VR 19	19	and Computer				evaluate the expected value and probability o
	"		Engineering			CO1	random variables.
			Laguiceting		[
	1						Apply Rinomial Delegan
	i I		B.Tech-Electronics				Apply Binomial, Poisson, Normal, gamma
	VR19	19	and Computer			COL	and weibull distributions for real data to
			Engineering			CO2	compute
	[probabilities, theoretical frequencies.
			B.Tech-Electronics		PROBABILI -		<u> </u>
16	VR19	19		1000191202	TY AND		Evaluate the confidence levels and maximum
		17	and Computer	· ·	STATISTICS	CO3	error for large and small samples
			Engineering				
							Apply the concept of hypothesis testing for
	1					CO4	large and small samples in real life situations
						CU4	to draw the inferences and estimate the
							goodness of fit.
	1		B.Tech-Electronics		ŀ		Examine correlation for the bi-variate data
	VR19	19					and fit the different and fit the different and
	1113	13	and Computer		1	C05	and fit the different curves using principle of
_	J		Engineering				least squares and to predict the regression
	1		B.Tech-Electronics				analysis
	VR19	19			1		Summarize the characteristics of PN junction
	1111	1.7	and Computer			COL	diode in different modes of operation.
			Engineering				
			B.Tech-Electronics				Compare the construction, working principle
					- 1		
	VR19	19		ļ			of rectifiers with and without file
	VR19	19	and Computer Engineering			CO2	of rectifiers with and without filters with relevant expressions and necessary

17	VR19	19	B.Tech-Electronics and Computer Engineering	1004192120	C DEVICES & CIRCUITS	CO3	Summarize the construction, principle of operation of transistors, BJT and FET with their V-I characteristics in different configurations and understand the various
	VR19	19	B.Tech-Electronics and Computer Engineering	¥		CO4	biasing techniques for BJT and FET. Explain the stabilization concepts with expressions and perform the analysis of small signal low frequency transistor amplifier circuits using BJT
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Install Python IDE and run basic Python scripts.
18	VR19	19	B.Tech-Electronics and Computer Engineering	1012192120	PYTHON PROGRAM	CO2	Understand the operators, functions, key Concepts of Object Oriented Programming in python.
	VR19	19	B.Tech-Electronics and Computer Engineering	1012192120	MING	CO3	Access Python from various online resources and import packages to the current working environment.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Understand file handling operations and implement ML/DS Libraries using in Python.
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Describe various number systems, error detecting and correcting binary codes.
19	VR19	19	B.Tech-Electronics and Computer Engineering	1019192100	DIGITAL SYSTEM	CO2	Apply boolean laws, k-map & Q-M methods to minimize switching functions
	VR19	19	B.Tech-Electronics and Computer Engineering	1019192100	LOGIC DESIGN	CO3	Design combinational and sequential logic circuits
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Design simple digital systems using PLDs
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Characterize the signals and systems and principles of vector spaces, Concept of orthogonality
	VR19	19	B.Tech-Electronics and Computer Engineering		SIGNALS AND SYSTEMS	CO2	Analyze the continuous-time signals and continuous-time systems using Fourier series, Fourier transform and Laplace transform.
20	VR19	19	B.Tech-Electronics and Computer Engineering	1004192100		CO3	Apply sampling theorem to convert continuous- time signals to discrete-time signal and also apply z-transform to analyze discrete-time signals and systems
	VR19	19	B.Tech-Electronics and Computer Engineering	_		CO4	Illustrate the relationships among the various representations of LTI systems and apply the Concepts of convolution, correlation, Energy and Power density spectrums to communication problems.
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Understand the various social problems present in the world & they will be able to identify and select a community problem to develop a technological project.
	VR19	19	B.Tech-Electronics and Computer Engineering		Mini Project-I (EPICS/Socie:	CO2	Understand the various social problems present in the world & they will be able to identify and select a community problem to develop a technological project.
21	VR19	19	B.Tech-Electronics and Computer Engineering		tal Relevant Project)	CO3	Learn the technologies like Internet of Things, 3D Printing, Mobile App Creation, Thinker CAD, and Web page development.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Apply the engineering knowledge, mathematics, design thinking and project management to develop a community project.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO1	Compare and contrast various software models applied to different real world applications.

	VR19	19	B.Tech-Electronics and Computer Engineering			CO2	Evaluate the process models for the development of SDLC
22	VR19	19	B.Tech-Electronics and Computer Engineering	1005192201	Software Engineering	CO3	Design a prototype for a software design and user interface & apply strategies of coding & testing for the development of software
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Design a prototype for a software design and user interface & apply strategies of coding & testing for the development of software product
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Understand DC machines operation, testing and calculate the efficiency of DC machines.
23	VR19	19	B.Tech-Electronics and Computer Engineering	1019192200	Electrical Technology	CO2	Analyze the performance of transformer 3- phase alternator and 3- phase induction motors.
	VR19	19	B.Tech-Electronics and Computer Engineering	1019192200	and Instrumentatio n	CO3	Explain and analyze the operation of Electrical and Electronic Measuring instruments
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Describe the working principle of various sensors and actuators.
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Understand the basic principle of communication system
24	VR19	19	B.Tech-Electronics and Computer Engineering	1010100001	PRINCIPLES OF	CO2	Describe the principles of Analog and Digital modulation techniques and be able to analyze their performance
24	VR19	19	B.Tech-Electronics and Computer Engineering	1019192201	COMMUNIC ATIONS	CO3	Explain the various communication system parameters for different types of modulation and demodulation techniques.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Distinguish various Analog and Digital modulation techniques.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO1	Apply the appropriate process models for the application development of SDLC
	VR19	19	B.Tech-Electronics and Computer Engineering		COMPUTER OPERATING SYSTEM	CO2	Understand the phases of SDLC from requirement gathering phase to design phase via Analysis Phase
25	VR19	19	B.Tech-Electronics and Computer Engineering	1019192220		CO3	Analyzing the strategies for coding and testing phase in Software product development
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Apply the knowledge about estimation and maintenance of software systems and modeling the software project by using CASE tools
	VR19	19	B.Tech-Electronics and Computer Engineering			CO1	Understand and Apply the fundamental concepts of wave shaping for various switching and signal generating circuits.
26	VR19	19	B.Tech-Electronics and Computer Engineering	1019192221	PULSE and	CO2	Understand and Apply the fundamental concepts of wave shaping for various switching and signal generating circuits.
20	VR19	19	B.Tech-Electronics and Computer Engineering	1019192221	DIGITAL	CO3	Analyze the different multivibrators and time base generators
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Analyze the different multivibrators and time base generators
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Gain a higher level of personal involvement and interest in understanding and solving environmental resource problems and its conservation practices.

	VR19	19	B.Tech-Electronics and Computer Engineering			CO2	Overall understanding of different types of natural resources and its conservation
27	VR19	19	B.Tech-Electronics and Computer Engineering	1000192130	ENVIRONM ENTAL SCIENCE (Audit	CO3	Demonstrate knowledge relating to the biological systems involved in the major global environmental problems of the 21st century
	VR19	19	B.Tech-Electronics and Computer Engineering		Course)	CO4	Recognize the interconnectedness of human dependence on the earth's ecosystems and Influence their society in proper utilization of goods and services. Learn the management of environmental hazards and to mitigate disasters and have a clear understanding of environmental concerns and follow sustainable development practices.
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Analyze the functions of language and grammar in spoken and written forms with an emphasis on LSRW Skills
28	VR19	19	B.Tech-Electronics and Computer Engineering	1000192110	COMMUNIC ATION SKILLS LAB	CO2	Disseminate the relevant skills while performing GDs, interviews, oral presentations with a focus on Non verbal communication
	VR19	19	B.Tech-Electronics and Computer Engineering			CO3	Prepare and exhibit oral presentation skills by using ICT.(Individual/Team)
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Organize proper life skills for their employability.
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Understand basic operation and characteristics of op-amp.
20	VR19	19	B.Tech-Electronics and Computer Engineering		Linear &	CO2	Understand basic operation and characteristics of op-amp.
29	VR19	19	B.Tech-Electronics and Computer Engineering	1019193120	Digital IC Applications	CO3	Explain the basic operation and characteristics of different Logic Families
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Design of digital logic Circuits using IC's
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Conceptualize the basics of organizational and architectural issues of a digital computer and to perform computer arithmetic
	VR19	19	B.Tech-Electronics and Computer Engineering		COMPUTER ORGANIZA	CO2	Analyze performance issues in processor and can calculate the effective address of an operand by addressing modes.
30	VR19	19	B.Tech-Electronics and Computer Engineering	1005192200	TION & ARCHITECT URE	CO3	Ability to design memory organization that uses banks for different word size operations to understand the concept of cache memory techniques
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Describe the concept of Input / Output organization.
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Identify the basic concepts and various data model used in database design and formulate SQL queries.
31	VR19	19	B.Tech-Electronics and Computer Engineering	1005102221	DATABASE MANAGEM	CO2	Intrepret use of normalization in designing the database.

				1000174551			
	VR19	10	B.Tech-Electronics	1003172221	ENT		Evaluate indexing and hashing technique used
	VKIS	19	and Computer		SYSTEMS	CO3	in database design.
	 		Engineering	-			
	VR19	19	B.Tech-Electronics			1	Apply and relate the concept of transaction,
	AKIS	19	and Computer	İ		CQ4	concurrency control and recovery in database.
			Engineering				
	VR19	19	B.Tech-Electronics		1		Able to analyze the performance of an
	VKIS	19	and Computer		1	CO1	algorithm in terms of time and space.
			Engineering		I		
	VR19	19	B.Tech-Electronics	i	FUNDAMEN		Give an intuition on how to find a solution to
	AKIA	19	and Computer		TALS OF	CO2	large problems by dividing them into smaller
32			Engineering	1019193100	ALGORITH		sub problems.
	VR19	19	B.Tech-Electronics		M DESIGN		Identifying which designing technique can be
	VKI9	19	and Computer	i	AND	CO3	used to solve a particular problem.
			Engineering	ļ	ANALYSIS		<u> </u>
	VR19	19	B.Tech-Electronics				Knowing how to explore the solution space by
	*1(15	19	and Computer			CO4	using Branch and Bound technique.
			Engineering				
	VR19	19	B.Tech-Electronics	ĺ			Understand the basis of Sensors with its
	AKIA	19	and Computer	ŀ		COI	applications
	 		Engineering				
	VR19	19	B.Tech-Electronics		WIRELESS		Conceptualize the networking technologies
	AKIA	19	and Computer		SENSOR	CO2	
33			Engineering		NETWORKS		
33	VR19	10	B.Tech-Electronics	1019193150	(Professional		Explain the protocols for wireless sensor
	VKI9	19	and Computer		Elective-I)	CO3	networks
	 		Engineering		Licetive-1)		
			D = (=)	!		CO4	Analyze routing and congestion algorithms
	VR19	10	B.Tech-Electronics				Understand the basis of Sensors with its
	VKI9	19	and Computer			C05	applications
	 		Engineering				<u> </u>
	UDIO	10	B.Tech-Electronics				
	VR 19	19	and Computer		ADVANCED	100	Understand graph representations, Minimum
			Engineering		DATA		Spanning Trees and traversals
	VR19		B.Tech-Electronics		STRUCTUR		Understand graph representations, Minimum
	VKI9	19	and Computer		ES AND	CO2	Spanning Trees and traversals
34			Engineering	1019193151	ALGORITH		
	VR19	10	B.Tech-Electronics		MS		Implement heaps, queues and their operations,
	VKI9	19	and Computer		(Professional	CO3	B Trees and B+ Trees
			Engineering		Elective-I)		
	VR19	10	B.Tech-Electronics				Illustration of tries which share some
	AKIA	19					
-			and Computer			CO4	
			Engineering			CO4	properties of table look up, various issues
	VB10	10	Engineering B.Tech-Electronics			CO4	properties of table look up, various issues related to the design of file structures
	VR19	19	Engineering B.Tech-Electronics and Computer			CO4	properties of table look up, various issues
	VR19	19	Engineering B.Tech-Electronics		DIGITAL		properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital
	VR19	19	Engineering B.Tech-Electronics and Computer Engineering		SIGNAL		properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters.
	VR19	19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics		SIGNAL PROCESSIN	CO1	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to
25			Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer		SIGNAL PROCESSIN G AND		properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to
35			Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering	1019193152	SIGNAL PROCESSIN	CO1	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum
35	VR19	19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics	1019193152	SIGNAL PROCESSIN G AND	CO1	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques
35			Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer	1019193152	SIGNAL PROCESSIN G AND ARCHITECT	CO1	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum
35	VR19	19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering	1019193152	SIGNAL PROCESSIN G AND ARCHITECT URE	CO2	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques Design multi rate digital signal processing
35	VR19 VR19	19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics	1019193152	SIGNAL PROCESSIN G AND ARCHITECT URE (Professional	CO2	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques Design multi rate digital signal processing system.
35	VR19	19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer	1019193152	SIGNAL PROCESSIN G AND ARCHITECT URE (Professional	CO2	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques Design multi rate digital signal processing
35	VR19 VR19	19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer	1019193152	SIGNAL PROCESSIN G AND ARCHITECT URE (Professional	CO2	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques Design multi rate digital signal processing system.
35	VR19 VR19 VR19	19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics	1019193152	SIGNAL PROCESSIN G AND ARCHITECT URE (Professional	CO2	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques Design multi rate digital signal processing system. Understand the architecture of DSP processor
35	VR19 VR19	19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer	1019193152	SIGNAL PROCESSIN G AND ARCHITECT URE (Professional	CO2	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques Design multi rate digital signal processing system. Understand the architecture of DSP processor Define Network and its components and
35	VR19 VR19 VR19	19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering	1019193152	SIGNAL PROCESSIN G AND ARCHITECT URE (Professional Elective-1)	CO2 CO3 CO4	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques Design multi rate digital signal processing system. Understand the architecture of DSP processor Define Network and its components and Illustrate the functionality of OSI and TCP/IP
35	VR19 VR19 VR19 VR19	19 19 19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics	1019193152	SIGNAL PROCESSIN G AND ARCHITECT URE (Professional Elective-1)	CO2 CO3 CO4	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques Design multi rate digital signal processing system. Understand the architecture of DSP processor Define Network and its components and Illustrate the functionality of OSI and TCP/IP reference models.
35	VR19 VR19 VR19	19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering	1019193152	SIGNAL PROCESSIN G AND ARCHITECT URE (Professional Elective-1) INTRODUC TION TO	CO1 CO2 CO3 CO4 CO1	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques Design multi rate digital signal processing system. Understand the architecture of DSP processor Define Network and its components and Illustrate the functionality of OSI and TCP/IP reference models. Compare different network layer protocols
	VR19 VR19 VR19 VR19	19 19 19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics		SIGNAL PROCESSIN G AND ARCHITECT URE (Professional Elective-1) INTRODUC TION TO COMPUTER	CO2 CO3 CO4	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques Design multi rate digital signal processing system. Understand the architecture of DSP processor Define Network and its components and Illustrate the functionality of OSI and TCP/IP reference models. Compare different network layer protocols and Demonstrate various types of routing
35	VR19 VR19 VR19 VR19 VR19	19 19 19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics	1019193152	SIGNAL PROCESSIN G AND ARCHITECT URE (Professional Elective-1) INTRODUC TION TO COMPUTER NETWORKS	CO1 CO2 CO3 CO4 CO1	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques Design multi rate digital signal processing system. Understand the architecture of DSP processor Define Network and its components and Illustrate the functionality of OSI and TCP/IP reference models. Compare different network layer protocols and Demonstrate various types of routing technique
	VR19 VR19 VR19 VR19	19 19 19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering		SIGNAL PROCESSIN G AND ARCHITECT URE (Professional Elective-1) INTRODUC TION TO COMPUTER NETWORKS (Professional	CO1 CO2 CO3 CO4 CO1 CO2	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques Design multi rate digital signal processing system. Understand the architecture of DSP processor Define Network and its components and Illustrate the functionality of OSI and TCP/IP reference models. Compare different network layer protocols and Demonstrate various types of routing technique Evaluate Architecture for Application layer
	VR19 VR19 VR19 VR19 VR19	19 19 19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics		SIGNAL PROCESSIN G AND ARCHITECT URE (Professional Elective-1) INTRODUC TION TO COMPUTER NETWORKS	CO1 CO2 CO3 CO4 CO1	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques Design multi rate digital signal processing system. Understand the architecture of DSP processor Define Network and its components and Illustrate the functionality of OSI and TCP/IP reference models. Compare different network layer protocols and Demonstrate various types of routing technique
	VR19 VR19 VR19 VR19 VR19	19 19 19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics		SIGNAL PROCESSIN G AND ARCHITECT URE (Professional Elective-1) INTRODUC TION TO COMPUTER NETWORKS (Professional	CO1 CO2 CO3 CO4 CO1 CO2	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques Design multi rate digital signal processing system. Understand the architecture of DSP processor Define Network and its components and Illustrate the functionality of OSI and TCP/IP reference models. Compare different network layer protocols and Demonstrate various types of routing technique Evaluate Architecture for Application layer protocols.
	VR19 VR19 VR19 VR19 VR19	19 19 19	Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics and Computer Engineering B.Tech-Electronics		SIGNAL PROCESSIN G AND ARCHITECT URE (Professional Elective-1) INTRODUC TION TO COMPUTER NETWORKS (Professional	CO1 CO2 CO3 CO4 CO1 CO2	properties of table look up, various issues related to the design of file structures Design, simulate and realize different digital filters. Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques Design multi rate digital signal processing system. Understand the architecture of DSP processor Define Network and its components and Illustrate the functionality of OSI and TCP/IP reference models. Compare different network layer protocols and Demonstrate various types of routing technique Evaluate Architecture for Application layer

	VR19	19	B.Tech-Electronics and Computer			COI	Students have the adequate writing skills that are
Ì			Engineering				needed in an organization
			B.Tech-Electronics				Understand the core competencies to succeed
	VR19	19	and Computer		<u> </u>	CO2	in professional and personal life
			Engineering				
					Employability		Solve various Basic Mathematics problems by
	Unio		B.Tech-Electronics		Readiness		following different methods and to perform
	VR19	19	and Computer		Program-I	CO3	well in various competitive exams and
37			Engineering	1020192100	(Open		placement
					Elective-1)		drives.
					Elective-1)		Follow strategies in minimizing time
-							consumption in problem solving Apply
ĺ			B.Tech-Electronics				shortcut methods to solve problems and
	VRI9	19					confidently solve any mathematical problems
	*****	19	and Computer			CO4	and utilize these mathematical skills both in
			Engineering				their professional as
	<u> </u>						well as personal life.
			D. C. L. Ed.				Students will be able to understand definition,
		10	B.Tech-Electronics		!		scope, approach and theories of public
	VR 19	19	and Computer		f I	CO1	administration.
			Engineering				auministration.
							Students will be able to the con-
			B.Tech-Electronics				Students will be able to identify the process
	VR 19	19	and Computer			COS	and technique of decision making and also
	' ' '	.,	Engineering			CO2	understand the concept of administrative
			Lingineering		PUBLIC		behaviour and control.
			B.Tech-Electronics		ADMINISTR		
	VR 19	19			ATION		Students will be able to understand the
	1111	13	and Computer			CO3	process and technique of personnel and
38			Engineering	1020192101			financial administration.
							Students will be able to Discuss the tools that
							modern public administrators use to pursue
						CO4	public goals and public policy, along with the
							pros and cons of those tools.
		-					
							Students will be able to understand and
			D Took Electronical				explain the major administrative techniques
	VR19	19	B.Tech-Electronics				and values that public administration has and
	1 4 17 13	17	and Computer			C05	illustrate how those affect the work of
			Engineering				government and also understand the process
							of administrative improvement.
-			B.Tech-Electronics				
	VR 19	19					Students have the adequate reading and
1	1	13	and Computer			COI	speaking skills and will be able to express
			Engineering				himself in French.
	VR 19	10	B.Tech-Electronics				Understand the grammar and use them in
	4114	19	and Computer		FOREIGN	CO2	their personal and professional life.
39			Engineering	1020192102	LINGUISTIC		
	VDIA	10	B.Tech-Electronics		- FRENCH		Students will be able to write proficiently in
	VR19	19	and Computer	,		CO3	French.
			Engineering				
	1/0.40		B.Tech-Electronics		[Students will be able to compare and contrast
	VR19	19	and Computer			CO4	world culture and it will expand his
—			Engineering				knowledge about various culture.
			B.Tech-Electronics				Relate ethical human values
	VR19	19	and Computer			COL	
			Engineering				
			B.Tech-Electronics		PROFESSIO		Apply engineering knowledge for
	VR19	19	and Computer			CO2	society
40			Engineering	1099193130	NAL		, ·
"			B.Tech-Electronics	10515616601	ETHICS &		Elaborate responsibility for safety & risk
	VR19	19	and Computer		HUMAN	CO3	land to safety of 115K
			Engineering		VALUES	200	
			B.Tech-Electronics				Outline the various annual at-t-1
1	VR19	19	and Computer			CO4	Outline the various current global issues
'	41/1/2/1						
	VICI5	17	Engineering				

<u>.</u>	VR19	19	B.Tech-Electronics and Computer Engineering			CO1	Carryout literature survey, and choose a relevant topic reported in recent IEEE/CSI/ACM/ conference publications / transactions in the domain of computer
	VR19	19	B.Tech-Electronics and Computer Engineering		TECHNICAL SEMINAR	CO2	Simulate and analyze the results reported in the chosen paper for seminar topic.
41	VR19	19	B.Tech-Electronics and Computer Engineering	1019193180		CO3	Communicate effectively before the expert panel and develop technical reports.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Respond to the queries raised by the evaluation committee and audience
	VR19	19	B.Tech-Electronics and Computer Engineering			CO5	
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Understand the concepts of architecture, memory organization of Intel 8086 microprocessor and Intel 8051 and PIC 16C6X/7X
42	VR19	19	B.Tech-Electronics and Computer Engineering	1010102000	Micro Processors	CO2	Summarize the concepts of addressing modes, instruction set of Intel 8086 microprocessor and Intel 8051 and PIC microcontroller.
1 74	VR 19	19	B.Tech-Electronics and Computer Engineering	1019193220	and Micro Controllers	CO3	Develop an assembly language programs for simple problem statements of 8086, 8051 and PIC microcontroller.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Design an interface between peripheral chips & processors using assembly language programs.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO1	Understand the basic concepts of client server application and WWW
	VR19	19	B.Tech-Electronics and Computer Engineering		WEB DESIGN	CO2	Describe the basic concepts of HTML & CSS to design web pages and web site
43	VR19	19	B.Tech-Electronics and Computer Engineering	1019193221		CO3	Analyze a given problem and apply requisite appropriate tools for designing interactive web applications
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Develop reusable component for Graphical User Interface applications
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Describe the fabrication process for MOS,CMOS and BICMOS technologies along with their electrical properties
44	VR19	19	B.Tech-Electronics and Computer Engineering	1019193250	VLSI Technology	CO2	Outline the concepts of design rules during the layout design
	VR19	19	B.Tech-Electronics and Computer Engineering	1017173230	(Professional Elective-II)	CO3	Model various scaling Models and factors and their effects on MOSFET parameters.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Examine various design issues of VLSI Circuits and illustrate FPGA Design
	VR19	19	B.Tech-Electronics and Computer Engineering			CO1	Understand the concepts, characteristics, principles and operation of cellular systems.
45	VR19	19	B.Tech-Electronics and Computer Engineering	1019193251	CELLULAR AND MOBILE COMMUNIC	CO2	Apply Concepts, principles to Co- channel interference Reduction factor, Desired C/I, directional Antenna system and Cell splitting.

		VR19	19	B.Tech-Electronics and Computer Engineering		(Professional	CO3	Analyse Point to point model, other cell coverage of signal and traffic, frequency and
		VR19	19	B.Tech-Electronics and Computer Engineering			CO4	channel assignment strategies. Compare concepts of handoff and architectures of GSM, Technology comparison of 3G, 4G and 5G cellular systems.
		VR19	19	B.Tech-Electronics and Computer Engineering			CO1	Identify stages in building a Data Warehouse and challenges in Data mining
	46	VR19	19	B.Tech-Electronics and Computer Engineering	1005193101	DATA WAREHOUS ING AND DATA	CO2	Access raw input data and apply data pre- processing techniques, generalization techniques and data characterization techniques to provide suitable input for a range of data mining algorithms
		VR19	19	B.Tech-Electronics and Computer Engineering		MINING (Professional Elective-II)	CO3	Analyze data mining techniques like classification and Association rules that can be applied to data objects and to find the
		VR19	19	B.Tech-Electronics and Computer Engineering	5		CO4	Solve real world problems by using the various Clustering methods
		VR19	19	B.Tech-Electronics and Computer Engineering			COI	Apply the basic concepts of Languages, operations of Languages, NFA, DFA and its conversions.
		VR19	19	B.Tech-Electronics and Computer Engineering	1012192200	AUTOMATA THEORY AND COMPILER DESIGN (Professional Elective-II)	CO2	Identify the similarities and differences among various parsing techniques and will be able to solve problems related to Shift reduce parsing, compute FIRST and FOLLOW sets, LR(0), LR(1) and LALR sets of items and parse table for a given grammar
	47	VR19	19	B.Tech-Electronics and Computer Engineering			CO3	Demonstrate the ability to write syntax directed translations of simple statements and understand the working of procedure calls and use various storage allocation schemes for the better utilization of run time memory.
		VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Apply various schemes for optimized code and will be able to write 3 addresses code and identify the basic blocks, draw flow graphs and represent directed Acyclic graphs for the identified basic blocks and also be able to write the target optimized code (assembly code) for the given three address code.
		VR19	19	B.Tech-Electronics and Computer Engineering			CO1	Students have the adequate writing skills that are needed in an organization and To perform well during Campus Drives and different Interviews
		VR19	19	B.Tech-Electronics and Computer Engineering		Employability Readiness	CO2	Understand the core competencies to succeed in professional and personal life and Students will develop knowledge and experience with the use of the standard C programming language,
		VR19	19	B.Tech-Electronics and Computer Engineering	1020193100	Program-II (Open Elective-II)	CO3	Solve various Basic Mathematics problems by following different methods and analyses, summarize and present information in quantitative forms including table, graphs and formulas
		VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Follow strategies in minimizing time consumption in problem solving Apply shortcut methods to solve problems and confidently solve any mathematical problems and utilize these mathematical skills both in their professional as well as personal life.

			B.Tech-Electronics				Describe Verilog HDL and Design Digital
	VR19	19	and Computer		DIGITAL	COI	circuits.
			Engineering				
			B.Tech-Electronics		DESIGN		Write behavior model of digital circuits and
	VR 19	19	and Computer		SYSTEM	CO2	Write RTL models of digital circuits. Verify
			Engineering		THROUGH	CO2	
49	 		B.Tech-Electronics	1004193250	VERILOG		behavior and RTL models
	VR 19	19	1		HDL		Describe standard Cell Libraries and FPGAs
	AK12	19	and Computer		(Open	CO3	Synthesize RTL models to standard cell
			Engineering		Elective-II)		libraries and FPGAs.
			B.Tech-Electronics		Elective-II)		Implement RTL models on FPGAs and testing
	VR 19	19	and Computer			CO4	and verification
l			Engineering				
			B.Tech-Electronics				Able to explain Implementation of RISC
	VR 19	19	and Computer			COI	About to explain implementation of KISC
			Engineering			COI	design and ARM design in ARM processors.
	\vdash		B.Tech-Electronics				
	VR19	19					Program on LPC 2148 for the specific
	1 4 1 1 1	19	and Computer		ARM	CO2	application.
			Engineering		PROCESSOR		
50			B.Tech-Electronics	1004193251	S		Understand the peripherals microcontroller
"	VR 19	19	and Computer	1004133231	(Open	CO3	systems.
			Engineering		Elective-II)		
							Compare the englishment and missisting of
			B.Tech-Electronics				Compare the specifications and suitability of
	VR 19	19	and Computer				12C, SPI, RTC, WATCHDOG, TIMER, PWM
	*****	13				CO4	generation blocks.
			Engineering				
<u> </u>							
	l l		B.Tech-Electronics		ENVIRONM		Understand evaluate and create the basic
	VR19	19	and Computer		ENTAL	COL	concept of environmental impact assessment,
			Engineering				Flow of EIA. Types of environmental Impacts
			B.Tech-Electronics		IMPACT		Implementdifferentmethodsinprepa
	VR19	19	and Computer		ASSESSME	CO2	ringen Envisorment II and a State of the
		**	Engineering		NT AND	CO2	ringanEnvironmentalImpactStatem ent
51			B.Tech-Electronics	1001193260	MANAGEM		
	VR19	19			ENT		Identify various mitigation measures that can
	AKIA	19	and Computer		(OPEN	CO3	be used.
			Engineering		ELECTIVE -		
-	l l		B.Tech-Electronics		II)		Select methodology for identification of
	VR 19	19	and Computer		11)	CO4	environmental impacts, environmental indices
			Engineering] .		and indicators
			B.Tech-Electronics				Identify the principles of object oriented
	VR 19	19	and Computer]	COI	programming through Java features.
			Engineering		OBJECT	COL	programming unrough rava reatures.
			B.Tech-Electronics		ORIENTED		
	VR19	19			1		Designing the programs to read the input
	11(15)	17	and Computer		PROGRAM	CO2	dynamically
			Engineering		MING		
52			B.Tech-Electronics	1005193261	THROUGH		Analyze the programs to implement the
	VR19	19	and Computer		JAVA	CO3	predefined and user defined exceptions with
			Engineering		(Open		real world scenario.
					Elective-III)		Implement and analyze the programs to
	J.,,,,,		B.Tech-Electronics				provide the same services to multiple clients
	VR19	19	and Computer			CO4	
			Engineering				at the same time using synchronization
			B.Tech-Electronics				concepts.
	VR19	10					BUlld solutions to the complex problems
	VK19	19	and Computer			COL	using object oriented approach
			Engineering		OBJECT		
	[B.Tech-Electronics		ORIENTED		identify classes and responsibilities of the
	VR19	19	and Computer		ANALYSIS	CO2	problem domain
62	l		Engineering	1005105	AND		F
53			B.Tech-Electronics	1005193262	DESIGN		apply upl tools for any and the
	VR19	19	and Computer			003	apply uml tools for various case studies
	````	17			(Open	CO3	
			Engineering		Elective-III)		
			B.Tech-Electronics				represent classes objects responsibilities and
	VR19	19	and Computer			CO4	states using uml notations
			Engineering				
			B.Tech-Electronics				Understand the principles and practices
					ı l	COI	
	VR19	19	and Computer				INVOIVACIN CEUDICOMORBU SAC
	VR19	19	and Computer			COI	involved in cryptography and network
	VR19	19	Engineering		CRYPTOGR		security and network
			Engineering B.Tech-Electronics		CRYPTOGR APHY AND		security
	VR19 VR19	19	Engineering			CO2	

1 27				] 100J19J20J			
	VR19	19	B.Tech-Electronics and Computer	1003193203	(Open	CO3	Identifying cryptographic protocols, hash functions, authentication, key management,
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	key exchange, signature schemes  Design of network security solutions for E- mail Security like PGP, S/MIME and web
_	VR19	19	B.Tech-Electronics and Computer Engineering			CO1	Understand the R workspace and Programming with R
55	VR19	19	B.Tech-Electronics and Computer Engineering		R PROGRAM MING	CO2	Access online resources for R and import new function packages into the R workspace
33	VR19	19	B.Tech-Electronics and Computer Engineering	1012193100	(Open Elective-III)	CO3	Apply math functions to calculate probability and statistical distributions and knowledge on Graphics in data visualization.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Understand and use linear, non-linear regression models, and classification techniques for data analysis
	VR19	19	B.Tech-Electronics and Computer Engineering			CO1	Interpret the factors affecting the radar performance using Radar Range Equation.
	VR19	19	B.Tech-Electronics and Computer Engineering		RADAR SYSTEMS	CO2	Apply the principle of FMCW radar in the design of altimeter.
56	VR19	19	B.Tech-Electronics and Computer Engineering	1019193262	(Open Elective -[1])	CO3	Analyze the principle of each and every block of MTI and Tracking Radar
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Demonstrate the basic principle of Receiver and also extraction of signal in Noise
	VR19	19	B.Tech-Electronics and Computer Engineering			CO1	Illustrate basic insights of management principles
57	VR19	19	B.Tech-Electronics and Computer Engineering	1099192200	MANAGEM ENT	CO2	Summarize Production process, Quality control and Inventory techniques
	VR19	19	B.Tech-Electronics and Computer Engineering	1077172200	SCIENCE	CO3	Indentify Strategies and policies to functional areas
_	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Apply Contemporary management Practices
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Understand the Architectural view, protocols and applications of IoT.
59	VR19	19	B.Tech-Electronics and Computer Engineering	1010102260	Internet of Things	CO2	Analyse the communication protocols and standards used in IoT
	VR19	19	B.Tech-Electronics and Computer Engineering	1019193260	(Open Elective)	CO3	Design the simple IoT applications to monitor or control IoT devices using simulation or hardware.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Implementation of the real time IoT applications.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO1	Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function
60	VR19	19	B.Tech-Electronics and Computer Engineering	1019193261	EMBEDDED SYSTEM DESIGN (Open	CO2	Design the Embedded hardware by considering the hardware components required for an embedded system

		}	B.Tech-Electronics	1	Elective)		Analyse the various embedded firmware
	VR19	19	and Computer Engineering			CO3	design approaches on embedded environment to suit for desired application
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Interprete how to integrate hardware and firmware of an embedded system and apply this knowledge to real time operating system
	VR19	19	B.Tech-Electronics and Computer Engineering			CO1	Recognize the characteristics of machine learning that make it useful to real-world Problems
61	VR19	19	B.Tech-Electronics and Computer Engineering	1005194120	Machine Learning	CO2	Characterize machine learning algorithms as supervised, semi-supervised, and Unsupervised
	VR19	19	B.Tech-Electronics and Computer Engineering		(Integrated Course)	CO3	Be able to use support vector machine, regularized regression algorithms
_	VR 19	19	B.Tech-Electronics and Computer Engineering			CO4	Understand the concept behind neural networks for learning non-linear functions
	VR19	19	B.Tech-Electronics and Computer Engineering			CO1	Understand the implementation procedures for the machine learning algorithms
62	VR19	19	B.Tech-Electronics and Computer Engineering		Machine	CO2	Design Java/Python programs for various Learning algorithms.
	VR19	19	B.Tech-Electronics and Computer Engineering		Learning Lab	CO3	Apply appropriate data sets the Machine Learning algorithms
_	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Identify and apply Machine Learning algorithms to solve real world problems
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Understand the Architectural view, protocols and applications of IoT.
63	VR19	19	B.Tech-Electronics and Computer Engineering		IOT AND ITS	CO2	Analyse the communication protocols and standards used in IoT
Ç	VR19	19	B.Tech-Electronics and Computer Engineering	1019194120	APPLICATI ONS	CO3	Design the simple IoT applications to monitor or control IoT devices using simulation or hardware.
	VR19	19	B.Tech-Electronics and Computer Engineering		:	CO4	Implementation of the real time IoT applications.
	VR19	19	B.Tech-Electronics and Computer Engineering	,		COI	Relate different aspects of BigData in accordance with various big data applications
64	VR19	19	B.Tech-Electronics and Computer Engineering	1005194100	BIG DATA ANALYTICS (Professional	CO2	Catergorize various dimensions of BigData (5V's) and its sources in real time
	VR19	19	B.Tech-Electronics and Computer Engineering	1003194100	Elective-III)	CO3	Make use of recent tools related to Hadoop, Spark and MapReduce etc
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Analyze the different aspects of cluster computing with real world applications
	VR19	19	B.Tech-Electronics and Computer Engineering		ARTIFICIAL	COI	Choose appropriate methods in AI that may be suited to solve a given problem and Game Playing
65	VR19	19	B.Tech-Electronics and Computer Engineering	1005193251	INTELLIGE NCE (PORFESSIO	CO2	Make use of AI search algorithms and formalizations on real world problems
	VR19	19	B.Tech-Electronics and Computer Engineering		NAL ELECTIVE –	CO3	Analyze the basic issues of different types of knowledge representation techniques to build intelligent system
	VR19	19	B.Tech-Electronics and Computer Engineering		III)	CO4	Apply probabilistic and fuzzy models to solve problems with uncertainty.

	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Apply communication concepts to solve wireless communications problems. Submit Review report from Research journals with professional ethics, team work and self-learning.
66	VR19	19	B.Tech-Electronics and Computer Engineering	1019194150	WIRELESS COMMUNIC ATION SYSTEMS	CO2	Identify existing model's, Apply cellular system design concepts, wireless wide area networks for their performance analysis. Submit Review report from Research journals with professional ethics, team work and self-learning.
ž.	VR19	19	B.Tech-Electronics and Computer Engineering		(Professional Elective-III)	CO3	Analyse various multiple access schemes used in wireless communications and existing and emerging wireless standards.  Submit Review report from Research journals with professional ethics, team work and self-learning.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	
	VR19	19	B.Tech-Electronics and Computer Engineering		EMBEDDED	COI	Understand the basic concepts and hardware components of an embedded system and able to know the design approach to perform a specific function.
67	VR19	19	B.Tech-Electronics and Computer Engineering	1019193261	SYSTEM DESIGN (Professional	CO2	Identify hardware components required for an embedded system design.
	VR19	19	B.Tech-Electronics and Computer Engineering		Elective-III)	CO3	Apply various embedded firmware design approaches on embedded environment.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Understand how to integrate hardware and firmware of an embedded system using real time operating system.
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Examine the fundamentals of gray scale and color image processing.
	VR19	19	B.Tech-Electronics and Computer Engineering	E	FUNDAMEN TALS OF DIGITAL IMAGE	CO2	Apply different transforms and compression methods on image for image processing applications.
68	VR19	19	B.Tech-Electronics and Computer Engineering	1019194151	PROCESSIN G (Professional Elective-IV)	CO3	Analyze the methods to extract information from the image in terms of spatial filtering, frequency filtering, restoration and segmentation.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Validate the different techniques of color and multi resolution processing.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO1	Understanding of basic digital switching techniques.
69	VR19	19	B.Tech-Electronics and Computer Engineering	1004193160	DATA COMMUNIC ATIONS	CO2	Analyze the OSI model, TCP/IP model, MAC layer protocols and LAN technologies
07	VR19	19	B.Tech-Electronics and Computer Engineering	1004193100	(Professional Elective-IV)	CO3	Design of different Elementary Data Link Protocols.
	VR19	19	B.Tech-Electronics and Computer Engineering			CO4	Minimize the error by using different control methods.
	VR19	19	B.Tech-Electronics and Computer Engineering			COI	Apply the knowledge of cloud technology to infer the working principles of cloud computing

VR19	d a cloud d programming ware environments e backup strategies for the future risks man and computational fitware systems, sired needs.  Inple methods for of a user interface, new niques in HCI. techniques to design by people, designing and ics and launch tude and orbit control, mmand and
VR19   19   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics and Computer Engineering   B.Tech-Electronics   B.Tech-Electronics   B.Tech-Electronics   B.Tech-Electronics   B.Tech-Electroni	d programming ware environments  backup strategies for the future risks  man and computational  fitware systems, sired needs.  nple methods for of a user interface, new niques in HCI.  techniques to design by people, designing and lics and launch  tude and orbit control, mmand and
VR19 19 and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics and Computer Engineering  VR19 19 B.Tech-Electronics Elective-IV  CO1 Analyze and design sol Components to meet de CO2  Analyze and design sol CO3  Practice a variety of sire evaluating the quality of theories, tools and tech Systems that are usable fundamental aspects of evaluating interfaces.  CO2 Analyze and design sol CO3  CO3 Design and CO3  Analyze and design sol CO3  CO4 CO2  Analyze and design sol CO3  CO4 Design and CO3  Analyze and design sol CO3  CO3  CO4 Design and CO3  Analyze and design sol CO3  CO4  CO4 Design and CO3  Analyze and de	ware environments  backup strategies for the future risks  man and computational  fitware systems, sired needs.  mple methods for of a user interface, new niques in HCI. techniques to design by people, designing and  ics and launch  tude and orbit control, mmand and
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B.Tech-Electronics (OPEN Subsystems.	
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and Computer IV) CO3 Design link power budg	get for satellites
B.Tech-Electronics	
	a Analisa Isan
VR19 19 and Computer CO4 Compare satellite acces	s techniques
B.Tech-Electronics	
VR19 19 and Computer CO1 identify various robot c	onfiguration and
Engineering components	
B.Tech-Electronics	
VR19 19 and Computer ROBOTICS CO2 Select Appropriate actu	tators and senors for a
73 Engineering 1019194162 ELECTIVE- robot based on specific	applications
B. Lech-Electronics	
CO3   CO11puter	dynamic analysis for
Engineering simple serial kinematic	chains
B.Tech-Electronics	
VR19 19 and Computer CO4 perform trajectory plant by avoiding obstacles	ling for a manipulator
- Signotting	
VR19 19 and Computer CO1 Explain the functional/o	
	perational aspects of
Engineering Table on Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of Table of	:m.
BLOCK Describe emerging about	mat madala Can
and Computer CHAIN CO2 Blockschain Technology	act models for
74 Engineering 1005194161 TECHNOLO	
VP 10   D. Tech-electronics   Gy   Identify major research	challenges and
and Computer CO3 technical gaps existing i	n between theory and
Engineering (Open practice in cryptocurren Elective-IV)	ey domain.
VD10 to	aracteristics of blook
Engineering Chain using bit coin.  B.Tech-Electronics	
VD10 10 1 - Evploin the heric con-	nts and issues of
Engineering CO1 Explain the basic conce	ement
R Tech-Flectmaics SOFTWARE	- Invite
PROJECT   Common the facult	id incremental
Engineering MANAGEM CO2 lifecycle models.	- meremental
75 Engineering 1005193253 ENT Intercycle models.	
TUDIO I O I I I I (Onen I III I I I I I I I I I I I I I I I	e required resources
Trind out and schedule tr Engineering Elective-IV) CO3 Find out and schedule tr	
Langineering Project execution	\

VR19	19	B.Tech-Electronics and Computer Engineering	CO4	Estimate the effort required for a software project development and identify software risks.
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PRINCIPAL
VIGNAN'S INSTITUTE Or
Information Technology (A)
Beside: VSEZ, Duvvada, Visakhapatnam-49

			DEPART	MENT OF CO	OMPUTER	SCIENC	TECHNOLOGY (A) E ENGINEERING
					COURSE OF		
S.No	Regula tion	Program me Code	Programme Name	Course Code	Course	CO	Course Outcome: After the completion of the course student will be able to
	VR19	05	B.Tech-Computer Science and Engineering			COI	Executing mean value theorems and evaluate maxima and minima of functions of two variables without
	VR19	05	B.Tech-Computer Science and				Apply the analytical methods to solve higher order linear differential equations.
1	VR19	05	Engineering B.Tech-Computer Science and	1000191100	Mathematic s-I	CO2 CO3	Evaluate of solution of Ordinary differential equation by using Laplace Transform technique.
	VR19	05	Engineering B.Tech-Computer Science and				Identify and solve partial differential equations.
_	Maria		Engineering B.Tech-Computer			CO4	
	VR19	05	Science and Engineering B.Tech-Computer			CO1	Identification of different polymers and their functionalities  Determination of structure to many compounds and
2	VR19	05	Science and Engineering	1000191123	Applied	CO2	apply the basic knowledge in construction of cell and its applications
	VR19	05	B.Tech-Computer Science and Engineering		Chemistry	CO3	Analysis of corrosive environments and protection of precious metal
	VR19	05	B.Tech-Computer Science and Engineering			CO4	Adoption of different green methodologies and acquire knowledge on different advanced materials
	VR19	05	B.Tech-Computer Science and Engineering			COI	Understand the use of drawing instruments to construct the polygons and curves
	VR19	05	B.Tech-Computer Science and Engineering		Engineering	CO2	Learn the principle of orthographic projections. Draw Orthographic projections of points, lines.
3	VR19	05	B.Tech-Computer Science and	1003191101	Drawing	CO3	Draw the various types of planes and solids its views
	VR19	05	Engineering B.Tech-Computer Science and				in different Positions  Draw isometric views of simple objects
	VR19	05	Engineering B.Tech-Computer Science and	<u> </u>	<u> </u>	CO4	Read, understand and interpret material on Environment, Science and Technology, tourism,
	VR19	05	Engineering B.Tech-Computer Science and		Technical		Energy Sources, Social Awareness  Analyze the functions of language and grammar in
4	VR19	05	Engineering B.Tech-Computer Science and	1000191121	English Communic ation	CO2	spoken and written forms.
	VR19	05	Engineering B.Tech-Computer Science and	:			Write effectively on various domains.  Prepare and exhibit oral presentation skills by using
	VR19	05	Engineering B.Tech-Computer Science and			CO4	ICT(Individual/Team) Interpret fundamentals of computers and convert flowcharts/algorithms to C Programs, compile and
	VR19	05	Engineering B.Tech-Computer Science and		Problem		debug programs
5	VR19	05	Engineering B.Tech-Computer Science and	1005191120	Solving & Programmi	CO2	Apply decision making and Iterative feature of C Programming language effectively.
			Engineering B.Tech-Computer		ng using C	CO3	Design and implement programs to analyze the different pointer applications
	VR19	05	Science and Engineering B.Tech-Computer		1	_ CO4	Apply structures and unions and Implement file Operations in C programming for any given problem
	VR19	05	Science and Engineering			COI	Realize the purpose/Role of Engineer for solving social problems

Engineering VR19 05 Science and Engineering VR19 05 Science and Engineering  VR19 05 Science and Engineering  VR19 05 Science and Engineering  VR19 05 Science and Engineering  VR19 05 Science and Engineering  VR19 05 Science and Engineering  VR19 05 Science and Engineering  VR19 05 Science and Engineering  VR19 05 Science and Engineering  VR19 05 Science and Engineering  VR19 05 Science and Engineering  Activities  CO2 engineering way  Exploration  CO3  Learn to use mecha  CO4  Extra Curricular Curricular CO2  Broader social skill CO2	anisms, Arduino, sensors, motors.  The machine using Arduino Uno  and Boost academic performance
Engineering VR19 05 Science and Engineering VR19 05 Science and Engineering VR19 05 Science and Engineering VR19 05 Science and Engineering VR19 05 Science and Engineering VR19 05 Science and Engineering VR19 05 Science and Engineering VR19 05 Science and Engineering  B.Tech-Computer VR19 05 Science and Engineering  B.Tech-Computer VR19 05 Science and Engineering  B.Tech-Computer VR19 05 Science and Engineering  B.Tech-Computer CO1 Learn new skills and Curricular Curricular Curricular CO2	anisms, Arduino, sensors, motors.  The machine using Arduino Uno
B.Tech-Computer Science and Engineering  VR19 05 Science and Engineering  VR19 05 Science and Engineering  B.Tech-Computer Science and Engineering  VR19 05 Science and Engineering  VR19 05 Science and Engineering  B.Tech-Computer Science and Engineering  B.Tech-Computer Science and Engineering  B.Tech-Computer Science and Engineering  D.Tech-Computer Science and Engineering  B.Tech-Computer Science and Engineering  D.Tech-Computer Science and	pe machine using Arduino Uno
VR19 05 Science and Engineering  B.Tech-Computer Science and Engineering  B.Tech-Computer Science and Engineering  B.Tech-Computer VR19 05 Science and Engineering  B.Tech-Computer Science and Engineering  B.Tech-Computer CO1 Learn new skills and Engineering  B.Tech-Computer VR19 05 Science and Engineering  B.Tech-Computer Activities  CO2	pe machine using Arduino Uno
Engineering  VR19  05  Science and Engineering  VR19  05  Science and Engineering  VR19  05  Science and Engineering  B.Tech-Computer  VR19  O5  Science and Engineering  B.Tech-Computer  Science and Engineering  B.Tech-Computer  CO1  Learn new skills and Engineering  B.Tech-Computer  CO2  Broader social skill  CO2	pe machine using Arduino Uno
VR19 05 Science and Engineering  VR19 05 Science and Engineering  VR19 05 Science and Engineering  VR19 05 Science and Engineering  B.Tech-Computer Science and Engineering  B.Tech-Computer Science and Engineering  Activities  CO2 Broader social skill CO2	pe machine using Arduino Uno
VR19 05 Science and Engineering CO4 board.  B.Tech-Computer Science and Engineering  VR19 05 Science and Engineering  B.Tech-Computer Science and Engineering  B.Tech-Computer Science and Engineering CO2  B.Tech-Computer Science and Engineering CO2	-
VR19 05 Science and Engineering  VR19 05 Science and Engineering  VR19 05 Science and Engineering  B.Tech-Computer Science and Engineering  DO0191131 Activities  CO2 Broader social skill CO2	-
VR19 05 B.Tech-Computer Science and Engineering  B.Tech-Computer Science and Engineering  B.Tech-Computer Science and Engineering  1000191131 Activities  CO2  Broader social skill	nd Boost academic performance
VR19 05 Science and Engineering  VR19 05 Science and Engineering  B.Tech-Computer Science and Engineering 1000191131 Activities  CO2 Broader social skill	nd Boost academic performance
Engineering  VR 19 05 Science and Engineering Extra Curricular Engineering 1000191131 Activities CO2	nd Boost academic performance
VR19 05 B.Tech-Computer Science and Engineering 1000191131 Activities CO2 Broader social skill	
VR19 05 Science and Curricular Engineering 1000191131 Activities CO2 Broader social skil	1
Engineering 1000191131 Activities CO2	
7 Engineering 1000191131 Activities CO2	Ils with improved time management
D. Took Commission   1000077707   10000771	
B.Tech-Computer   Sports and	
VR19 05   Science and   Games   CO3   Explore Interests a	and Create Broader Perspectives
Engineering	
B.Tech-Computer Participate in varie	ous co-curricular activities leading
VR19 05 Science and to their multifacete	ed personality development
Engineering  CO4	
Directi Company	on of random variable and evaluate
VR19 05 Science and CO1 the expected value	and probability of random
Engineering variables.	
	Poisson, Normal, gamma and
VR19 05 Science and Probability weibull distribution	ons for real data to compute
1	retical frequencies.
8   D Tb Computer 1000191202   and	<u> </u>
	idence levels and maximum error for
Engineering large and small sa	mples.
	ept of hypothesis testing for large
	s in real life situations to draw the
	imate the goodness of fit.
B.Tech-Computer	8
	e phenomena and apply these
	truction of Lasers and optical fibers.
B.Tech-Computer	auction of Lasers and optical mosts.
	edge of basic quantum mechanics, to
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	sional Schrodinger's wave equation
	sional Schrodinger's wave equation
	manage of alassical and according
	rtance of classical and quantum
Engineering mechanical treatm	
	basic concepts of energy bands in
	ds to understand semiconductor
Engineering CO4 physics.	
	asic terminology used in object-
VR19 05 Science and COI oriented program	ming
Engineering	
B.Tech-Computer Describe the objection	ect-oriented programming approach
VR19 05 Science and OOPS in connection with	th C++
Fingingering CO7	
10 R Tech-Computer 1003191222 through Apply the concer	ots of object- oriented programming
VR19 05 Science and C++ CO3	
Engineering	
	d pure virtual function & complex
VR19 05 Science and programming situ	
Engineering CO4	40 00 00 00 mm
	asic concepts of Circuit theory
	physics and analyze the PN junction
	and FET and analyze various biasing
VR19 05 Science and techniques for B.	JT.
Engineering 1004191200 Basic CO2	
B.Tech-Computer   Electronics   Design electronic	c circuit using logic gates
VR19 05 Science and CO3	
Engineering	
B.Tech-Computer Analyze basics v	working and principle of sensors
VR19 05 Science and	
Engineering CO4	

	Vnio	0.5	B.Tech-Computer				
	VR19	05	Science and			CO1	Solve approximate roots of an equation by using
			Engineering	l	1		different numerical methods.
	VR19	05	B.Tech-Computer Science and				
	1113	0.5	Engineering		Markamaria	<b>200</b>	
12			B.Tech-Computer	1000191101	Mathematic	CO2	Compute Interpolating polynomial for the given data.
	VR19	05	Science and		s-II	003	C. C. N. L. L. L. L. L. L. L. L. L. L. L. L. L.
		0,0	Engineering			CO3	Constitute Numerical Solution of ODE and Numerical
			B.Tech-Computer	i			Integration.
	VR19	05	Science and	ļ			Evaluate simultaneous linear equations numerically using rank of a matrix and also Eigen values and
			Engineering			CO4	Eigen vectors of a square matrix.
			B.Tech-Computer				Engen vectors of a square matrix.
	VR 19	05	Science and			CO1	Assemble and disassemble components of a PC
	$\square$		Engineering				The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s
			B.Tech-Computer				
	VR 19	05	Science and				
13			Engineering	1005191210	TI	CO2	utilize MS-office package
	VR19	0.5	B.Tech-Computer		Workshop		
	VRI9	05	Science and			CO3	
	<del></del>		Engineering				make use of linux operating system commands
	VR 19	05	B.Tech-Computer Science and				
	4113	0.5					intrepret cyber threats.
			Engineering B.Tech-Computer			CO4	
	VR19	05	Science and			GO:	
	````	05	Engineering			COI	Have general knowledge and legal literacy and thereby
			B.Tech-Computer				to take up competitive examinations.
	VR 19	05	Science and				Dictinguish the gauge of state and seed
			Engineering		Constitutio	CO2	Distinguish the power of state and central government.
14			B.Tech-Computer	1000191130	n of India	- 002	government.
	VR19	05	Science and		I or maid	CO3	Summarize the election procedure in India before and
			Engineering				after independence
			B.Tech-Computer				and the builderies
	VR19	05	Science and				Association with the powers and functions of
			Engineering		<u> </u>	CO4	Municipalities, Panchayats and Cooperative Societies.
			B.Tech-Computer				
	VR19	05	Science and			COI	
			Engineering				Demonstrate skills in solving counting problem
	VR19	0.5	B.Tech-Computer				
	VKI9	05	Science and		Discrete		Develop reasoning skills using Mathematical Logic
15		<u> </u>	Engineering	1005192100	Mathematic	CO2	concepts.
	VR19	05	B.Tech-Computer Science and		al al		
	AK12	UJ.	Engineering		Structures	CO3	Identify the solutions for various problems using
			B.Tech-Computer				recurrence relations
	VR 19	05	Science and				}
	'	0,5	Engineering			COA	Annih C. I.I. C. I.I.
			B.Tech-Computer			CO4	Apply concepts of graph theory for a given problem.
	VR19	05	Science and			CO1	Apply the principles of number system, binary codes
	1		Engineering			COI	and Boolean algebra to minimize logic expression
			B.Tech-Computer				Analyze functionality of digital circuits
	VR19	05	Science and				yas renectionality of digital circuits
16			Engineering	100510510	Digital	CO2	
10			B.Tech-Computer	1005192101	Logic		Design efficient combinational logic circuit
	VR19	05	Science and		Design	CO3	implementations from functional description of digital
	l		Engineering				systems
			B.Tech-Computer				Demonstrate the use of sequential circuits and storage
	VR19	05	Science and				elements in real-time applications.
\sqcup			Engineering			CO4	Transition of the state of the
			B.Tech-Computer				Apply the concept of linear and non-linear data
	VR19	05	Science and			CO1	structures to various applications
, 1			Engineering				
ı h			B.Tech-Computer				Analyze and implement operations on linked lists and
	378.4-				_		demonstrate their applications.
	VR19	05	Science and		Data		demonstrate their applications.
17	VR19	05	Engineering	1005192120	Data structures	CO2	demonstrate area apparentials.
17			Engineering B.Tech-Computer	1005192120	structures		implement stacks and queues using arrays and linked
17	VR19 VR19	05	Engineering	1005192120		CO2 CO3	

- 1		0.0	B.Tech-Computer				develop programs by nonlinear data structures such as
- 1	VR19	05	Science and				tree and graphs
			Engineering			C04	
	VR19	n.e	B.Tech-Computer	'			Relate the procedural and object paradigm, with real
	VKI9	05	Science and			CO1	world entities
	-		Engineering				
	VR19	05	B.Tech-Computer				Use Exception handling and multithreading
	AKIA	UJ	Science and		Java	900	mechanisms to create efficient software application
18			Engineering	1005192121	Programmi	CO2	
	VR 19	05	B.Tech-Computer		ng		Implement GUI Applications with modern tools
	VKIS	0.5	Science and			CO3	
-		-	Engineering	12.2	5		
	VR19	05	B.Tech-Computer Science and				Design various layouts along with applet usage
	AKIS	U.S	Engineering			00.4	
-			B.Tech-Computer			CO4	
	VR19	05	Science and			COL	Analyze the Demand, Price and Cost.
	YKI	0.5	Engineering			COI	
			B.Tech-Computer		ŀ		
	VR19	05	Science and		Managerial		Identify the Nature of different markets to determine
	VKIS	05			Economics		Price Output for different Business Units
19			Engineering D. Tark Communication	1099192100	And	CO2	
ļ	VR19	05	B.Tech-Computer		Financial	-	Understand Various Business Forms
	AKIA	U.J	Science and		Analysis	CO3	
			Engineering				
	VR19	05	B.Tech-Computer				Evaluate investment project proposals
1	AKIA	03	Science and		1		
_			Engineering			CO4	
	VR19	0.6	B.Tech-Computer		ļ		Students have the adequate writing skills that are
	VKI9	05	Science and]	CO1	needed in an organization
	-		Engineering		1		
	VR19	05	B.Tech-Computer		ELABLOVA		Understand the core competencies to succeed in
	VKI9	05	Science and		EMPLOYA		professional and personal life
			Engineering		BILITY	_CO2	
20	VR 19	05	B.Tech-Computer	1020192100	READINE		Solve various Basic Mathematics problems by
	VKI9	UD	Science and		SS	CO3	following different methods and to perform well in
			Engineering		PROGRA		various competitive exams and placementdrives.
			D.TL. C		M-1		Follow strategies in minimizing time consumption in
	VR19	05	B.Tech-Computer				problem solving Apply shortcut methods to solve
	AKIA	05	Science and			1	
			I .		L	ĺ	problems and confidently solve any mathematical
			Engineering				problems and utilize these mathematical skills both in
	_		Engineering			CO4	problems and utilize these mathematical skills both in their professional as well as personal life.
	VB 10		Engineering B.Tech-Computer				problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories
	VR19	05	Engineering B.Tech-Computer Science and			CO4	problems and utilize these mathematical skills both in their professional as well as personal life.
	VR19	05	Engineering B.Tech-Computer Science and Engineering				problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration.
			B.Tech-Computer Science and Engineering B.Tech-Computer				problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision makin
	VR19	05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and		PUBLIC	CO1	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision making and also understand the concept of administrative
21			B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1020192101	PUBLIC ADMINIS		problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision making and also understand the concept of administrative behaviour and control.
21	VR19	05	Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer	1020192101		CO1	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision makin and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel
21			B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and	1020192101	ADMINIS	CO1	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision making and also understand the concept of administrative behaviour and control.
21	VR19	05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1020192101	ADMINIS	CO1	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision makin and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration.
21	VR19 VR19	05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer	1020192101	ADMINIS	CO1	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision makin and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators
21	VR19	05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer	1020192101	ADMINIS	CO2 CO3	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision makin and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators use to pursue public goals and public policy, along
21	VR19 VR19	05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1020192101	ADMINIS	CO1	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision makin and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators use to pursue public goals and public policy, along with the pros and cons of those tools.
21	VR19 VR19 VR19	05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer	1020192101	ADMINIS	CO2 CO3	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision makin and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators use to pursue public goals and public policy, along with the pros and cons of those tools. Students have the adequate reading and speaking
21	VR19 VR19	05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1020192101	ADMINIS	CO2 CO3	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision making and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators use to pursue public goals and public policy, along with the pros and cons of those tools.
21	VR19 VR19 VR19	05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1020192101	ADMINIS	CO2 CO3	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision making and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators use to pursue public goals and public policy, along with the pros and cons of those tools. Students have the adequate reading and speaking skills and will be able to express himself in French.
21	VR19 VR19 VR19 VR19	05 05 05	Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1020192101	ADMINIS	CO2 CO3	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision making and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators use to pursue public goals and public policy, along with the pros and cons of those tools. Students have the adequate reading and speaking skills and will be able to express himself in French. Understand the grammar and use them in their
21	VR19 VR19 VR19	05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1020192101	ADMINIS TRATION	CO1 CO2 CO3 CO4 CO1	problems and utilize these mathematical skills both it their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision making and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators use to pursue public goals and public policy, along with the pros and cons of those tools. Students have the adequate reading and speaking skills and will be able to express himself in French.
21	VR19 VR19 VR19 VR19	05 05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		ADMINIS TRATION	CO2 CO3	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision making and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators use to pursue public goals and public policy, along with the pros and cons of those tools. Students have the adequate reading and speaking skills and will be able to express himself in French. Understand the grammar and use them in their personal and professional life.
	VR19 VR19 VR19 VR19	05 05 05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1020192101	ADMINIS TRATION Foreign Linguistic -	CO2 CO3 CO4 CO1	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision makin and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators use to pursue public goals and public policy, along with the pros and cons of those tools. Students have the adequate reading and speaking skills and will be able to express himself in French. Understand the grammar and use them in their
	VR19 VR19 VR19 VR19	05 05 05	Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		ADMINIS TRATION	CO1 CO2 CO3 CO4 CO1	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision making and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators use to pursue public goals and public policy, along with the pros and cons of those tools. Students have the adequate reading and speaking skills and will be able to express himself in French. Understand the grammar and use them in their personal and professional life.
	VR19 VR19 VR19 VR19	05 05 05 05	Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		ADMINIS TRATION Foreign Linguistic -	CO2 CO3 CO4 CO1	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision making and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators use to pursue public goals and public policy, along with the pros and cons of those tools. Students have the adequate reading and speaking skills and will be able to express himself in French. Understand the grammar and use them in their personal and professional life. Students will be able to write proficiently in French.
	VR19 VR19 VR19 VR19 VR19	05 05 05 05	Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		ADMINIS TRATION Foreign Linguistic -	CO2 CO3 CO4 CO1	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision making and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators use to pursue public goals and public policy, along with the pros and cons of those tools. Students have the adequate reading and speaking skills and will be able to express himself in French. Understand the grammar and use them in their personal and professional life. Students will be able to write proficiently in French.
	VR19 VR19 VR19 VR19	05 05 05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		ADMINIS TRATION Foreign Linguistic -	CO2 CO3 CO4 CO1	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision making and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators use to pursue public goals and public policy, along with the pros and cons of those tools. Students have the adequate reading and speaking skills and will be able to express himself in French. Understand the grammar and use them in their personal and professional life. Students will be able to write proficiently in French.
	VR19 VR19 VR19 VR19 VR19	05 05 05 05	Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		ADMINIS TRATION Foreign Linguistic -	CO2 CO3 CO4 CO1	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision making and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators use to pursue public goals and public policy, along with the pros and cons of those tools. Students have the adequate reading and speaking skills and will be able to express himself in French. Understand the grammar and use them in their personal and professional life. Students will be able to write proficiently in French.
	VR19 VR19 VR19 VR19 VR19 VR19	05 05 05 05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		ADMINIS TRATION Foreign Linguistic -	CO1 CO2 CO3 CO4 CO1 CO2 CO3	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision making and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators use to pursue public goals and public policy, along with the pros and cons of those tools. Students have the adequate reading and speaking skills and will be able to express himself in French. Understand the grammar and use them in their personal and professional life. Students will be able to write proficiently in French. Studentswill be able to compare and contrast world culture and it will expand his knowledge about various culture.
	VR19 VR19 VR19 VR19 VR19	05 05 05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		ADMINIS TRATION Foreign Linguistic -	CO1 CO2 CO3 CO4 CO1 CO2 CO3	problems and utilize these mathematical skills both in their professional as well as personal life. Understand definition, scope, approach and theories of public administration. Identify the process and technique of decision makin and also understand the concept of administrative behaviour and control. Understand the process and technique of personnel and financial administration. Discuss the tools that modern public administrators use to pursue public goals and public policy, along with the pros and cons of those tools. Students have the adequate reading and speaking skills and will be able to express himself in French. Understand the grammar and use them in their personal and professional life. Students will be able to write proficiently in French. Studentswill be able to compare and contrast world culture and it will expand his knowledge about

			B.Tech-Computer		Mini		Learn the concepts of Design Thinking and Project
1	VR19	05	Science and		Project - 1		management.
23	<u> </u>		Engineering	1005192170	EPICS/Soci	CO2	<u> </u>
			B.Tech-Computer	1003172170	etal relevant		Learn the technologies like Internet of Things, 3D
1	VR19	05	Science and		ргојест	CO3	Printing, Mobile App Creation, Thinker CAD, and
			Engineering				Web page development.
]			B.Tech-Computer				Apply the engineering knowledge, mathematics,
	VR19	05	Science and				design thinking and project management to develop a
			Engineering			CO4	community project.
			B.Tech-Computer				Gain a higher level of personal involvement and
	VR19	05	Science and		5	COI	interest in and least a 1'
			Engineering			COL	interest in understanding and solving environmental
9-7	 		B.Tech-Computer		ENVIRON		resource problems and its sustainable conservation
	VR19	05	Science and				Overall understanding of the relationship between
	*1(1)	UJ			MENTAL		man and ecosystem & biodiversity
24	\vdash		Engineering	1000192130	SCIENCE	CO2	
	_{VD 10}	0.5	B.Tech-Computer		(Audit		Demonstrate knowledge relating to the biological
	VR19	05	Science and		Course)	CO3	systems involved in the major global environmental
			Engineering				problems of the 21st century
			B.Tech-Computer				Recognize the interconnectedness of human
	VR19	05	Science and				dependence on the earth's ecosystems and Influence
			Engineering			CO4	their society in proper utilization of goods and
			B.Tech-Computer				To understand graph representations, Minimum
	VR19	05	Science and			COI	Spanning Trees and traversals
			Engineering				Sharring rices and addisals
			B.Tech-Computer				Hadaman dalimina in the later than the same of the sam
	VR19	05	Science and				Understand dictionaries, hashing mechanism which
	'``'	U.J	Engineering		Advance		supports faster retrieval,
25				1005192220	data	CO2	
		0.5	B.Tech-Computer		structures		Implement heaps, queues and their operations, B
	VR 19	05	Science and			CO3	Trees and B+ Trees
	<u> </u>		Engineering		F		
			B.Tech-Computer				Illustration of tries which share some properties of
	VR19	05	Science and				table look up, various issues related to the design of
			Engineering			CO4	file structures
	Ī		B.Tech-Computer				To conceptualize the basics of organizational and
	VR19	05	Science and			COL	architectural issues of a digital computer and to
	[Engineering			COI	
			B.Tech-Computer				perform computer arithmetic operations.
	VR19	05	Science and		Computer		To analyze performance issues in processor and can
	`````	0,7			Organizatio	600	calculate the effective address of an operand by
26	<del>                                     </del>		Engineering	1005192200	n and	CO2	addressing modes.
	VR19	05	B.Tech-Computer		Architectur		Ability to design memory organization that uses banks
	AKIA	US	Science and		e	CO3	for different word size operations to understand the
			Engineering				concept of cache memory techniques
			B.Tech-Computer				Understand the concept of Input / Output
	VR 19	05	Science and				organization,
L			Engineering	_		CO4	
			B.Tech-Computer				Describe ER model and normalization f or database
	VR19	05	Science and			COI	design.
			Engineering			-0.	
	1		B.Tech-Computer				Create maintain and marks to the territories
1	VR19	05	Science and				Create, maintain and manipulate a relational database
1	````	05			Database	COA	using SQL
27	<del>                                     </del>		Engineering	1005192221	Manageme	CO2	
	[ ,,,,, [	0.5	B.Tech-Computer		nt Systems		Design and build database system for a given real
	VR19	05	Science and		5,5.5	CO3	world problem
	<b>  </b>		Engineering				
			B.Tech-Computer				Examine issues in data storage and query processing
	VR19	05	Science and				and can formulate appropriate solutions.
			Engineering			CO4	appropriate autitions.
			B.Tech-Computer				Firmpley finite rents marking to a 1
	VR19	05	Science and			COL	Employ finite state machines to solve problems in
	````	Q.				COI	computing
			Engineering	-			
	_{VB . 2}	0.0	B.Tech-Computer		Formal		Classify machines by their power to recognize
	VR19	05	Science and		Languages		languages
28			Engineering	1005192202	and	CO2	
	l Ī		B.Tech-Computer	1003132202			To Design PDA for solving computational Problems
l l	VR19	05	Science and		Automata	CO3	5 and the sample of the same o
			Engineering		Theory		
	1						I and the second
	-						To design Tueing Marking County
	VR10	05	B.Tech-Computer				To design Turing Machine for arithmetic Operations
	VR19	05				CO4	To design Turing Machine for arithmetic Operations

29 V. V. V. V. V. V. V. V. V. V. V. V. V.	/R19 /R19 /R19 /R19 /R19 /R19	05 05 05 05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1005192201	Software Engineering Communic ation Skills	CO1 CO2 CO3 CO4 CO1	Apply the appropriate process models for the application development of SDLC Understand the phases of SDLC from requirement gathering phase to design phase via Analysis Phase Analyzing the strategies for coding and testing phase in Software product development Apply the knowledge about estimation and maintenance of software systems and modeling the software project by using CASE tools Analyze the functions of language and grammar in spoken and written forms with an emphasis on LSRW Skills. Disseminate the relevant skills white performing GDs, interviews, oral presentations with a focus on
29 VI	/R19 /R19 /R19 /R19	05 05 05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Engineering Communic ation Skills	CO2 CO3 CO4	Understand the phases of SDLC from requirement gathering phase to design phase via Analysis Phase Analyzing the strategies for coding and testing phase in Software product development Apply the knowledge about estimation and maintenance of software systems and modeling the software project by using CASE tools Analyze the functions of language and grammar in spoken and written forms with an emphasis on LSRW Skills. Disseminate the relevant skills white performing
29 VI	/R19 /R19 /R19 /R19	05 05 05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Engineering Communic ation Skills	CO3	gathering phase to design phase via Analysis Phase Analyzing the strategies for coding and testing phase in Software product development Apply the knowledge about estimation and maintenance of software systems and modeling the software project by using CASE tools Analyze the functions of language and grammar in spoken and written forms with an emphasis on LSRW Skills. Disseminate the relevant skills while performing
29 VI	/R19 /R19 /R19 /R19	05 05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Engineering Communic ation Skills	CO3	gathering phase to design phase via Analysis Phase Analyzing the strategies for coding and testing phase in Software product development Apply the knowledge about estimation and maintenance of software systems and modeling the software project by using CASE tools Analyze the functions of language and grammar in spoken and written forms with an emphasis on LSRW Skills. Disseminate the relevant skills while performing
V V V V V V V	/R19 /R19 /R19 /R19	05 05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Engineering Communic ation Skills	CO3	Analyzing the strategies for coding and testing phase in Software product development Apply the knowledge about estimation and maintenance of software systems and modeling the software project by using CASE tools Analyze the functions of language and grammar in spoken and written forms with an emphasis on LSRW Skills. Disseminate the relevant skills while performing
V V V V V V V	/R19 /R19 /R19 /R19	05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Communic ation Skills	CO3	in Software product development Apply the knowledge about estimation and maintenance of software systems and modeling the software project by using CASE tools Analyze the functions of language and grammar in spoken and written forms with an emphasis on LSRW Skills. Disseminate the relevant skills while performing
30 VI	/R19 /R19 /R19 /R19	05 05 05	Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1000192110	ation Skills	CO4	in Software product development Apply the knowledge about estimation and maintenance of software systems and modeling the software project by using CASE tools Analyze the functions of language and grammar in spoken and written forms with an emphasis on LSRW Skills. Disseminate the relevant skills while performing
30 VI	/R19 /R19 /R19	05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1000192110	ation Skills	CO1	Apply the knowledge about estimation and maintenance of software systems and modeling the software project by using CASE tools Analyze the functions of language and grammar in spoken and written forms with an emphasis on LSRW Skills. Disseminate the relevant skills while performing
30 VI	/R19 /R19 /R19	05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1000192110	ation Skills	CO1	maintenance of software systems and modeling the software project by using CASE tools Analyze the functions of language and grammar in spoken and written forms with an emphasis on LSRW Skills. Disseminate the relevant skills while performing
30 VI	/R19 /R19 /R19	05 05	Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1000192110	ation Skills	CO1	maintenance of software systems and modeling the software project by using CASE tools Analyze the functions of language and grammar in spoken and written forms with an emphasis on LSRW Skills. Disseminate the relevant skills while performing
30 VI	/R19 /R19	05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1000192110	ation Skills	CO1	software project by using CASE tools Analyze the functions of language and grammar in spoken and written forms with an emphasis on LSRW Skills. Disseminate the relevant skills while performing
30 VI	/R19 /R19	05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1000192110	ation Skills		spoken and written forms with an emphasis on LSRW Skills. Disseminate the relevant skills while performing
30 VI	/R19 /R19	05	Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1000192110	ation Skills		Skills. Disseminate the relevant skills white performing
30 VI	/R19	05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1000192110	ation Skills		Disseminate the relevant skills while performing
30 VI	/R19	05	Science and Engineering B.Tech-Computer Science and Engineering	1000192110	ation Skills	COI	Disseminate the relevant skills while performing
30 VI	/R19	05	Engineering B.Tech-Computer Science and Engineering	1000192110	ation Skills	CO1	
V			B.Tech-Computer Science and Engineering	1000192110			Most analysis of the presentations with a focus on
V			Science and Engineering			<u> </u>	Non verbal communication.
V	'R19	05	Engineering	ľ	Lab	CO3	Prepare and exhibit oral presentation skills by using ICT.(Individual/Team)
V	'R19	0.5				CO3	ic i.(matviddal/ feam)
V	'R19	O.E	B.Tech-Computer				Organize proper life skills for their employability.
		UJ	Science and		[- Same proper the skins for their employability.
	T		Engineering			CO4	
	Ì		B.Tech-Computer				Understand HTML tags to design static web pages
v	'R19	05	Science and			COI	onderstand if the tags to design static web pages
V			Engineering				
J V			B.Tech-Computer				Describe the basic concepts of Java Scripts to design
	'R 19	05	Science and		Web		dynamic web pages
31			Engineering	1005193120	Technologi	CO2	7 - 7 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -
			B.Tech-Computer	1005193120	es		Familiarize the concepts of PHP and AJAX
V	'R19	05	Science and		63	CO3	
-	\rightarrow		Engineering		l i		
		0.5	B.Tech-Computer				Analyze a given problem and apply requisite
1	'R19	05	Science and				appropriate tools for designing dynamic and
 -	\rightarrow		Engineering			_CO4	interactive web applications
V	'R19	05	B.Tech-Computer Science and				Able to analyze the performance of an algorithm in
' '	K17	05	Engineering			COI	terms of time and space.
			B.Tech-Computer				
l v	'R19	05	Science and				Give an intuition on how to find a solution to large
		-	Engineering		Design and	CO2	problems by dividing them into smaller sub problems.
32			B.Tech-Computer	1005193100	Analysis of		Identifying which designing technique can be used to
l vi	'R 19	05	Science and		Algorithms	CO3	solve a particular problem,
			Engineering			000	sorve a particular problem,
			B.Tech-Computer		l h		1
-	- 1						Able to analyse the complexities between payer and
VI	'R19	05	Science and				Able to analyse the complexities between naïve and
VI	RI9	05				CO4	Able to analyse the complexities between naïve and parallel algorithms
	_	<u> </u>	Science and Engineering B.Tech-Computer			CO4	parallel algorithms
	'R19	05	Science and Engineering B.Tech-Computer Science and			CO4	
	_	<u> </u>	Science and Engineering B.Tech-Computer Science and Engineering				Parallel algorithms Understand the concepts of data warehouse and data
VI	'R19	05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer				parallel algorithms Understand the concepts of data warehouse and data
VI	_	<u> </u>	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and		Data	COI	Understand the concepts of data warehouse and data mining
VI	'R19	05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Data Warehousin		Darallel algorithms Understand the concepts of data warehouse and data mining Use data pre processing techniques to build data warehouse
VI VI	'R19	05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer	1005193101	Warehousin-	CO1	Understand the concepts of data warehouse and data mining Use data pre processing techniques to build data
VI VI	'R19	05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and	1005193101	Warehousin g and Data	COI	Darallel algorithms Understand the concepts of data warehouse and data mining Use data pre processing techniques to build data warehouse
VI VI	'R19	05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer	1005193101	Warehousin-	CO1	Darallel algorithms Understand the concepts of data warehouse and data mining Use data pre processing techniques to build data warehouse Analyze transaction databases for association rules
VI VI 33	'R19 'R19	05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and	1005193101	Warehousin g and Data	CO1	Darallel algorithms Understand the concepts of data warehouse and data mining Use data pre processing techniques to build data warehouse Analyze transaction databases for association rules Understand the details of different algorithms made
VI VI 33	'R19	05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1005193101	Warehousin g and Data	CO1	Darallel algorithms Understand the concepts of data warehouse and data mining Use data pre processing techniques to build data warehouse Analyze transaction databases for association rules Understand the details of different algorithms made available by popular commercial data mining software
VI VI 33	'R19 'R19	05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer	1005193101	Warehousin g and Data	CO2 CO3	Understand the concepts of data warehouse and data mining Use data pre processing techniques to build data warehouse Analyze transaction databases for association rules Understand the details of different algorithms made available by popular commercial data mining software and Solve real data mining problems by using the
VI VI 33	'R19 'R19	05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1005193101	Warehousin g and Data	CO1	Understand the concepts of data warehouse and data mining Use data pre processing techniques to build data warehouse Analyze transaction databases for association rules Understand the details of different algorithms made available by popular commercial data mining software and Solve real data mining problems by using the right tools to find interesting patterns
VI VI VI	'R19 'R19 'R19	05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer	1005193101	Warehousin g and Data	CO2 CO3	Understand the concepts of data warehouse and data mining Use data pre processing techniques to build data warehouse Analyze transaction databases for association rules Understand the details of different algorithms made available by popular commercial data mining software and Solve real data mining problems by using the
VI VI VI	'R19 'R19	05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1005193101	Warehousin g and Data	CO2 CO3	Understand the concepts of data warehouse and data mining Use data pre processing techniques to build data warehouse Analyze transaction databases for association rules Understand the details of different algorithms made available by popular commercial data mining software and Solve real data mining problems by using the right tools to find interesting patterns
VI VI VI	'R19 'R19 'R19	05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1005193101	Warehousin g and Data	CO2 CO3	Understand the concepts of data warehouse and data mining Use data pre processing techniques to build data warehouse Analyze transaction databases for association rules Understand the details of different algorithms made available by popular commercial data mining software and Solve real data mining problems by using the right tools to find interesting patterns Summarize various concepts of Operating Systems
VI VI VI VI	TR19 TR19 TR19 TR19	05 05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1005193101	Warehousin g and Data	CO2 CO3	Understand the concepts of data warehouse and data mining Use data pre processing techniques to build data warehouse Analyze transaction databases for association rules Understand the details of different algorithms made available by popular commercial data mining software and Solve real data mining problems by using the right tools to find interesting patterns Summarize various concepts of Operating Systems
VI	'R19 'R19 'R19	05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1005193101	Warehousing and Data Mining	CO2 CO3 CO4	Understand the concepts of data warehouse and data mining Use data pre processing techniques to build data warehouse Analyze transaction databases for association rules Understand the details of different algorithms made available by popular commercial data mining software and Solve real data mining problems by using the right tools to find interesting patterns Summarize various concepts of Operating Systems
33 VI	TR19 TR19 TR19 TR19	05 05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1005193101	Warehousing and Data Mining	CO2 CO3	Understand the concepts of data warehouse and data mining Use data pre processing techniques to build data warehouse Analyze transaction databases for association rules Understand the details of different algorithms made available by popular commercial data mining software and Solve real data mining problems by using the right tools to find interesting patterns Summarize various concepts of Operating Systems Implement and Apply Process Scheduling Algorithms
VI	TR19 TR19 TR19 TR19	05 05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Warehousing and Data Mining	CO2 CO3 CO4	Understand the concepts of data warehouse and data mining Use data pre processing techniques to build data warehouse Analyze transaction databases for association rules Understand the details of different algorithms made available by popular commercial data mining software and Solve real data mining problems by using the right tools to find interesting patterns Summarize various concepts of Operating Systems

				7			
	VR19	0.5	B.Tech-Computer				Analyze the concepts of file systems in operating
	VK19	05	Science and				systems
	-		Engineering			CO4	
	1,,,,,,	0.5	B.Tech-Computer				Develop essential programming skills in computer
	VR19	05	Science and			CO1	programming concepts like data types, containers
			Engineering	1			
	1,,,,,,		B.Tech-Computer	i	l .	_	Apply the basics of programming in the Python
	VR19	05	Science and		Programmi		language
35	<u> </u>		Engineering	1005193150	ng	CO2	
	l l		B.Tech-Computer	1005155150	Essentials		Solve coding tasks related to the fundamental notions
	VR19	05	Science and		in Python	CO3	and techniques used in object-oriented programming.
	-		Engineering			L	, special programming.
	,,,,,,		B.Tech-Computer]			Solve coding tasks related OOPS, and Multithreading
	VR19	05	Science and	1			,
	├─		Engineering			CO4	<u>L</u>
		0.5	B.Tech-Computer				Develop essential programming skills in computer
	VR19	05	Science and			COL	programming concepts like data types, containers
			Engineering		ľ		, , , , , , , , , , , , , , , , , , , ,
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		B.Tech-Computer		Industrial		Apply the basics of programming in the Python
	VR19	05	Science and		Oriented		language
36	 		Engineering	1005193151	Python	CO2	
			B.Tech-Computer	1003193131			Solve coding tasks related to the fundamental notions
	VR19	05	Science and		Programmi	CO3	and techniques used in object-oriented programming.
	<u> </u>		Engineering		ng		book and the object of tented programming.
			B.Tech-Computer	1			Solve coding tasks related OOPS, and Multithreading
	VR 19	05	Science and				same remed oor s, and munitimeadille
			Engineering			CO4	
			B.Tech-Computer				Explain the architecture and features of UNIX
	VR19 [05	Science and			COL	Operating System and differentiate it from other
			Engineering				Operating Systems
			B.Tech-Computer	1			Demonstrate UNIX commands for file handling and
ĺ	VR19	05	Science and		Unix and		process control
37			Engineering	1005105155	Shell	CO2	process control
٥,			B.Tech-Computer	1005193152	Programmi		Build Regular expressions for pattern matching and
	VR19	05	Science and		ng	CO3	apply them to various filters for a specific task
			Engineering		""	005	apply ment to various filters for a specific task
			B.Tech-Computer		i		Analyze a given problem and apply requisite facets of
	VR19	05	Science and				SHELL programming in order to devise a SHELL
			Engineering			CO4	script to solve the problem
			B.Tech-Computer				To understand the various computer graphics
	VR19	05	Science and			COI	hardware and display technologies
			Engineering			001	Indiana and display tectinologies
			B.Tech-Computer				To implement various type of scan conversion
	VR19	05	Science and				To implement various type of scan conversion
38			Engineering		C		Interesting and polynomial and a second
٥٥						CO2	algorithms, line and polygon clipping algorithms.
	VR19		I B. Jech-Computer	1005193153	Computer	CO2	
Į	LEIVIA	05	B.Tech-Computer Science and	1003133133	Graphics		To apply different 2D and 3D transformation
	1 1 1 1 1	05	Science and	1003193133		CO2	To apply different 2D and 3D transformation techniques & viewing technologies to real world
	VK19	05	Science and Engineering	1002133133			To apply different 2D and 3D transformation techniques & viewing technologies to real world problems
	VR19	05	Science and Engineering B.Tech-Computer	1002193133			To apply different 2D and 3D transformation techniques & viewing technologies to real world
			Science and Engineering B.Tech-Computer Science and	1003193133		CO3	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems
			Science and Engineering B.Tech-Computer Science and Engineering	1003193133			To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory
	VR19	05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer	1003193133		CO3	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory Understand Computational models and Computer
			Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and	1003193133		CO3	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory
	VR19	05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1003193133		CO3	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory Understand Computational models and Computer Architectures.
	VR19 VR19	05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer	1003193133	Graphics	CO3	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory Understand Computational models and Computer
	VR19	05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and	1003193133	Graphics	CO3	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory Understand Computational models and Computer Architectures.
39	VR19 VR19	05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1005193154	Advanced Computer	CO3	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory Understand Computational models and Computer Architectures. Design and Analyze parallel computer models.
39	VR19 VR19 VR19	05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer		Graphics	CO4 CO1	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory Understand Computational models and Computer Architectures.
39	VR19 VR19	05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Advanced Computer	CO3	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory Understand Computational models and Computer Architectures. Design and Analyze parallel computer models.
39	VR19 VR19 VR19	05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Advanced Computer Architectur	CO4 CO1	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory Understand Computational models and Computer Architectures. Design and Analyze parallel computer models. Understand Scalable Architectures, Pipelining.
39	VR19 VR19 VR19 VR19	05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Advanced Computer Architectur	CO4 CO1	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory Understand Computational models and Computer Architectures. Design and Analyze parallel computer models. Understand Scalable Architectures, Pipelining.
39	VR19 VR19 VR19	05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Advanced Computer Architectur	CO4 CO1	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory Understand Computational models and Computer Architectures. Design and Analyze parallel computer models.
39	VR19 VR19 VR19 VR19	05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Advanced Computer Architectur	CO4 CO1	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory Understand Computational models and Computer Architectures. Design and Analyze parallel computer models. Understand Scalable Architectures, Pipelining. Understand Superscalar processors and
39	VR19 VR19 VR19 VR19 VR19	05 05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Advanced Computer Architectur	CO4 CO1 CO2 CO3	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory Understand Computational models and Computer Architectures. Design and Analyze parallel computer models. Understand Scalable Architectures, Pipelining. Understand Superscalar processors and multiprocessors.
39	VR19 VR19 VR19 VR19	05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Advanced Computer Architectur	CO4 CO1 CO2 CO3	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory Understand Computational models and Computer Architectures. Design and Analyze parallel computer models. Understand Scalable Architectures, Pipelining. Understand Superscalar processors and multiprocessors. Distinguish between the quality of domestic and
39	VR19 VR19 VR19 VR19 VR19	05 05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Advanced Computer Architectur	CO4 CO1 CO2 CO3	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory Understand Computational models and Computer Architectures. Design and Analyze parallel computer models. Understand Scalable Architectures, Pipelining. Understand Superscalar processors and multiprocessors. Distinguish between the quality of domestic and industrial water requirements and wastewater quantity
39	VR19 VR19 VR19 VR19 VR19 VR19	05 05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Advanced Computer Architectur e	CO4 CO1 CO2 CO3	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory Understand Computational models and Computer Architectures. Design and Analyze parallel computer models. Understand Scalable Architectures, Pipelining. Understand Superscalar processors and multiprocessors. Distinguish between the quality of domestic and industrial water requirements and wastewater quantity generation
39	VR19 VR19 VR19 VR19 VR19	05 05 05 05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering		Advanced Computer Architectur	CO4 CO1 CO2 CO3	To apply different 2D and 3D transformation techniques & viewing technologies to real world problems To understand the basic concepts of gaming theory Understand Computational models and Computer Architectures. Design and Analyze parallel computer models. Understand Scalable Architectures, Pipelining. Understand Superscalar processors and multiprocessors. Distinguish between the quality of domestic and industrial water requirements and wastewater quantity

1							
70			B.Tech-Computer	1001150101	Water		Describe the common methods of treatment in
	VR 19	05	Science and			CO3	different industries
		_	Engineering		Engineering		
			B.Tech-Computer		1 1		Explain operational problems of common effluent
	VR19	05	Science and		l i		treatment plant
			Engineering			CO4	
			B.Tech-Computer				
	VR19	05	Science and			CO1	Apply principles of energy auditing and propose
			Engineering			001	energy conservation schemes.
		-	B.Tech-Computer				
	VR19	05	Science and				Demonstrate principle and organizing energy
	''`'	05	Engineering		Energy	CO1	management program.
					Audit	CO2	
4.1		0.5	B.Tech-Computer	1000100151	Conservatio		Analyze power factor improvement methods, and
41	VR19	05	Science and	1002193151	n and	CO3	Demonstrate the operating principle of energy
			Engineering		Manageme		efficient motors.
	<u>.</u>		B.Tech-Computer		nt		To Analyze about space heating and ventilation
1	VR19	05	Science and		"		methods and demonstrate the operation of various
			Engineering			CO4	energy instruments.
			B.Tech-Computer		l í		
	VR19	05	Science and				Analyze and compute the economic aspects of energy
			Engineering		1	CO5	consumption
			B.Tech-Computer				
	VR19	05	Science and			CO1	
			Engineering			COI	Identify unrique robot configuration and company
	\vdash		B.Tech-Computer				Identify various robot configuration and components
	VR19	05					Select appropriate actuators and sensors for a robot
]	VKIY	05	Science and				based on specific application
42	├──		Engineering	1003193161	Industrial	CO2	
	l		B.Tech-Computer		Robotics		Carry out kinematic and dynamic analysis for simple
	VR 19	05	Science and			CO3	serial kinematic chains
			Engineering				
			B.Tech-Computer				Perform trajectory planning for a manipulator by
	VR19	05	Science and				avoiding obstacles.
	L_		Engineering			CO4	
			B.Tech-Computer				Understand the network layer architecture
	VR19	05	Science and			CO1	ondersame are meritaria rajet memberate
1			Engineering			Ç0.	
			B.Tech-Computer		l 1		Learn about various digital modulation techniques.
	VR19	05	Science and				Learn about various digital modulation techniques.
	1 1 1 1 1	0,5			Data	G03	
43			Engineering	1004193161	Communic	CO2	
	1,,,,,,		B.Tech-Computer		ations		Apply various errors correction and detection codes to
	VR19	05	Science and			CO3	digital data.
			Engineering				
1			B.Tech-Computer				Learn about electromagnetic properties.,
	VR19	05	Science and				
			Engineering			CO4	
			B.Tech-Computer				Develop essential programming skills in computer
	VR19	05	Science and			COL	programming concepts like data types, containers
			Engineering				It
			B.Tech-Computer	1			Apply the basics of programming in the Python
	VR19	05	Science and				language
	1	"	Engineering		Python	CO2	language
44				1005193110	Programmi	CU2	Color and Control of the Control of
1	VDID	DE.	B.Tech-Computer		ng Lab		Solve coding tasks related to the fundamental notions
	VR19	05	Science and			CO3	and techniques used in object-oriented programming,
			Engineering				
			B.Tech-Computer				Solve coding tasks related OOPS, and Multithreading
	VR19	05	Science and				
			Engineering			CO4	
			B.Tech-Computer				
	VR19	05	Science and			COL	Relate ethical human values
		1	Engineering				
		 	B.Tech-Computer	1			
	VR19	05	Science and	1	Professiona		Apply and applied to south the first transfer
	1 41/13	05					Apply engineering knowledge for society
45	— —		Engineering	1099193130	l Ethics &	CO2	
			B.Tech-Computer		Human		
	VR19	05	Science and		Values	CO3	Elaborate responsibility for safety & risk
			Engineering]			
1			B.Tech-Computer]			
	VR19	05	Science and	ĺ			Outline the various current global issues
			Engineering			CO4	
	·					. 554	

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	115.40		B.Tech-Computer				Define Network and its components and Illustrate the
	VR19	05	Science and			COL	functionality of OSI and TCP/IP reference models.
			Engineering		}		
	1,10,10		B.Tech-Computer				Compare different network layer protocols and
	VR19	05	Science and				Demonstrate various types of routing technique
46			Engineering	1012193120	Computer	CO2	
			B.Tech-Computer	1012175120	Networks		Evaluate Architecture for Application layer protocols.
	VR 19	05	Science and			CO3	
			Engineering				
	LIBIO		B.Tech-Computer				Choose appropriate protocol for desired
	VR 19	05	Science and	l			communication service.
			Engineering			CO4	
	VR 19	م ا	B.Tech-Computer				
	VKI9	05	Science and	ļ.	1	COI	Acquire knowledge in different phases and passes of
	\vdash		Engineering	-			Compiler
	VR19	05	B.Tech-Computer				
	VKIS	05	Science and				Understand Parser and its types i.e. Top-down and
47			Engineering	1005193200	Compiler	CO2	Bottom-up parsers.
	VR19	05	B.Tech-Computer		Design		
	VKIS	05	Science and			CO3	
	-		Engineering				Construct LL, SLR, CLR and LALR parse table.
	VR 19	05	B.Tech-Computer				Syntax directed translation, synthesized and inherited
	4119	0.5	Science and	1		ŀ	attributes and analyze techniques for code
			Engineering			CO4	optimization
	VR 19	مو	B.Tech-Computer		ł		
	VK19	05	Science and			CO1	Illustrate basic insights of management principles
	\vdash		Engineering		ľ		
	VR19	05	B.Tech-Computer				Summarize Production process, Quality control and
	VKIS	03	Science and		i		Inventory techniques
48			Engineering	1099192200	Manageme	CO2	inventory techniques
	VR19	05	B.Tech-Computer		nt Science		
	41/13	05	Science and	i		CO3	Indentify Strategies and policies to functional areas
	 		Engineering				
	VR19	05	B.Tech-Computer				
	41(19)	05	Science and				Apply Contemporary management Practices
			Engineering			CO4	
	VR19	05	B.Tech-Computer				Understand the concepts and formula of number
	*1819	0,5	Science and			CO1	theory
			Engineering B.Tech-Computer	1	.		
	VR19	05	Science and		Basics of		Understand the basic concepts of various algebraic
	'``'	05					structures and theorems like Euler's theorem for
49	- 		Engineering B.Tech-Computer	1005193250	Mathematic	CO2	designing security algorithm.
	VR19	05			s for		Describe the basic concepts of coding theory which
	*1(19	V3	Science and		Security	CO3	will be useful for data compression, information
			Engineering				hiding
	VR 19	05	B.Tech-Computer Science and				Illustrate various pseudorandom number generation
	''''	0,5	Engineering			G0.4	used for designing security protocols and for its
						_ CO4	analysis.
	VR19	05	B.Tech-Computer Science and				The student should be able to identify problems that
	````	03	Engineering			CO1	are amenable to solution by AI methods.
			B.Tech-Computer				
	VR19	05					The student should be able to identify appropriate AI
	1117	03	Science and		A26111	000	methods to solve a given problem.
50			Engineering B.Tech-Computer	1005193251	Artificial	CO2	
	VR19	05			Intelligence		Implement basic AI algorithms (e.g., standard
	VIX.19	UJ	Science and			CO3	search algorithms or dynamic programming).
			Engineering				
	VR19	05	B.Tech-Computer				The student should have knowledge in expert system
	עואי	U.S	Science and				
			Engineering			<u>C</u> O4	
l	VR19	05	B.Tech-Computer				Compare parallel programs and sequential programs
	AKIA	CO	Science and			CO1	
· I			Engineering				
			B.Tech-Computer		_		Classify parallel computing platforms.
	VID 12	~ -			Concurrent		,
	VR19	05	Science and				
51	VR19	05	Engineering	1005193252	and Parallel	CO2	
51			Engineering B.Tech-Computer	1005193252		CO2	List the parallel algorithm models.
51	VR19	05	Engineering	1005193252	and Parallel	CO2	List the parallel algorithm models.

			D Took Communication	1			
	VR 19	05	B.Tech-Computer Science and				Write shared memory parallel programs with openMP
	''`'	05	Engineering			CO.4	
			B.Tech-Computer			<u>CO4</u>	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon
	VR19	05	Science and			COI	To understand the basic concepts and issues of
			Engineering			COI	software project management
			B.Tech-Computer	1			To conduct activities necessary to successfully
	VR19	05	Science and		Software		complete and close the Software projects
52			Engineering	1005193253	Project	CO2	Total and close the Bottware projects
24			B.Tech-Computer	1005193253	Manageme		To implement the project plans through managing
	VR19	05	Science and		nt	CO3	people, communications and change
	<u> </u>		Engineering				
	,,,,,,,	0.=	B.Tech-Computer				To develop the skills for tracking and controlling
	VR19	05	Science and				software deliverables
	111		Engineering			_CO4	
	VR 19	05	B.Tech-Computer Science and				Store data in the files and to implement indexing
	*10.19	05	Engineering			COI	schemes for the fast retrieval of data
			B.Tech-Computer				I man to the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second sec
	VR 19	05	Science and				Implement query complier, planner and executor
			Engineering		Advanced	CO2	
53			B.Tech-Computer	1005193254	Databases	<u>CO2</u>	Implement concurrency control protocols for
	VR 19	05	Science and			CO3	transaction processing system
İ			Engineering				dunisaction processing system
ĺ			B.Tech-Computer				Recovery techniques for recovering from transaction.
	VR19	05	Science and				to tecovering from dansaction.
			Engineering			CO4	
			B.Tech-Computer				Understand evaluate and create the basic concept of
	VR19	05	Science and			COL	environmental impact assessment, Flow of EIA,
			Engineering				Types of environmental Impacts
	VD10	0.5	B.Tech-Computer		Environme		ImplementdifferentmethodsinpreparinganEnvironment
	VR19	05	Science and		ntal Impact		allmpactStatement
54	<del></del>		Engineering	1001193260	Assessment	CO2	annipaetotatement
-	VR19	05	B.Tech-Computer Science and		and		
- 1	*	05	Engineering		Manageme	CO3	Identify various mitigation measures that can be used.
	<del></del> -		B.Tech-Computer		nt		
ļ	VR19	05	Science and				Select methodology for identification of
			Engineering			CO4	environmental impacts, environmental indices and indicators
			B.Tech-Computer				indicators
	VR 19	05	Science and			CO1	
			Engineering				Design, simulate and realize different digital filters.
			B.Tech-Computer				Estimate the spectra of signals that are to be processed
	VR 19	05	Science and				by discrete time system and to verify the performance
55	$\longrightarrow$		Engineering	1004193161	Signal	CO2	of various spectrum estimation techniques
			B.Tech-Computer	1001133101	Processing		
	VR 19	05	Science and			CO3	
			Engineering				l .
							Design multi rate digital signal processing system.
	VDIA	ne .	B.Tech-Computer		;		Design multi rate digital signal processing system.
	VR19	05	B.Tech-Computer Science and		:		
	VR19	05	B.Tech-Computer Science and Engineering			CO4	Understand the architecture of DSP processor
			B.Tech-Computer Science and Engineering B.Tech-Computer				Understand the architecture of DSP processor Understand the basic concepts of an embedded system
	VR19 VR19	05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and			CO4	Understand the architecture of DSP processor Understand the basic concepts of an embedded system and able to know an embedded system design
			B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering				Understand the architecture of DSP processor Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function
	VR19	05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer				Understand the architecture of DSP processor  Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function  Design the Embedded hardware by considering the
			B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and		Embedded	COI	Understand the architecture of DSP processor  Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function  Design the Embedded hardware by considering the hardware components required for an embedded
56	VR19	05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1019193261	System		Understand the architecture of DSP processor  Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function  Design the Embedded hardware by considering the hardware components required for an embedded system
56	VR19	05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer	1019193261		CO1	Understand the architecture of DSP processor Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function Design the Embedded hardware by considering the hardware components required for an embedded system Analyze the various embedded firmware design
56	VR19 VR19	05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and	1019193261	System	COI	Understand the architecture of DSP processor  Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function  Design the Embedded hardware by considering the hardware components required for an embedded system  Analyze the various embedded firmware design approaches on embedded environment to suit for
56	VR19 VR19	05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer	1019193261	System	CO1	Understand the architecture of DSP processor  Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function  Design the Embedded hardware by considering the hardware components required for an embedded system  Analyze the various embedded firmware design approaches on embedded environment to suit for desired application
56	VR19 VR19	05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and	1019193261	System	CO1	Understand the architecture of DSP processor  Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function  Design the Embedded hardware by considering the hardware components required for an embedded system  Analyze the various embedded firmware design approaches on embedded environment to suit for desired application  Understand how to integrate hardware and firmware
56	VR19 VR19 VR19	05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1019193261	System	CO2 CO3	Understand the architecture of DSP processor  Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function  Design the Embedded hardware by considering the hardware components required for an embedded system  Analyze the various embedded firmware design approaches on embedded environment to suit for desired application  Understand how to integrate hardware and firmware of an embedded system and apply this knowledge to
56	VR19 VR19 VR19	05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1019193261	System	CO1	Understand the architecture of DSP processor  Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function  Design the Embedded hardware by considering the hardware components required for an embedded system  Analyze the various embedded firmware design approaches on embedded environment to suit for desired application  Understand how to integrate hardware and firmware of an embedded system and apply this knowledge to real time operating system.
56	VR19 VR19 VR19	05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1019193261	System	CO2 CO3	Understand the architecture of DSP processor  Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function  Design the Embedded hardware by considering the hardware components required for an embedded system  Analyze the various embedded firmware design approaches on embedded environment to suit for desired application  Understand how to integrate hardware and firmware of an embedded system and apply this knowledge to real time operating system.  Students have the adequate writing skills that are
56	VR19 VR19 VR19 VR19	05 05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer	1019193261	System	CO2 CO3	Understand the architecture of DSP processor  Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function  Design the Embedded hardware by considering the hardware components required for an embedded system  Analyze the various embedded firmware design approaches on embedded environment to suit for desired application  Understand how to integrate hardware and firmware of an embedded system and apply this knowledge to real time operating system.  Students have the adequate writing skills that are needed in an organization and To perform well during
56	VR19 VR19 VR19 VR19	05 05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1019193261	System	CO2 CO3	Understand the architecture of DSP processor  Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function  Design the Embedded hardware by considering the hardware components required for an embedded system  Analyze the various embedded firmware design approaches on embedded environment to suit for desired application  Understand how to integrate hardware and firmware of an embedded system and apply this knowledge to real time operating system.  Students have the adequate writing skills that are needed in an organization and To perform well during Campus Drives and different Interviews
56	VR19 VR19 VR19 VR19 VR19	05 05 05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer	1019193261	System	CO2 CO3	Understand the architecture of DSP processor  Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function  Design the Embedded hardware by considering the hardware components required for an embedded system  Analyze the various embedded firmware design approaches on embedded environment to suit for desired application  Understand how to integrate hardware and firmware of an embedded system and apply this knowledge to real time operating system.  Students have the adequate writing skills that are needed in an organization and To perform well during Campus Drives and different Interviews  Understand the core competencies to succeed in
56	VR19 VR19 VR19 VR19	05 05 05	B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer Science and Engineering	1019193261	System	CO2 CO3	Understand the architecture of DSP processor  Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function  Design the Embedded hardware by considering the hardware components required for an embedded system  Analyze the various embedded firmware design approaches on embedded environment to suit for desired application  Understand how to integrate hardware and firmware of an embedded system and apply this knowledge to real time operating system.  Students have the adequate writing skills that are needed in an organization and To perform well during Campus Drives and different Interviews

57			B.Tech-Computer	1020193200	ty		Solve various Basic Mathematics problems by
	VR19	05	Science and	1020175200	Readiness	CO3	following different methods and analyses, summarize
			Engineering		Program-III		and present information in quantitative forms including table, graphs and formulas
							Follow strategies in minimizing time consumption in
			B.Tech-Computer				problem solving Apply shortcut methods to solve
	VR19	05	Science and				problems and confidently solve any mathematical
			Engineering				problems and utilize these mathematical skills both in
_			B.Tech-Computer			C04	their professional as well as personal life.
	VR19	05	Science and			CO1	The ability to understand, analyze and develop
	''''	00	Engineering			COI	computer programs in the areas related to algorithms.
			B.Tech-Computer			-	To find an algorithm to solve the problem and prove
58	VR19	05	Science and	1005193210	Algorithms Lab		that the algorithm solves the problem correctly.
			Engineering		Lab	CO2	
	VR19	05	B.Tech-Computer		-		To understand the mathematical criterion for deciding
	AKIA	05	Science and Engineering			CO3	whether an algorithm is efficient.
						<u> </u>	apply the coffuses are in a first to the
	1/010	0.5	B.Tech-Computer				apply the software engineering principles in planning, formulating an innovative design/ approach and
	VR19	05	Science and			CO1	computing the requirements appropriate to chosen
			Engineering				topic within the context of legal, societal and
			B.Tech-Computer				Ability to perform individually as well as in a team,
59	VR19	05	Science and	1005103070	Mini		accepting responsibility, taking initiative, and
"			Engineering B.Tech-Computer	1005193270	Project-II	CO2	providing leadership, necessary to ensure project
	VR19	05	Science and			CO3	Ability to use formal and informal communications with team members and guide, make presentations
			Engineering			-05	and prepare technical document.
		_	B.Tech-Computer		l		Develop/implement the solutions with appropriate
	VR19	05	Science and				techniques, resources and contemporary tools for
			Engineering			CO4	social relavent issues/problems
			B.Tech-Computer				Carryout literature survey, and choose a relevant topic
	VR19	05	Science and			CO1	reported in recent IEEE/CSI/ACM/ conference publications / transactions in the domain of computer
			Engineering				science and engineering.
			B.Tech-Computer				
60	VR19	05	Science and		Technical		Simulate and analyze the results reported in the chosen paper for seminar topic.
60			Engineering	1005193280	Seminar	CO2	chosen paper for seminar topic.
	VR19	05	B.Tech-Computer Science and			CO3	Communicate effectively before the expert panel and
		0,5	Engineering			COS	develop technical reports.
			B.Tech-Computer				
	VR19	05	Science and				Respond to the queries raised by the evaluation
			Engineering			CO4	committee and audience
	VR19	0.5	B.Tech-Computer		,		Appraise the importance of data and choose an
	VKIS	05	Science and Engineering			COL	appropriate algorithm to create a models
			B.Tech-Computer				
	VR19	05	Science and				Characterize machine learning algorithms as
61			Engineering	1005193280	Machine	CO2	supervised, semi-supervised, and Unsupervised
ੱ`			B.Tech-Computer	1007123790	Learning		Relate various machina languian and discussions
	VR19	05	Science and			CO3	Relate various machine learning and deep learning algorithms with real world applications
			Engineering  R Tech Computer				
	VR19	05	B.Tech-Computer Science and				Analyze how to evaluate models build from the
	"		Engineering			CO4	sample datasets on web
			B.Tech-Computer			204	
	VR19	05	Science and			CO1	Relate different aspects of BigData in accordance with
		_	Engineering				various big data applications
	VBIO	O.E	B.Tech-Computer				Catergorize various dimensions of BigData (5V's) and
	VR19	05	Science and		Dia D.	600	its sources in real time
62			Engineering B.Tech-Computer	1005194100	Big Data Analytics	_CO2	
	VR19	05	Science and		Amaryacs	CO3	Make use of recent tools related to Hadoop, Spark and
			Engineering			203	MapReduce etc
			B.Tech-Computer		1		A - 1 1 - 1/20
	VR19	05				CO4	Analyze the different aspects of cluster computing with real world applications

	,,,,,,		B.Tech-Computer				Build solutions to the complex and the
	VR19	05	Science and			COI	Build solutions to the complex problems using object oriented approach
			Engineering		1		oriented approach
			B.Tech-Computer		Object		Identify alarma and
	VR19	05	Science and		Oriented		Identify classes and responsibilities of the problem domain
63			Engineering	1005194121	Analysis	CO2	domain
	l		B.Tech-Computer	1005154121	and Design		
	VR19	05	Science and		using UML	CO3	Apply UML tools for various case studies
			Engineering		using UNIL		
			B.Tech-Computer		1		
	VR19	05	Science and				Represent classes, objects, responsibilities and states
			Engineering	<u></u>		CO4	using UML notations.
			B.Tech-Computer				
	VR19	05	Science and			COI	Identify basic security attacks and services
			Engineering				
			B.Tech-Computer		C		
	VR19	05	Science and		Cryptograp		Analyze the strengths and weaknesses of various
64	<u> </u>		Engineering	1005193263	hy and	CO2	symmetric encryption algorithms.
04			B.Tech-Computer	1005193263	Network		
	VR19	05	Science and		Security	CO3	Apply the concepts of number theory and public key
			Engineering		(PE-III)		algorithms in cryptography
			B.Tech-Computer				<u> </u>
	VR19	05	Science and				Classify various cryptographic protocols, hash
			Engineering			CO4	functions, digital signature schemes
			B.Tech-Computer			304	
	VR19	05	Science and			COL	Demonstrate ANN structure and activation Functions.
			Engineering			201	Sementation Punctions.
			B.Tech-Computer	ľ			
	VR19	05	Science and		Artificial		Define foundations and learning mechanisms and
	'''		Engineering		Neural	CO2	state-space concepts.
65			B.Tech-Computer	1005194150	Networks	CO2	
	VR19	05	Science and		(PE-III)	CO3	Explain multi-layer feed forward networks and Back
			Engineering		(1 2-111)	COS	propagation algorithms.
			B.Tech-Computer				
	VR19	05	Science and				Application Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired Desired De
	'	03	Engineering			CO4	Analyze Radial Basis Function Networks and SVMs
			B.Tech-Computer			CO4	
	VR19	05	Science and			COL	Enumerate the layers of the OSI model and TCP/IP
ļ	''''	05	Engineering			CO1	model. Explain the function(s) of each layer. Ability
			B.Tech-Computer				to understand about different architectures network.
	VR19	05	Science and		Advanced		Identify the different types of network devices and
	''`'	O.J				000	their functions within a network.
66			Engineering B.Tech-Computer	1005194151	Computer	CO2	
.	VR19	05			Networks		build the skills to inter work with sub netting, routing
	*****	05	Science and		(PE-III)	CO3	mechanisms and transport layer protocols.
			Engineering				the data port layer protocols.
	VR 19	0.5	B.Tech-Computer				Select appropriate quality of service mechanism for a
	VK19	05	Science and				given computer network
	<del>                                     </del>		Engineering			CO4	B comparer meraoty
	_{vn .}	0.5	B.Tech-Computer				
	VR 19	05	Science and			CO1	Create, classify and build the software architecture
j	<u> </u>		Engineering				
			B.Tech-Computer		Software		
	VR19	05	Science and		Architectur		Illustrate and evaluate the architecture structures
67			Engineering	1005104150	e and	CO2	
"			B.Tech-Computer	1005194152	Design		
	VR19	05	Science and		Patterns	CO3	Design creational and structural patterns
			Engineering		(PE-III)		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s
			B.Tech-Computer		( =,		
	VR19	05	Science and		1		Outline behavioural pattern and case study in uitlizing
	l 1		Engineering			CO4	the software architectural structures
	l 1		B.Tech-Computer				
_					l .	COI	Illustrate the basic elements and concepts related to
_	VR19	05					
_	VR19	05	Science and			Ç0.	distributed system technologies
	VR19	05	Science and Engineering				distributed system technologies
			Science and Engineering B.Tech-Computer				
	VR19 VR19	05	Science and Engineering B.Tech-Computer Science and		Distributed		List the characteristics of distributed systems for
68			Science and Engineering B.Tech-Computer Science and Engineering	1005194153		CO2	List the characteristics of distributed systems for designing architectural models
68	VR19	05	Science and Engineering B.Tech-Computer Science and Engineering B.Tech-Computer	1005194153	Systems	CO2	List the characteristics of distributed systems for designing architectural models  Enumerate the features and applications of important
68			Science and Engineering B.Tech-Computer Science and Engineering	1005194153			List the characteristics of distributed systems for designing architectural models

			I D.T. J. C.	1	1		
	   VR19	05	B.Tech-Computer				Interpret inter-process communication in a distributed
	VKI9	05	Science and				system
			Engineering		<u> </u>	CO4	a) Stelli
	VRIG	0.5	B.Tech-Computer	ļ			apply the knowledge of cloud technology to infer the
	VK19	05	Science and			100	working principles of cloud computing
	$\vdash$		Engineering				working principles of cloud computing
	,,,,,,	0.0	B.Tech-Computer				analyse cloud services extended by various cloud
	VR 19	05	Science and		Cloud		providers to build a cloud
69	<b>  </b>		Engineering	1005194154	Computing	CO2	-L
			B.Tech-Computer	1003134134	(PE-IV)		Idealify and the second
	VR19	05	Science and		(FE-IV)	CO3	Identify emerging cloud programming paradigms and
			Engineering				its software environments
			B.Tech-Computer	1			
	VR19	05	Science and				Design and develop the backup strategies for cloud
		_	Engineering			CO4	data by pridcting the future risks
			B.Tech-Computer				
	VR19	05	Science and			COI	elucidate the parametric and linear models of
			Engineering			-01	classification in domain specific applications
			B.Tech-Computer				
	VR19	05	Science and				Compare and parameterize different learning
			Engineering		Pattern	CO2	algorithms in NLP applications
70			B.Tech-Computer	1005194155	Recognition	C02	
	VR19	05	Science and		(PE-IV)	C02	Develop machine independent and unsupervised
	'*```	U.J	Engineering			CO3	learning techniques.
	<del></del>			1			
	VR19	05	B.Tech-Computer		]		Apply pattern recognition techniques to real world
	AKIA	US	Science and				problems such as documentation analysis and
			Engineering			CO4	recognition
		0.5	B.Tech-Computer		ļ		
	VR19	05	Science and			CO1	develop new applications in Manets and WSN.
			Engineering				
			B.Tech-Computer				enable the student to understand the need for security
	VR19	05	Science and		Mobile		and the challenges and also the role of cross layer
71			Engineering	1005194156	Adhoc	CO2	design in enhancing the network performance
			B.Tech-Computer	1005154150	Networks		
	VR19	05	Science and		(PE-IV)	CO3	develop algorithms/protocols for Manets and WSN.
			Engineering				Prototo los traneda and traits,
			B.Tech-Computer				
	VR19	05	Science and				examine new technical issue related to these new
			Engineering			CO4	thrust areas and come up with a solution(s).
			B.Tech-Computer				
	VR19	05	Science and			COI	Figure out practical solutions to the problems for
			Engineering				various applications
			B.Tech-Computer				
	VR19	05	Science and		Software		formulate and analyze test cases for given problem
			Engineering		Testing	CO2	domain
72			B.Tech-Computer	1005194157	Methodolog		<u>.                                  </u>
	VR19	05	Science and		. ~		manage test plans and test models for projects from
	''``	WJ.			ies	CO3	inception to transition
	<del></del>		Engineering				1
	\ _{\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\}	0.5	B.Tech-Computer				find out the implementation of different strategies to
	VR19	05	Science and				replace errors
			Engineering			CO4	replace cityta
	,,,,		B.Tech-Computer				
	VR19	05	Science and			COI	make use of HTML5, CSS, JavaScript and Bootstrap
			Engineering				
			B.Tech-Computer				
	VR19	05	Science and				Implement a Fast, unopinionated, minimalist web
73			Engineering	1005104150	Mern Stack	CO2	framework for Node.js using Express
1.5			B.Tech-Computer	1005194158	Technologi		
	VR19	05	Science and		es (PE-IV)	CO3	Develop MongoDB-a schema-less (document-
			Engineering			003	oriented) NoSQL database
			B.Tech-Computer				
-	VR19	05	Science and				Build and dealers of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of
	/	V.J	Engineering			004	Build and deploy a social network with Node.js
-						CO4	
	VBIO	O.E.	B.Tech-Computer				know the basic concepts in Disasters and its triggerin
	VR19	05	Science and			COI	factures
			Engineering				turint/9
- 1			B.Tech-Computer				
		0.00	Science and				Interdependent of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the
	VR19	05	Engineering		Disaster		understand stages of hydrological disaster

I ′  [	- 1		B.Tech-Computer	1001129100	manageme		
	VR19	05	Science and		nt (OE-IV)	CO3	analysis the causes, effects, impacts and of
		0,0	Engineering	]		000	hydrological, geological and coastal hazards.
			B.Tech-Computer				
	VR19	05	Science and				understand the mitigation procedure of uncertain
			Engineering			CO4	events
			B.Tech-Computer				formulate and salve various provingly makings in
	VR19	05	Science and			COI	formulate and solve various practical problems in manufacturing and service organizations,
			Engineering				manutacturing and service organizations.
[ [			B.Tech-Computer				
	VR19	05	Science and		Operations		solve the allocation models
75			Engineering	1003193252	Research	CO2	]
′′			B.Tech-Computer	1003193232	(OE-IV)		perform iterations in the Transportation, assignment
	VR19	05	Science and		(OE-IV)	CO3	perform iterations in the Transportation, assignment, game, inventory problems
	)		Engineering	i			game, inventory problems
			B.Tech-Computer	,			perform iterations in the replacement, sequencing,
	VR19	05	Science and				queuing problems
			Engineering			CO4	queuting problems
			B.Tech-Computer				Explain the fundamentals of gray scale and color
	VR19	05	Science and			COL	image processing.
			Engineering				mage processing.
)			B.Tech-Computer				Apply different compression methods on image for
	VR19	05	Science and		Digital		image processing applications.
76			Engineering	1004193252	Image	CO2	
'			B.Tech-Computer	1007173252	Processing		Solve the methods to extract information from the
1	VR19	05	Science and		(OE-IV)	CO3	image in terms of spatial filtering, frequency filtering,
			Engineering	1	]		restoration and segmentation.
			B.Tech-Computer				Examine the different techniques of color and multi
	VR19	05	Science and				resolution processing.
	<u> </u>		Engineering			CO4	resolution processing.
			B.Tech-Computer				Understand the Architecture, protocols and
	VR19	05	Science and			COI	applications of IoT.
			Engineering				apparations of text
1			B.Tech-Computer				Analyse the communication protocols and standards
	VR19	05	Science and		Internet of		used in IoT
77			Engineering	1019103260	Things (OE	CO2	
1			B.Tech-Computer		IV)	1	design the simple foT applications to monitor or
	VR19	05	Science and		1	CO3	control IoT devices using simulation or hardware
			Engineering			ļ	
			B.Tech-Computer				
1	VR19	05	Science and				implement the real time IoT applications.
			Engineering			CO4	



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VIGNAN'S INSTITUTE OF
Information Technology (A)
side: VSEZ, Duvvada, Visakhapatnam-49

## VIGNAN'S INSTITUE OF INFORMATION TECHNOLOGY (A) DEPARTMENT OF INFORMATION TECHNOLOGY COURSE OUTCOMES

					KIMENI O	COURSE O	ATION	TEC:	HNOLOGY
5	S.No	Regula tion	Programme Cod			0		$\top$	Course Outcome: After the complets on of the
2		VR19	12	B.Tech-Informatio Technology	n	Ivame	co	ir Iu	executing mean value theorems and evaluate maxima and minima of functions of two verices
	1	VR19	12	B.Tech-Information	100019110	MATHE	1 70	V	vithout constraints  Apply the analytical methods to solve higher order
		VR19	12	B.Tech-Information Technology	ו	ATICS -	CO CO	2   II	valuate of solution of Ordinary differential
		VR19	12	B.Tech-Information Technology			СО	- 100	quations by using Laplace Transform technique.  dentify and solve partial differential equations.
		VR19	12	B.Tech-Information Technology			co	, Id	dentification of different polymers and their unctionalities
	2	VR19	12	B.Tech-Information Technology	1000191123	APPLIED		D	Determination of structure to many compounds and
		VR19	12	B.Tech-Information Technology		CHEMIS' RY	CO:	2 ai	nalysis of corrosive environments and protection
		VR19	12	B.Tech-Information Technology			CO	A	doption of different green methodologies and
		VR19	12	B.Tech-Information Technology			CO	199	equire knowledge on different advanced materials and the use of drawing instruments to pastruct the polygons and curves
	3	VR19	12	B.Tech-Information Technology	1003191101	ENGINEE	CO2	L	earn the principle to orthographic projections, raw Orthographic projections of points, lines.
		VR19	12	B.Tech-Information Technology	1003191101	RING DRAWING		, Ju	raw the various types of planes and solids its ews in different Positions
-	4	VR19	12	B.Tech-Information Technology			CO4	Di	Taw a metric views of simple objects
		VR19	12	B.Tech-Information Technology		PROBLEM	COI	130	repret indamentals of computers and convert in that wilgorithms to C Programs, compile and bug programs
4	4 [	VR19	12	B.Tech-Information Technology	1005191120	SOLVING AND	ŀ	Ap	oply decision traiking and the most feature of C
		VR19	12	B.Tech-Information Technology		PROGRA MMING	CO2	De	ogramming language effectively.
	,	VR19	12	B.Tech-Information Technology		USING C		Ap Op	regions of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the s
	,	VR19	12	B.Tech-Information Technology			CO4	Re	ad, understand and interpret material on
	<u> </u>	VR19	12	B.Tech-Information	ĺ	TECHNIC AL		Em	vironment, Science and Technology, tourism, ergy Sources, Social Awareness
5	` <b>├</b> -	VR19	12	Technology  B. Tech-Information	1000191121	ENGLISH COMMUN	CO2	ISDO	alyze the functions of language and grammar in the and written forms
	1	 /R19		Technology B.Tech-Information		ICATION	CO3		
<del> </del>	\ \	/R19	12	Technology B.Tech-Information			CO4	JICI	pare and exhibit oral presentation skills by using (Individual/Team) alize the purpose/Role of Engineer for solving
	V	/R19	12	Technology B. Tech-Information			COI	SOCI	ial problems  rn to Design a component/system in an
6	V	'R19	12	of recommending		Engineering Exploration	CO2	lengi	ineering way rn to use mechanisms, Arduino, sensors,
	V	R19	12	Technology  B.Tech-Information			CO3	mot	ors. grating different systems
	V	R19	12	Technology  B. Tech-Information			CO4	_(med	chanical/Electrical/computer) to work as a unit
	V	R19	12	Technology  3. Tech-Information			CO1	Janne	erent numerical methods.
8	VI	R19	12 I			MATHEM - ATICS - II	CO2	data,	stitute Numerical Solution of ODE and
	VI	R19	12 E	Technology  3. Tech-Information Technology			CO3	Eval	nerical Integration. uate simultaneous linear equations numerically g rank of a matrix and also Eigen values and
							CO4	Eige	n vectors of a square matrix.

	VR19	12	B.Tech-Information Technology			COI	describe the wave phenomen and applu thesse concepts for construction of lasers and optical fibers .
9	VR19	12	B.Tech-Information Technology	1000191221	APPLIED	CO2	apply the knowledge of basic quantum mechanics, to set up one deimesional schrodingers wave equation
	VR19	12	B.Tech-Information Technology		PHYSICS -	CO3	identify the importance if classical and quantum
	VR19	12	B.Tech-Information Technology			CO4	male use od the basic comcepts of energy bands in ctystalline solids to undestand semiconductor physics.
	VR19	12	B.Tech-Information Technology		OOPSTHR OUGH	COI	Relate the procedural and object paradigm, streams, classes, functions, data and objects with real world entities
10	VR19	12	B.Tech-Information Technology	1005191222	C++ OBJECT- ORIENTE D	CO2	Apply the concepts of function overloading, operator overloading ,virtual functions and polymorphism
	VR19	12	B.Tech-Information Technology		PROGRA MMING	CO3	classify inheritance with understanding of early and late binding.
	VR19	12	B.Tech-Information Technology			CO4	solve the critical order problems using STL and Generic Programming
	VR19	12	B.Tech-Information Technology		BASIC	COI	Explain the basic concepts of Circuit theory, semiconductor physics and analyze the PN junction diode and special purpose diode.
11	VR19	12	B.Tech-Information Technology	1004191200	ELECTRO NICS	603	Explain the BJT and FET and analyze various
	VR19	12	B.Tech-Information	i	NICS	CO2 CO3	biasing techniques for BJT.  Design electronic circuit using logic gates
	VR19	12	Technology  B.Tech-Information				
	VR19	12	B.Tech-Information Technology			CO4	Analyze basics working and principle of sensors  Elucidate the notion of random variable and evaluate the expected value and probability of random variables.
12	VR19	12	B.Tech-Information Technology	1000191202	PROBABI LITY AND STATISTI CS	CO2	Apply Binomial, Poisson, Normal, gamma and Weibull distributions for real data to compute probabilities, theoretical frequencies.
	VR19	12	B.Tech-Information Technology		(Only for CSE& IT)	CO3	Evaluate the confidence levels and maximum error for large and small samples
							January 100
	VR19	12	B.Tech-Information Technology			CO4	Analyze the concept of hypothesis testing for large and small samples in real life situations to draw the
	VR19 VR19	12	Technology  B.Tech-Information			CO4 CO1	Analyze the concept of hypothesis testing for large
12			B.Tech-Information Technology B.Tech-Information		IT	CO1	Analyze the concept of hypothesis testing for large and small samples in real life situations to draw the inferences and estimate the goodness of fit.  Assemble and disassemble components of a PC
13	VR19	12	B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information	1005191210	IT Workshop		Analyze the concept of hypothesis testing for large and small samples in real life situations to draw the inferences and estimate the goodness of fit.  Assemble and disassemble components of a PC  Construct a fully functional virtual machine Summarize various linux operating system
13	VR19 VR19	12	B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information	1005191210		CO1 CO2 CO3	Analyze the concept of hypothesis testing for large and small samples in real life situations to draw the inferences and estimate the goodness of fit.  Assemble and disassemble components of a PC  Construct a fully functional virtual machine
13	VR19 VR19 VR19	12	B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information	1005191210		CO1	Analyze the concept of hypothesis testing for large and small samples in real life situations to draw the inferences and estimate the goodness of fit.  Assemble and disassemble components of a PC  Construct a fully functional virtual machine Summarize various linux operating system commands  Secure a computer from cyber threats.
	VR19 VR19 VR19 VR19	12 12 12	B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information		Workshop	CO1 CO2 CO3 CO4 CO1	Analyze the concept of hypothesis testing for large and small samples in real life situations to draw the inferences and estimate the goodness of fit.  Assemble and disassemble components of a PC  Construct a fully functional virtual machine Summarize various linux operating system commands  Secure a computer from cyber threats.  Have general knowledge and legal literacy and there Distinguish the power of state and central central
13	VR19 VR19 VR19 VR19 VR19	12 12 12 12	B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information	1005191210	Workshop	CO1 CO2 CO3	Analyze the concept of hypothesis testing for large and small samples in real life situations to draw the inferences and estimate the goodness of fit.  Assemble and disassemble components of a PC  Construct a fully functional virtual machine Summarize various linux operating system commands  Secure a computer from cyber threats.  Have general knowledge and legal literacy and there Distinguish the power of state and central central governament  Summarize theelection procedure in India before
	VR19 VR19 VR19 VR19 VR19 VR19	12 12 12 12 12 12	B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information		Workshop  CONSTIT  UTION OF	CO1 CO2 CO3 CO4 CO1 CO2 CO3	Analyze the concept of hypothesis testing for large and small samples in real life situations to draw the inferences and estimate the goodness of fit.  Assemble and disassemble components of a PC  Construct a fully functional virtual machine Summarize various linux operating system commands  Secure a computer from cyber threats.  Have general knowledge and legal literacy and there Distinguish the power of state and central central governament Summarize theelection procedure in India before and after independence
	VR19 VR19 VR19 VR19 VR19 VR19 VR19	12 12 12 12 12 12 12	B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information		Workshop  CONSTIT  UTION OF	CO1 CO2 CO3 CO4 CO1 CO2 CO3 CO4	Analyze the concept of hypothesis testing for large and small samples in real life situations to draw the inferences and estimate the goodness of fit.  Assemble and disassemble components of a PC  Construct a fully functional virtual machine Summarize various linux operating system commands  Secure a computer from cyber threats.  Have general knowledge and legal literacy and there Distinguish the power of state and central central governament Summarize theelection procedure in India before and after independence  Association with the powers and functions of Municipal states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states and states are states and states and states are states and states and states are states and states and states are states and states are states and states are states and states are states and states are states and states are states and states are states and states are states and states are states are states and states are states are states and states are states are states are states are states and states are states are states are states and states are states are states and states are states are states are states are states and states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states are states ar
	VR19 VR19 VR19 VR19 VR19 VR19 VR19 VR19	12 12 12 12 12 12 12 12	B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information Technology B.Tech-Information		Workshop  CONSTIT  UTION OF	CO1 CO2 CO3 CO4 CO1 CO2 CO3	Analyze the concept of hypothesis testing for large and small samples in real life situations to draw the inferences and estimate the goodness of fit.  Assemble and disassemble components of a PC  Construct a fully functional virtual machine Summarize various linux operating system commands  Secure a computer from cyber threats.  Have general knowledge and legal literacy and there Distinguish the power of state and central central governament Summarize theelection procedure in India before and after independence

							VEO L			apply concepts of graph theory for a given
ſ	VRI	9	12	B.Tech-Information Technology	1	•		CO	4 6	roblem.
-		_		B.Tech-Information				СО	, 0	lassify different number systems and generate
l	VRI	19	12	Technology			-		- 13	rarious codes. Simplify the Boolean functions into minimum
- 1		-	1	B.Tech-Information	l					number of literals using
I	VR	19	12	Technology	1005103101		GITAL   OGIC		ĺ	s-maps, boolean laws and tabular methods.
16		-			1005192101	l .	ESIGN -	CO	2	1 VCC
	VR	10	12	B.Tech-Information		"	LBIGIT	CO	3	Design different combinational logic circuits.
	V K	17		Technology  B.Tech-Information			}		$\dashv$	Apply knowledge of flip flops in designing registers
	VR	19	12	Technology			4	CC	)4	and counters.
				B.Tech-Information				CC		Relate data structure concepts with real time
	VR	.19	12	Technology			DATA		- 1	applications.  Apply linear and non linear data structures by
	VR	:19	12	B.Tech-Information		ST	RUCTU	CC		identifying the appropriate need.
17	-			Technology B.Tech-Information	1005192120		RES			Analyze searching and sorting techniques for
	VR	119	12	Technology		T	HROUG   H C	C	J3	effective management of data
	1/0	110	12	B.Tech-Information		1	n C		^4	Design and implement operations of linear and
	VR	119		Technology		+-		<u> </u>	04	nonlinear data structures Relate the procedural programming languages with
	VE	₹19	12	B.Tech-Information Technology				C	01	object oriented paradigm
	-	_				١				Use Exception handling and multithreading
	VE	R19	12	B.Tech-Information Technology						mechanisms to create exception free and parallel
				reciniology		١,	JAVA ROGRA	C	02	real world applications Implement GUI for windows based applications
18	Г			D. W L. Info-mation	1005192121		MMING	1		with modern
	VI	R19	12	B.Tech-Information Technology		1	MINITAG	C	:03	tools
		- }		reciniology						
	-	DIO	12	B.Tech-Information	1				10.4	Design various layouts along with applet usage
	V	R19	12	Technology		+	ANAGE		04_	Analyze the Demand, Price and Cost.
	V	R19	12	B.Tech-Information Technology	1	1"	RIAL		OI	
	-			B.Tech-Information	1	E	CONOM			Identify the Nature of different markets to
۱.,	- 1	R19	12	Technology	109919210	41	CS AND		02	determine Price Output for different Business Units Understand Various Business Forms
19		'R19	12	B.Tech-Information	1 .0,,,,,,,,,	F	INANCIA	۱ (	CO3	Understand various Business Pottiis
	-			B.Tech-Information	-	1.	L ANALYS	, —		Evaluate investment project proposals
	١	/R19	12	Technology_	"[	'	S_		CO4	
$\vdash$	┥.	.D.10	12	B.Tech-Informatio	n	$\neg$			COI	Produce adequate writing skills that are needed in
		/R19	12	Technology	_	- [		-		an organization  Evaluate the core competencies to succeed in
	- 1,	/R19	12	B.Tech-Informatio	n	-1			CO2	professional and personal life
	-	<del></del>		Technology	-	١.	EMPLOY			Solve various mathematics problems by following
-	- 1,	VR 19	12	B.Tech-Information Technology	n	-	BILITY		CO3	different methods and to perform well in various
-	L			Technology	-	_	READIN			competitive exams and placement drives.  Developing new strategies in minimizing time
2	20				10201921	ן יייי	SS			consumption in problem solving Apply shortcut
-						-	PROGRA	A		methods to solve problems and confidently solve
			10	B.Tech-Information	on	- 1	M-I			any
		VR19	12	Technology	1					mathematical problems and utilize these mathematical skills both in their professional as
	1	1			1					well as personal life.
	1								CO4	
-	-			B.Tech-Informati	on				COI	Understand definition, scope, approach and theorie
	1	VR19	12	Technology				L		of public administration.  Identify the process and technique of decision
				B.Tech-Informati	on			-		making and also understand the concept of
	- 1	VR19	12	Technology					CO	
	}						PUBLI			
	21	ND 10	12	B.Tech-Informati	ion 1020192	101	ADMIN		CO	Understand the process and technique of personne
	Į	VR19	12	Technology	_		TRATIC	)N		and financial administration.  Understand definition, scope, approach and theor
1	[								c04	of public administration.
	ļ		-					 		Discuss the tools that modern public administrate
- 1		VR19	12	B.Tech-Informat	ion		1			use to pursue public goals and public policy, alon
- 1		*****	"	Technology					¢0:	with the pros and cons of those tools.
i		VR19	12	B.Tech-Informa	ion		1		CO	Students have the adequate reading and speaking skills and will be able to express himself in Frenci
ļ		VKIS	1 12	Technology			1	L		Skins and will be able to express thinsen in French

									,		ſ			Une	derstar	nd the grammar and use them in their
	_	10.75		-	В.	Tech-	Informat	tion	1	FOR	EIGN	CC		per	sonal a	and professional life. will be able to write proficiently in French.
1	VR	19	\	12	1	Tec	hnology		020192102		GUISTI C -	C	03	Stu	idents	will be able to write party
1	VE	219		12	В.		Informa hnology		,201		ENCH	-		ISU	udents	will be able to compare and contrast world
1	V F				+-		-Informa	- 1		1				cu	iture a	and it will expand his known
	1/1	R 19		12	B	Tech,	chnolog)	y I		1		10	:04	VE	rious	various social problems present in the
	\ '	1/1/					h-Inform			1		T	cot	S	urvey ' iscinit	y & develop solution in technical aspects.
	V	'R1'	9	12	\B	Tecl. Tecl	n-intorm echnolog	y				-		$T_{C}$	"COMES"	re and contrast various later.
	Ľ		+		-	- 11	Cilitora					1		- 18	ike Int	ernet of Things, 3D
	\		1		1									\.	Printin	g, Mobile App Cleation, that the chosen age development suitable for the chosen
	١,	VR:		12	1	B.Tee	ch-Inform Technolog	anamon	•	1_	Mini			- {	мео р ргојес	i.
		V 1.	`\		- 1		Dettille		101219217		roject – PICS/Sc	oci	CO	2 \		1 mortedge mathematics,
23	1		-\						10121921	et	al relev	ant			Apply	the engineering knowledge, management to develop thinking and project management to develop
	Ť		7			B.Te	ech-Infor	rmation	}	1	projec	1	CO	3	la con	munity project.
	1	VF	119	13	2	\	Technolo	ogy		1		H			Docu	ment project.  ment project to the intended community and  rze the feedback collected from community and  rze the feedback collected from community and
	1					-			1	1		- 1				rze the feedback confected from
		\ 	D 1 D	١,	2	В.Т	ech-Info	ormatioi	'	- \		- 1		24	stud	ents.
		\ \	R19	\ '	-		Techno	nogj	1					<u> </u>	Gair	a higher level of personal involving environmental
Ø	-	+		-		+				1			_	01	inte	rest in understanding and solving environmental ource problems and its sustainable conservation
1					12	В.	Tech-Inf		n l				١	ŲΙ	resc	ource problems and its successions and circles.
		1	R19	`\	12		Techno	ology	1		ENVI	RON			leur	training the relationship between the
1		-		+-		В	Tech-In	formati	on		MEN	TAL	1	02	leco	system & biodiversity.
1		1	VR1	9	12		Techn	nology	100019	2130	SCIE	NCE idit	1		En	hance knowledge relating to the blood stems involved in the major global environmental
1	24			+		E	3.Tech-lr	nformat	ion		/ / / /	ilese)	1 '	CO3	s Isy	oblems of the 21st century
8		1	VRI	9	12		Tech	nology					-		R	ecognize the interconnectedness of and Influence
		-		-		-+			_		1				de	ependence on the earth's ecosystems and seir society in proper utilization of goods and
		- {			12	1	B.Tech-I	Informa	tion		1		1	CC	tt M	err society in proper data
	1		VR	19	14	1	Tect	hnology					-	CC	14 SI	Apply the concepts of basic functional units to
	-	_					B.Tech-	Inform	ntion		- 1		1	CC	<u>ر</u> ار	lemonstrate the working of complete lemonstrate the working of the development of
	1		VE	119	12	2		hnolog	1		Co	mput	er			and other collibolities to the
						_ '	B.Tech	-Inform	ation			ganiza	tio	C		
	1			R19	1	2		chnolog ———		1922		n & chite	[			Design Arithmetic Logic unit by
	1	25					B.Tech	n-Inform	nation		- \'``	е			.03	performance issues Compare various Memory organizations.
	1	ı	\V	R19		12	Te	h-Infor	nation		1		1	,	204	Compare various
			K	 /R19		12	Т т	echnolo	gy					-		compare and contrast various software models
Ó		-					B.Tec	h-Infor	mation		- 1			Ľ	COl	compare and contrast various applied to different real world applications. evaluate the process models for the development of
7			-   1	VR19	_	12	T	echnolo	mation		- 1			1	CO2	SDLC
				VR19	T	12	B.Tec	cn-mol Fechnol	ogy			OFT	WAF		COZ	Design a prototype for a software design
		1	-		+-						- 1	i io				interface & apply strategies of coding & testing for the development
					1		B.Te	ech-Info	Af Philipper	0519	2201	ENG		Ξ \	CO3	of software product
			26	VRI	9	12		Techno	logy		1	RI	NG			have gost effect estimation
		1	1		1						1			+		Apply the knowledge about cost effect estimation and maintenance of software system and modeling
		1			+		RT	rech-Inf	ormation					1		and maintenance of software project by using CASE tools the software project by using CASE tools
		1		VR	19	12		Techn	ology			_		-	CO4	Apply the basic concepts of Langue
		1		1_	-					-						Let Languages, NPA,
			i i		1		В.	Tech-In	formation			1			CO	DFA and its conversions.
				VR	19	13	2	Techi	ology			1				Identify the similarities and differences among
			1												1	various parsing techniques
			1									1				and will be able to solve problems and FOLLOW s
			1	3				Tachel	nformation	1		1			1	reduce parsing, compute PIRS1 and 1 0 1 LR(0), LR(1) and LALR sets of items and parse
			1	$   _{V}$	R19		12	Tech	nology			A	UTC	)MA		table for a given grammar
			1			1	1					1	T	4	10	CO2
				- 4		1	1			1		1	ruer	<b>ጎ</b> ወ \$	/	

27	7	Т		101219220	n   THEORY		
	VR19	12	B.Tech-Information Technology		COMPILE R DESIGN	- [	Construct syntax directed translations of simple statements and understand the working of procedure calls and use various storage allocation schemes for the better utilization of run time memory.
	VR19	12	B.Tech-Information Technology			CO4	Construct syntax directed translations of simple statements and understand the working of procedure calls and use various storage allocation schemes for the better utilization of run time memory.
	VR19	12	B.Tech-Information Technology		DATABAS	COI	identify the basic concepts and various data model used in database design and formulate SQL querie:
28	VR19	12	B.Tech-Information Technology	1005192221	E		interpret use of normalization in designing the database.
	VR19	12	B.Tech-Information Technology		MENT SYSTEMS	202	evaluate indexing and hashing technique used in database design.
	VR19	12	B.Tech-Information Technology			CO4	apply and relate the concept of transaction, concurrency control and recovery in database.
	VR19	12	B.Tech-Information Technology			COI	Enumerate different environments to install Python IDE and run basic Python scripts.
	VR19	12	B.Tech-Information Technology		PYTHON	CO2	Ascertain use the operators, functions, key Concepts of Object Oriented Programming in python.
29	VR19	12	B.Tech-Information Technology	1012192120	PROGRA MMING	CO3	Access Python from various online resources and import packages to the current working environment.
_	VR19	12	B.Tech-Information Technology			CO4	Develop front end GUI using Visualization Libraries and Multithreading techniques.
	VR19	12	B.Tech-Information Technology			COI	: Analyze the functions of language and grammar in spoken and written forms with an emphasis on LSRW Skills.
30	VR19	12	B.Tech-Information Technology	1000192110	COMMUN ICATION SKILLS		Disseminate the relevant skills while performing GDs, interviews, oral presentations with a focus on
	VR19	12	B.Tech-Information Technology		LAB	CO2	Non verbal communication.  Prepare and exhibit oral presentation skills by
	VR19	12	B.Tech-Information Technology			CO4	using ICT.(Individual/Team) Organize proper life skills for their employability.
	VR19	12	B.Tech-Information Technology			COI	Analyze dictionary ADT along with hashing mechanisms.
31	VR19	12	B.Tech-Information Technology	1005192220	Advanced	CO2	implement priority queues and their operations.
	VR19	12	B.Tech-Information Technology	1003192220	Data Structures	CO3	Build efficient Binary Search Trees and Multiway search trees.
	VR19	12	B.Tech-Information Technology			CO4	Illustrate tries and various issues related to the design of file structures.
	VR19	12	B.Tech-Information Technology			COI	Identify stages in building a Data Warehouse and challenges in Data mining
32	VR19	12	B.Tech-Information Technology	1005193101	Data Warehousin	603	Access raw input data and apply data pre- processing techniques, generalization techniques and data characterization techniques to provide suitable input for a range of data mining algorithms
	VR19	12	B. Tech-Information Technology		g and Data - Mining	CO2	Analyze data mining techniques like classification and Association rules that can be applied to data objects and to find the interesting patterns.
		12	B.Tech-Information		-		Solve real world problems by using the various
	VR19	12	Technology	ľ	I	CO4	Clustering methods

VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-I								
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VR19   12   B.Tech-Information Technology   Content of the process of programming the process of operating systems and assess various types of operating systems and assess various types of operating systems and assess various types of operating systems and assess various types of operating systems and assess various types of operating systems and assess various types of operating systems and assess various types of operating systems and assess various types of operating systems and assess various types of operating systems and assess various types of operating systems and assess various types of operating systems and assess various types of operating systems and assess various types of operating systems and assess various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various types of operating systems and surface various properation from the various properation from the various properation from the various properation from the various properation from the various properation from the various properation from the various properation from the various		VR19	12		1012193120			Evaluate and analyze various application layer
VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19		VR19	12	B.Tech-Information		Course)		Choose and design appropriate protocol for desired
VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19							CO4	communication service.
VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-I		VR19	12	'			COI	systems and execution of system calls at each phase.
VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19	34	VR19	12		1005193102	, ~	CO2	Analyze various process scheduling and memory management techniques to develop better solutions.
VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-I		VR19	12					Formulate dead lock management, resource
VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-I		VR19	12	B.Tech-Information				perform tasks in Windows/ UNIX / Linux /Android
VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   13   B.Tech-Information   Technology   VR19   14   B.Tech-Information   Technology   VR19   15   B.Tech-Information   Technology   VR19   16   B.Tech-Information   Technology   VR19   17   B.Tech-Information   Technology   VR19   18   B.Tech-Information   Technology   VR19   19   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-Information   Technology   VR19   12   B.Tech-I		VR19	12	B.Tech-Information		Principles		
Technology   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   12   B.Tech-Information Technology   NR19   NR19   NR19   NR19   NR19   NR19   NR19   NR19   NR19   NR19   NR19   NR19   NR19   NR19   NR19   NR19   NR19   NR19   NR19   NR19   NR19								languages.
VR19   12   Technology   B.Tech-Information Technology   B.Tech-Information Technology   Databases   Technology   Technology   Databases   Technology   Databases   Technology   Databases   Technology   Databases   Technology   Databases   Technology   Databases   Technology   Databases   Databases   Technology   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Databases   Da	35	VKI9	1.2		1012193150	ng	CO2	basic statements in programming languages.
VR19   12   B.Tech-Information Technology   1012193151   NoSQL Databases   Colling a primary use case and advantages/disadvantages of each type   Colling a primary use case and advantages/disadvantages of each type   Colling a primary use case and advantages/disadvantages of each type   Colling a primary use case and advantages/disadvantages of each type   Colling a primary use case and advantages/disadvantages of each type   Colling a primary use case and advantages/disadvantages of each type   Colling a primary use case and advantages/disadvantages of each type   Colling a primary use case and advantages/disadvantages of each type   Colling a primary use case and advantages/disadvantages of each type   Colling a primary use case and advantages/disadvantages of each type   Colling a primary use case and advantages/disadvantages of each type   Colling a primary use case and advantages/disadvantages of each type   Colling a primary use case and advantages/disadvantages of each type   Colling a primary use case and advantages/disadvantages of each type   Colling a primary use case and advantages/disadvantages of each type   Colling a primary use case and advantages/disadvantages of each type   Colling a primary use case and advantages/disadvantages of each type   Colling advantages/disadvantages of each type   Colling advantages/disadvantages of each type   Colling advantages/disadvantages of each type   Colling advantages/disadvantages of each type   Colling advantages/disadvantages of each type   Colling advantages/disadvantages of each type   Colling advantages/disadvantages of each type   Colling advantages/disadvantages of each type   Colling advantages/disadvantages of each type   Colling advantages/disadvantages of each type   Colling advantages/disadvantages of each type   Colling advantages/disadvantages of each type   Colling advantages/disadvantages of each type   Colling advantages/disadvantages of each type   Colling advantages/disadvantages of each type   Colling advantages/disadvantages of each t		VR19	12	Technology			CO3	Analyze to understand the sub programs and implementation of Object oriented concepts
VR19   12   B.Tech-Information Technology   12   B.Tech-Information Technology   1012193151   1012193151   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   V		VR19	12			al Elective-	CO4	Identify the ways of adapt new programming
VR19   12   Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   13   B.Tech-Information Technolo		VID IO				1)		Classify NoSQL, its characteristics and history, and
VR19   12   B.Tech-Information Technology   Technology		VR19	12				COI	the primary benefits for using NoSQL databases
VR19   12   B.Tech-Information Technology   Technology   Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   13   B.Tech-Information Technology   VR19   14   B.Tech-Information Technology   VR19   15   B.Tech-Information Technology   VR19   16   B.Tech-Information Technology   VR19   17   B.Tech-Information Technology   VR19   18   B.Tech-Information Technology   VR19   19   B.Tech-Information Technology   VR19   10   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   13   B.Tech-Information Technology   VR19   14   B.Tech-Information Technology   VR19   15   B.Tech-Information Technol		VR19	12			Databases		Characterize the major types of NoSQL databases including a primary use case and
VR19   12   Technology   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Detection   Det	36				1012193151	I .	CO2	advantages/disadvantages of each type
VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Techn		VR19	12				CO3	and object-oriented databases, add content, and run
VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-I		VR19	12				CO4	Outline and develop basic storage architecture and distributed file systems
VR19   12   Technology   1012193152   Profession al Elective-   1		VR19	12			R-	COI	Familiarize with R workspace and Programming
VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Inf	37	VR19	12		1012102152		CO2	Access online resources for R and import new function packages into the R workspace
VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Inf	,	VR19	12	1	1012193132	al Elective-		Apply math functions to calculate probability and statistical distributions and knowledge on Graphics
VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Techn						(1)		
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VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Techn	-	VR19	12			Advanced		classification techniques for data analysis analyze concepts of parallelism in
VR19 12 Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tec								hardware/software.
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VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Inf		VR19	12				CO4	Analyze the performance of different scalar
VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology CO1 Summarize robot components, configurations and		VR19	12	B.Tech-Information		AL		Distinguish between the quality of domestic and
VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology (Open CO4 treatment plant VR19 12 B.Tech-Information Technology (Open CO4 treatment plant Summarize robot components, configurations and	40	VR19	12	B.Tech-Information				quantity generation
VR19 12 Technology ENGINEE RING Explain operational problems of common effluent CO4 treatment plant  VR19 12 B.Tech-Information VR19 12 B.Tech-Information CO4 treatment plant  VR19 12 B.Tech-Information CO4 treatment plant  VR19 12 B.Tech-Information CO4 treatment plant	39				1001193161			methods for industrial wastewater.
VR19 12 Technology (Open CO4 treatment plant  VR19 12 B.Tech-Information CO1 Summarize robot components, configurations and		VR19	12	Technology		ENGINEE	CO3	different industries
VR19 12 B.Tech-Information CO1 Summarize robot components, configurations and		VR19	12				CO4	
		VR19	12	B.Tech-Information		, Open		Summarize robot components, configurations and

	VR19		12	Teci	information hnology -Information	1003193161	ROB (O	ISTRI L OTIC S open ctive)	CO2	th so s; p	e working ensors the ystem the rogramme Analyze	obot for a given application and illustrate ng principles of various actuators and nat can be used in the manipulator, control nat can be used as well as the method of ming the robot a given serial manipulator kinematically amically
	VR1	+	12	Tec B.Tech	chnology n-Information				СО		Derive a that the boundar	end-effector should follow given the cy conditions
		1		1	h-information		+	)ATA	co			k topology models
	VR	19	12	T-	echnology h-Information	_	co	MMUI ATION		)2	Illustra	te the concept of data framing and error mechanisms
41	-	19	12	B.Te	echnology ch-Informatio	10041931	61	(Open (lective)	CC		l .	are different types routing protocols
	-	Ri9	12	B.Te	rechnology ch-Informatio	n l	1	,iccuro,		04	Famili	ar with the World Wide Web concept
_	V	R19	12		Technology ch-Informatic	าก		Energy	C	01	Demo	ze power factor improvement methods, and onstrate the operating principle of energy
	V	R19	12		Technology	_]	c	Audit onserva n and	itio		Demo	ent motors onstrate principle and organizing energy agement program
	- 1	VR19 12 Tech		Technology	1002193	3151 N	n ano ⁄Ianage nt	me -	:02 :03	Appl	y principles of energy auditing and proper-	
ľ	12	VR19	12		Technology  Tech-Informat			(Ope	n ve)		analy meth	yse about space heating and ventuation of various mods and demonstrate the operation of various
1		VR19			Technology Tech-Informa			Profess		CO4 CO		gy instruments ate ethical human values
		VR1	) 13	2	Technology Tech-Informa		1	l Ethic Hun	:s &	co	An	ply engineering knowledge for society
1	43	VRI	9 1	2	Technology Tech-Informa	109919	93130	Valı (Au	1	CC	3 Ela	aborate responsibility for safety & risk
		VRI	9 1	2	Technology Tech-Inform	<u>/</u>		Соц	rse)	C	)4 OI	utline the various current global issues
2		VR.		12	Technolog  3.Tech-Inform	у		Adv	anced		CI	reate web-based applications using features of TML and CSS.
		VR		12	Technolog B.Tech-Inform	nation	] ]		Web	С	O2 Ir	TML and CSS. evelop reusable component for Graphical User evelop reusable component for Graphical User evelop reusable component for Graphical User
	44	VR	19	12	Technolog B.Tech-Infort	nation 1012	193220	1	es egrated			nterface applications apply the concepts of server side technologies for ynamic web applications.  Implement the web based applications using a point sich client.
		-			B.Tech-Infor	mation		Co	ourse)	,	-04 li	effective data base access with first chemi-
	_	VI	219		Technolo B.Tech-Infor	mation			nified odeling	-	coı	Illustrate software design with UML diagrams
	1	-	R19	12	Technolog B.Tech-Infor	ogy rmation		La	nguage Design	T	CO2	Design software applications using OO concepts
	4	5 -	R19	12	Technol B.Tech-info	rmation	121932	21 P	atterns ltegrated	Г	CO3	Identify various scenarios based on software requirements Apply UML based software design into pattern
		-	R19	12	B.Tech-Info	rmation			Course)	Γ	1	hnsed design using design patterns
	-	-+-	/R19	12	B.Tech-Info	ormation   ology				1		Summarize Preduction process, Quality control
		-	VR 19	12	B.Tech-Inf	ormation Cology Co	ourse C 099192		lanagen it Scienc		CO2	and Inventory techniques  Indentify Strategies and policies to functional ar
		46  -	VR19	12	B.Tech-Inf Techn B.Tech-In	ology	, KI KKU	.200		-	CO3	Apply Contemporary management Practices
			VR19	12	Techn			-		1	CO4	tradestand and assess the environmental impact
			VR19	12	Techi	nology nformation			MENTA	AL.	CO2	Implement different methods in
	1	- 1	VR19	12	Tech	nology	100119	2251	IMPAG ASSES	SM.	CO2	Identify various mitigation measures that

					_		
			B.Tech-Information		MANAGE		Identify the methodology for controlling of
	VR19	12	Technology		MENT	CO4	environmental impacts, environmental indices and
			B.Tech-Information			CO4	indicators Apply the principles and practices of cryptography
	VRI9	12	Technology			CO1	and network security
ŀ							Analyze the concepts of symmetric block cipher or
ļ	VR19	12	B.Tech-Information		1		conventional key encryption or private key
			Technology			CO2	encryption or one key encryption.
					Applied		Execute basic knowledge of public key
48	VR19	12	B.Tech-Information	1012194100	Cryptograp	CO3	cryptography or asymmetric key cryptography or
70	*****	12	Technology	1012194100	hy	COS	two key cryptography.
					· ",		
	ł				l .		Implement cryptographic protocols, hash functions,
1	VR19	12	B.Tech-Information				authentication, key management, key exchange,
	VKI	12	Technology				signature, schemes Email and web security, viruses, firewalls
					i l	CO4	Ittewatis
			B.Tech-Information				Appraise the importance of data and choose an
	VR19	12	Technology			COI	appropriate algorithm to create a models
	VR19	12	B.Tech-Information		Machine		Characterize machine learning algorithms as
49	VK19	12	Technology	1005194120	Learning	CO2	supervised, semi-supervised, and Unsupervi
47	VR19	12	B.Tech-Information	1003194120	(Integrated	CO3	Relate various machine learning and deep learning
	VKI	12	Technology		Course)		algorithms with real world application
	VR 19	12	B.Tech-Information				Analyze how to evaluate models build from the
			Technology			CO4	sample datasets on web
	VR19	12	B.Tech-Information			CO1	Relate different aspects of BigData in accordance
			Technology	-	l }		with various big data applications
	VR19	12	B.Tech-Information				Catergorize various dimensions of
50	4815	12	Technology	1005194100	Big Data	CO2	BigData (5V's) and its sources in real time
30			B.Tech-Information		Analytics		Make use of recent tools related to Hadoop, Spark
	VR19	12	Technology	i	1 1	CO3	and MapReduce etc
	UDIO		B.Tech-Information	1	l t		Analyze the different aspects of cluster computing
L	VR19	12	Technology			CO4	with real world applications
	VR19	12	B.Tech-Information			CO1	Reproduce models to effectively test the
	VKIF	12	Technology	]	Software	COI	applications.
	VRI9	12	B.Tech-Information		Testing		Apply techniques of transaction flow testing and
51			Technology	1012194150	(Profession	CO2	dataflow testing in various programs
1	VR19	12	B.Tech-Information	1	al Elective-	CO3	Test the software using domain testing and Logic
			B.Tech-Information	-{	III)		Apply various software testing tools for real world
l	VR19	12	Technology			CO4	applications
-			B.Tech-Information	<del>                                     </del>	1		choose appropriate techniques to Store data in the
	VR19	12	Technology			COI	files
			1	1			Apply and analyze various terms related to
	VR19	12	B.Tech-Information	1	Advanced		transaction management in centralized and
			Technology		Databases	CO2	distributed database
52	VR19	12	B.Tech-Information	1005193254	(Profession	CO3	Examine the issues related to multimedia and
	11(1)	1-	Technology	_	al Elective-		mobile database performance
			D = 1 + 6 + 1	1	III)		Analyze and Implement the concept of object-
	VR19	12	B.Tech-Information				relational database in
			Technology			CO4	development of various real time software
	<del>                                     </del>	-	B.Tech-Information				Choose appropriate methods in AI that may be
	VR19	12	Technology			CO1	suited to solve a given problem and Game Playing
			B.Tech-Information	1	Artificial		Make use of AI search algorithms and
1	VR19	12	Technology		Intelligence	CO2	formalizations on real world problems
53			B.Tech-Information	1005193251	(Profession		Analyze the basic issues of different types of
	VR19	12		1	al Elective-	CO3	knowledge representation techniques to build
			Technology		III)		intelligent system
	VR19	12	B.Tech-Information				Apply probabilistic and fuzzy models to solve
<u></u>	1 119	12	Technology			CO4	problems with uncertainty.
	VR19	12	B.Tech-Information			CO1	Analyze, design and develop new mobile
			Technology	-			application.
			B.Tech-Information		Mobile		Apply various techniques that take new technical
	VR19	12	Technology		Computing		issue related to a new paradigm and come up with a
54		-		1012194151	(Profession al Elective-	CO2	Solution(s).
	VR19	12	B.Tech-Information	'	III)	CO3	Create a new ad hoc network applications and/or
1		1	Technology	_	1 111)		algorithms/protocols.

VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   12   B.Tech-Information Technology   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19   VR19	1			In must be a	1			
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VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Inf	1 00	Unio	10		1001194160			
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VR19 t2 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information Technology VR19 12 B.Tech-Information		1 1 1 7	12			Class 1	COI	
VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Design and develop the backup strategies for cloud		VRIO	F2.	I I				analyse cloud services extended by various cloud
VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Technology  VR19 12 B.Tech-Information Design and develop the backup strategies for cloud	61						CO2	providers to build a cloud
VR19 12 B.Tech-Information V) and its software environments  Design and develop the backup strategies for cloud	-	VR19	12					
VR19 12 B.Tech-Information Design and develop the backup strategies for cloud							CO3	and its software environments
CO4 data by prideting the future risks		VR19	12			* /		Design and develop the backup strategies for cloud
	Ц.,			Technology			CO4	data by pridcting the future risks

	VR19	12	B.Tech-Information Technology		Natural Language	COI	elucidate the parametric and linear models of classification in domain specific applications
62	VR19	12	B.Tech-Information Technology		Processing (Profession	CO2	Compare and parameterize different learning algorithms in NLP applications  Develop machine independent and unsupervised
	VR19	12	B.Tech-Information Technology		al Elective- V)	CO3	learning techniques.
	VR19	12	B.Tech-Information Technology			CO4	Apply pattern recognition techniques to real world problems such as documentation analysis and recognition
	VR19	12	B.Tech-Information Technology		Ad-hoc Sensor	COI	minimise and deploy the challenges in designing MAC, routing and transport protocols for wireless ad-hoc/sensor networks
63	VR19	12	B.Tech-Information Technology	1012194250	Networks (Profession al Elective-	CO2	Comprehend the various sensor network Platforms, tools and applications.
	VR19	12	B.Tech-Information Technology		V)	CO3	resolve the unique issues in ad-hoc/sensor networks
	VR19	12	B.Tech-Information Technology			CO4	Implement designing routing and transport protocols for wireless Ad-hoc/sensor networks.
)	VRIS	12	B.Tech-Information Technology			COI	Illustrate the basic elements and concepts related to distributed system technologies
	VR19	12	B.Tech-Information Technology	]	Distributed Systems	CO2	List the characteristics of distributed systems for designing architectural models
6	4 VRIS	12	B.Tech-Information Technology		(Profession	1 (1)3	Enumerate the features and applications of important standard protocols which are used in the
	VRI	12	B.Tech-Information Technology		V)	CO4	Interpret inter-process communication in a distributed system



PRINCIPAL
VIGNAN'S INSTITUTE OF
Information Technology (A)
Beside: VSEZ, Duvvada, Visakhapatnam-49

## VIGNAN'S INSTITUE OF INFORMATION TECHNOLOGY (A) DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING COURSE OUTCOMES

	Regula	Program			Course		Course Outcome: After the completion of
S.No		me Code	Programme Name	Course Code	Name	CO	the course student will be able to
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Execute mean value theorems and evaluate maxima and minima of functions of two variables without constraints.
. 1	VR19	02	B.Tech-Electrical and Electronics Engineering	1000191100	Mathematic	CO2	Apply the analytical methods to solve higher order linear differential equations.
•	VR19	02	B.Tech-Electrical and Electronics Engineering		s-I	CO3	Evaluate and solve initial and boundary value problems arising in engineering stream.
,	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Identify and solve ordinary differential equations using Laplace transforms
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO1	Understand basic knowledge of crystal structures to characterize the materials using X-ray diffraction techniques.
2	VR19	.02	B.Tech-Electrical and Electronics Engineering	1000191122	SOLID STATE	CO2	Interpret the magnetic and electrical properties of materials.
	VR19	02	B.Tech-Electrical and Electronics Engineering	1000171122	PHYSICS	CO3	Analyzethe important properties of superconductors and their utilization in different engineering applications.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Analyze energy bands in crystalline solids to understand semiconductor physics.
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Solve approximate roots of an equation by using different numerical methods.
1	VR19	02	B.Tech-Electrical and Electronics Engineering	1000191101	МАТНЕМ	CO2	Compute interpolating polynomial for a given data
	VR19	02	B.Tech-Electrical and Electronics Engineering		ATICS – II		To understand different numerical methods to solve integrations and ordinary differential equations.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Solve the system of Linear equations using rank of a matrix and also Eigen values and Eigen vectors of a square matrix
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Analyze the force systems for equilibrium conditions and able to draw free body diagram.
	VR19	02	B.Tech-Electrical and Electronics Engineering		ENGINEE	R CO2	
4	VR19	02	B.Tech-Electrical and Electronics Engineering	1003191100	ING MECHAN CS	I CO3	Able to differentiate between centroid and centre of gravity and determine Centroid, centre of gravity and second moment of area for composite sections.
	VR19	02	B.Tech-Electrical and Electronics Engineering			C04	Analyse the motion and calculate trajectory characteristics.

			B.Tech-Electrical				Interpret fundamentals of computers and
	VR19	02	and Electronics			COI	convert flowcharts/algorithms to C Programs,
			Engineering				compile and debug programs
			B.Tech-Electrical		PROBLEM		
	VR19	02	and Electronics		SOLVING		Apply decision making and Iterative feature
5			Engineering	1005191120	AND	CO2	of C Programming language effectively.
			B.Tech-Electrical	1003191120	PROGRAM		
	VR19	02	and Electronics		MING	CO3	Design and implement programs to analyze
			Engineering		USING C		the different pointer applications
			B.Tech-Electrical	'	DSINGC		Apply structures and unions and Implement
1	VR19	02	and Electronics				file Operations in C programming for any
			Engineering			CO4	given problem
			B.Tech-Electrical				Have general knowledge and legal literacy
	VR19	02	and Electronics			COI	and thereby to take up
			Engineering			001	competitiveexaminations
			B.Tech-Electrical			1	competitive examinations
	VR19	02	and Electronics				Understand state and central policies,
	''''	02	Engineering		CONSTITU	CO2	fundamental duties.
6			B.Tech-Electrical	1000191130	TION OF	COZ	tundamentar duties.
	VR19	02	and Electronics		INDIA	COI	Hadana (18) a 18
	VKIS	02				CO3	Understand Electoral Process, special
-			Engineering				provisions.
	1,0010	0.0	B.Tech-Electrical				
	VR19	02	and Electronics		<u> </u>		Assess the powers and functions of
<u> </u>			Engineering			CO4	Municipalities, Panchayats and Cooperative
			B.Tech-Electrical				
	VR19	02	and Electronics			COI	Learn new skills
			Engineering				
			B.Tech-Electrical		Extra-		
	VR19	02	and Electronics		Curricular		Boost academic performance
7			Engineering	1000191131	Activity	CO2	
'			B.Tech-Electrical	1000191131	(Audit		
	VR19	02	and Electronics		Course)	CO3	Broader social skills
			Engineering		Course)		
			B.Tech-Electrical	1			
	VR19	02	and Electronics				Improve time management
			Engineering			CO4	
			B.Tech-Electrical				
	VR19	02	and Electronics			COL	Formulate any period function in terms of
-			Engineering				sine and cosine
			B.Tech-Electrical	1			and and and and and and and and and and
	VR19	02	and Electronics				Simplify a non periodic function as integral
	''''	02	Engineering		Transforms	CO2	representation
8			B.Tech-Electrical	1000191200	and Vector	- 02	
	VR19	02	and Electronics		Calculus	000	Apply multiple integration techniques in
	AVIA	02				CO3	evaluating areas and volume bounded by
			Engineering	4			region.
	[ ,,,,,	0.0	B.Tech-Electrical		ļ		Apply Green's, Gauss and Stokes theorem as
	VR19	02	and Electronics				the generalisation of fundamental theorem of
<u> </u>			Engineering		ļ	CO4	integral calculus.
			B.Tech-Electrical				
	VR19	02	and Electronics			COI	Identification of different polymers and their
			Engineering	]			functionalities
			D Took Classical				Determination of structure to many
	VDIO	02	B.Tech-Electrical				compounds and apply the basic knowledge
	VR19	02	and Electronics		A P.P		in construction of cell and its applications
			Engineering	100010111	APPLIED	CO2	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s
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7			B.Tech-Electrical	1000191125	C1112141131		
	VR19	02	and Electronics Engineering		RY	CO3	Analysis of corrosive environments and protection of precious metal
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Adoption of different green methodologies and acquire knowledge on different advanced materials
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Determine hardness and alkalinity of water.
10	VR19	02	B.Tech-Electrical and Electronics Engineering		Applied	CO2	Determine the concentration of acids.
	VR19	02	B.Tech-Electrical and Electronics Engineering		Chemistry - Laboratory	CO3	Compute the iron (II) by using solutions
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Construct a galvanic cell
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO1	Solve various Electrical networks in the presence of active and passive ELEMENTS
	VR19	02	B.Tech-Electrical and Electronics Engineering		ELECTRIC AL	CO2	Analyse Electrical networks with various Network theorems for Deexcitation
11	VR19	02	B.Tech-Electrical and Electronics Engineering	1002191221	CIRCUIT ANALYSIS I	CO3	Illustrate R, L, C networks and solve various networks with ACCO3 excitation along with theorems and Resonance concept
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Compare Electric and Magnetic Circuits and solve Magnetic circuits ALONG WITH DOT CONVENTION
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO1	Understand the use of drawing instruments to construct the polygons and curves
12	VR19	02	B.Tech-Electrical and Electronics Engineering	1003191101	ENGINEER ING	CO2	Learn the principle of orthographic projections. Draw Orthographic projections of points, lines.
	VR19	02	B.Tech-Electrical and Electronics Engineering		DRAWING	CO3	Draw the various types of planes and solids its views in different Positions
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Draw isometric views of simple objects
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Read, understand and interpret material on Environment, Science and CO1 Technology, tourism, Energy Sources, Social Awareness
13	VR19	02	B.Tech-Electrical and Electronics Engineering	1000191121	TECHNIC AL ENGLISH	CO2	CO2 Analyze the functions of language and grammar in spoken and written forms.
	VR19	02	B.Tech-Electrical and Electronics Engineering		COMMUNI CATION	CO3	Write effectively on various domains

1				,			
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Prepare and exhibit oral presentation skills by
	VR19	02	B.Tech-Electrical and Electronics Engineering		8	COI	Understand different operations: Fitting, smithy, carpentry and Electrical wiring.
	VR19	02	B.Tech-Electrical and Electronics Engineering		ENGINEER	CO2	Perform the fitting and carpentry operations.
14	VR19	02	B.Tech-Electrical and Electronics Engineering	1003191210	ING WORKSH OP	CO3	Develop simple objects like funnel, elbow etc. using sheet metal.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Apply basic electrical engineering knowledge for house wiring practice like stair case wiring, series and parallel connections
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO1	CO1 Realize the purpose/Role of Engineer for solving social problems.
15	VR19	02	B.Tech-Electrical and Electronics Engineering	1000101110	Engineering	CO2	Design engineering way, a component/system in an
"	VR19	02	B.Tech-Electrical and Electronics Engineering	1000191110	Exploration	CO3	Implement mechanisms, Arduino, sensors, motors
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Design prototype machine using Arduino Uno board.
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Distinguish between various types of signals and systems.
16	VR19	02	B.Tech-Electrical and Electronics Engineering	1002192100	Fundamenta	CO2	Understand the conversion of continuous time signals to discrete time signals and vice versa.
	VR19	02	B.Tech-Electrical and Electronics Engineering	1002192100	Is of signals and systems	CO3	Interpret continuous time LTI systems
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Analyze discrete time LTI systems
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Understand the working principle and construction of DC machine and Transformers
17	VR19	02	B.Tech-Electrical and Electronics Engineering	1002192120	ELECTRIC AL MACHINE	CO2	Examine the characteristics and Testing methods of DC Machines and Transformers
	VR19	02	B.Tech-Electrical and Electronics Engineering		S-I	CO3	Illustrate speed control methods of DC Motors and study the losses in DC Machines and Transformers
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Develop Phasor diagrams for Transformer with different load conditions

	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Calculate electric field from various charge distributions and find magnetic field from various current distributions.
18	VR19	02	B.Tech-Electrical and Electronics Engineering	1002192101	ELECTRO MAGNETI C FIELDS	CO2	Understand polarization in dielectrics, electric current density, and resistance of conductors and also Calculate force in electric and magnetic fields and torque in magnetic fields.
	VR19	02	B.Tech-Electrical and Electronics Engineering		CREEDS	CO3	Determine inductance, capacitance of different physical configurations.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Apply Faraday's Law to calculate induced Emf and understand the effect of Electromagnetic radiation.
0	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Distinguish the characteristics of different diodes and choose appropriate diode for an application based on the operation
19	VR19	02	B.Tech-Electrical and Electronics Engineering	1004192122	BASIC ELECTRO NIC	CO2	Explain the operation and design aspects of rectifiers, and filter.
	VR19	02	B.Tech-Electrical and Electronics Engineering	1004192122	AND CIRCUITS	CO3	Design different biasing and stabilization circuits and explain compensation techniques for a transistor.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Analyze positive and negative feedback and the role of feedback in oscillators and amplifiers.
!	VR19	02	B.Tech-Electrical and Electronics Engineering			CO1	Analyze the functions of language and grammar in spoken and written forms with an emphasis on LSRW Skills.
20	VR19	02	B.Tech-Electrical and Electronics Engineering	1000192110	COMMUNI CATION	CO2	Disseminate the relevant skills while performing GDs, interviews, oral presentations with a focus on Non verbal communication.
	VR19	02	B.Tech-Electrical and Electronics Engineering		SKILLS LAB	CO3	CO3 Prepare and exhibit oral presentation skills by using ICT.(Individual/Team)
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Organize proper life skills for their employability.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO1	Understand the measurement of three-phase power under balanced and unbalanced load condition.
21	VR19	02	B.Tech-Electrical and Electronics Engineering	1002192102	ELECTRIC AL CIRCUIT	CO2	Analyze transient response of the electrical networks with DC and AC excitation.
	VR19	02	B.Tech-Electrical and Electronics Engineering		ANALYSIS II	CO3	Determine the two port network parameters for different types of electrical networks.

	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Realize the electrical equivalent network for a given network transfer functions
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Understand the construction and operation of induction motors and synchronous machines
	VR19	02	B.Tech-Electrical and Electronics Engineering		Electrical	CO2	Interpret the torque producing mechanism and testing methods of induction motors and regulation of synchronous machines
22	VR19	02	B.Tech-Electrical and Electronics Engineering	1002192220	Machines-II	CO3	Analyze various starting methods, phasor diagrams and equivalent circuit of induction motors and synchronous machines
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Evaluate the performance of induction motors and synchronous machines in real time applications
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Understand the concept of wave shaping circuits, switching characteristics of diode and transistor, PLL and Timer, the Logic gates and minimization of logic functions.
23	VR19	02	B.Tech-Electrical and Electronics Engineering	1004192203	ANALOG ELECTRO	CO2	Apply the knowledge of operational amplifiers with linear integrated circuits
	VR19	02	B.Tech-Electrical and Electronics Engineering		NICS	CO3	Analyze the active filters using op-amp and Boolean Alzebra expression
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Design circuits using operational amplifiers for various applications.
į	VR19	02	B.Tech-Electrical and Electronics Engineering		POWER	CO1	Understand the layout of Thermal, Wind, Hydro, Nuclear, Solar, Gas, Geothermal and OTEC power stations.
24	VR19	02	B.Tech-Electrical and Electronics Engineering	1002192201	GENERATI ON ENGINEER	CO2	Examine the operation of power plants and Fuel cells.
24	VR19	02	B.Tech-Electrical and Electronics Engineering	1002192201	ING AND ECONOMI CS	CO3	Compare and contrast the energy scenario and tariffs in India and the World.
	VR19	02	B.Tech-Electrical and Electronics Engineering		CS	CO4	Design a PV system for given load specifications.
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Derive the transfer function and state space models for electrical, mechanical and electro-mech systems
25	VR19	02	B.Tech-Electrical and Electronics Engineering	1002192221	CONTROL SYSTEMS		Analyze the Transient & Steady State Performance of a different system.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO3	Determine the stability of different Linear Time invariant systems.

				1	г		In
			B.Tech-Electrical				Design lag,lead and lag-lead compensators
	VR19	02	and Electronics	İ	i		for different systems to improve system
			Engineering			CO4	performance.
			B.Tech-Electrical		1		Illustrate basic insights of management
İ	VR19	02	and Electronics		1	CO1	principles
			Engineering	į			
			B.Tech-Electrical	j			Summarize Production process, Quality
	VR19	02	and Electronics		MANAGE		control and Inventory techniques
26			Engineering	1099192200	MENT	CO2	
			B.Tech-Electrical		SCIENCE		Apply Strategies and policies to functional
	VR19	02	and Electronics		ļ	CO3	areas
			Engineering	İ	].		
			B.Tech-Electrical				AnalyzeContemporary management
	VR19	02	and Electronics		·		Practices
<b></b>			Engineering			CO4	
							Gain a higher level of personal involvement
			B.Tech-Electrical		i		and interest in understanding and
	VR19	02	and Electronics			COI	solving environmental resource problems and
1		-	Engineering	•			its sustainable conservation practices.
400							
					ENVIRON		
1 1			B.Tech-Electrical		MENTAL		Overall understanding of the relationship
	VR19	02	and Electronics		Science		between man and ecosystem & biodiversity
27			Engineering	1000192130	(Audit	CO2	
			B.Tech-Electrical	'	Course)		Demonstrate knowledge relating to the
	VR19	02	and Electronics			CO3	biological systems involved in the major
			Engineering				global environmental problems of the 21st
					[		century
'	lli		B.Tech-Electrical				Recognize the interconnectedness of human
	VR19	02	and Electronics		ļ		dependence on the earth's ecosystems and
			Engineering	!		-	Influence their society in proper utilization of
<u> </u>			D. Trock Floor Cont			CO4	goods and services.
	VD 10	02	B.Tech-Electrical			CO.	Acquire adequate writing skills that are
	VR19	02	and Electronics			CO1	needed in an organization
			Engineering B.Tech-Electrical	-		<u> </u>	I Indominad the same approximate to suggest
	VR19	02	and Electronics				Understand the core competencies to succeed in professional and personal life
	VKIS	02			Employabili	CO2	in professional and personal me
			Engineering	1	Employabili	CO2	Solve various Basic Mathematics problems
1			B.Tech-Electrical		ty Readiness		by following different methods and to
28	VR19	02	and Electronics	1020192100	Program-I	CO3	perform well in various competitive exams
20			Engineering	1020192100	_	1	and placement drives.
				1	(Open Elective-1)	-	Implement strategies in minimizing time
					Licetive-1)		consumption in problem solving Apply
			B.Tech-Electrical				shortcut methods to solve problems and
	VR19	02	and Electronics				confidently solve any mathematical problems
	AKIA	02					and utilize these mathematical skills both in
			Engineering	1			their professional as well as personal life.
						CO4	men professional as well as personal me.
			B.Tech-Electrical			1 004	Students will be able to understand
	VR19	02	and Electronics			COI	definition, scope, approach and theories of
	1 4113	02	Engineering				public administration.
1			Linginiceting	_	I		Provide administration.

	VR19	02	B.Tech-Electrical and Electronics Engineering			CO2_	Students will be able to identify the process and technique of decision making and also understand the concept of administrative behaviour and control.  Students will be able tounderstand the
	VR19	02	and Electronics Engineering		PUBLIC	CO3	process and technique of personnel and financial administration.
29				1020192101	ADMINIST RATION	C05	Students will be able to understand and explain the major administrative techniques and values that public administration has and illustrate how those affect the work of government and also understand the process of administrative improvement.
•	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Students will be able to Discuss the tools that modern public administrators use to pursue public goals and public policy, along with the pros and cons of those tools.
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Students have the adequate reading and speaking skills and will be able to express himself in French.
30	VR19	02	B.Tech-Electrical and Electronics Engineering	1020192102	Foreign Linguistic -	CO2	Understand the grammar and use them in their personal and professional life.
	VR19	02	B.Tech-Electrical and Electronics Engineering		FRENCH	CO3	Students will be able to write proficiently in French.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Studentswill be able to compare and contrast world culture and it will expand his knowledge about various culture.
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Create an Industrial environment and culture within the institution.
31	VR19	02	B.Tech-Electrical and Electronics Engineering	1002192170	Mini Project – I EPICS/Soci	CO2	Provide students hands on experience on, troubleshooting, maintenance, fabrication, innovation, record keeping, documentation etc thereby enhancing the skill and competency part of technical education.
:	VR19	02	B.Tech-Electrical and Electronics Engineering		etal relevant project	CO3	Inculcate innovative thinking and thereby preparing students for main project.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Set up self-maintenance cell within departments to ensure optimal usage of infrastructure facilities.

() -							
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO1	Compute inductance/capacitance of transmission lines and to understand the concepts of GMD/GMR.
32	VR19	02	B.Tech-Electrical and Electronics Engineering	1002193100	Power transmissio	CO2	Analyze the performance of short, medium and long transmission lines.
	VR19	02	B.Tech-Electrical and Electronics Engineering		engineering	CO3	Summarize various factors related to charged transmission lines and underground cables.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Estimate sag/tension of transmission lines, performance of line insulators.
	VR19	02	B.Tech-Electrical and Electronics Engineering		ELECTRIC AL	COI	Describe the working principle and constructional features of different types of analog and digital measuring instrument for measurement of voltage, current, resistance, power, power factor, energy and magnetic measurements and various physical Quantities.
33	VR19	02	B.Tech-Electrical and Electronics	1002193120	MEASURE MENTS AND	CO2	Calibrate energy meter by suitable methods.
	VR19	02	Engineering  B.Tech-Electrical and Electronics Engineering		INSTRUM ENTATIO N	CO2	Select suitable bridge for measurement of electrical parameters.
	VR19	02	B.Tech-Electrical and Electronics Engineering			G04	Measure voltage, current, resistance by using potentiometer and frequency and phase difference between signals using CRO.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Understand the static and dynamic characteristics of various power semiconductor devices
	VR19	02	B.Tech-Electrical and Electronics Engineering	1	POWER	CO2	Interpret the operation of single phase and three phase rectifiers.
-5 <del>4</del>	VR19	02	B.Tech-Electrical and Electronics Engineering	1002193121	NICS	CO3	Analyzethe operation of different types of DC-DC converters.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Evaluate the performace of different types of AC-AC converters
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Understand the Number Systems and their conversions and Describe about Logic Gates and logic families.
25	VR19	02	B.Tech-Electrical and Electronics Engineering	1004193102	DIGITAL	1 ((())	Apply minimization techniques (boolean algebra and K-maps) to minimize logic expressions.
35	VR19	02	B.Tech-Electrical and Electronics Engineering	1004193102	NICS	CO3	Analyze Combinational Logic Circuits and Sequential logic circuits.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Design Combinational Logic Circuits and Sequential logic circuits.

	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Understand the modelling of digital control Systems in frequency domain and time domain.
36	VR19	02	B.Tech-Electrical and Electronics Engineering	1002193150	DIGITAL CONTROL	CO2	Realize the z-transformations and their role in the mathematical analysis of different systems
	VR19	02	B.Tech-Electrical and Electronics Engineering		SYSTEMS -	CO3	Analyse stability of the Linear Discrete systems
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Design the state feedback controller for Linear Discrete systems
0.000	VR19	02	B.Tech-Electrical and Electronics Engineering		ENERGY	COI	Understand principles of energy auditing, Energy management programme, purpose of energy conservation schemes and the operation of various energy instruments
37	VR19	02	B.Tech-Electrical and Electronics Engineering	1002193151	AUDIT CONSERV ATION	CO2	Identify different space heating and ventilation methods
	VR19	02	B.Tech-Electrical and Electronics Engineering		AND MANAGE MENT	CO3	Solve and conclude the economic aspects of energy consumption
	VR19	02	B.Tech-Electrical and Electronics Engineering	:			Analyze power factor improvement methods and Distinguish the operating principle constructional features of energy efficient motors
	VR19	02	B.Tech-Electrical and Electronics Engineering		:	CO4	Understand the performance and principle of operation of stepper motor ,Switch d reluctance motor,PMDC,PM Materials and BLDC motors
0	VR19	02	B.Tech-Electrical and Electronics Engineering	1002193152	SPECIAL ELECTRIC AL	CO2	Implement different control and switching circuits for stepper motor,SRM,BLDC motors
	VR19	02	B.Tech-Electrical and Electronics Engineering		MACHINE S	CO3	Analyse the theory of travelling magnetic field and identify the applications of linear motors in electric traction
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Design the constructional features of Switched reluctance motor
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Understand operators, conditionals, functions,data structures and OOPs concepts of python.
	VR19	02	B.Tech-Electrical and Electronics Engineering		FUNDAME	CO2	Install Python IDE and run python scripts.
39	VR19	02	B.Tech-Electrical and Electronics Engineering	1012193161	NTALS OF PYTHON PROGRAM MING		Import packages and handle Exceptions, files in Python.

	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Develop programs using Numpy, Pandas, Matplotlib Libraries in Python.
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Identification of different sensors, transducers, signal conditioning techniques
40	VR19	02	B.Tech-Electrical and Electronics Engineering	1003193162	MECHATR	CO2	Understanding and designing mechatronic motion logic control system and the key elements in its design
,,,	VR19	02	B.Tech-Electrical and Electronics Engineering	1003193102	ONICS	CO3	Develop a PLC programming techniques with Microprocessor, ladder diagram for different logic Gates
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Design and Implementation of Micro Mechatronics System
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Design, simulate and realize different digital filters.
41	VR19	02	B.Tech-Electrical and Electronics Engineering	1004193160	SIGNAL PROCESSI	CO2	Estimate the spectra of signals that are to be processed by discrete time system and to verify the performance of various spectrum estimation techniques
	VR19	02	B.Tech-Electrical and Electronics Engineering		NG	CO3	Design multi rate digital signal processing system.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Analyze architecture of DSP processor
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO1	Interpret the various aspects of IPR
40	VR19	02	B.Tech-Electrical and Electronics Engineering		IPR &	CO2	Conclude importance of Copyrights, Tradem
42	VR19	02	B.Tech-Electrical and Electronics Engineering	1099193131	PATENTS	CO3	Obtain Patent Rights for New Innovations
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Elaborate on Privacy Issues
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Relate literature to formulate problem statements of technology and innovations in EEE
43	VR19	02	B.Tech-Electrical and Electronics Engineering	100010015	TECHNIC	CO2	Develop documentation, presentation and communication skills for profession and personal growth following ethical values
43	VR19	02	B.Tech-Electrical and Electronics Engineering	1002193180	AL SEMINAR	CO3	Identify new directions in Multidisciplinary area
	VR19	02	B.Tech-Electrical and Electronics Engineering		1.	CO4	Assess engineering solution and its applications for Real time problem
	VR19	02	B.Tech-Electrical and Electronics Engineering		-	COI	Understand the principles of Power electronics control of electric drives.

	VR19	02	B.Tech-Electrical and Electronics	5	Power		Recognise the speed control of DC machines using DC DC converters
		77	Engineering		Electronics	CO2	using DC DC converters
44			B.Tech-Electrical	1002193200	Controllers	<u> </u>	Categorize the stator side and rotor side
	VR19	02	and Electronics		and Drives	CO3	control of three phase AC drives.
			Engineering			CO3	bonnor of timee phase Ac unives.
			B.Tech-Electrical	:			Describe VSI, PWM techniques to control
	VR19	02	and Electronics				the synchronous motor.
		02	Engineering			CO4	the synchronous motor.
			B.Tech-Electrical		//	CO4	Understand the per unit values of system and
	VR19	02	and Electronics			COI	formulate Ybus&Zbus for a given power
			Engineering			COI	system network
			B.Tech-Electrical				System network
	VR19	02	and Electronics				Apply various numerical methods to power
100			Engineering		POWER	CO2	system for determining power flows
45			B.Tech-Electrical	1002193201	SYSTEM		Compute symmetrical and asymmetrical faul
	VR19	02	and Electronics	1	ANALYSIS	CO3	calculations for a given power system
- 3			Engineering			003	network
			B.Tech-Electrical				
-	VR19	02	and Electronics				Analyze the steady state and transient
		7.7	Engineering			CO4	stabilities of power system.
	-		B.Tech-Electrical				Identify a suitable motor for electric drives
	VR19	02	and Electronics		j	COI	and industrial applications
		20.00	Engineering			COI	and modernal applications
			B.Tech-Electrical	1			Describe various electrical heating, welding
	VR19	02	and Electronics		UTILIZATI		methods.
		8.7	Engineering		ON OF	CO2	methods.
46			B.Tech-Electrical	1002193202	ELECTRIC		Explain the basic terminology in illumination
	VR19	02	and Electronics		AL	CO3	and compare the type of lamps
			Engineering		ENERGY		and compare the type of famps
				1			Analyze the speed -time characteristics of
	7,70.0	0.0	B.Tech-Electrical				different services of traction and calculate
	VR19	02	and Electronics				tractive effort, power and specific energy.
9			Engineering			CO4	provide the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second seco
			B.Tech-Electrical				Understand the concepts of microcompute
	VR19	02	and Electronics			COI	system and explore the architecture of
			Engineering				microprocessors and microcontroller.
		0.00	B.Tech-Electrical	]	, con one		Explore hardware configuration of 8086 an
	VR19	02	and Electronics		MICROPR		able to write assembly language program for
			Engineering		OCESSOR	CO2	basic arithmetic applications.
47			B.Tech-Electrical	1004193222	S AND MICROCO		
	VR19	02	and Electronics		NTROLLE	CO3	Apply the knowledge of Interfacing memor
			Engineering		RS		and I/O devices with 8086
			B.Tech-Electrical	]	RS		Developinterfacing circuit of differer
	VR19	02	and Electronics				sensors and actuators with 8051. And appl
	VKIS	02	Engineering		1		the knowledge of programming for industria
			Engineering	0.000		CO4	applications.
			B.Tech-Electrical				
	VR19	02	and Electronics			COI	Discuss about electrical energy storage
			Engineering	]		L	systems
			B.Tech-Electrical				To a contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract
		02	and Electronics		E		Examine about various electrochemical
	VR19		1		Energy	CO2	batteries
40	VR19		Engineering	1000100000	C.		
48	VR19		Engineering B.Tech-Electrical	1002193250	Storage	- 002	
48	VR19 VR19	02		1002193250	Storage Systems	CO3	Analyze the operation of Li-ion battery

- 1		500000	D.T1. El	1	Г		
	7/7/10		B.Tech-Electrical				A STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF S
- 4	VR19	02	and Electronics			~~.	Assess the Electric Vehicles Charging Station
			Engineering			CO4	
-			B.Tech-Electrical				To analyze the characteristics of solar
- 1	VR19	02	and Electronics			COI	radiation, PV cells, modules and arrays
			Engineering				
1		000	B.Tech-Electrical				Design of grid-connected PV schemes,
- 1	VR19	02	and Electronics		Photovoltai		Control of real and reactive power
49			Engineering	1002193251	c and wind	CO2	
47			B.Tech-Electrical	1002193231	energy		To analyze fixed speed and variable speed
- 1	VR19	02	and Electronics		system	CO3	Wind Energy Conversion Systems.
			Engineering		· '		
i			B.Tech-Electrical		Ĭ		To analyze integration issues in PV-wind
	VR19	02	and Electronics	1			Systems.
			Engineering			CO4	
			B.Tech-Electrical				Understand different architectures of ANN
- 1	VR19	02	and Electronics			COI	models of artificial neuron, learning
			Engineering				strategies and algorithms
			B.Tech-Electrical				Classify between classical and fuzzy sets.
	VR19	02	and Electronics		Neural		Classify between classical and tasky sees.
	TRIS	0.2	Engineering		Networks	CO2	
50			B.Tech-Electrical	1002193252	and Fuzzy	002	Use different modules of Fuzzy logic
	VR19	02	and Electronics		Logic	CO3	controller
	VKIS	02	Engineering		Logic	003	Controller
	<del>     </del>		B.Tech-Electrical				Apply Neural Networks and fuzzy logic for
	VR19	02	and Electronics		1		electrical engineering
	VKIS	02	Engineering			CO4	ciccincal clighteering
			Engineering	19		CO4	Students have the adequate writing skills that
			B.Tech-Electrical			i i	are needed in an organization and To perform
	VR19	02	and Electronics			COI	well during Campus Drives and different
			Engineering				Interviews
3	<del>                                     </del>			-			Understand the core competencies to succeed
	1 1						in professional and personal life and
0	1 1		B.Tech-Electrical			ř	Students will develop knowledge and
	VR19	02	1			Į.	experience with the use of the standard C
	VKI9	02	and Electronics				programming language,
			Engineering				programming ranguage,
	$\vdash$			-{	Employabili	CO2	C-lu- u- i- u- D- i- Mathamaticablossa
p.	1				ty		Solve various Basic Mathematics problems
51				1020193100	Readiness	1	by following different methods and
	l l		B.Tech-Electrical				analyses, summarize and present information
1	VR19	02	and Electronics		Program -II	CO3	in quantitative forms including table, graphs
	1 1		Engineering				and formulas
	$\Box$	122.5		1			
							Follow strategies in minimizing time
							consumption in problem solving Apply
			B.Tech-Electrical				shortcut
ĺ	VR19	02	and Electronics				methods to solve problems and confidently
	1 1 1 1 1	02	Engineering				solve any mathematical problems and utilize
			Luginecing				these mathematical skills both in their
1							professional as well as personal life.
					1		

	VR19	02	B.Tech-Electrical and Electronics Engineering		,	CO1	Understand the basic concepts of an embedded system and able to know an embedded system design approach to perform a specific function
52	VR19	02	B.Tech-Electrical and Electronics Engineering	1019193252	INTRODU CTION TO EMBEDDE	CO2	Design the Embedded hardware by considering the hardware components required for an embedded system
;	VR19	02	B.Tech-Electrical and Electronics Engineering		DSYSTEM	CO3	Analyze the various embedded firmware design approaches on embedded environment to suit for desired application
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	integrate hardware and firmware of an embedded system and apply this knowledge to real time operating system.
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Understand data pre-processing and data visualization techniques
53	VR19	02	B.Tech-Electrical and Electronics Engineering	1012193260	Data	CO2	Study algorithms for finding hidden and interesting patterns in data
	VR19	02	B.Tech-Electrical and Electronics Engineering	1012193200	Mining	CO3	study and analyzevarious classification techniques.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Apply various clustering techniques using tools in various algorithms
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Understand ER model and Relational models
	VR19	02	B.Tech-Electrical and Electronics Engineering		Introduction to Database	CO2	Execute SQL queries for various conditions
	VR19	02	B.Tech-Electrical and Electronics Engineering	1005193260	Managemen t Systems	CO3	Analyze different indexing techniques, evaluate time complexity and its storage
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Create database and transactions
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Distinguish the IC, EV's
55	VR19	02	B.Tech-Electrical and Electronics Engineering	1002193260	ELECTRIC	CO2	Analyse the Storage systems and Energy management system for EV's
	VR19	02	B.Tech-Electrical and Electronics Engineering	1002193200	VEHICLES	CO3	Design Electric Drive System
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Assess the performance of HEV's

	VR19	02	B.Tech-Electrical and Electronics Engineering			C01	Understand the construction of the both DC and AC machines
56	VR19	02	B.Tech-Electrical and Electronics Engineering	1002102261	Fundamenta Is of	CO2	Distinguish the operation of DC and AC machines
56	VR19	02	B.Tech-Electrical and Electronics Engineering	1002193261	Electrical Machines	CO3	Calculate the performance parameters of DC motors, transformer
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Calculate the performance parameters of induction motor, Synchronous generator
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO1	Evaluate the production theories and pricing policies of various enterprises
52	VR19	02	B.Tech-Electrical and Electronics Engineering	1099192100	Managerial Economics and	CO2	Design and implement different structures of market covering how price is determined under different market structures. Also can able to take decisions using business cycles
	VR19	02	B.Tech-Electrical and Electronics Engineering		Financial Analysis	CO3	Analyze different forms of business organizations existing in the modern business and able to choose suitable form of business.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Prepare financial statements and understand and implement the capital budgeting tools and techniques.
	VR19	02	B.Tech-Electrical and Electronics Engineering		aumana.	COI	Understand the different types of Circuit Breakers and Relay in Power system
58	VR19	02	B.Tech-Electrical and Electronics Engineering	1002194100	SWITCHG EAR AND PROTECTI	CO2	Design the rating of CB and Relay to protect the Power System against the Faults
	VR19	02	B.Tech-Electrical and Electronics Engineering		ON	CO3	Differentiate the grounded and ungrounded power system against over voltage Protection
0	VR19	02	B.Tech-Electrical and Electronics Engineering			CO1	Describe the PLC architecture and its I/O devices.
59	VR19	02	B.Tech-Electrical and Electronics Engineering	1000104100	PROGAM MABLE LOGIC	CO2	Construct the Ladder diagram using contacts & coils.
39	VR19	02	B.Tech-Electrical and Electronics Engineering	1002194120	LERS & APPLICAT	CO3	Apply various function blocks like timer, counter and program control & data handling instructions.
	VR19	02	B.Tech-Electrical and Electronics Engineering		IONS	CO4	Develop ladder logic for various industrial automation.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO1	Distingish the IC, EV's
60	VR19	02	B.Tech-Electrical and Electronics Engineering	1002103760	ELECTRIC	CO2	Analize the Storage systems and Energy management system for EV's

VV	VR19	02	B.Tech-Electrical and Electronics	1002190200	VEHICLES	CO3	Design Electric Drive System
	VR19	02	Engineering  B.Tech-Electrical  and Electronics  Engineering				Design of HEV's
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Compare HVDC and AC transmission system w.r.t. economical, technical and reliability aspects.
61	VR19	02	B.Tech-Electrical and Electronics Engineering	1002194150	HVDC TRANSMI SSION	CO2	Analyze the six pulse and twelve pulse converter configurations and describe converter control characteristics and MTDC systems.
	VR19	02	B.Tech-Electrical and Electronics Engineering		SSION	CO3	Describe various converter faults and protection methods in HVDC transmission system.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Explain generation of harmonics and design suitable filters to eliminate them.
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	State and formulate the optimization problem, without and with constraints, by using design variables from an engineering design problem.
62	VR19	02	B.Tech-Electrical and Electronics Engineering	1002194151	OPTIMIZA TION: TECHNIO	CO2	Apply classical optimization techniques to minimize or maximize a multi- variable objective function, without or with constraints, and arrive at an optimal solution.
	VR19	02	B.Tech-Electrical and Electronics Engineering		UES	CO3	Formulate a mathematical model and apply linear programming technique by using Simplex method. Also extend the concept of dual Simplex method for optimal solutions.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Apply gradient and non-gradient methods to nonlinear optimization
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Understand different types of power quality problems with their source of generation and suggest preventive techniques.
	VR19	02	B.Tech-Electrical and Electronics Engineering		POWER	CO2	Evaluate the effects of harmonics on power system equipments and analyze the methods of controlling of harmonics.
63	VR19	02	B.Tech-Electrical and Electronics Engineering	1002194152	QUALITY	CO3	Analyze the sources, types and mitigation of over voltage issues and model of over voltage problem with computer software tools.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Examine the power quality issues and operating conflicts when DG is interconnected to the grid.

	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Explain topologies, interconnection issues of DGs and features of grid connected DG systems
	VR19	02	B.Tech-Electrical and Electronics Engineering		Microgrid	CO2	Design power converter topologies for DG applications and implement the control of Microgrid
64	VR19	02	B.Tech-Electrical and Electronics Engineering	1002194153	and Smart grid	CO3	Interpret the concept of Resilient and Self-Healing Grid.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	AnalyzeMicro Grids (MGs) and Distributed Energy Resources (DERs) and alsoPQ issues with RES and also ICT for Smart Grid.
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Model the different systems(electrical, mechanical and electro mechanical systems) in terms of various state models.
65	VR19	02	B.Tech-Electrical and Electronics Engineering	1002194154	Advanced Control	CO2	Design the state feedback controller and observer for different systems.
	VR19	02	B.Tech-Electrical and Electronics Engineering	.002171131	Systems	CO3	Interpret different nonlinearities and stability of the system
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Formulate and solve the different optimal control problems
	VR19	02	B.Tech-Electrical and Electronics Engineering			C01	To Understand the Architecture, protocols and applications of IoT.
66	VR19	02	B.Tech-Electrical and Electronics Engineering		Internet of	CO2	To Analyse the communication protocols and standards used in IoT
00	VR19	02	B.Tech-Electrical and Electronics Engineering	1019193260	Things	CO3	To analyse and design the simple IoT applications to monitor or control IoT devices using simulation or hardware
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	To implement the real time IoT applications.
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Recognize the characteristics of machine learning that make it useful to real-world Problems
67	VR19	02	B.Tech-Electrical and Electronics Engineering	1005104140	Introduction	CO2	Characterize machine learning algorithms as supervised, semisupervised, and Unsupervised
U/	VR19	02	B.Tech-Electrical and Electronics Engineering	1005194160	to Machine Learning	CO3	Be able to use support vector machine, regularized regression algorithms
	VR19	02	B.Tech-Electrical and Electronics Engineering		w	CO4	Analyze the concept behind neural networks for learning non-linear functions
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO1	Identify various robot configuration and components

	110.40		B.Tech-Electrical				Select appropriate actuators and sensors for a
	VR19	02	and Electronics Engineering		INDUSTRI	CO2	robot based on specific application
68	VR19	02	B.Tech-Electrical and Electronics Engineering	1003193160	AL ROBOTICS	CO3	Carry out kinematic and dynamic analysis for simple serial kinematic chains
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Perform trajectory planning for manipulator by avoiding obstacles.
	VR19	02	B.Tech-Electrical and Electronics Engineering	920		COI	Describe the PLC architecture and its I/O devices.
69	VR19	02	B.Tech-Electrical and Electronics Engineering	1002194160	PROGRAM MABLE LOGIC	CO2	Construct the Ladder diagram using contacts & coils.
	VR19	02	B.Tech-Electrical and Electronics Engineering	1002154100	CONTROL	CO3	Apply various function blocks like timer, counter and program control & data handling instructions.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Develop ladder logic for various industrial automation.
	VR19	02	B.Tech-Electrical and Electronics Engineering		FNEDGY	CO1	Understand principles of energy auditing, Energy management programme, purpose of energy conservation schemes and the operation of various energy instruments
70	VR19	02	B.Tech-Electrical and Electronics Engineering	1002193151	ENERGY AUDIT CONSERV ATION	CO2	Identify different space heating and ventilation methods
70	VR19	02	B.Tech-Electrical and Electronics Engineering	1002193131	AND MANAGE MENT	CO3	Solve and conclude the economic aspects of energy consumption
	VR19	02	B.Tech-Electrical and Electronics Engineering	и	WILLIA	CO4	Analyze power factor improvement methods and Distinguish the operating principle constructional features of energy efficient motors
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Understand the Design of substations and distribution systems and Identifying the different factors of distribution systems CO2 Calculate voltage drops and power loss manually at each and every point in a line
71	VR19	02	B.Tech-Electrical and Electronics Engineering	1002194250	Electrical distribution system	CO2	Calculate voltage drops and power loss manually at each and every point in a line
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO3	Ilustrate the distribution system protection a
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Analyse the effect of compensation on power factor improvement and voltage control on distribution system.
	VR19	02	B.Tech-Electrical and Electronics Engineering			COI	Outline various components of power system control.

72	VR19	02	B.Tech-Electrical and Electronics Engineering	1002194251	POWER SYSTEM OPERATIO N	CO2	Apply algorithms to solve optimal scheduling of Hydrothermal Systems.
	VR19	02	B.Tech-Electrical and Electronics Engineering		&CONTRO	CO3	Analyse single area and two area load frequency control.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Distinguish performance of reactive power compensation in transmission systems.
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO1	Compare voltage sourced converter (VSC) and current sourced converter (CSC)
73	VR19	02	B.Tech-Electrical and Electronics Engineering	1002194252	FLEXIBLE ALTERNA TING CURRENT	CO2	Apply the shunt and Series compensators for improving the transient stability, steady state stability and power oscillation damping's
	VR19	02	B.Tech-Electrical and Electronics Engineering		TRANSMI SSION SYSTEM	CO3	Analyse control of SVC, STATCOM to compensate the transmission Parameters
	VR19	02	B.Tech-Electrical and Electronics Engineering			CO4	Analyse the combined compensators used in enhancing the transmission line Performance





		, m					INOLOGY (A)
			DEI	PARTMENT O	E OUTCOM		ING
S.No	Regula tion	Program me Code	Programme Name	Course Code	Course Name	CO	Course Outcome: After the completion of the course student will be able to
	VR19	01	B.Tech-Civil Engineering			COI	Executing mean value theorems and evaluate maxima and minima of functions of two variables without constraints
1	VR19	01	B.Tech-Civil Engineering	1000191100	Mathametic	CO2	Apply the analytical methods to solve higher order linear differential equations.
,	VR19	01	B.Tech-Civil Engineering		s-1	CO3	Evaluate of solution of Ordinary differential equations by using Laplace Transform techniques
	VR19	01	B.Tech-Civil Engineering			CO4	Identify and solve partial differential equations.
	VR19	01	B.Tech-Civil Engineering			CO1	Apply the knowledge of crystal systems and X-ray diffraction techniques, to identify the crystal structure of materials.
2	VR19	01	B.Tech-Civil Engineering	1000191120	Engineering Physics	CO2	Use the knowledge of acoustics and ultrasonics for characterization of acoustics design and non-destructive testing.
	VR19	01	B.Tech-Civil Engineering			CO3	Describe the wave phenomena and apply these concepts for construction of Lasers and optical fibers.
	VR19	01	B.Tech-Civil Engineering			CO4	Discussthe properties and synthesis techniques of nanomaterials.
	VR19	01	B.Tech-Civil Engineering			COI	Read, understand and interpret material on Environment, Science and Technology, tourism, Energy Sources, Social Awareness
	VR19	01	B.Tech-Civil Engineering	1000191121	Technical English	CO2	Analyze the functions of language and grammar in spoken and written forms
	VRIS	01	B.Tech-Civil Engineering	1000191121	Communica tion	CO3	Write effectively on various domains
	VR19	01	B.Tech-Civil Engineering			CO4	Prepare and exhibit oral presentation skills by using ICT(Individual/Team)
	VRI	19 01 B.Tech-Civil Engineering			COI	Analyze the force systems for equilibrium conditions and able to draw free body diagram	
	VRI	9 01	B.Tech-Civil Engineering		ENGINEER	CO2	Evaluate the frictional forces between contact surfaces.
4	VR1	9 01	B.Tech-Civil Engineering	100319110	0 MECHANI CS	CO3	composite sections.
	VRI	9 01	B.Tech-Civil Engineering			CO4	Analyze the motion and calculate trajectory characteristics.

	VR19	01	B.Tech-Civil Engineering			COI	Interpret fundamentals of computers and convert flowcharts/algorithms to C Programs
5	VR19	01	B.Tech-Civil Engineering	1005191120	PROBLEM SOLVING AND PROGRAM	CO2	Apply decision making and iterative feature of C programming language effectively
	VR19	01	B.Tech-Civil Engineering		MING USING C	CO3	Develop programs using modular techniques
	VR19	01	B.Tech-Civil Engineering			CO4	Make use of user defined datatypes and implement them for various applications
	VR19	01	B.Tech-Civil Engineering			COI	Have general knowledge and legal literacy and thereby to take up competitive examinations.
06	VR19	01	B.Tech-Civil Engineering	1000191130	CONSTITU TION OF INDIA	CO2	Distinguish the power of state and central government
	VR19	01	B.Tech-Civil Engineering			CO3	Summarize the election procedure in India before and after independence
	VR19	01	B.Tech-Civil Engineering			CO4	Association with the powers and functions of Municipalities, Panchayats and Cooperative Societies.
	VR19	01	B.Tech-Civil Engineering		Mathematic s-II	CO1	Solve approximate roots of an equation by using different numerical methods.
	VR19	01	B.Tech-Civil Engineering			CO2	Compute Interpolating polynomial for the given data.
7	VR19	01	B.Tech-Civil Engineering	1000191101		CO3	Compute Numerical Solution of ODE and Numerical Integration.
	VR19	01	B.Tech-Civil Engineering			C04	Evaluate simultaneous linear equations numerically using rank of a matrix and also Eigen values and Eigen vectors of a square matrix.
	VR19	01	B.Tech-Civil Engineering			CO1	Formulate any period function in terms of sine and cosine
	VR19	01	B.Tech-Civil Engineering	7		CO2	Simplify a non-periodic function as integral representation
8	VR19	01	B.Tech-Civil Engineering	1000191200		CO3	Apply multiple integration techniques in evaluating areas and volume bounded by region.
	VR19	01	B.Tech-Civil Engineering		S	CO4	Explain Gradient, divergence and curl operations in vector and scalar fields and apply Green's, Gauss and Stokes theorem as the generalisation of fundamental theorem of integral calculus.
	VR19	01	B.Tech-Civil Engineering		ENGINEER	COI	Measure water quality parameters, corrosive environment and protection of precious metal

9	VR19	01	B.Tech-Civil Engineering	1000191220	ING CHEMIST	CO2	Acquire the knowledge on advanced materials
	VR19	01	B.Tech-Civil Engineering		RY	CO3	Analyze the different forms of energy sources
Ì	VR19	01	B.Tech-Civil Engineering			CO4	Identify different polymers and their functionalities
	VR19	01	B.Tech-Civil Engineering			COI	Apply Ohms Law and Kirchhoff's Laws and solve electrical circuits
	VR19	01	B.Tech-Civil Engineering		FUNDAME NTALS OF	CO2	Describe the constructional features of DC machines, select suitable starters for DC motor estimate losses and efficiency of DC motor.
10	VR19	01	B.Tech-Civil Engineering	1002191200	ELECTRIC - AL AND ELECTRO NICS ENGINEER ING	CO3	Outline the constructional details and operating principles of AC machines and calculate the efficiency identify the characteristics, losses and efficiency of a three-phase induction motor.
	VR19	01	B.Tech-Civil Engineering		ING -	CO4	Identify the structure, operation and characteristics and applications of measuringinstruments and semiconductordevices
	VR19	01	B.Tech-Civil Engineering			CO1	Understand the use of drawing instruments to construct the polygons and curves
11	VR19	01	B.Tech-Civil Engineering	1003191101	ENGINEER ING	CO2	Learn the principle of orthographic projections Draw Orthographic projections of points, lines
	VR19	01	B.Tech-Civil Engineering		DRAWING	CO3	Draw the various types of planes and solids its views in different Positions
	VR19	01	B.Tech-Civil Engineering			CO4	Draw isometric views of simple objects
	VR19	01	B.Tech-Civil Engineering			COI	Set out of building in the field
	VR19	01	B.Tech-Civil Engineering		CIVIL	CO2	Construct a wall of thickness 1½ bricks using English bond
12	VR19	01	B.Tech-Civil Engineering	1001191210	ENGINEER- 1001191210 ING WORKSH OP	CO3	Install plumbing the fixtures like Tap, T-Joint Elbow, Bend, Threading
	VR19	01	B.Tech-Civil Engineering			CO4	Apply wall putty, painting of wall base coat and laying of tile flooring
	VR19	01	B.Tech-Civil Engineering			COI	Realize the purpose/Role of Engineer for solving social problems
	VR19	01	B.Tech-Civil Engineering		ENGINEER	CO2	Learn to Design a component/system in an engineering way
13	VR19	01	B.Tech-Civil Engineering	1000191110	EXPLORA TION	CO3	Learn to use mechanisms, Arduino, sensors, motors.
	VR19	01	B.Tech-Civil Engineering		11014	CO4	Integrating different systems (mechanical/Electrical/computer) to work as unit
	VR19	01	B.Tech-Civil Engineering			COI	Learn new skills and boost academic performance

14	VR19	01	B.Tech-Civil Engineering	1000191131	Extra- Curricular Activities, Sports And	CO2	Broader social skills with improved time management						
	VR19	01	B.Tech-Civil Engineering		Games (Audit Course)	CO3	Explore Interest and Create Broader perspectives						
	VR19	01	B.Tech-Civil Engineering			CO4	Participate in various co- curricular activities leading to their multifaceted personality development						
	VR19	01	B.Tech-Civil Engineering			COI	Analyse the complex integration by using Cauchy's integral formula and find Taylor's, Maclaurin's series and Laurent series expansion of complex function.						
15	VR19	01	B.Tech-Civil Engineering	1000192100	Complex Variables and	CO2	Evaluate contour integrals by using Residue theorem and explain the notation of random variables and evaluate the expected value and probability of random variables						
	VR19	01	B.Tech-Civil Engineering			Statistical Methods						CO3	Evaluate the confidence levels and maximum errors for large and small samplings and apply the concept of hypothesis testing for large and small samples in real life situations.
	VR19	01	B.Tech-Civil Engineering			CO4	Examine correlation for bi-variate data and predict the regression analysis						
	VR19	01	B.Tech-Civil Engineering			COI	Interpret various instruments to evaluate the required fields of surveying						
	VR19	01	B.Tech-Civil Engineering		SURVEYI NG (CIVIL ENGINEER ING)	CO2	Describe levelling survey to find elevations followed by contour mapping						
16	VR19	01	B.Tech-Civil Engineering	1001192120		CO3	Estimate the distances, areas and volumes, elevations using various advanced methodologies solving most practical problems						
	VR19	01	B.Tech-Civil Engineering			CO4	Organize simple and compound curves along with examining the various measurements in accessing the aerial surveying with GPS devices						
	VR19	01	B.Tech-Civil Engineering			COI	Predict the properties of building stones, bricks, tiles and its classifications.						
17	VR19	01	B.Tech-Civil Engineering	1001192100	BUILDING MATERIA LS AND	CO2	Describe the types of masonry and the properties, types, defects and alternatives of wood						
	VR19	01	B.Tech-Civil Engineering		CONSTRU CTION	CO3	Identify building components include lintels, staircases, floors, roofs and trusses						
	VR19	01	B.Tech-Civil Engineering			CO4	Distinguish the finishings include proofing, plastering, pointing, washing, paints and describe formwork and scaffolding						

	VR19	01	B.Tech-Civil Engineering			CO1	Understand the basics of material properties, stress and strain and evaluate the stress of thin cylinders.
18	VR19	01	B.Tech-Civil Engineering	1001192121	STRENGT H OF MATERIA LS	CO2	Compute the shear force bending moment of beams and
	VR19	01	B.Tech-Civil Engineering	1001192121		CO3	Determine the flexural stresses, shear stresses and deflection in beams and springs
	VR19	01	B.Tech-Civil Engineering			CO4	Analyze columns and strutssubjected to axial loading under various end conditions anddetermine the deflections androtations produced by Torsionalloading of shafts
	VR19	01	B.Tech-Civil Engineering		FLUID	COI	Describe the physical properties of fluids & their influences on fluid motion and Compute hydro static forces on various sub merged Surfaces.
19	VR19	01	B.Tech-Civil Engineering	1001192122	MECHANI CS	CO2	Compare the concepts of kinematics and dynamics of fluid flow.
	VR19	01	B.Tech-Civil Engineering			CO3	Analyze the boundary layer of fluid in laminar and turbulent flows.
	VR19	01	B.Tech-Civil Engineering			CO4	Calibrate flow in pitot tube, venturi meter, orifice meter, orifices, notches and weirs
	VR19	01	B.Tech-Civil Engineering		BUILDING PLANNIN G AND DRAWING	COI	Utilize the building byelaws and regulations for construction
20	VR19	01	B.Tech-Civil Engineering	1001192101		CO2	Describe the orientation, standards, requirements, types and planning of various residential and public buildings
	VR19	01	B.Tech-Civil Engineering			CO3	Draw the sign conventions of various types of building materials and bonds
	VR19	01	B.Tech-Civil Engineering			CO4	Produce plans and sectional elevations of various residential and public buildings
	VR19	01	B.Tech-Civil Engineering			COI	Distinguish between stable and unstable and statically determinate and indeterminate structures
	VR19	01	B.Tech-Civil Engineering		STRUCTU	CO2	Analyze the S.F, B.M and deflection of propped, fixed and continuous beams
21	VR19	01	B.Tech-Civil Engineering	1001192200	RAL ANALYSIS- I	CO3	Calculate the deflections of beams by using strain energy method and apply the moment distribution method and slope deflection method to analyze statically indeterminate structures
	VR19	01	B.Tech-Civil Engineering			CO4	Evaluate and draw the influence lines for reactions, shears, and bending moments in beams and girders due to moving loads.

	VR19	01	B.Tech-Civil Engineering			COI	Finalize suitable highway alignment and Design of geometric elements for different terrains.
22	VR19	01	B.Tech-Civil Engineering	1001192220	TRANSPO RTATION ENGINEER ING	CO2	Describe traffic engineering studies include traffic studies like volume parking, signaling, accident etc.
	VR19	01	B.Tech-Civil Engineering			CO3	Distinguish the highway materials and its suitability for different types pavement
	VR19	01	B.Tech-Civil Engineering			CO4	Assess the required Ideal Railway Alignment and suitable site for airport construction
	VR19	01	B.Tech-Civil Engineering			CO1	Analyzing the behaviour of uniform and non- uniform flow in a open channel.
	VR19	01	B.Tech-Civil Engineering		HYDRAUL	CO2	Creating a model for a prototype by using the concept of simulation techniques.
23	VR19	01	B.Tech-Civil Engineering	1001192221	ICS AND HYDRAUL IC MACHINE RY	CO3	Applying the concept of generating hydroelectricity using hydraulic turbines.
	VR19	01	B.Tech-Civil Engineering			CO4	Estimate the head and discharge through Centrifugal-Pumps and Reciprocating-Pumps in detail
	VR19	01	B.Tech-Civil Engineering		Environmen	COI	Analyze problems associated with water supply engineering
24	VR19	01	B.Tech-Civil Engineering	1001100000		CO2	Design water conveyance, treatment, storage and distribution systems
24	VR19	01	B.Tech-Civil Engineering	1001192222	tal Engineering	CO3	Solve societal water supply engineering problems through proper investigations and interpretation
	VR19	01	B.Tech-Civil Engineering			CO4	Determine and maintain quality standards in water supply schemes.
	VR19	01	B.Tech-Civil Engineering			COI	Interpret and participate in writing skills that are needed in an organisation
	VR19	01	B.Tech-Civil Engineering	1020192100-	Employabili	CO2	Recognize the need of core competencies to succeed in professional and personal life
25	VR19	01	B.Tech-Civil Engineering		ty Readiness Program-1 (Open Elective-1)	CO3	Solve various basic mathematics problems by following different methods and to perform in various competitive exams and placement drives

	VR19	01	B.Tech-Civil Engineering			CO4	Apply shortcut methods to solve problems and confidently
	VR19	01	B.Tech-Civil Engineering			CO1	Interpret and manage in public governance
	VR19	01	B.Tech-Civil Engineering	=	PUBLIC	CO2	Participate in and contribute to the policy process
26	VR19	01	B.Tech-Civil Engineering	1020192101	ADMINIST RATION	CO3	Analyse, think critically, solve problems and make decisions
	VR19	01	B.Tech-Civil Engineering			CO4	Articulate and apply a public service perspective
	VR19	01	B.Tech-Civil Engineering			COI	Construct simple sentences in French using Syntax and grammar
	VR19	01	B.Tech-Civil Engineering	1	FOREIGN	CO2	Pronounce and read French reasonably well
27	VR19	01	B.Tech-Civil Engineering	1020192102	LINGUISTI C - FRENCH	CO3	Demonstrate an elementary knowledge of French sentence through speaking and writing
	VR19	01	B.Tech-Civil Engineering		IKLINGII	CO4	Apply basic spoken French and demonstrate understanding by writing and/or responding properly
	VR19	01	B.Tech-Civil Engineering		ENVIRON MENTAL SCIENCE (Audit Course)	COI	Gain a higher level of personal involvement and interest in understanding and solving environmental resource problems and its sustainable conservation practices.
	VR19	01	B.Tech-Civil Engineering			CO2	Overall understanding of the relationship between man and ecosystem & biodiversity
28	VR19	01	B.Tech-Civil Engineering	1000192130		CO3	Demonstrate knowledge relating to the biological systems involved in the major global environmental problems of the 21st century
	VR19	01	B.Tech-Civil Engineering			CO4	Recognize the interconnectedness of human dependence on the earth's ecosystems and influence their society in proper utilization of goods and services.
	VR19	01	B.Tech-Civil Engineering			CO1	Analyse the functions of language and grammar in spoken and written forms with an emphasis on LSRW Skills.
29	VR19	01	B.Tech-Civil Engineering	1000192110	Communica tion Skills Lab	CO2	Disseminate the relevant skills while performing GDs, interviews, oral presentations with a focus on Non-verbal communication.
	VR19	01	B.Tech-Civil Engineering			CO3	Prepare and exhibit oral presentation skills by using ICT.(Individual/Team)
	VR19	10	B.Tech-Civil Engineering			CO4	Organize proper life skills for their employability.

	VR19	01	B.Tech-Civil Engineering			COI	Understand the various social problems present in the world &problem to develop a technological project
30	VR19	01	B.Tech-Civil Engineering	1001192170	MINI PROJECT – I (EPICS/Soc	CO2	Utilise the design thinking and project management with various technical software in addressing the project Apply the engineering knowledge,
	VR19	01	B.Tech-Civil Engineering		Relevant Project)	CO3	mathematics, design thinking and project management to develop a community project.
	VR19	01	B.Tech-Civil Engineering			CO4	Recogniseprofessional responsibilities and make informed judgements in civil practice
	VR19	01	B.Tech-Civil Engineering			COI	Analyse the Demand, Price and Cost.
	VR19	01	B.Tech-Civil Engineering		Managerial Economics	CO2	Identify the Nature of different markets
	VR19	01	B.Tech-Civil Engineering	1099192100	and Financial	CO3	Understand Various Business Forms
	VR19	01	B.Tech-Civil Engineering		Analysis	CO4	Evaluate investment project proposals
	VR19	01	B.Tech-Civil Engineering		CONCRET E TECHNOL OGY	COI	Identify the various types of materials and understand the quality control tests on construction materials
	VR19	01	B.Tech-Civil Engineering			CO2	Assimilate the behaviour of fresh concrete and special concretes
32	VR19	01	B.Tech-Civil Engineering	1001193120		CO3	Determine the durability properties of hardened concrete
4	VR19	01	B.Tech-Civil Engineering			CO4	Design various grades of concrete mixes as per IS Code
	VR19	01	B.Tech-Civil Engineering			CO1	Classify the different types of soil using Indian Standards
	VR19	01	B.Tech-Civil Engineering			CO2	Analyse the permeability of soils and solve seepage related problems
33	VR19	01	B.Tech-Civil Engineering	1001193121	GEOTECH NICAL ENGINEER	CO3	Evaluate the stresses transformed through soils and compute geostatic and induced stresses
	VR19	01	B.Tech-Civil Engineering		ING	CO4	Evaluate the rate of consolidation, time rate of settlement and shear parameters of the effected by different drainage conditions

			B.Tech-Civil			8 7,48	Stateh the hudralaria and diamate
	VR19	01	Engineering			COI	Sketch the hydrologic cycle and discuss its impact on Environment.
	VR19	01	B.Tech-Civil Engineering		Hydrology	CO2	Estimate various abstractions from Precipitation like Evaporation,
34	VR19	01	B.Tech-Civil Engineering	1001193100	and Water Resources Engineering	CO3	Evapotranspiration and Infiltration.  Develop Hydrographs of a Catchment by evaluation the rainfall trends.
	VR19	01	B.Tech-Civil Engineering			CO4	Analyse frequency of Floods to estimate design flood, flood routing and groundwater movement.
	VR19	01	B.Tech-Civil Engineering			CO1	Interpret the concepts of working stress method and the limit state method and their relation to the design of structures.
	VR19	01	B.Tech-Civil Engineering		DESIGN OF REINFORC	CO2	Outline the behaviour of RCC structural members for safe design.
35	VR19	01	B.Tech-Civil Engineering	1001193101	ED CONCRET E	CO3	Identify reinforced concrete beam failure modes under shear, torsion and design reinforcement details.
	VR19	01	B.Tech-Civil Engineering		STRUCTU RES	CO4	Design basic structural elements (beams, slabs, columns, footings and staircase) according to the design code of IS 456: 2000
	VR19	01	B.Tech-Civil Engineering			CO1	Have adequate writing skills that are in an organisation and perform well during campus drives and different interviews
	VR19	01	B.Tech-Civil Engineering			CO2	Understand the core competencies to succeed in professional and personal life and develop knowledge & experience with the use of standard programming language
36	VR19	01	B.Tech-Civil Engineering	1020193160	Employabili ty Readiness Program -2	CO3	Solve various Basic Mathematics problems byfollowing different methods and analysis,quantitative forms including table, graphs andformulas
	VR19	01	B.Tech-Civil Engineering	:		CO4	Follow strategies in minimizing time consumption in problem solving Apply shortcut methods to solve problems and confidently solve any mathematical problems and utilize these mathematical skills both intheir professional as well as personal life.
	VR19	01	B.Tech-Civil Engineering			COI	Explain the fundamentals of solar photovoltaic (PV) energy systems
	VR19	01	B.Tech-Civil Engineering		Solar Photovoltai	CO2	Analyse the characteristics of solar radiation, PV cells, modules and arrays
37	VR19	01	B.Tech-Civil Engineering	1002193160	c Energy Systems	CO3	Design of Stand-Alone PV Schemes with battery energy storage and grid- connected PV schemes
	VR19	01	B.Tech-Civil Engineering			CO4	Analyse the system level issues related to PV energy systems
	VR19	01	B.Tech-Civil Engineering			COI	Understand the basic terminology used in object-oriented programming
38	VR19	01	B.Tech-Civil Engineering	1005103160	Programmin	CO2	Describe the object-oriented programming approach in connection with C++

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ا ناد	VR19	01	B.Tech-Civil Engineering	10015416001	g in C++	(3)4	Apply the concepts of object-oriented programming
	VR19	01	B.Tech-Civil Engineering			CO4	Apply virtual and pure virtual function and complex programming situations
	VR19	01	B.Tech-Civil Engineering			CO1	Summarize robot components, configurations and different end effectors
39	VR19	01	B.Tech-Civil Engineering	1003193160	INDUSTRI AL ROBOTICS	CO2	Select a robot for a given application and illustrate the working principles of various actuators and sensors that can be used in the manipulator, control system that can be used as well as the method of programming the robot
	VR19	01	B.Tech-Civil Engineering			CO3	Analyse a given serial manipulator kinematically and dynamically
	VR19	01	B.Tech-Civil Engineering			CO4	Derive as well as analyse the equation of trajectory that the end-effector should follow given the boundary conditions
	VR19	01	B.Tech-Civil Engineering	1001193180		COI	Analyse a complex engineering problem and to apply principles of civil engineering and relevant disciplines to identify solutions
40	VR19	01	B.Tech-Civil Engineering		TECHNIC AL SEMINAR	CO2	Design, implement, and evaluate a solution to meet the requirements in the context of the civil engineering program's discipline
	VR19	01	B.Tech-Civil Engineering			CO3	Apply civil engineering fundamentals to produce proper solutions to real world problems.
	VR19	01	B.Tech-Civil Engineering			CO4	Recognize professional responsibilities and make informed judgments in civil practice based on legal and ethical principles.
	VR19	01	B.Tech-Civil Engineering		UNIVERS	COI	Relate Ethical Human Values
	VR19	01	B.Tech-Civil Engineering	1,000,001,00	AL HUMAN VALUES	CO2	Apply Engineering knowledge for societal benefits
41	VR19	01	B.Tech-Civil Engineering	- 1099193130	AND PROFESSI ONAL ETHICS	CO3	Demonstrate responsibility for Safety, Risk & rights
	VR19	01	B.Tech-Civil Engineering			CO4	Outline the various Current Global Issues
	VR19	01	B.Tech-Civil Engineering			COI	Illustrate basic insights of management principles

	VR19	01	B.Tech-Civil Engineering			CO2	Summarize Production process, and Inventory techniques			
42	VR19	01	B.Tech-Civil Engineering		Managemen t Science	CO3	Apply Strategies and policies to functional areas			
	VR19	01	B.Tech-Civil Engineering			CO4	Understand Contemporary management Practices			
43	VR19	01	B.Tech-Civil Engineering	100110000	DESIGN OF STEEL	COI	Identify the failure modes of bolted and welded different connections, and determine their Understanding 1 design strengths.			
40	VR19	01	B.Tech-Civil Engineering	1001193201	STRUCTU RES	CO2	analyze and design tension members xompression members and beams			
	VR19	01	B.Tech-Civil Engineering			CO3	create the solution for purlins to withstand the wind loads.			
	VR19	01	B.Tech-Civil Engineering			CO4	design and complecated structurelike plategrider -1			
	VR19	01	B.Tech-Civil Engineering			CO1	Understand the failure of some civil engineering constructions due to geological drawbacks through some case histories			
	VR19	01	B.Tech-Civil Engineering		ENGINEER ING GEOLOGY	ENGINEER	ENGINEER	ENGINEER	CO2	Differentiate various rock forming minerals and economic minerals based on their physical properties and distinguish igneous, sedimentary and metamorphic rocks based on megascopic properties
44	VR19	01	B.Tech-Civil Engineering	1001193202		CO3	Describe the common geological structures associate within different rock strata and classify			
	VR19	01	B.Tech-Civil Engineering			CO4	Investigate the project site or site selection for mega/mini civil engineering projects like Dams, Tunnels, disposal sites etc applying geological and geophysical methods such as Electrical resistivity method, seismic methods, gravity methods etc.			
	VR19	01	B.Tech-Civil Engineering			COI	Understand the preparation of an Abstract Estimate and detailed estimate of building			
	VR19	01	B.Tech-Civil Engineering	1	ESTIMATI	CO2	Calculate the quantity of materials required for civil works as per specifications			
45	VR19	01	B.Tech-Civil Engineering	1001193203	ON SPECIFICA	CO3	Determine earth work quantity for roads and canals			
	VR19	01	B.Tech-Civil Engineering		TIONS & CONTRAC	CO4	Design bar bending schedule for reinforcement works, identify specifications and tendering process for contracts and create various tender documents for bidding purpose			
	VR19	01	B.Tech-Civil Engineering		ADMANDE	CO1	Analyze the two hinged and three hinged arches for different support levels			
46	VR19	01	B.Tech-Civil Engineering	1001102250	ADVANCE D STRUCTU	CO2	Analyze structures using portal and cantilever methods			
+0	VR19	01	B.Tech-Civil Engineering	1001193250	RAL ANAI YSIS	CO3	Analyze Cable structures and plastic behavior of structures			

	VR19	01	B.Tech-Civil Engineering			CO4	Analyze structures using Kani's and Matrix methods.
	VR19	01	B.Tech-Civil Engineering	1001193251		CO1	Have knowledge on air pollutant control devices and the NAAQ standards.
	VR19	01	B.Tech-Civil Engineering		ENVIRON MENTAL	CO2	Differentiate the treatment techniques used for solid and industrial wastewater treatment methods.
47	VR19	01	B.Tech-Civil Engineering		1 6	CO3	Appreciate the methods of environmental sanitation and the management of community facilities without spread of epidemics.
	VR19	01	B.Tech-Civil Engineering			CO4	Appreciate the importance of sustainable development while planning a project or executing an activity.
	VR19	01	B.Tech-Civil Engineering			CO1	Prepare the soil investigation report by using suitable field test
40	VR19	01	B.Tech-Civil Engineering	1001102252	GEOTECH NICAL	CO2	Analyze stability of slopes using suitable methods
48	VR19	01	B.Tech-Civil Engineering	1001193252	ENGINEER ING-II	CO3	Calculate the earth pressure values for design of retaining structures
	VR19	01	B.Tech-Civil Engineering			CO4	Determine the bearing capacity of the soil using different theories
	VR19	01	B.Tech-Civil Engineering		HYDRAUL IC STRUCTU RES	COI	Correlate Water requirement of different crops in each season.
49	VR19	01	B.Tech-Civil Engineering	1001193253		CO2	Design lined & unlined canalwithout impacting the surroundings during floods.
4	VR19	01	B.Tech-Civil Engineering			CO3	distinguish differentdrainage works and regulation works
	VR19	01	B.Tech-Civil Engineering			CO4	analyse the safety andstabilioty of gravity dams
	VR19	01	B.Tech-Civil Engineering	- 1001193254	SUBSURF	CO1	Plan subsurface investigation based on the requirement of project and site condition
	VR19	01	B.Tech-Civil Engineering		ACE INVESTIG ATION	CO2	Execute subsurface exploration tests, collect disturbed/undisturbed samples for laboratory tests and suggest design parameters
9	VR19	10	B.Tech-Civil Engineering		AND INSTRUM ENTATIO N	CO3	Adopt suitable methods for estimation of soil properties required for design
	VR19	01	B.Tech-Civil Engineering			CO4	Work with relevant instrumentation required for characterizing the soil and rock with interdisciplinary approach.
51	VR19	01	B.Tech-Civil Engineering		TRAFFIC ENGINEER	CO1	Analyse Traffic Problems And Plan For Traffic Systems Various Uses Based on Traffic Surveys
	VR19	01	B.Tech-Civil Engineering			CO2	Design of intersection facilities including pedestrian facilities and cycle tracks
	VR19	01	B.Tech-Civil Engineering	1001193255		CO3	Design of control devices for improving vehicular flows and Develop efficient Traffic Management Systems.
	VR19	01	B.Tech-Civil Engineering			CO4	Application of Traffic demand and management techniques for improving vehicular flows.
	VR19	01	B.Tech-Civil Engineering			CO1	Explain the concepts and drive train configurations of electric drive vehicles.

	VR19	01	B.Tech-Civil Engineering			CO2	Describe different electric propulsion systems and energy storage devices
52	VR19	01	B.Tech-Civil Engineering	1002193260	ELECTRIC VEHICLES	CO3	Discuss the technology, design methodologies and control strategy of electric vehicles.
	VR19	01	B.Tech-Civil Engineering			CO4	Explain battery charger topologies for electric vehicles and discuss how the sizing of the drive system is done and energy management strategies used in electric.
	VR19	01	B.Tech-Civil Engineering	1019193260		COI	Understand the Architecture, protocols and applications of IoT.
	VR19	01	B.Tech-Civil Engineering		Internat of	CO2	Analyse the communication protocols and standards used in IoT
53	VR19	01	B.Tech-Civil Engineering		Internet of Things	CO3	Design the simple IoT applications to monitor or control IoT devices using simulation or hardware
	VR19	01	B.Tech-Civil Engineering			CO4	implement real time applications
	VR19	10	B.Tech-Civil Engineering			COI	Relate the procedural and object paradigm, with real world entities
54	VR19	01	B.Tech-Civil Engineering	1005193261	OOPS THROUGH	CO2	Use Exception handling and multithreading mechanisms to create efficient software application
	VR19	01	B.Tech-Civil Engineering		JAVA	CO3	Implement GUI Applications with modern tools
	VR19	01	B.Tech-Civil Engineering			CO4	Design various layouts along with applet usage
	VR19	01	B.Tech-Civil Engineering	- 1001193210	COMPUTE R AIDED CIVIL ENGINEER ING DRAWING	COI	Make use of the conventional signs and symbols
55	VR19	01	B.Tech-Civil Engineering			CO2	Draw the plan and sectional elevation of footing
23	VR19	01	B.Tech-Civil Engineering			CO3	Design the plan, elevation and section of single storied and multi storied building
	VR19	01	B.Tech-Civil Engineering			CO4	Develop the plan and cross section of doglegged staircase
	VR19	01	B.Tech-Civil Engineering		MINI PROJECT- II	COI	Analyse a complex engineering problem and to apply principles of civil engineering and relevant disciplines to identify solutions
56	VR19	10	B.Tech-Civil Engineering	1001193270		CO2	Design, implement, and evaluate a solution to meet the requirements in the context of the civil engineering program's discipline
50	VR19	01	B.Tech-Civil Engineering			CO3	Apply civil engineering fundamentals to produce proper solutions to real world problems.
	VR19	01	B.Tech-Civil Engineering			CO4	Recognize professional responsibilities and make informed judgments in civil practice based on legal and ethical principles.
	VR19	01	B.Tech-Civil Engineering	1001194111	GIS and	COI	Retrieve the information content of remotely sensed data
57	VR19	01	B.Tech-Civil Engineering		Remote Sensing Application s	CO2	Compute an image visually and digitally with digital image processing techniques.
	VR19	01	B.Tech-Civil Engineering			CO3	illustrate GIS applications in Civil Engineering domain

ſ	VR19	01	B.Tech-Civil	1	Γ	CO4	Analyze spatial and attribute data for solving
	VKI9	01	Engineering			CO4	spatial problems
	VR19	01	B.Tech-Civil			COI	Design of beams, columns and frames for RCC
	VKIS	01	Engineering		L	COI	and steel by using Staad pro
	3/10.10	01	B.Tech-Civil		COMPUTE	CO2	Design of slabs, towers, buildings and water
	VR19	01	Engineering		R AIDED -	CUZ	tank by using Staad pro
58				1001194110	DESIGN	C03	At the end of the course the student acquires
				_	LAB -		hands on experience in design
			B.Tech-Civil				Prepare structural drawings for concrete / steel
	VR19	10	Engineering		-	CO4	structures normally encountered in Civil
			Linginicetting				Engineering practice
					1		Understand the concepts of pre-stressing in
	VR19	01	B.Tech-Civil			COI	concrete structures and identify the materials
	VKIS	01	Engincering			COI	for pre-stressing
				]			
	VR19	01	B.Tech-Civil	ar f		CO2	Calculate the stresses, losses and deflections o
59	YIKI		Engineering	1001194150	Prestressed		pre and post tensioned memebers.
,,	VR19	01	B.Tech-Civil	1001174150	Concrete	CO3	Design flexure and shear reinforcement for
	VKIS	01	Engineering		1 [		prestressed concrete
					1 1		Interpet the torsional reinforcement and
	VR19	01	B.Tech-Civil			CO4	calculate the anchorage zone stresses in pre an
	VKIS	UI	Engineering		1 1	C04	post tension.
	VR19	01	B.Tech-Civil			COI	Design geometrics in a railway track
	VKIS	O1	Engineering				
	VR19	01	B.Tech-Civil		Railway, Airport and Harbour	CO2	Illustrate the master plan and site selection for
60			Engineering				Railway station and airport
-			B.Tech-Civil				Design geometrics for airfield pavements
	11111		Engineering	1	Engineering		
	VR19	01	B.Tech-Civil			CO4	Plan, construct and maintain docks and
			Engineering				harbours
	VR19	01	B.Tech-Civil Engineering		INDUSTRI AL WASTE AND WASTE WATER	COI	Distinguish between the quality of domestic
							and industrial water requirements and
				- -			wastewater quantity generation
	VR19	0.1	B.Tech-Civil Engineering	1001194155		CO2	Distinguish between the quality of domestic
		01					and industrial water requirements and
							wastewater quantity generation
	VR19	01	B.Tech-Civil		ENGINEER	CO3	Describe the common methods of treatment in
			Engineering		ING		different industries
	VR19	01	B.Tech-Civil				Explain operational problems of common
			Engineering				effluent treatment plant
	VR19	01	01 B.Tech-Civil Engineering			CO1	Construct network diagrams and compute
							critical path, slack and floats for a given
				4	CONSTRU		network diagram.
	VR19	9 01	B.Tech-Civil	- 1001194153	CTION		Apply techniques to optimize time, cost and
62			Engineering				manpower resources.
	VR19	9 01	B.Tech-Civil		OGY AND		Identify the suitable equipment for performin
	, 117		Engineering	_	MANAGE		different construction operations.
	VR19	01	01 B.Tech-Civil Engineering		MENT		Understand the fundamentals of quality
						CO4	management and safety management systems
	1		Ziigiiicoiiiig	1			in construction industry
						1	Understand The basic of components of
	VR19	0.1	01 B.Tech-Civil Engineering		1	COI	pavement, stresses occurred in pavement and
	AKIA	UI.			PAVEMEN		the basic elements in design of flexible
			1		TEAVEIVIEN		

63	VR19	01	B.Tech-Civil	1001194156	ANALYSIS	CO2	Design of the flexible pavements along with
	VR19	01	Engineering B.Tech-Civil Engineering		AND DESIGN	CO3	various Standard methods  Design of the Rigid pavements along with various standard methods
	VR19	01	B.Tech-Civil Engineering			CO4	Analysis of Temperature stresses, reinforced slabs
	VR19	01	B.Tech-Civil Engineering	1001194153	ENVIRON MENTAL	COI	Understand evaluate and create the basic concept of environmental impact assessment, Flow of EIA, Types of environmental Impacts
64	VR19	01	B.Tech-Civil Engineering		IMPACT ASSESSM	IMPACT CO2	Implement different methods in preparing an Environmental Impact Statement
	VR19	01	B.Tech-Civil Engineering		ENT AND MANAGE	CO3	Identify various mitigation measures that can be used.
	VR19	01	B.Tech-Civil Engineering		MENT	CO4	Access environmental impacts and indicate their potential risks through environmental indices and indicators
	VR19	01	B.Tech-Civil Engineering		SOIL DYNAMIC S AND FOUNDAT IONS	CO1	Analyse the vibration related problems in foundations
65	VR19	01	B.Tech-Civil Engineering	1001194158		CO2	Design the various machine foundations with respect to Indian standards
	VR19	01	B.Tech-Civil Engineering			CO3	Conduct the various types of tests to find the dynamic properties of the soil
	VR19	01	B.Tech-Civil Engineering			CO4	Calculate the dynamic bearing capacity of soil under shallow and pile foundations
	VR19	01	B.Tech-Civil Engineering	1001194157	FINITE ELEMENT METHOD	CO1	Understand the basic concepts in Finite element method
66	VR19	01	B.Tech-Civil Engineering			CO2	Analyse the one dimensional and two- dimensional problems in finite element method
	VR19	01	B.Tech-Civil Engineering			CO3	Solve one dimensional problem
	VR19	01	B.Tech-Civil Engineering			CO4	Apply the shape functions and Isoperimetric elements in finite element evaluation
	VR19	01	B.Tech-Civil Engineering	1001194154	GROUND IMPROVE MENT TECHNIQ UES	COI	Decide the suitable ground improvement method and their suitability to different field situations
	VR19	01	B.Tech-Civil Engineering			CO2	Design a reinforced earth embankment and check its stability.
67	VR19	01	B.Tech-Civil Engineering			CO3	Analyse the various functions of Geosynthetics and their applications in Civil Engineering practice
	VR19	01	B.Tech-Civil Engineering			CO4	Analyse the various functions of Geosynthetics and their applications in Civil Engineering practice
	VR19	01	B.Tech-Civil Engineering			COI	Discuss the fundamental principles of nanotechnology and their application to biomedical engineering

68	VR19	01	B.Tech-Civil			CO2	Apply engineering and physics concepts to the
	VKIS		Engineering				nano-scale and non- continuum domain.
			B.Tech-Civil		NANO		Choose appropriate synthesis technique to
	VR19	01	Engineering	1003194160	TECHNOL	CO3	synthesize quantum nanostructures of desired
					OGY		size, shape and surface properties
	VR19	01	B.Tech-Civil Engineering			CO4	Evaluate state-of-the-art, characterization methods for nanomaterials, and CO4 determine nanomaterial safety and handling methods required during characterization
		24	B.Tech-Civil				Understand the working principle of steam
	VR19	01	Engineering	ş.i		CO1	power plant and its circuits
69	VR19	01	B.Tech-Civil Engineering	1003194154	POWER PLANT ENGINEER ING	CO2	Illustrate the working of diesel and gas power plant and its components and compare it with steam power plant
	VR19	01	B.Tech-Civil Engineering			CO3	Evaluate the performance of Hydro power plants and explain the components and working nuclear power plants
	VR19	01	B.Tech-Civil Engineering			CO4	Analyze the economics involved in power plant
	VR19	01	B.Tech-Civil Engineering	1005194160	INTRODU CTION TO MACHINE LEARNIN G	COI	Recognise the characteristics of machine learning that make it useful to real- world problems
70	VR19	01	B.Tech-Civil Engineering			CO2	Characterise the machine learning algorithms as supervised, semi-supervised and unsupervised
	VR19	01	B.Tech-Civil Engineering			CO3	Use support vector machine, regularized regression algorithms
	VR19	01	B.Tech-Civil Engineering			CO4	Understand the concept behind neural networks for learning non-linear functions
71	VR19	01	B.Tech-Civil Engineering			COI	Analyse the entrepreneurship design and the business environment
	VR19	01	B.Tech-Civil Engineering	1001194270	MAIN PROJECT	CO2	Define industrial policies
	VR19	01	B.Tech-Civil Engineering		/INTERNS HIP	CO3	Explain the business preparation
	VR19	01	B.Tech-Civil Engineering			CO4	Integrate the knowledge of various courses and their applications in industry



